

PROJECT FINAL REPORT

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Project website Error! Bookmark not defined. **address:** <http://www.big-project.eu/>

Publishable Summary

¹ Usually the contact person of the coordinator as specified in Art. 8.1. of the Grant Agreement.



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Abbreviations and acronyms

AB	Advisory Board
BD	Big Data Technologies
BIG project	BIG - Big Data Public Private Forum project
DoW	Description of Work
GA	General Assembly
PB	Project Management Board
PC	Project Coordinator
PM	Person Month
PMa	Project Manager
PMB	Project Management Board
QA	Quality Assurance
R1	Reporting Period 1 (means the first of the four monthly reports)
SD	Strategic Director
SF	Sectors Forum
SFL	Sector Forum Leader
tbd	To be defined
TWG or TG	Technical Working Groups
WGL	Technical Working Group Leader
WP	Work package
WPL	Workpackage Leader



1. Publishable summary

1.1. Executive Summary

BIG project had two main objectives:

1. Set-up an industrially-led long term initiative around Big Data to contribute to EU competitiveness and position it in Horizon 2020
2. Provide a cross-sectorial roadmap for the development of big data technologies in the most relevant sectors of economic activity

About the first objective, the BIG project exceeded the expectations, as it managed to cooperatively work with other communities towards a common goal, having obtained the following results:

- A Big Data Value Strategic Research & Innovation Agenda (SRIA) which has received contributions, among others, from the BIG sector roadmaps, in addition to other activities like workshops and public consultations.
- A contractual Public Private Partnership proposal submitted to the EC as the first formal step to set up a PPP on Big Data Value.
- The establishment of a non-profit organization legally based in Brussels, the Big Data Value Association (BDVA), already operational at the end of this project.
- A PPP on Big Data Value as a result of the signature of a contract between the EC (public party) and the BDVA.
- A sustainability plan with mechanisms and plans spanning the concept of the PPP aiming to guarantee the sustainability of major results produced by BIG
- The Governance structure of the future Big Data ecosystem, including a very detailed governance model for the recently created BDVA, already approved by related stakeholders at this stage.

Regarding the second objective, the BIG project has consolidated the work into a cross-sectorial roadmap, where the sector-specific requirements have been aligned, and where the most important cross-sectorial requirements have been identified. These requirements have been prioritised according a set of qualitative and quantitative criteria, providing the input for specific actions which have been placed in a timeline according these priorities and the expected research work required in each of the technical fields.

1.2. Project context and objectives

Building an Industrial community around Big Data in Europe is the priority of this project. BIG will work towards the definition and implementation of a strategy that includes research and innovation but also technology adoption. We think that having this community established and the adequate resources to work at all levels (technical, business, political, etc.) needed to overcome existing challenges is the basis for a long term European plan in this field.

The following list provides a more specific formulation of BIG objectives:

1. **BIG will set up an industrially-led initiative around Big Data to contribute to EU competitiveness and position it in Horizon 2020.** Industrial leadership will guide actions towards real business benefits, but will be complemented by the views of Academia and Research organizations, which will also take part in this endeavour. Even though preparatory work will be done along the project duration, it will be a long term approach to



represent the views and interests of Big Data stakeholders because of its relevance in the current and future context.

2. BIG will elaborate an **integrated roadmap that takes into consideration technical, business and policy aspects**, focusing not only on pure technical issues, but also establishing priorities based on expected impact. This consortium is prepared to bring about the necessary expertise, channels and contacts to ensure contributions from a wider community composed of experts of relevant technical domains as well as experts in sectors or application domains where the application of these technologies is expected to produce a high impact.
3. BIG will ensure that technical research areas selected by the project cover the needs expressed by the industry in different application domains. For that to happen we need a sharp understanding of how big data can be applied to these concrete environments/sectors, and this needs to be transmitted to domain experts. Thus, this objective makes reference to ensure that there will be a **clear path for the adoption of the technology in each of the selected sectors**.
4. BIG will promote adoption of earlier waves of big data technology. Instead of adopting only a futuristic approach, **BIG will use as starting point those technologies that are already in place and will foster experimentation with them**. The idea is to reach a clear understanding of the level of maturity of the different solutions as well as the feasibility of their implementation.
5. BIG will **define and promote actions dealing with policy and regulation**, including aspects such as **data security, intellectual property, privacy, liability and data access**. Therefore BIG will contribute to the whole ecosystem related to Big Data implementation.
6. BIG will carry out **dissemination actions** targeting different stakeholders and players in the value chain. BIG will address all the relevant communities thanks to an ambitious strategy that will include presence in mass media, presence in the most relevant conferences, organization of our own workshops and events and maximization of the use of web channels.

