

The circular lifecycle perspective around the Health Business Ecosystem – a multi stakeholder mapping perspective

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Purpose

The lenses of the business ecosystem may help to face the significant barriers regarding circular business development in the sense of circumventing the challenges of one of the most complex and regulated systems in the world, the Healthcare Business Ecosystem. In this sense, this paper intends to deepen the understanding of the stakeholders' relationships involved in an example of a Brazilian Health Care business ecosystem developed around some Product-Service System (PSS) offers of complex medical equipment. Adding to this perspective, we explored how the PSSs business model archetype were being developed under the circular business umbrella lenses, taking into consideration the perceptions of the multiple stakeholders involved.

Literature Review

The multiple sectors that affect health, frequently driven by various stakeholder and interest groups, have different cultures, values, and vocabularies and usually lack experience working together, which can also likely hinder partnership and collaboration (DELOITTE, 2019). A systemic perspective towards exploring the stakeholder networking and innovation capacities across ecosystems layers is needed (Pombo-Juarez et al., 2017) to understand the health sector better. The synergies among health care ecosystem actors influence the value co-creation factors and outcomes at the different levels, integrating “different actor roles, technology, and information while facilitating ecosystem coordination and co-evolution” (BEIRÃO; PATRÍCIO; FISK, 2017, p. 227).

In this context, considering the latent potential of Product-Service Systems (PSS), it is mandatory to understand how the Business Ecosystem (BE) configuration can interlock the stakeholders to “boost their solutions to a more sustainable level” (GUZZO et al., 2019, p. 2). According to Amor et al. (2018), such multi-actor perspective, different from the usual one sided PSS evaluation (customer point of view or provider perspective), is needed to manage the economic, organisational and new social infrastructure transitions to support the desired environmentally benign performance. The PSS network value must be intensified by all stakeholders (especially by policymakers); in this sense, it is crucial to add them all to this multi-actor perspective (MONT, 2002) to reach the expected performance.

Efforts have been made to understand the multi-layered perspective of Health Systems, leading to a systemic understanding of the challenges from international, national, regional and local innovation ecosystems (POMBO-JUÁREZ et al., 2017). The application of a more sustainable PSS in developing countries is still an underexplored area since they have to face the challenge of balancing economic growth with social and environmental considerations (NNOROM; OSIBANJO, 2008). According to Shokohyar et al. (2014), many developing countries are consumers of imported products from other countries, especially high tech embedded products/equipment. Such a situation has as a consequence that only the consumption and the end of life (EOL) phases occur in these countries. Therefore, theoretically, manufacturers and their representations tend to introduce more sustainable PSS schemes to manage usage and EOL phases. Such as the case of medical equipment in Brazil. The healthcare business ecosystem has undergone profound changes, and new business paradigms make

the Brazilian healthcare market “promising and attractive” compared to the rest of the world (Vargas et al., 2016; PwC Brasil, 2013, p. 3).

Nevertheless, companies in the medical diagnostics sector face significant challenges due to increasing exam capacity and market share. Large competing conglomerates tend to predominate in the health sector. The bargaining power is held basically by health insurance companies (Prieto and Carvalho, 2011), transforming the price per exam, metaphorically, into commodities. That is why the business ecosystem concept comes into the scene. According to Williamson and De Meyer (2012, p.26), ecosystem strategies allow organisations to coordinate "difficult-to-manage relationships with many different types of parties as well as “the exchange of knowledge between many, mutually dependent partners (p.30)”, which fits the challenges of improving healthcare PSS.

Methodological Procedures

The set of cases was chosen regarding product and service compositions ranging from MRI to complex sets of blood sample analysis machines provided to clinics and largely known hospitals in Brazil. Semi-structured interviews within 20 interdependent companies were performed, and the relationships between health providers, manufacturing/service companies, regulatory agencies, government, digitalisation companies, and hospitals/clinics were mapped and in-depth explored.

Findings

Among the findings, this paper presents the healthcare business ecosystem configuration with its main roles through the lenses of PSS life cycle stages. The main aspects of each stage are discussed within each PSS business modality: product-oriented, result oriented and use-oriented, emphasising circular economy aspects in emergent business opportunities influenced by the Business Ecosystem. Finally, a framework shows the integration of the main stakeholders’ groups of the chosen business ecosystem, hindering and fostering aspects of a more circular perspective of the business configuration.

