Scalable Policy-aware linked data architecture for privacy, transparency and compliance

Results in Brief

Bridging the divide between big data innovation and privacy-aware data protection

New technologies for securing user consent and enabling the trustful sharing of personal data could help expand the use of big data.

With an estimated value of EUR 739 billion in the EU alone, big data is big business. “Big data has the potential to redefine how we do business, how we conduct research, and how we live,” says Sabrina Kirrane, a researcher at Vienna University of Economics and Business. “However, this potential will remain largely untapped if we don’t address the data protection issues associated with it.”

Addressing this disconnect between big data innovation and privacy-aware data protection is the focus of the EU-funded SPECIAL (Scalable Policy-aware linked data architecture for privacy, transparency and compliance) project. “Our goal was to develop a technical framework that allows citizens and organisations to share more data while guaranteeing data protection compliance,” explains Kirrane, who serves as the project’s scientific coordinator. “In doing so, we are helping create valuable new insights from shared data.”
Trustful usage and sharing

Using semantic web technologies and linked data principles, the SPECIAL solution secures user consent at the time of the data collection. It also records both data and metadata (e.g. consent, event data, context) according to user-specified policies.

“SPECIAL enables the trustful usage and sharing of personal data even across company boundaries,” remarks Kirrane. “It does this by using technical specifications and automated compliance checking to support the EU General Data Protection Regulation’s consent and transparency requirements.”

Other key features of the SPECIAL solution include its user consent interface and feedback-enhanced dashboard. Both features ensure that privacy in big data remains comprehensible and manageable for data subjects, controllers and processors.

“During the course of this project, we clearly demonstrated the solution’s robustness in terms of performance, scalability and security – all of which are necessary to support privacy-preserving innovation within big data environments,” adds Kirrane.

Many of the SPECIAL solutions, which can be accessed via the project’s website, are already being considered by a number of industry partners and private organisations.

An ongoing impact

Although the project is now finished, work continues. In addition to presenting its results at numerous international conferences on big data and data protection, the project has also inspired several spin-off research projects. These include the EU-funded TRAPEZE follow-up innovation action and the KnowGraphs and MOSAICrOWN fundamental research projects, amongst others.

“The SPECIAL project has had a significant impact on a wide variety of domains, including legal informatics, big data, privacy and computer science,” concludes Kirrane. “This impact will only continue to multiply via the efforts of these spin-off projects and the ongoing work of our consortium partners.”

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SPECIAL

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