All this will not be possible without providing the right collaboration infrastructures. Collaboration among projects, but also many discussions with buy-in from high level decision makers in the EU data industry. Bearing this in mind **BIG will set up and maintain a support infrastructure that will enable collaboration, information sharing and customization of actions toward different targeted audiences, either at dissemination level or any other aspect that may be needed**.

The following statement is an attempt to summarize these objectives into a single major goal for the project:

BIG will work at technical, business and policy levels, shaping the future through the positioning of Big Data specifically in H2020 and bringing the necessary stakeholders into a self-sustainable industrially-led initiative that will go beyond the project duration and will greatly contribute to enhance the EU competitiveness taking full advantage of Big Data.

Whereas preparation for the future will be essential, BIG will not disregard what is already available and therefore will differentiate from previous and present initiatives in that it will look for an impact through the promotion and adoption of current technologies already within the timeframe of the project.



1.3. Main results

The major results achieved so far with respect to the objectives of the Work Package on which the work of the project has been distributed are described in the following paragraphs:

WP1: Project management:

Objectives:

WP1 ensures the achievement of the project results through technical and administrative coordination as well as provide timely and efficient organizational and financial coordination with respect to contractual commitments. The main work has been devoted to set up the foundation for an effective management of the project from the administrative and financial perspective, and the quality assurance. Therefore the objectives during the project have been:

- To carry out contractual, administrative and financial coordination and controlling
- To cooperate and communicate between the Commission and the project
- To provide overall RTD organisation, coordination, and control
- To represent the project towards external parties
- To ensure that preparation and provision of deliverables meet time and quality targets
- To organise the kick-off meeting and guide the inception phase of the project
- To organise Consortium Meetings
- To provide quality assurance to the project by establishing a Quality assurance and self-assessment plan.
- To set and implement the management process for the project and the consortium, and thereafter to lead, coordinate and manage the project accordingly.
- To create the necessary collaboration tools for the consortium.
- To review and assess the progress of BIG activities towards the defined goals and objectives, providing the correct and efficiently monitoring of the status of the project.
- To measure this progress as much as possible in a quantitative way and to give feedback to the project partners in order to react accordingly an in a timely manner

Results:

As main result WP1 has delivered a Quality assurance and self-assessment plan where all the internal quality procedures and communication tools have been reported to the project partners. We had a Kick-off meeting, four consortium meetings and several technical and sectorial meetings and conference calls. All deliverables have been delivered to the EC according to the internal quality procedures.

WP2: Strategy & Operations:

Objectives:

In the first period of the project (first 13 months), the objectives of WP2 encompassed+ the planning and structuring the working groups and tasks, and the assembly of our research activities into the first drafts of the technical white papers, sector requisites and sector roadmaps. In the second period (final 13 months), the objectives of WP2 encompassed the execution of our planned research activities in the various working groups: The technical working groups have provided white papers detailing the state-of-the art and expected technology developments in their fields and collaborated with the sector forums. For 10 economic sectors, the forums have analysed the business and technology requirement for Big



Data uptake in Europe and provided this analysis in the form of requirements deliverables and sector-specific roadmaps, culminating in a cross-sectorial roadmap for Big Data in Europe.

Results:

WP2 has formed two sets of working groups that look at the state of the art and future developments in big data from the technology and the business perspective, respectively. The technical working groups have covered the whole value chain of big data: From data acquisition to data analysis to data curation to data storage to data usage. These five working groups have jointly published a set of white papers that result from desktop research and in-depth interviews with leading experts. The sector forums cover a total of 10 business sectors including Health, the Public Sector, Finance & Insurance, Telecommunications, Media and Entertainment, Manufacturing, Retail, Energy, and Transport. They have jointly worked out the sector requirements for big data and as a collaborative result, the BIG project has published sector requirements and sector roadmaps for big data in a common format.

As a final result, this preparatory work has been transformed into a consolidated, cross-sectorial roadmap. The sector-specific definitions of requirements have been aligned and the most urgent 17 cross-sectorial requirements have been identified. These have been consolidated and also prioritised according to a diverse set of 13 qualitative and quantitative criteria, providing input for actionable recommendations. These recommendations come with a timeline and address three separate areas: policy, business, and society. The recommendations and detailed address three target audiences: stakeholders involved in (i) industrial applications using big data, (ii) technical offerings for big data, and (iii) regulators and support agencies, providing each with well-founded recommendations and extensive background material (including links back to all the preparatory work provided by the BIG project).

WP3: Dissemination and Stakeholder Engagement:

Objectives:

The dissemination activities of the BIG project were instrumental to achieve the prime objectives of BIG: (1) setting up a European industrial forum that brings together vendor and user industry of large data applications and (2) promote big data technology adoption as well as further research.

