

BYTE - Big data roadmap and cross disciplinaryY community for addressing socieTal Externalities*

Nelia Lasiera¹, Kush Wadhwa², Hans Lammerant³, Lorenzo Bigagli⁴, Guillermo Vega Gorgojo⁵, Edward Curry⁶, Peter Stefan⁷, Scott Cunningham⁸, Stéphane Grumbach⁹, Grunde Løvoll¹⁰, Ioan Toma¹, and Sebnem Rusitschka¹¹

¹ STI Innsbruck, University of Innsbruck, 6020 Innsbruck, Austria
nelia.lasierra@sti2.at

² Trilateral Research & Consulting, UK

³ Vrije Universiteit Brussel, Belgium

⁴ National Research Council of Italy Institute of Atmospheric Pollution Research, Italy

⁵ University of Oslo, Norway

⁶ National University of Ireland, Galway, Ireland

⁷ National Information Infrastructure Development Institute, Hungary

⁸ Delft University of Technology, Netherlands

⁹ Institut National de Recherche en Informatique et automatique, France

¹⁰ DNV GL AS, Norway

¹¹ Siemens AG, Germany.

Abstract. The Big data roadmap and cross-disciplinaryY community for addressing socieTal Externalities (BYTE) project will assist European science and industry in capturing the positive externalities and diminishing the negative externalities associated with big data in order to gain a greater share of the big data market by 2020. In this EU project networking session, the results obtained after one year of work of the BYTE project will be presented. BYTE will seek feedback and collaboration opportunities from other related projects and stakeholders interested in the big data economy.

1 Project Overview

The Big data roadmap and cross-disciplinaryY community for addressing socieTal Externalities (BYTE) project aims to assist European science and industry to gain a greater share of the big data market by 2020. In order to do so, BYTE will identify measures that will help big data users to capture and amplify the positive externalities associated with big data (e.g., efficiency, innovation, data sharing, etc.) in a manner that enables them to diminish the associated negative externalities (e.g., privacy, data protection, discrimination, etc.). BYTE will accomplish this by leveraging the BYTE advisory board and additional network contacts to conduct a series of big data case studies in actual big data practices across a range of disciplinary and industrial sectors to gain an understanding of the economic, legal, social, ethical and political externalities that are in evidence. BYTE will supplement these case studies with a horizontal analysis that identifies how positive externalities can be amplified and negative externalities can be diminished.

* <http://www.byte-project.eu>

BYTE started in March 2014, and during this first year of the funded project the consortium has been working on the identification of the state of the art on big data, on the identification and understanding of externalities that could be raised by big data and finally, the BYTE partners have undertaken a series of cases studies in order to investigate big data challenges and externalities in seven different areas.

First, we conducted a series of analysis in order to understand the current context in which big data is utilized (WP1). For this, we studied definitions of big data, revised policies concerning access to, linking of and (re-)use of big data, examined ten big data initiatives (e.g. European Space Agency Big Data Initiative and European Bioinformatics Institute) to gain an insight into the current and evolving big data landscape, and analyzed as well established big data technologies.

Using the insights gained during WP1, the BYTE partners worked in the outline of the potential legal, economic, social and ethical, and political impacts that could be raised by big data. By identifying these issues and understanding the positive (e.g. newly efficient markets and improved flexibility and coordination) and negative (e.g. profiling and discrimination) externalities they raise, we incite vital discussion of these issues to assist the European big data industry moving forward.

Furthermore, the BYTE partners have undertaken a series of seven case studies on big data in order to investigate data sources employed, their uses and challenges, and positive and negative externalities associated with the utilization of big data. Particularly, the BYTE project have examined the following areas: 1) environmental data, 2) crisis informatics, 3) transport data, 4) smart cities data, 5) cultural data, 6) energy data and 7) health data. To conduct this analysis a methodology was designed which relies on semi-structured interviews and multidisciplinary group discussions, and is based on the information obtained from the overview of big data in WP 1 and the positive and negative externalities identified in WP2. Finally, dissemination activities have been conducted, including social media dissemination and participation in big data related events. The initial results from the BYTE project can be found in our website.

2 Participation at the Networking Session

In this Session BYTE will present the main outcomes obtained after one year of work. During this session BYTE seeks to engage with related initiatives and communities in order to disseminate the gained insights and collect feedback for the rest of the work planned. In particular, BYTE will benefit from the feedback about its initial findings on positive and negative externalities of big data across sectors, and from potential collaboration with related projects. Finally, research and industrial community members may wish to join the stakeholder contact list maintained in BYTE, in order to foster further engagement with project results.

Acknowledgements

The work presented in this paper was partly funded by the European Union's Seventh Framework Programme (FP7) under grant agreement no. 619551 – BYTE project (<http://www.byte-project.eu/>).