Opportunities for collaboration in Big Data between US and EU

Vasilis Papanikolaou

ATC iLAB, Greece

ICT Policy, Research and Innovation for a Smart Society

www.picasso-project.eu

PICASSO has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 687874.

Who are we?

Synergies between policy and technology groups

3 Technology Groups
Strategic ICT Technology areas in relation to Societal Challenges

1 Horizontal Group
ICT Policy

PICASSO
EU-US ICT collaboration

Technology Expert Group on Big Data

- **Scope of the Expert Group: Establish strong links for R&D&I collaboration between national and international Big Data Structures from EU and US**
  - Charting a high level status of the Big Data sector in Europe, the US and worldwide
  - Charting of the greatest opportunities for collaboration between EU and US utilizing the most competitive strengths of each side
  - Outlining a list of the most competitive achievements, challenges and opportunities for collaboration
  - Define a set of future activities and actions for enhancing EU-US collaboration on Big Data

Technology Expert Group on Big Data - Members

Name	Organization Position
Nikos Sarris (Chair) 	**ATC SA, Greece** Head of the ATC Innovation Lab, **member in the Steering Committee of the NESSI European Technology Platform** and a **representative of ATC in the General Assembly of the Big Data Value Association**
Sören Auer 	**University of Bonn, Germany** Head of Enterprise Information Systems group, Member of the leadership council of Fraunhofer-Insitute for Intelligent Analysis and Information Systems (IAIS), **Coordinator of the Big Data Europe Initiative**
Andreas Metzger 	**paluno, University of Duisburg-Essen, Germany** **BDVA – EU** **Head of Adaptive Systems and Big Data Applications**, Technical Coordinator H2020 **Big Data Lighthouse "TransformingTransport"**, **Deputy general secretary of the Big Data Value Association (BDVA)** and **steering committee vice chair of the European Technology Platform NESSI**
David Belanger 	**Stevens Institute of Technology, US** Senior Research Fellow, **Co-Leader IEEE Big Data Initiative and member of the Board of Advisors – IEEE Transactions on Big Data**, IEEE Transactions on Internet of Things
Wo Chang 	**NIST, USA** Digital Data Advisor for the NIST Information Technology Laboratory (ITL), Convener of the ISO/IEC JTC 1/WG9 Working Group on Big Data Co-chair of the NIST Big Data Public Working Group
Michail Bletsas 	**MIT, USA** Director of Computing at the MIT Media Lab

