

**THE DETERMINANTS OF MEDICAL TECHNOLOGY
DIFFUSION AND ADOPTION:
A SYSTEMATIC LITERATURE REVIEW AND BEST
EVIDENCE SYNTHESIS**

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About MedtechHTA

The MedtechHTA project (Methods for Health Technology Assessment of Medical Devices: a European Perspective) aims at improving the existing methodological framework within the paradigm of Health Technology Assessment (HTA) for the assessment of medical devices, and to develop this framework into a tool that provides structured, evidence-based input into health policies. The research activities are conducted by a consortium of six European Universities and one Scientific Association. The project is funded under the European Union's 7th Framework Programme as Small or Medium-Scale Focused Research Project (2013-2015).

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Executive Summary

Background

In recent decades, innovation in the health sector has contributed to substantial improvements in the diagnosis and treatment of disease, which have considerably enhanced quality of life. However, the unprecedented proliferation of health technologies has raised concerns regarding the cost and affordability of health care. Understanding the role of innovation determinants in the adoption process would be helpful for designing an appropriate innovation strategy, whether to encourage or to curtail innovation.

Objectives

The purpose of this article is to systematically review innovation literature and to assess the consistency of the direction and significance of innovation determinants. We extend previous research of innovation determinants by combining studies from three different research perspectives: organizational innovativeness, diffusion of innovation, and process theory.

Methods

We conducted a systematic literature search in databases that included medical, economic, organizational, and management literature with a predefined algorithm. We included into our review all peer-reviewed English studies based on empirical data that analyzed factors facilitating or inhibiting the diffusion and adoption of medical devices or medical procedures requiring medical equipment. We further applied the method of best evidence synthesis to include only methodologically rigorous studies that made use of multivariate models in quantitative studies and maintained an explicit focus on innovation determinants in qualitative studies.

Results

In total, 59 studies met our inclusion criteria. These studies contained 587 independent variables that were associated with innovativeness, which were subsequently condensed to 60 innovation determinants based on their operationalization. The evidence pertaining to the direction and significance of organizational, individual, environmental, and innovation-related determinants was synthesized and critically assessed.

Conclusion

Overall, most of the results related to innovation determinants are consistent both with innovation theory and across studies. Finally, the review reveals several research areas in which future research is necessary and provides methodological recommendations.