Implications

This research contributes to broadening the understanding of the challenges regarding PSS implementation towards circular economy and the healthcare business ecosystem influence, suggesting future possible approaches to overcome them.

References

- AMOR, Mehdi Ben; LINDAHL, Mattias; FRANKELIUS, Per; ABDENNEBI, Hafedh Ben. Revisiting Industrial Organization : Product Service Systems Insight. *Journal of Cleaner Production*, [S. l.], 2018. DOI: 10.1016/j.jclepro.2018.05.145.
- BEIRÃO, Gabriela; PATRÍCIO, Lia; FISK, Raymond P. Value cocreation in service ecosystems: Investigating health care at the micro, meso, and macro levels. *Journal of Service Management*, [S. l.], v. 28, n. 2, p. 227–249, 2017. DOI: 10.1108/JOSM-11-2015- 0357.
- DELOITTE. 2019 Global health care outlook Shaping the future. [s.l: s.n.].
- GUZZO, Daniel; TREVISAN, Adriana Hofmann; ECHEVESTE, Marcia; MASCARENHAS, Janaina; COSTA, Hornos. Circular Innovation Framework : Verifying Conceptual to Practical Decisions in Sustainability-Oriented Product-Service System Cases. [S.l.], 2019.
- MONT, Oksana. Drivers and barriers for shifting towards more service-oriented businesses: Analysis of the PSS field and contributions from Sweden. *The Journal of Sustainable Product Design*, [S. l.], v. 2, n. 3/4, p. 89–103, 2002. DOI: 10.1023/B:JSPD.0000031027.49545.2b.

- NNOROM, I. C.; OSIBANJO, O. Overview of electronic waste (e-waste) management practices and legislations, and their poor applications in the developing countries. *Resources, Conservation and Recycling*, [S. l.], v. 52, n. 6, p. 843–858, 2008. DOI: 10.1016/j.resconrec.2008.01.004.
- POMBO-JUÁREZ, Laura; KÖNNÖLÄ, Totti; MILES, Ian; SARITAS, Ozcan; SCHARTINGER, Doris; AMANATIDOU, Effie; GIESECKE, Susanne. Wiring up multiple layers of innovation ecosystems: Contemplations from Personal Health Systems Foresight. *Technological Forecasting and Social Change*, [S. l.], v. 115, p. 278–288, 2017. DOI: 10.1016/j.techfore.2016.04.018.
- PRIETO, Vanderli Correia; DE CARVALHO, Marly Monteiro. Strategic alignment and performance: Brazilian companies in the medical diagnostics sector. *Service Industries Journal*, [S. l.], v. 31, n. 9, p. 1405–1427, 2011. DOI: 10.1080/02642060903576050.
- PWC BRASIL. The Healthcare market in Brazil. PricewaterhouseCoopers, [S. l.], 2013. Disponível em: <https://www.pwc.com.br/pt/publicacoes/setoresatividade/assets/saude/healthcare-tsp-13.pdf>.
- SHOKOHYAR, S.; MANSOUR, S.; KARIMI, B. A model for integrating services and product EOL management in sustainable product service system (S-PSS). *Journal of Intelligent Manufacturing*, [S. l.], v. 25, n. 3, p. 427–440, 2014. DOI: 10.1007/s10845-012-0694-x10.1007/s10845-011-0554-0;
- VARGAS, Ingrid; SUSANA, Amparo; PAEPE, Pierre De; REJANE, Maria; UNGER, Jean pierre. Barriers to healthcare coordination in market- based and decentralized public health systems : a qualitative study in healthcare networks of. *Health Policy and Planning*, [S. l.], v. 31, n. February, p. 736–748, 2016. DOI: 10.1093/heapol/czv126.
- WILLIAMSON, Peter James; MEYER, Arnoud De. Ecosystem advantage: how to successfully harness the power of partners. *California Management Review*, [S. l.], v. 55, n. 1, p. 24–46, 2012.