The case for EU

- EU is falling behind compared to US

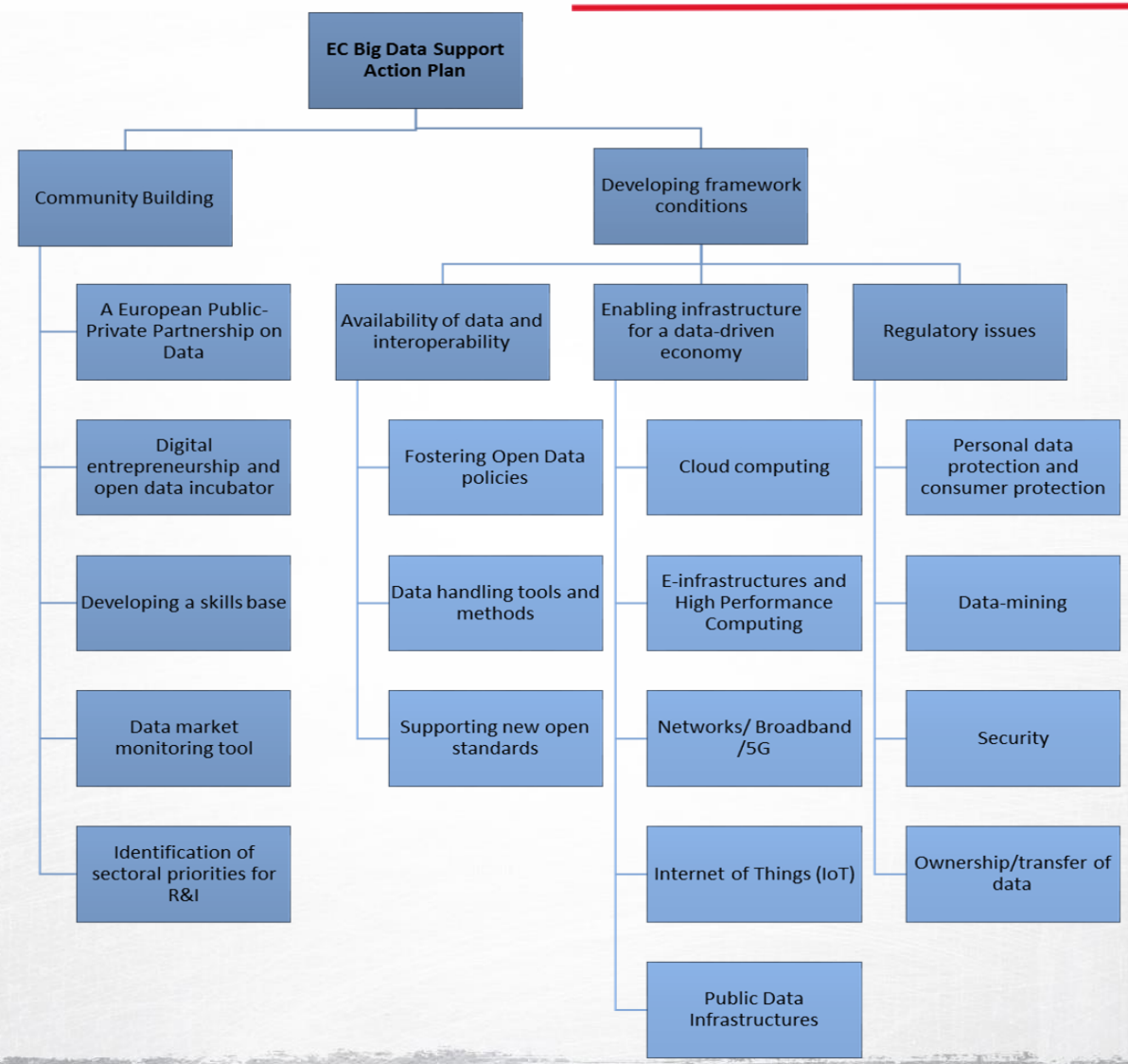
Monitoring Data Market, International Comparison, 2014, Units (000), EUR Million

N.	Name		EU	U.S.	Japan	Brazil
1.1	Number of Data Workers		6,102	10,457	3,344	1,031
2.1	Number of Data Companies		243,610	277,821	95,919	34,840
4.1	Value of the Data Market		€ 50,454	€ 103,935	€ 22,228	€ 5,289
4.2	Value of the Data Economy	Direct Impacts	€ 46,607	€ 99,398	€ 21,367	€ 5,289
		Backward Indirect impacts	€ 2,081	€ 4,536	€ 860	€ 217

