

Editorial

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Digital data has not only become an inherent part of our everyday life, but also has a significant effect on almost all areas of value creation. Companies are facing the great challenge of how to specifically benefit from big data, i.e. creating and capturing value. Therefore, sophisticated business intelligence and analytics solutions are necessary to be able to handle the enormous amounts of data in an appropriate and effective manner to make them exploitable for business purposes. However, systematic approaches for managing big data effectively are still lacking. Consequently, there is an urgent need for new theories and methods to understand underlying mechanisms and possibilities of the rapidly growing volumes of digital data.

In order to further elaborate this highly contemporary and interdisciplinary topic, the scientific conference on “Business Intelligence and Analytics: From Big Data to Value Creation” of the Erich-Gutenberg-Arbeitsgemeinschaft invited researchers from a variety of backgrounds to Nuremberg in June 2016. This conference, thus, represents the breeding ground for this present Special Issue of the *Journal of Business Economics*. Four out of all received papers have been selected to be part of this Special Issue. The included papers demonstrate the breadth and diversity of possible perspectives for approaching this topic. In the following, we would like to provide a brief overview of the included papers.

Christian Mühlroth and *Michael Grottke* provide a systematic literature overview of computer-aided methods to detect relevant trends in their article “A

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Systematic Literature Review of Mining Weak Signals and Trends for Corporate Foresight”. While former publications have focused solely on few specific cases, the authors conduct a holistic review by analyzing 91 papers of the past 20 years. Hereby, they propose a structure of the relevant literature by using different criteria such as temporal distribution, research outlet, used data sources, data mining techniques, and purposes of analysis. They conclude that search strategies, data quality, and automation are essential elements of data mining that should be included in the early stages of the corporate foresight process to support human decision making permanently. Additionally, the authors figure out that the learning ability of systems for detecting trends and weak signals as well as their capability to integrate multiple data sources are necessary characteristics of effective data mining systems. All in all, the study supports practitioners in choosing adequate sources and data mining techniques.

In the second article “Anticipating Acceptance of Emerging Technologies using Twitter: The Case of Self-Driving Car”, the authors *Christopher Kohl, Marlene Knigge, Galina Baader, Markus Böhm, and Helmut Krcmar* identify the most important facets of customers’ perceptions regarding self-driving cars and make a significant contribution to exploring the acceptance of emerging technologies. By analyzing almost 2 million posts (“Tweets”) on the social media platform Twitter, they are able to introduce two new metrics: risk rate and benefit rate. These new metrics allow statements about risk and benefit perceptions of self-driving cars among potential customers, and can help companies to reduce the uncertainty arising from this emerging technology. Hereby, the article can be seen as paradigmatic case how companies can use data from social media to predict the acceptance of new technologies. Thus, companies can use the results of this study as a guide to increase public acceptance of future technologies.

In the article entitled “Privacy-Preserving Condition-Based Forecasting Using Machine Learning”, *Fabian Taigel, Anselme Kemgne Tueno, and Richard Pibernik* describe a method for providing maintenance to customers’ machineries without violating privacy issues. While the collection of machine data provides maintenance companies with new ways to analyze and maintain facilities, customers are reluctant to reveal sensitive data. However, this study solves this “distrust problem” by offering a privacy-preserving forecast of the machine condition or demand for spare parts. For that reason, the authors combine appropriate machine learning techniques with data encryption. Thus, the results of this study also facilitate a secure cloud integration of machine data and therefore generate a significant added value for companies in this specific field.

In the paper entitled “Big Data on the Shop-floor: Towards Sensor-Based Decision-Support for Manual Processes” by *Nikolai Stein, Jan Meller, and Christoph M. Flath*, the authors deal with issues related to data-driven decision support on the shop-floor. More specifically, they focus on the so far unexplored interface between predictive analytics and decision support systems on the individual level. They conclude that analytics information systems should play a more important role in supporting manual shop-floor labor. The results also have direct implications for practitioners in this field, as the authors present typical steps in

developing a data-driven decision support system that helps to deal with some of the issues related with the presence of big data on the shop-floor.

We want to express our profound gratitude for the efforts that paved the way for this Special Issue. Specifically, we thank all the anonymous reviewers for their constructive feedback as well as the authors for their valuable contributions. It is our hope that the present papers not only promote increased interest in this important field, but also help to encourage further research on big-data enabled value creation.