

Measuring Innovation in Service Industries: Insights from the Integration of Service Robotics

<i>Context:</i>	Understanding innovation dynamics is key to assessing technological progress and economic development. This thesis will explore the measurement of innovation, focusing on the diffusion and adoption rates of new technologies. By examining how innovations spread through populations and become integrated into market practices, the research will analyze factors driving technology acceptance, resistance, and overall impact. The research aims to explore the implications of information diffusion on technology adoption, providing valuable insights for societal transformation and policy-making in the context of innovation services. Starting literature: [1] [2], [3],[4] [5],
<i>Proposed research questions:</i>	<p>What dynamics characterize the integration of service innovations in sector-specific transformations, and how do societal, firm, and policy actors contribute to these dynamics?</p> <p>Potential areas for research related to measuring innovation in service industries through the integration of service robotics:</p> <ul style="list-style-type: none">°Adoption rate: assess the rate and patterns of service robotics adoption across various industries to understand diffusion dynamics.°Productivity impact: evaluate the impact of service robotics on operational efficiency, cost reduction, and service quality improvements.°Stakeholder Collaboration: explore the collaboration between firms, policymakers, and users/consumers in fostering/hindering an environment to service robotics innovation.°Regulatory Frameworks: study the role of policies and regulations in facilitating or hindering the adoption and integration of service robotics in service industries.
<i>Methods and data:</i>	<p>Method/s:</p> <ul style="list-style-type: none">°Policy Review and Document Analysis: analyze policy documents, government regulations, to assess whether existing structures are encouraging/hindering diffusion of innovations.°Surveys: a survey methodology would involve designing and conducting surveys that specifically measure factors influencing technology adoption. These surveys could target key actors in different sectors and collect quantitative data on attitudes, perceptions, and behaviors related to technology diffusion. You can apply models such as the Technology Acceptance Model (TAM) and the Diffusion of Innovations theory to measure variables like perceived usefulness, trust, and adoption intentions. You can use data from Eurobarometer surveys & publications [6],°Network Analysis: investigate how different economic stakeholders (such as firms, regulators, and consumers) are embedded in networks can provide insights into how these connections affect the spread of technology and reveal the structural roles of stakeholders in diffusion processes. <p>Data: You can gather data and policy insights necessary for analyzing the diffusion rate of service robotics and AI, from the below mentioned sources: IFR World Robotics Report, Eurobarometer surveys & latest publications, EU AI Act, Eurostat AI & Robotics Data, OECD AI Policy, World Bank Data</p>
<i>Requirements:</i>	<p>Basic understanding of theoretical approaches to model incentive-based policy design as well as data analysis skills are beneficiary.</p> <p>The thesis can be written in English (preferred) or in German. Data should preferably be analyzed with R (Python is also accepted).</p>
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References

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- [6] Eurobarometer. Special eurobarometer 382: Public attitudes towards robots (v1.00). dataset, 2014. http://data.europa.eu/88u/dataset/S1044_77_1_EBS382 - Accessed: 05 Novemebr 2024.