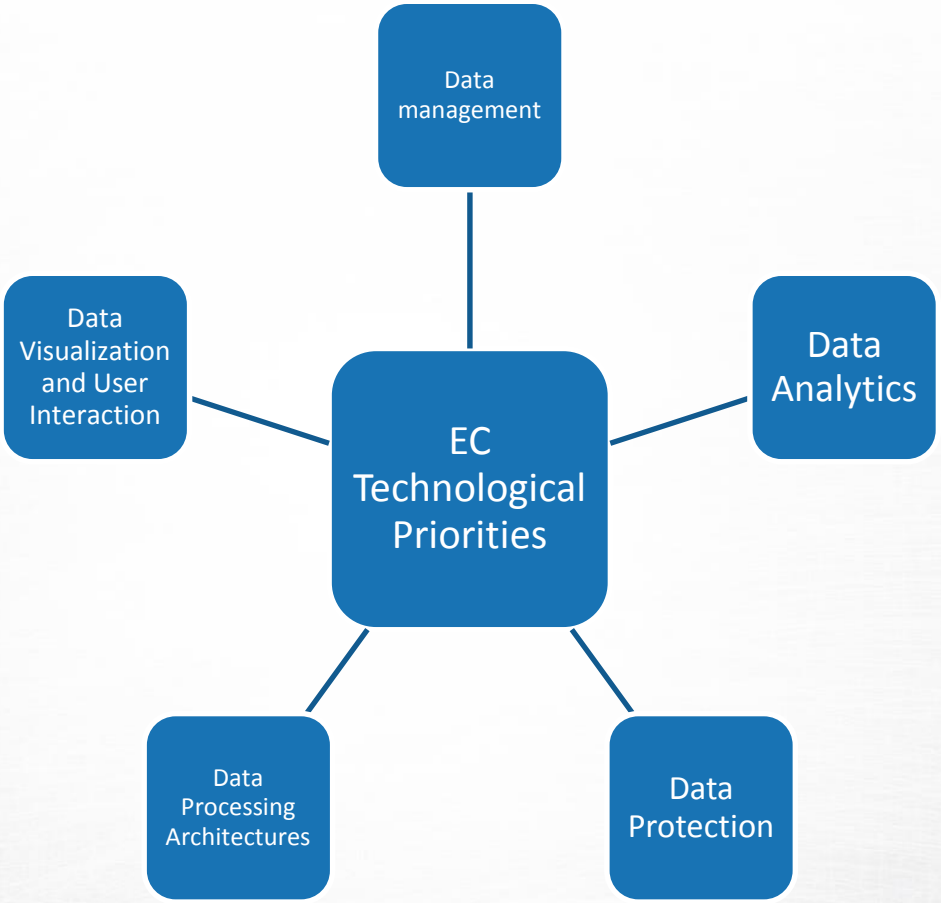
The case for EU

- EU has launched the **Big Data Support Action Plan (2014),** to:
  - **support "lighthouse" data initiatives (in the shape of large-scale pilot actions)** capable of improving competitiveness, quality of public services and citizen's life
  - **develop enabling technologies**, underlying infrastructures and skills, particularly to the benefit of SMEs
  - **extensively share, use and develop its public data** resources and research data infrastructures
  - focus **public R&I** on technological, legal and other bottlenecks
  - makes sure that the relevant **legal framework and policies** are data-friendly
  - **accelerate the digitisation of public administration** and services to increase their efficiency, and
  - **use public procurement** to bring the results of data technologies to the market.

EC Big Data Action Plan…



EC Priorities



EC Application Sectors

Health, demographic change and wellbeing;

Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy;

Secure, clean and efficient energy;

Smart, green and integrated transport;

Climate action, environment, resource efficiency and raw materials;

Europe in a changing world - inclusive, innovative & reflective societies;

Secure societies - protecting freedom and security of Europe and its citizens.

