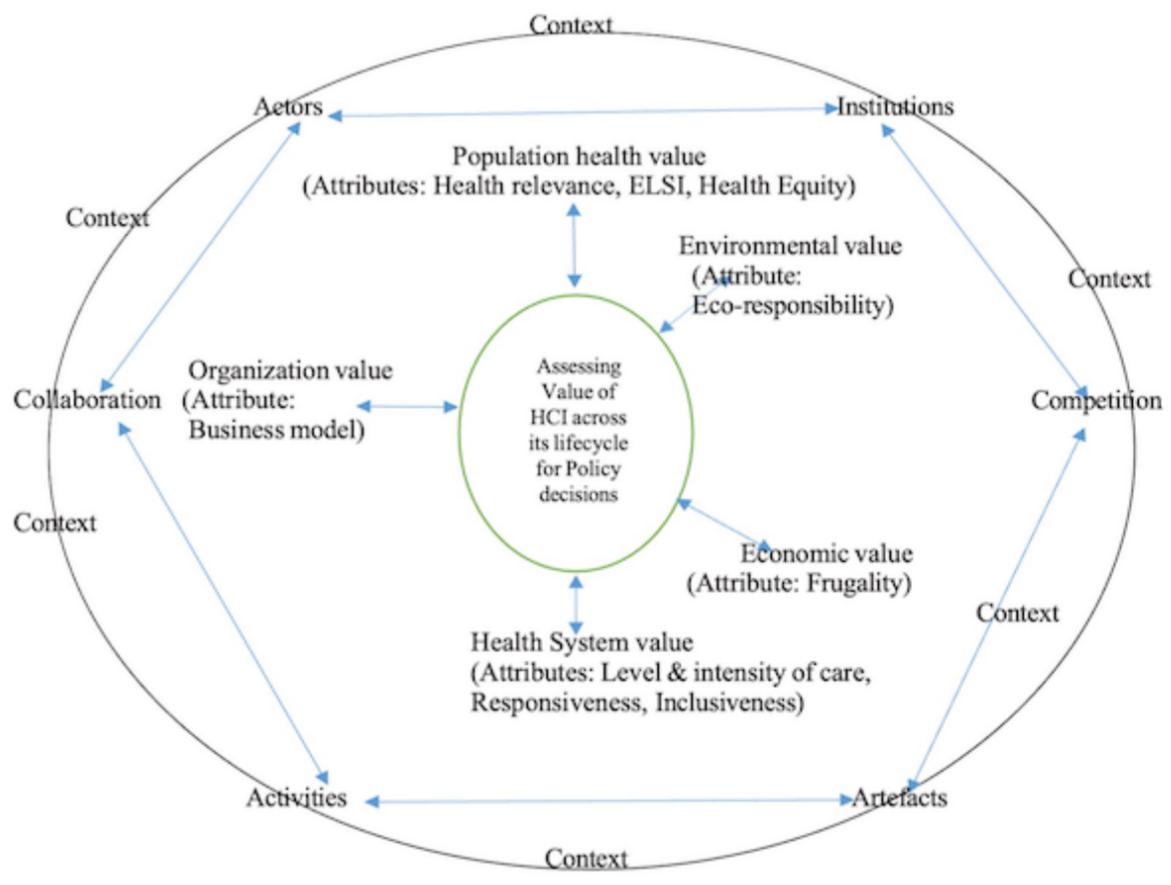


# ASSESSING THE VALUE OF FUTURE TECHNOLOGIES FOR HEALTH, JUSTICE AND PLANET

<p><b>Introduction</b></p> <p>There has been tremendous technological innovation in the healthcare sector, especially in the application of Artificial Intelligence (AI) and digital technologies, which have emerged as the ‘new normal’. With the demographic shift and increase in elderly population, home based care and remote monitoring of patients is increasingly being dependent on such technologies. However, the use of these health technologies has also raised serious ethical and social concerns. Also, not all healthcare technologies add value or are sustainable. Hence, sustainable healthcare technologies must be identified early, adapted contextually, and scaled up effectively by policy makers, to meet the healthcare needs of society without compromising the principles of justice and equity. Given the complex interactions between health technology and policy, coupled with an uncertain future, policymakers are faced with tough decisions.</p>	<p><b>Objective</b></p> <p>In this context, this research discusses the emerging question of how science can help in this decision making in the evolving ‘new normal’ of innovative technologies.</p> <p><b>Methodology</b></p> <p>The research used inductive epistemology and applied the principles of pragmatism and historicity to explore the role of two existing scientific mechanisms, Health Technology Assessment (HTA) and Responsible Innovation in Health (RIH), as a source of evidence in policies regulating the emergence and use of innovative health technologies. Using inductive epistemology, the linkages between HTA and RIH within a health innovation ecosystem framework was analysed for the future application of an integrated approach to address societal challenges.</p>
<p><b>Results/Major Findings</b></p> <p>RIH and HTA concepts, practices, and values have developed over time. Using an ecosystems framework and adapting the RIH value attributes with the normative principles of HTA emerging from its new definition, an integrated model is proposed (Figure). The first attribute of health relevance ensures that the issue is a societal need. Country/region-specific epidemiological data and health systems data available in global or local databases would be helpful to answer this question. Attributes two and three (ELSIs and equity) are closely linked, and HTA needs to prioritize these attributes in determining the value of health innovations. Evidence on this attribute will be enriched by contextual analysis, evidence from social experiments, qualitative evidence, and mixed methods design of HTA. Early engagement of relevant stakeholders (inclusiveness attribute) is critical to ensure ownership of the process and product of HTA, which, in turn, will contribute to better acceptability of the innovation and facilitate its adoption and diffusion. The new definition of HTA