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Robotics and Autonomous Devices in Health Care – a Technology Assessment Study –



Interdisciplinary project team:

Zentrum für Technologiefolgen-Abschätzung Centre d'évaluation des choix technologiques Centro per la valutazione delle scelte tecnologiche Centre for Technology Assessment



Zurich University of Applied Science

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2



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2012 movie Robot & Frank



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... to reality

In view of robotics and autonomous devices in health care:

- What is technically feasible?
- What is socially, ethically and legally desirable and justifiable?
- What is economically and politically achievable?

Methods

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First type: training devices and mobility aids

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Exoskeletons

Rehabilitation robots

Second type: telepresence and assistant robots

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Service robots



Transport systems



Telepresence robots

Third type: Social-interactive robots

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Paro





Opportunities for ...

Users: autonomy, mobility, independence, assistance, communication

Institutions: effectivity and supplement, new treatments

Society: (partly) compensation of shortage staff, new jobs



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Risks for ...

Users: loss of direct contact and autonomy, increases isolation, use without consent of vulnerable people

Institutions: risk of cost increases, lack of convergence

Society: health care costs, need-oriented market-focused technologies



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Future scenarios 2025

- 1. Reactive politics: only applications of excisting regulations und regulate measures
- 2. Proactive politics: new regulations in law, registration and ethics, etc.
- **3. Proactive control politics:** additional regulating measures like research funding, promotion of a discussion of robotics in health care, promotion of societal support





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Conclusions

- The spectrum of possible applications of robots in health care is very broad.
- There is a insufficient regulation in liability law, data protection and ethics.
- A proactive and coordinated policy framework is required.
- Robots on their own could not solve the problem of skill shortages in health care.



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Key recommendations





- Check and amend issues of liability for robots in healthcare
- Data protection must also be clarified for data that are unrelated to health.
- The Swiss Academy of Medical Sciences SAMS should take into account the effects that the use of robots might have.
- Professional and non-professional users should be included at an early stage.

Publications: Download open access

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- Robotik in Betreuung und Gesundheitsversorgung. (2013) Heidrun Becker, Mandy Scheermesser, Michael Früh, Yvonne Treusch, Holger Auerbach, Richard Alexander Hüppi, Flurina Meier, Zürich, vdf, 252 p., CHF 39.-/EUR 34.-ISBN 978-3-7281-3520-9 (print edition)/vdf Hochschulverlag AG (in German)
- Abridged version of the TA-SWISS study:
 "RoboCare Healthcare in the robot age" (in English / German / French / Italian)
- www.ta-swiss.ch