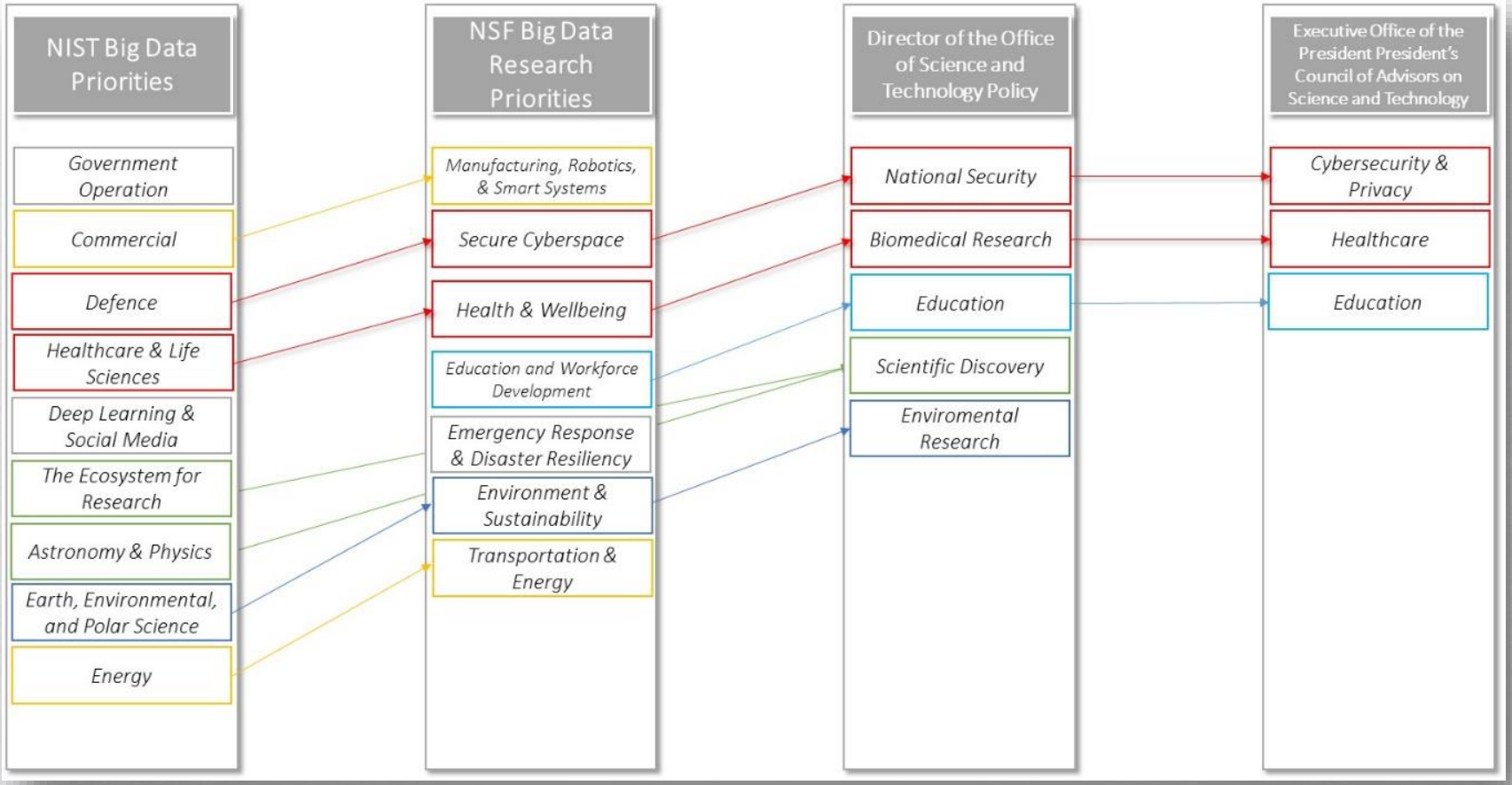
*All images above are courtesy of Big Data Europe Project (https://www.big-data-europe.eu/)