has brought the focus explicitly on health system responsiveness, which is the fifth attribute in the RIH tool. However, the level and intensity of care (sixth attribute) is yet to be assessed in current formal HTA techniques. The methods to capture cost and effectiveness data are well established in HTA to provide evidence on <i>value for money</i>. This, combined with <i>value for many</i>, constitutes the RIH tool’s frugality (seventh attribute). HTA can play an important role in guiding policy decisions in this attribute by assessing affordability, ease of use, and context-specific optimized performance of healthcare innovations. Regarding the eighth attribute (business model), current HTA practices focus on the health innovation as the unit of analysis and not the organization producing the innovation. Whether HTA should include such a “business model” assessment along with innovation assessment within its scope of work and whether it would be pragmatically feasible needs further discussion. Technology and climate change are the two seismic shifts affecting the future of this planet, and by incorporating eco-responsibility (ninth attribute) in the assessment of innovative technologies, HTA has the potential to contribute toward eco-friendly technology in the future. Although attempts have been made to capture the impact of technology on the environment through HTA, it needs more methodological refinements</p>	<p><b>Conclusion/Lessons Learned</b></p> <p>Healthcare innovation is a complex phenomenon, and a holistic approach to innovation is the key to generating, adapting, diffusing, and sustaining such innovations as they are embedded in policy, institutional, and societal contexts. The integrated approach describes the potential and scope for determining the value of health innovations through explicit methods and robust analysis. This integrated ecosystem approach is conceptualized as evolving and flexible, which can be adapted to local contexts based on resources, capacities, and data availability.</p> <p><b>Policy Recommendations</b></p> <p>Innovation policies should be broader than merely identifying and contextualizing new technologies. They should be more democratic and inclusive and discussing the kind of society we want for the future and hence provide scope for democratizing the future in the making. This integrated approach on the value of health innovation is designed as a tool for providing evidence and guidance to policy makers and stakeholders for co-creation of innovative health technologies toward creating sustainable and inclusive societies for the future.</p>  <p><b>Contact Information:</b>  Kanchan Mukherjee (<a href="mailto:kanch@tiss.ac.in">kanch@tiss.ac.in</a>)  Professor, School of Health Systems Studies,  Tata Institute of Social Sciences, Mumbai, India.  Webpage: <a href="https://tiss.ac.in/view/9/employee/kanchan-mukherjee/">https://tiss.ac.in/view/9/employee/kanchan-mukherjee/</a></p> 