Results:

In the project's third work package, the three consortium partners Institut für Angewandte Informatik e.V. (INFAI), Open Knowledge Foundation Deutschland e.V. (OKFDE) and the University of Innsbruck (UIBK) have worked on the implementation of a dissemination strategy for BIG to promote and support the dissemination of the results of the project and the best practices towards large-scale technology adoption. Dissemination within the BIG project covers a wide spectrum of activities, including but not restricted to: community extension and management, setting up and maintenance of the collaboration infrastructure, web 2.0 tools and events, targeting both the participation of BIG in major conferences that are well known in the field, as well as the organization of our own events. Achievements include the establishment of a dissemination methodology and an identification of a dissemination strategy in year one. The strategy was then implemented by continuous dissemination and stakeholder engagement activities throughout the project's lifetime.

Regular monthly dissemination telephone conferences were established to discuss and monitor dissemination and stakeholder engagement activities and secure successful promotion of project outcomes. A project website and Web 2.0 dissemination tools like Facebook, Twitter, Slideshare were set up and were used actively.

Members of the BIG consortium supported the Strategic Research and Innovation Agenda (SRIA) which resulted in the public-private partnership (PPP) BIG Data Value (BDV)



BIG furthermore organized sessions and co-located workshops at the European Data Forum 2013 and 2014 as well as ISC Big Data 2014. BIG presented the project results at over 80 major events and gathered feedback from stakeholders regarding the roadmap. Active collaboration was established to several other EU projects, such as PRELIDA, RETHINKBIG and BYTE. Mentionable achievements were the 700 Twitter followers, which were successfully transferred to the BDV as well as over 50,000 views of the general BIG presentation on Slideshare, the high visit count of the BIG website (documenting the project for 5 more years) as well as the Big Data stakeholder map.

WP4: Big Data Public-Private Forum:

Objectives:

The major goal of WP4 was the establishment of an industrially-led long term initiative around Big Data topics including both the contents (a clear roadmap and investment agenda) and the community (commitment of major stakeholders to ensure the implementation of such agenda) with the ultimate objective of guaranteeing a competitive position of EU companies in a data-driven economy. WP2, with its road mapping activity should contribute to the content definition, while this WP should seek for the endorsement of the strategy. It was also expected that these inputs would be translated into relevant recommendations to Horizon 2020 and its work programmes.

Results:

At the end of the project, the BIG project has exceeded expectations, having managed to cooperatively work with other communities towards a common goal, and having released the following results:

- A Big Data Value Strategic Research & Innovation Agenda (SRIA), fed –among others- by roadmaps produced by BIG and additional content extracted from workshops, public consultations, etc. The SRIA wide context has been illustrated through a Vision document that frames the overall strategy.
- A cPPP (contractual PPP) proposal submitted to the EC as a formal step to set up a PPP on Big Data Value. This proposal contains recommendations to be implemented in H2020 to ensure the competitive position of Europe in a future characterized by a data-driven economy.
- Specific package of recommendations at IPR and standardization level
- A representative community of stakeholders that has endorsed the SRIA and has expressed its interest in working towards the areas depicted in the SRIA and a core group of fully committed organizations that include major IT players such as Atos, Engineering, IBM, Indra, Orange, SAP, Siemens, Software AG and Thales, among others.
- Establishment of a non-profit organization legally based in Brussels, the *Big Data Value Association (BDVA)*, already operational at the end of this project.
- A PPP on Big Data Value as a result of the signature of a contract between the EC (public party) and the BDVA following the content expressed in the aforementioned documents
- A sustainability plan with mechanisms and plans spanning the concept of the PPP aiming to guarantee the sustainability of major results produced by BIG
- The Governance structure of the future Big Data ecosystem, including a very detailed governance model for the recently created BDVA, already approved by related stakeholders at this stage.



1.4. Project web site

The project web page can be found at www.big-project.eu.

BIG - Big Data Public Private Forum

HOME ABOUT RESULTS SECTORIAL FORUM TECHNICAL GROUPS BLOG DISSEMINATION CONTACT

Welcome to BIG - Big Data Public Private Forum!

JOIN IN!

Big Data is an emerging field where innovative technology offers alternatives to resolve the inherent problems that appear when working with huge amounts of data, providing new ways to reuse and extract value from information.

Big Data Public Private Forum (BIG) is working towards the definition and implementation of a clear strategy that tackles the necessary efforts in terms of research and innovation, while also it provides a major boost for technology adoption and supporting actions for the successful implementation of the Big Data economy.

Forum: Finance & Insurance Sectors

- * Take stock of bleeding edge research to stay abreast of latest developments!
- * Join us to set the direction in Big Data technology for banking, insurance & finance!

Building an industrial community around *Big Data* in Europe is the priority of this project, together with setting up the necessary collaboration and dissemination infrastructure to link technology suppliers, integrators and leading user organizations.