The case for US

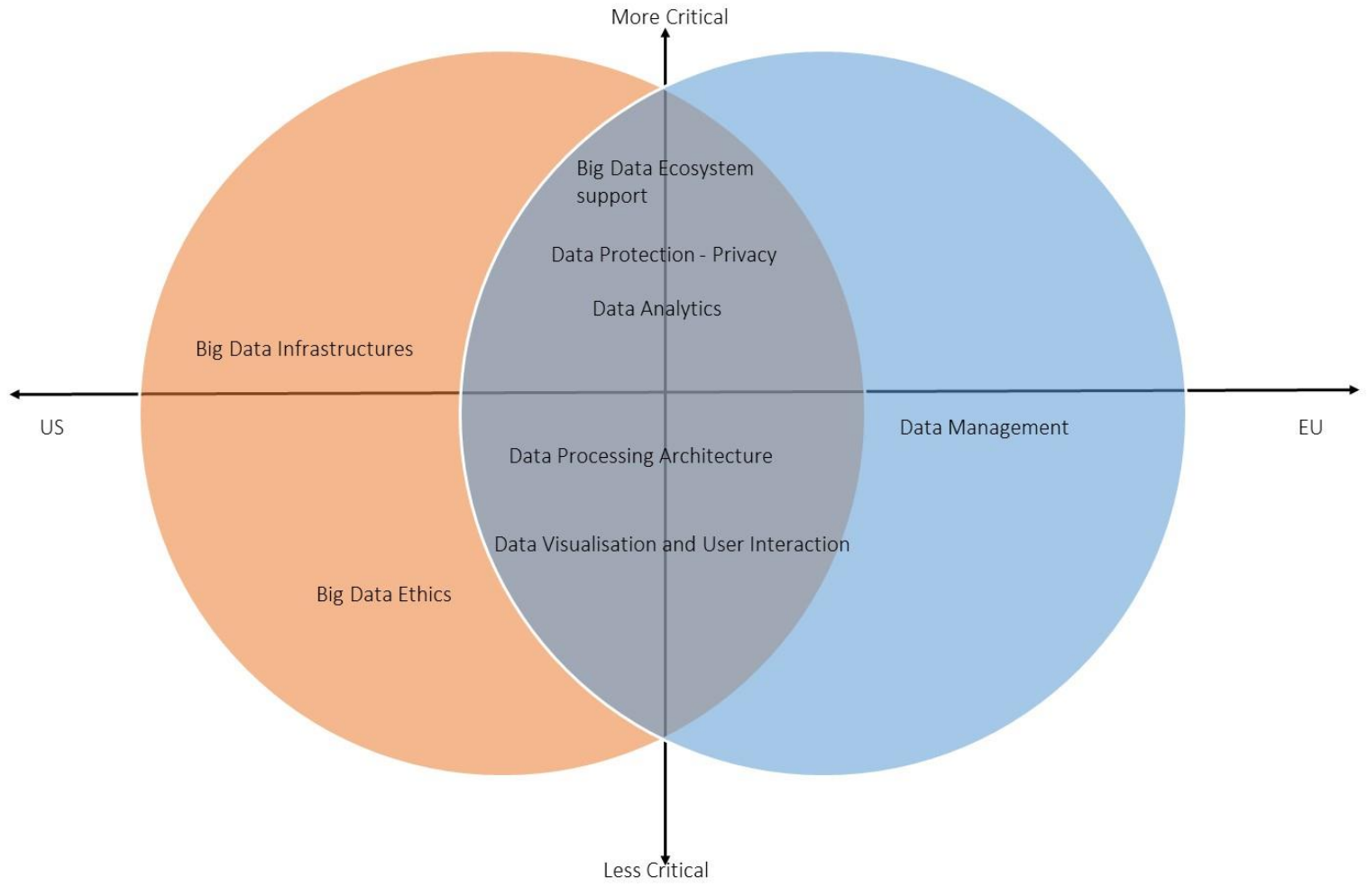
- US has launched the **Federal Big Data Research and Development Strategic Plan (2016)**
  - **Strategy 1: Create next-generation capabilities** by leveraging emerging Big Data foundations, techniques, and technologies
  - **Strategy 2: Support R&D to explore and understand trustworthiness of data** and resulting knowledge, to make better decisions, enable breakthrough discoveries, and take confident action
  - **Strategy 3: Build and enhance research cyberinfrastructure** that enables Big Data innovation in support of agency missions
  - **Strategy 4: Increase the value of data** through policies that promote sharing and management of data
  - **Strategy 5: Understand Big Data** collection, sharing, and use with regard to **privacy, security, and ethics**
  - **Strategy 6: Improve the national landscape for Big Data education and training** to fulfil increasing demand for both deep analytical talent and analytical capacity for the broader workforce
  - **Strategy 7:** Create and **enhance connections** in the national **Big Data innovation ecosystem**

