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The Societal Impact Of Big Data: A Research Roadmap For Europe

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Abstract

With its rapid growth and increasing adoption, big data is producing a substantial impact in society. Its usage is opening both opportunities such as new business models and economic gains and risks such as privacy violations and discrimination. Europe is in need of a comprehensive strategy to optimise the use of data for a societal benefit and increase the innovation and competitiveness of its productive activities. In this paper, we contribute to the definition of this strategy with a research roadmap to capture the economic, social and ethical, legal and political benefits associated with the use of big data in Europe. The present roadmap considers the positive and negative externalities associated with big data, maps research and innovation topics in the areas of data management, processing, analytics, protection, visualisation, as well as non-technical topics, to the externalities they can tackle, and provides a time frame to address these topics in order to deliver social impact, skills development and standardisation. Finally, it also identifies what sectors will be most benefited by each of the research efforts. The goal of the roadmap is to guide European research efforts to develop a socially responsible big data economy, and to allow stakeholders to identify and meet big data challenges and proceed with a shared understanding of the societal impact, positive and negative externalities and concrete problems worth investigating in future programmes.

Keywords

Big Data; Research roadmap; Societal externalities; Skills development; Standardisation

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