BYTE: Big data roadmap and cross-disciplinary community for addressing societal Externalities

4th GEOSS Science & Technology Stakeholder Workshop
Norfolk (VA), USA
24-26 March 2015

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Big Data/Open Data/Open Access: Trifecta of Innovation Opportunity

Open data can help unlock $3 trillion to $5 trillion in economic value annually across seven sectors.

In the developed economies of Europe, government administrators could save more than €100 billion in operational efficiency by using big data…

"Data is the new gold"

Neelie Kroes
VP for Digital Agenda

www.byte-project.eu
Project details: BYTE

- Big data roadmap and cross-disciplinary community for addressing social Externalities (BYTE) project
- March 2014 – Feb 2017; 36 months
- Funded by DG-CNCT: €2.25 million (Grant agreement no: 619551)
- 11 Partners
- 10 Countries
Big data concerns: externalities

- The effects of a decision by stakeholders (e.g., governments, industry, scientists, policy-makers) that have an impact on a third party (especially members of the public)

- May be positive or negative

**Economic**
- Boost to the economy
- Innovation
- Increase efficiency
- Smaller actors left behind
- Shrink economies

**Legal**
- Privacy
- Data protection
- Data ownership
- Copyright
- Risks associated with inclusion & exclusion

**Social & Ethical**
- Transparency
- Discrimination
- Methodological difficulties
- Spurious relationships
- Consumer manipulation

**Political**
- Reliance on US services
- Services have become utilities
- Legal issues become trade issues
Case studies: a sectorial approach

- Environment
- Energy
- Utilities / Smart Cities
- Cultural Data
- Health
- Crisis Informatics
- Transport
Key outcomes

- Vision for Big Data for Europe for 2020, incorporating externalities
  - Amplify positive externalities
  - Diminish negative ones

- Roadmap
  - Research Roadmap
  - Policy Roadmap

- Charter of a Big Data community
  - Implement the roadmap
  - Sustainability plan
Roadmap(s)

Research insights will be consolidated and used to build two roadmaps

1. A research roadmap that focuses on what research, knowledge, technologies and skills are necessary to capture a greater share of the big data market by Europe

2. A policy roadmap for the development, use, re-use and linking of big data

These will be produced in collaboration with stakeholders, especially advisory board members and members of the big data community
The big data community

- Initially comprises Advisory Board members
- Intended to be as large as possible
- Final form to be determined
- A virtual and physical presence is intended
- Possibly organised into different working groups, tackling specific questions
- Will implement the BYTE Roadmap(s)
# Key outputs

<table>
<thead>
<tr>
<th>Report</th>
<th>Delivery date</th>
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<tbody>
<tr>
<td>D1.1: Understanding and mapping big data</td>
<td>March 2015 (M13)</td>
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<tr>
<td>D3.2: Case study reports on the positive and negative externalities associated with the use of big data in different sectors</td>
<td>May 2015 (M15)</td>
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<td>D5.1: The BYTE vision for the use of big data in five years</td>
<td>Feb 2016 (M24)</td>
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<td>D6.1: A BYTE research and policy roadmap for big data</td>
<td>Aug 2016 (M30)</td>
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<td>D7.3: Final report and policy guidelines</td>
<td>Feb 2017 (M36)</td>
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## Key milestones

<table>
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<tr>
<th>Event</th>
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<tr>
<td>Disciplinary focus groups</td>
<td>UK, Germany, Norway, and Austria</td>
<td>Apr 2015</td>
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<td>Validation workshop on horizontal analysis</td>
<td>Ireland</td>
<td>Sep 2015</td>
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<td>Visioning workshop</td>
<td>The Netherlands</td>
<td>Jan 2016</td>
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<td>Validation workshop on the BYTE roadmap</td>
<td>Austria</td>
<td>Jul 2016</td>
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<td>Big data community workshop</td>
<td>Italy</td>
<td>Dec 2016</td>
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<td>BYTE final conference</td>
<td>Hungary</td>
<td>Feb 2017</td>
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Background information

- Overall interest in the externalities associated with big data practice in order to capture potential benefits and address potential negative impacts.
- For all case studies, an interest in:
  - economic costs and benefits (new products and services, restructuring)
  - technology and innovation impacts (improved service delivery)
  - legal issues (privacy, data protection, intellectual property)
  - ethical issues (potential for discrimination, public trust) and
  - political issues (cross-border data flows)

- Case study on a specific instance of “big data” practice in the environment sector: the GEO IDIB
- Informed by literature review and expert interviews
- Monday 13th April, 12:00-17:00
- Hotel Meliá Vienna
- Donau City Strasse 7, 1220 Vienna, Austria
- GET INVOLVED!
Breakout Sessions Block 1: Emerging revolutions: challenges and opportunities

We look at several anticipated revolutions and the impacts these might have in general on the way Earth observations are being conducted, and more specifically, on how the next GEOSS should be designed and implemented.

Breakout Session 1.1: Cloud and Big Data Revolutions

Tailored to BYTE, to augment the environment case study by:

1. Understanding the extent to which the issues raised within GEO and the IDIB resonate with the big data and environment sector more broadly

2. Identifying additional data practices, needs, applications, benefits and challenges in big data and environment to supplement the BYTE case study

Small group discussions based on your own experience
Breakout Session 1.1: Cloud and Big Data Revolutions

What are the potential values, not only to future GEOSS, but also to anyone who might benefit, of exploiting the data super nova in the environment sector?

How should the data super nova (including the IoT, the Internet of Everything, and the Internet of People) be utilized and integrated in the next GEOSS?

What e-infrastructure (i.e. data sources, processes, policies, and key actors) is needed to facilitate the full exploitation of big environmental data in the next GEOSS?
Breakout Session 1.1: Cloud and Big Data Revolutions

What hindering factors (internal/external, technical/non-technical) would prevent from getting the most out of the data super nova to maximize societal benefits in the next GEOSS?

What facilitating factors (internal/external, technical/non-technical) would help in getting the most out of the data super nova to maximize societal benefits in the next GEOSS?

What do you think stand behind these factors?
Thank you

Stay engaged!

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BYTE:

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