US Priorities

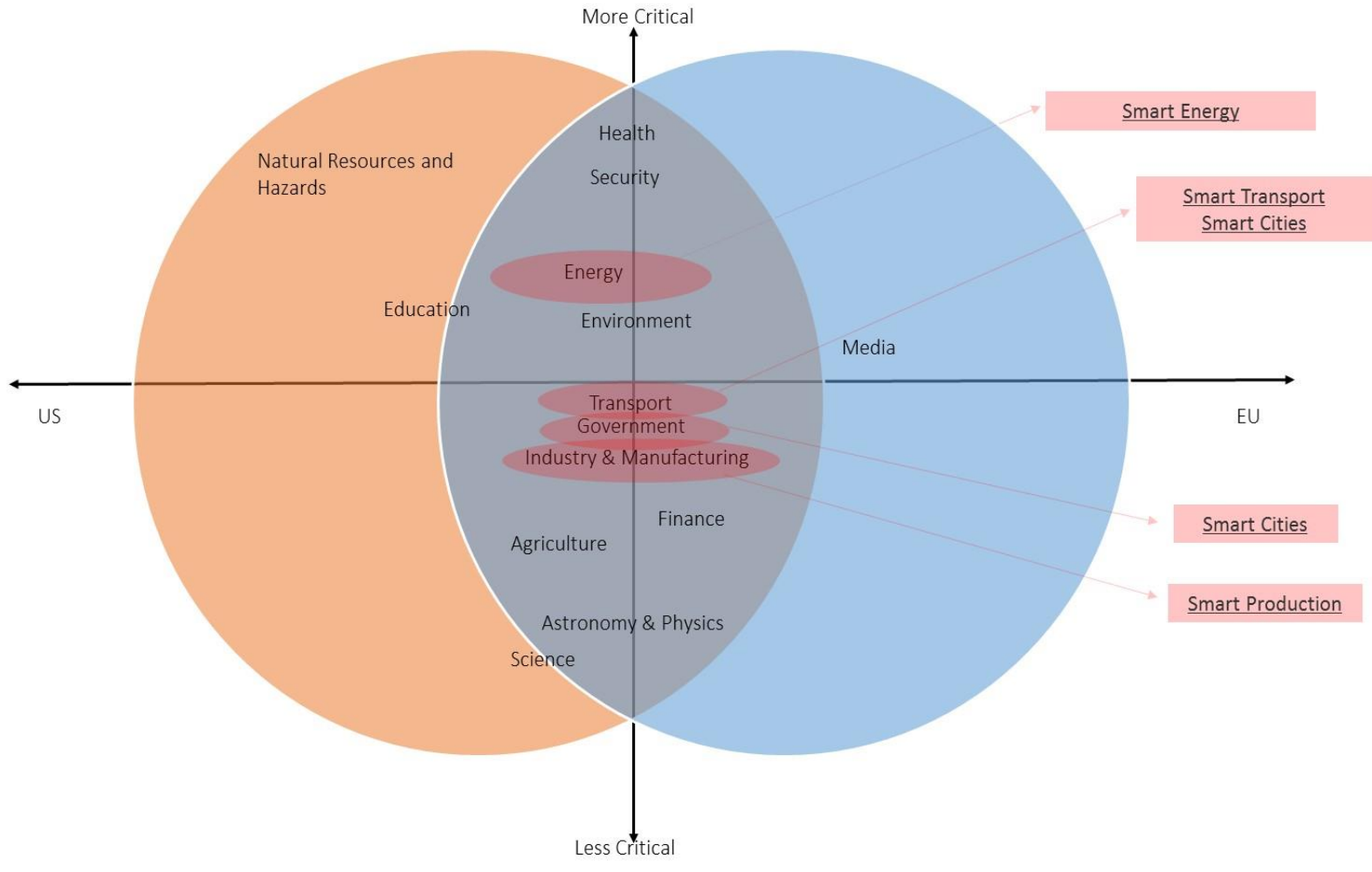
US Application Sectors



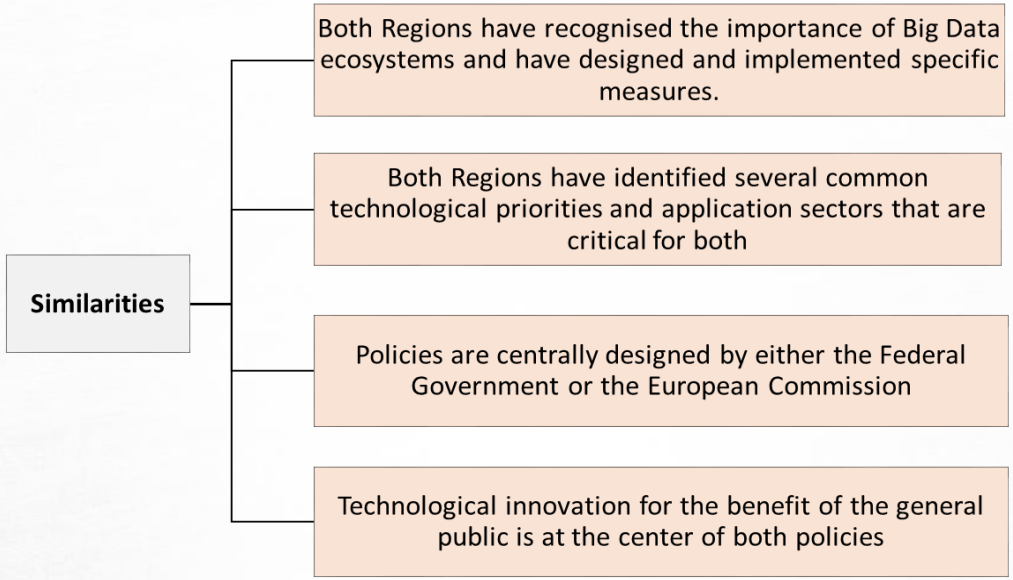
Similarities & Differences in Technological domains and priorities