BIG DATA INTERVIEWS

Andraz Tori: BIG Project Interviews Series

BIG FINAL EVENT

Slides available!

BIG DATA CLOUD

Complex Event Processing
Hadoop community
heidelberg
roadmap
news
byte
presentation
Sector
Amazon

LINKS

Home | About | Results | Sectorial Forum | Technical Groups | Blog | Dissemination | Contact

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 318062

Website courtesy STI International

Figure 1-1 BIG project web site

1.5. BIG Consortium

The BIG Consortium consist of **11 partners** drawn across the European Union which covers the spectrum from industrial partners, academic research, research institutes and non-profit organizations related to the research, development and application of Intelligent Information Management in the domain of Open Data and Big Data.

- Atos Origin SA (Project coordinator – Spain)
- The Press Association Ltd (United Kingdom)
- Siemens AG (Germany)
- AGT Group (R&D) GMBH (Germany)
- Universitaet Innsbruck (Austria)
- National University of Ireland, Galway (Ireland)
- Institut Fur Angewandte Informatik EV (Germany)
- Deutsches Forschungszentrum fuer Kuenstliche Intelligenz GMBH (Germany)
- EXALEAD (France)
- Open Knowledge Foundation Deutschland (Germany)
- STI International Consulting und Research GMBH (Austria)

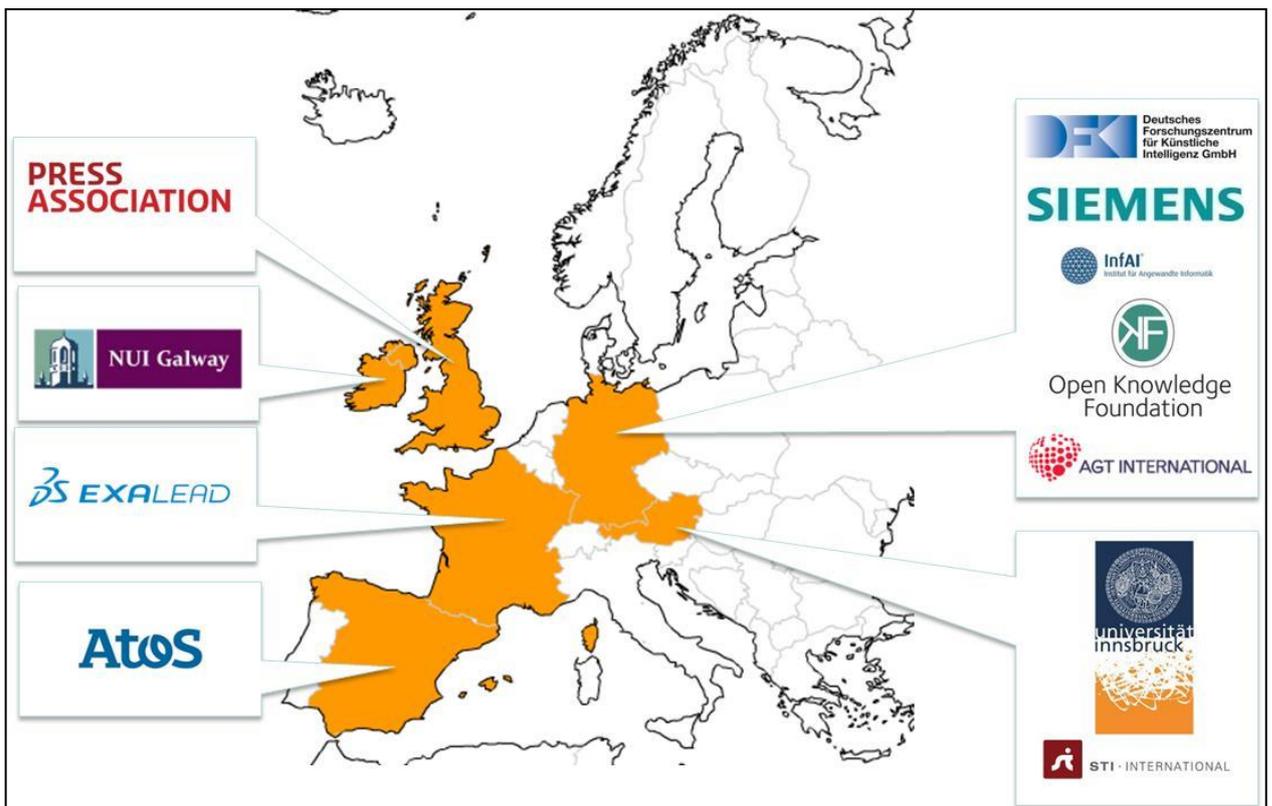


Figure 1-2 BIG project consortium members map