

Preface

When we think of digitalization, we mean the transfer of an analogue reality to a compressed technical image.

In the beginning, digitalization served the purpose of enhancing social communication and action. Back then, data was supposed to be a copy of fragments of reality. Since these fragments were generated and processed for specific purposes, data had to be viewed in context and considered as a physical link. Due to the fact that reality was way too complex to make a detailed copy, the actual purpose of data processing was crucial. Besides, storage capacities and processor performance were limited. Thus, data had to have some economic and/or social value.

However, new technologies have led to a profound change of social processes and technological capacities. Nowadays, generating and storing data does not take any considerable effort at all. Instead of asking, “*why should I store this?*” we tend to ask ourselves, “*why not?*” At the same time, we need to come up with good reasons to justify the erasure of data—after all, it might come handy one day. Therefore, we gather more and more data. The amount of data has grown to dimensions that can neither be overseen nor controlled by individuals, let alone analyzed.

That is where big data comes into play: it allows identifying correlations that can be used for various social benefits, for instance, to predict environmental catastrophes or epidemic outbreaks. As a matter of fact, the potential of particular information reveals itself in the overall context of available data. Thus, the larger the amount of data, the more connections can be derived and the more conclusions can be drawn. Although quantity does not come along with quality, the actual value of data seems to arise from its usability, i.e., a previously unspecified information potential. This trend is facilitated by trends such as the internet of things and improved techniques for real-time analysis. Big data is therefore the most advanced information technology that allows us to develop a new understanding of both digital and analogous realities.

Against this background, this volume intends to shed light on a selection of big data scenarios from an interdisciplinary perspective. It features legal, sociological, economic and technological approaches to fundamental topics such as privacy, data

quality or the ECJ's Safe Harbor decision on the one hand and practical applications such as wearables, connected cars or web tracking on the other hand.

All contributions are based upon research papers that have been published online by the interdisciplinary project *ABIDA—Assessing Big Data* and intend to give a comprehensive overview about and introduction to the emerging challenges of big data. The research cluster is funded by the German Federal Ministry of Education and Research (funding code 01IS15016A-F) and was launched in spring 2015. ABIDA involves partners from the University of Hanover (legal research), Berlin Social Science Center (political science), the University of Dortmund (sociology), Karlsruhe Institute of Technology (ethics) and the LMU Munich (economics). It is coordinated by the Institute for Information, Telecommunication, and Media Law (University of Münster) and the Institute for Technology Assessment and Systems Analysis (Karlsruhe Institute of Technology).

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