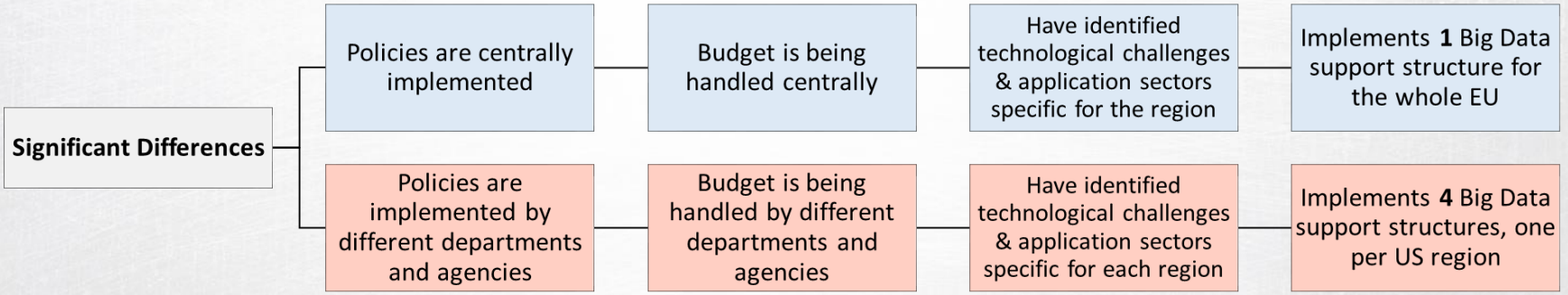


Similarities & Differences in Application domains



Similarities & Differences at Design & Implementation level





Opportunities for Collaboration

- **Opportunities for Collaboration**
  - **Technological Opportunities**
    - *Interoperability and Standardization*
    - *Adding a semantic layer to Big Data technology*
    - *Integrating Linked Data and Big Data technology*
    - *Enable discovery of deeper, fresher insights from all enterprise data resources*
    - *Improve efficiency, effectiveness, and decision-making*
    - *Facilitate more timely, agile response to business opportunities, threats, and challenges*
    - *Provide a single view of diverse data resources throughout the business chain*
    - *Support tighter security, protection, and governance of data throughout its lifecycle*
    - *Improve the scale, efficiency, performance, and cost-effectiveness of data/analytics platforms*
  - **Big Data Ecosystem Opportunities**
  - **Standardisation & Regulation**
  - **Opportunities in Education & Workforce**

Barriers for collaboration

- Data Privacy – a complicated issue
- Industrial Competition between US and EU – a long tradition
- Lack of joint EU-US funding mechanisms and policies
- Joint Funding is a challenging task
- Structural Differences in Funding Environments

Potential Collaboration Mechanisms

- **Support** and **promote collaboration between existing networks and associations**
- **Establish Joint Working Groups on Big Data** among well positioned EU and US organisations (i.e. BDVA-IEEE)
- **Provide matching funds to EU or US organisations** for participating to international programmes
- **Enhance the visibility of existing research tools**, such as Marie Skłodowska-Curie actions, ERC, etc.
- **Provide funding to supportive activities**, such as **joint workshops**, **seminars** of **conferences**
- **Provide funding for US organisations** in **H2020** and **vice versa**
- **Highlight and Upgrade the role of existing structures**, such as the TABC – TransAtlantic Business Council
- **Establish Joint calls**, **twinning of research projects**, co-fund schemes
- **Active support of the mobility of researchers**, staff exchange, fellowships to students, trans-Atlantic training and education

Thank you for your attention

Vasilis Papanikolaou

Innovation Manager

ATC SA

v.papanikolaou@atc.gr