Special issue Innovation development and digital technologies for sustainable healthcare ecosystems

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The use of information and communication technologies (ICT) is a twenty-first-century approach that is patient-centered and protects patients, physicians, and others. Where key actors are more interested in social value creation than in value capture (Santos, 2012), health services ecosystems can generate strongly positive externalities and be sustainable. Digital ICT technologies spanning robotics, artificial intelligence, remote patient monitoring, and telemedicine have improved equitable access to care and participated in the sustainable agenda, nurturing an ecosystem of caregiving interaction. Therefore, framing research on information systems in healthcare related to the SDGs can be helpful in the innovation of healthcare organizations in dealing with the pandemic and the post-pandemic. The primary purpose of this special issue is to identify the role and relevance of ICT in healthcare ecosystems while promoting sustainability. Various topics emerge within this special issue, such as Governance models, institutional relations, and social capital; the role of ICT in the healthcare system changes and finally, the use of digital innovations and ICT in pandemics and post-pandemics. In this special issue, we build on this knowledge base and expand the research direction on developing innovation and digital technologies for sustainable health ecosystems.

Keywords: Healthcare Ecosystems, Sustainable Innovation, Digital Technologies.

L'uso delle tecnologie dell'informazione e della comunicazione (ICT) è un approccio del XXI secolo centrato sul paziente e che protegge pazienti, medici e altri attori. Dove gli attori chiave sono più interessati alla creazione di valore sociale che alla cattura di valore (Santos, 2012), gli ecosistemi dei servizi sanitari possono generare esternalità fortemente positive ed essere sostenibili. Le tecnologie digitali ICT che abbracciano la robotica, l'intelligenza artificiale, il monitoraggio remoto dei pazienti e la telemedicina hanno migliorato l'accesso equo alle cure e partecipato all'agenda sostenibile, alimentando un ecosistema di interazione nella cura. Pertanto, inquadrare la ricerca sui sistemi informativi nella sanità in relazione agli Obiettivi di Sviluppo Sostenibile può essere utile nell'innovazione delle organizzazioni sanitarie nel gestire la pandemia e il post-pandemia. Lo scopo principale di questo numero speciale è identificare il ruolo e la rilevanza delle ICT negli ecosistemi sanitari promuovendo la sostenibilità. Diversi argomenti emergono in questo numero speciale, come modelli

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di governance, relazioni istituzionali e capitale sociale; il ruolo delle ICT nei cambiamenti del sistema sanitario e, infine, l'uso di innovazioni digitali e ICT in pandemie e post-pandemie. In questo numero speciale, costruiamo su questa base di conoscenza ed espandiamo la direzione della ricerca nello sviluppo di innovazioni e tecnologie digitali per ecosistemi sanitari sostenibili.

Parole chiave: ecosistemi sanitari, innovazione sostenibile, tecnologie digitali.

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During a crisis, standard practices, routines, and processes are disrupted (Pearson & Clair, 1998). The pandemic highlighted the necessity of collective sense making and innovation overcoming traditional schemes among the leading actors to protect the commons to which health belongs (Dietz et al.*, 2003; Hess & Ostrom, 2007). The literature acknowledges that the critical challenge for individuals and organizations facing a crisis is to respond appropriately through readjustments and recovery in their emergent organizing (Williams* et al.*, 2017). In addition to quest of keeping people safe, including the public, patients, and health workers, another significant advantage is providing broad access to caregivers. Healthcare organizations must develop appropriate traits of flexibility and innovation to deal with these pressures (De Simone, 2017; Franco & De Simone, 2011). A practical Healthcare Service Ecosystem must emphasize the notion of well-being co-creation, which entails a dynamic interplay of actors, in the face of the challenges, with their ability to use the available resource pools equilibrating them at the different system levels (Finsterwalder & Kuppelwieser, 2020) to underscore resilience and sustainability.*

The use of information and communication technologies (ICT) is a twenty-first-century approach that is both patient-centered and protects patients, physicians, as well as others. Where key actors are more interested in value creation at the societal level than value capture (Santos, 2012), healthcare service ecosystems can strongly generate positive externalities and be sustainable. Digital ICT technologies spanning robotics, artificial intelligence, remote patient monitoring, and Telehealth have improved equitable access to care and participated in the sustainable agenda (Mohtar & Badr, 2022), among diverse stakeholders (Kostoska & Kocarev, 2019), powering an ecosystem of caregiving interaction (Badr et al.*, 2018). Remote care reduces the use of resources in health centers and improves access to care while minimizing the risk of direct transmission of the infectious agent from person to person, especially in non-emergency/routine care and in cases where services do not require direct patient-provider interaction. Therefore, framing of information systems research in healthcare linked to the SDGs can be helpful for the innovation of healthcare organizations in facing the pandemic and post-pandemic. The primary purpose of this special issue is to identify the role and relevance of ICT in healthcare ecosystems while promoting sustainability.*

That said, crises open opportunities for rapid innovation. Established working methods are replaced by alternative practices guided by institutional logic and with little time for extended deliberation. An ***institutional logic perspective*** *can be helpful in providing insight into this process of digital innovation. This special issue selected papers (full research papers, systematic reviews, experience-in-the-field reports, case studies) that identify the current state of this research area. From this literature, different themes emerge such as: a) Governance models, institutional relationships, and social capital; b) The role of ICT in the healthcare system changes and finally; c) The Use of digital innovations and ICT in pandemics and post pandemics. In this special issue, we build on this knowledge base and expand the direction of research on the Innovation development and digital technologies for sustainable healthcare ecosystems. In Tab. 1, we present each article in more detail, highlighting their contributions.*

