

Circularity within MedTech: Key factors influencing the adoption of circular practices

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The healthcare sector, a significant contributor to global carbon emissions, is at a critical juncture. MedTech companies, crucial within this sector, are challenged to adopt sustainable practices and reduce waste, aligning their advancements with global environmental and health objectives.

The purpose of this study has primarily been to increase interest and knowledge of circularity within the MedTech industry, but also to examine how Swedish MedTech companies integrate environmental and financial sustainability into their business models by adopting circular economy (CE) practices. The study develops a roadmap outlining practical steps for innovation and adaptation to facilitate the integration of circular economy practices.

Through a comprehensive literature review and multiple case study, the research aims to address three research questions:

RQ1 *What are the key drivers and barriers within the MedTech industry that influence the adoption of circular economy practices?*

RQ2 *What key factors influence the successful adoption of circular business models in MedTech companies?*

RQ3 a) *What key factors influence the adoption of circular business model innovation?*

b) *How do MedTech companies employ circular business model innovation?*

While CE practices focus on the technical and operational adjustments needed to minimize waste and maximize resource use, circular business models (CBM) embed these practices into the core business strategies and models. CBMs are defined as business strategies that enable the implementation of CE practices. This relationship ensures that companies adapt their business frameworks to support these practices long-term, ultimately contributing to a more sustainable global economy.

The literature review and case studies identify key drivers and barriers to adopting circular business models in MedTech. Key drivers

include technological advancements for resource efficiency, regulatory incentives, market demand for eco-friendly products, and economic gains from reduced resource consumption and waste. Conversely, significant barriers include restrictive regulatory environments, high initial costs and investment risks, and insufficient infrastructure for recycling and reusing medical devices.

Successful adoption depends on several factors: organizational agility, a culture of innovation, supportive regulations incentivizing sustainable practices, and integrating circular practices into core business strategies. Investments in technology and process innovation are essential for economic viability. Additionally, engaging stakeholders such as customers, suppliers, and regulators is crucial for developing and maintaining these models.

Adoption is also driven by alignment with global sustainability trends, market and regulatory pressures, and the need for strong leadership committed to sustainability, technological resources for circular processes, knowledgeable personnel, and the readiness to adjust supply chain operations for recycling and reusing activities.

In conclusion, the findings indicate that while the MedTech industry recognizes the substantial opportunities that adopting circular practices offers for innovation and competitive advantage, numerous challenges could slow down this transformative shift. Finally, the roadmap guides MedTech companies with strategic planning for integrating circular practices into their operations.