Tab. 1 – Summary: The list of the papers of the special issue

Line of inquiry	Title	Author
a) Governance models, institutional relationships, and social capital:	1. The resilience of the regional ecosystems: Healthcare-service organizations, public agents and communities in the time of Covid-19	R. Troisi, S. De Simone and M. Franco
b) Use of digital innovations and ICT in pandemics and post pandemics:	1. Are ICT innovating doctor-patient relationships in chronic diseases? Two case studies before and during the pandemic	S. Mele, G. Cinotti and S. Bonomi
	2. Virtual healthcare communities of practice: an Italian experience during the Covid-19 pandemic	R. Agrifoglio, P. Briganti, C. Metallo and L. Varriale
	3. Impact of telemedicine on home healthcare: an empirical analysis	A.M. Melina, R. Reina, and W. Vesperi
	4. Digital health, telemedicine, and patient-centeredness: new trends for Italian healthcare after Covid-19	G. Piscopo, S. Mormile, P. Adinolfi and A. Piotrowski

Content Summary

"Virtual healthcare communities of practice: an Italian experience during the Covid-19 pandemic" by Agrifoglio, Briganti, Metallo and Varriale deals with bottom-up citizen engagement in healthcare emergencies. It adopts a qualitative approach based on a case-study, i.e the experience of "Comitato Cura Domiciliare Covid". This study shows the importance of sharing knowledge and supporting the local community in periods of high pressure on the health system.

"Digital health, telemedicine, and patient-centeredness: new trends for Italian healthcare after Covid-19" by Piscopo, Mormile, Adinolfi, Piotrowski explores the transformative impact of the Covid-19 pandemic on the Italian healthcare sector. Through Web Content Analysis, the study identifies emerging responses such as digital health, telemedicine, and patient-centeredness, offering insights for navigating future challenges in healthcare.

"Impact of telemedicine on home healthcare: an empirical analysis" by Melina, Reina and Vesperi. This paper maps the digital solutions adopted in the Calabria region by health organizations during the Covid-19 pandemic to explicitly analyze the role of telemedicine in supporting home healthcare during Covid-19. This study provides insights into the potential of telemedicine to help home healthcare as a response to the Covid-19 crisis now and in the future.

"Are ICT innovating doctor-patient relationships in chronic diseases? Two case studies before and during the pandemic" by Mele, Cinotti and Bonomi aims to investigate how technologies in healthcare have changed the relationships between patients and physicians, doctors and caregivers, and existing organizational paradigms in chronic diseases of young patients, also observing the change caused by the pandemic. Through two case studies, the results demonstrate that telemedicine is an increasingly essential and integrated system in the care process even in the specific and disruptive Covid-19 emergency.

"The resilience of the regional ecosystems: Healthcare-service organizations, public agents and communities in times of Covid-19" by Troisi, De Simone and Franco study compares regional ecosystems' resilience regarding their ability to contain the spread of Covid-19. This is carried out through institutional measures and spontaneous community behavior, that protect the specificity of each area, to preserve public health and institutional actions to strengthen the healthcare system in dealing with the pandemic.

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References

Badr N.G., Sorrentino M., & De Marco M. (2018). Health Information Technology and Caregiver Interaction: Building Healthy Ecosystems. In: Satzger G., Patrício L., Zaki M., Kühl N., Hottum P. (eds). *Exploring Service Science. IESS 2018. Lecture Notes in Business Information Processing*, vol. 331. Cham: Springer. DOI: 10.1007/978-3-030-00713-3_24.

De Simone S. (2017). Isomorphic Pressures and Innovation Trends in Italian Health Care Organizations. *International Journal of Business and Management*, 12(6): 26-32.

Dietz T., Ostrom E., & Stern P.C. (2003). The struggle to govern the commons. *Science*, 302(5652): 1907-1912.

Esteves A.M., Genus A., Henfrey T., Penha-Lopes G., & East M. (2021). Sustainable entrepreneurship and the Sustainable Development Goals: Community-led initiatives, the social solidarity economy and commons ecologies. *Business Strategy and the Environment*, 30(3): 1423-1435.

Finsterwalder J., & Kuppelwieser V.G. (2020). Intentionality and transformative services: Wellbeing co-creation and spill-over effects. *Journal of Retailing and Consumer Services*, 52, 101922.

Franco M., De Simone S. (2011). *Organizzazioni sanitarie: dal design al management*. Milano, Italia: McGraw-Hill.

Hess C., & Ostrom E. (Eds.) (2007). *Understanding knowledge as a commons: From theory to practice* (p. 24). Cambridge, MA: MIT press.

Kostoska O., & Kocarev L. (2019). A novel ICT framework for sustainable development goals. *Sustainability*, 11(7), 1961.

Mohtar L., & Badr N.G. (2022). Telehealth: A Viable Option for Optimizing Health System Performance during COVID-19: Call to Action for Future Pandemics. In *HEALTHINF* (pp. 279-288).

Pearson C.M., & Clair J.A. (1998). Reframing crisis management. *Academy of management review*, 23(1): 59-76.

Santos F.M. (2012). A positive theory of social entrepreneurship. *Journal of business ethics*, 111(3): 335-351.

Williams T.A., Gruber D.A., Sutcliffe K.M., Shepherd D.A., & Zhao E.Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of Management Annals*, 11(2): 733-769.

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