

# BIG (Big Data Public Private Forum)

**European Data Forum Copenhagen, 7<sup>th</sup> June 2012** 







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  - 1. Example (company level)
  - 2. Business potential
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- 3. BIG: Big Data Public Private Forum

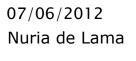


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# A use case in Atos: Olympic Games (increasing demand of data processing, storage and innovative applications)





8.5 billion devices connected by 2012

2 million messages 30% more than in Beijing Olympic Data Feed phones **Technology Operations Centre** tablets 215.000 computers spectators Olympic Park broadcasters AIRWAVE SAMSUNG commentator worldwide IT partner information Source: Numbers estimated by Atos Scientific Community October 2011

# Addressable market growth

# Business potential of openness and collaboration

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Expandin

əclining/stagnar

#### Clash of Giants

Results from carrier cooperation and alliances (such as RCS) that pave the way for global consolidation in response to increased competitive threats from over-the-top providers. Mega carriers expand markets through selected verticals such as smart grid and e-health for which they provide packaged end-to-end solutions.

#### Survivor Consolidation

Occurs as a result of reduced consumer spending, leading to revenue stagnation or decline. Investor loss of confidence in the telecoms sector produces a cash crisis and triggers survival consolidation.

#### Generative Bazaar

Pervasive, affordable, open connectivity is enabled for a person, device or object, unleashing a wave of generative innovation. A co-operative of horizontally integrated network infrastructure providers (Net Co-op) emerges, based on catering to the needs of a multitude of asset-light service providers that package connectivity with completely new services and revenue models.

#### Market Shakeout

Likely when CSPs expand horizontally in search of growth through premium connectivity services sold to application and content providers, and device OEMs. The vertical integration model is disaggregated and the industry fragments as governments, municipalities, etc., expand ultra-fast broadband to under-invested areas.

Concentrated/vertical

Competition/integration structure

Fragmented/horizonta

Source: IBM Institute for Business Value analysis.

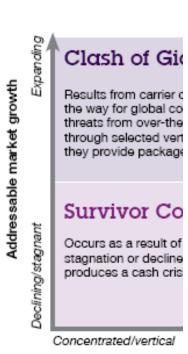


# Business potential of openness and collaboration

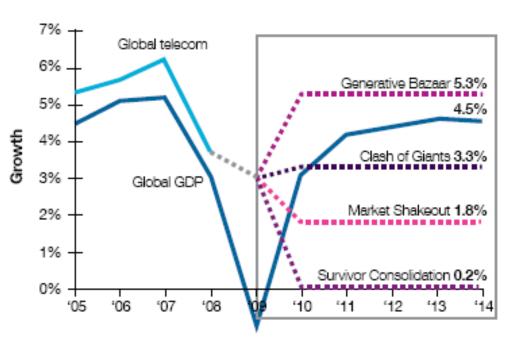
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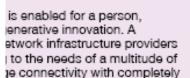
#### Global GDP versus telecom growth scenarios



Source: IBM Institute for Business Value



Source: International Monetary Fund (IMF), World Economic Outlook Database, October 2009, http://imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx; IBM institute for Business Value and IDATE analysis; 2004 - 2009 growth forecasts are based on IDATE "World Telecom Service Market," 2008 Edition, January 2009, revision in July 2009; forecasts for 2010 -2015 are IBM Telecom 2015 scenario forecasts.



n search of growth through oplication and content providers, on model is disaggregated and municipalities, etc., expand areas.

Fragmented/horizontal



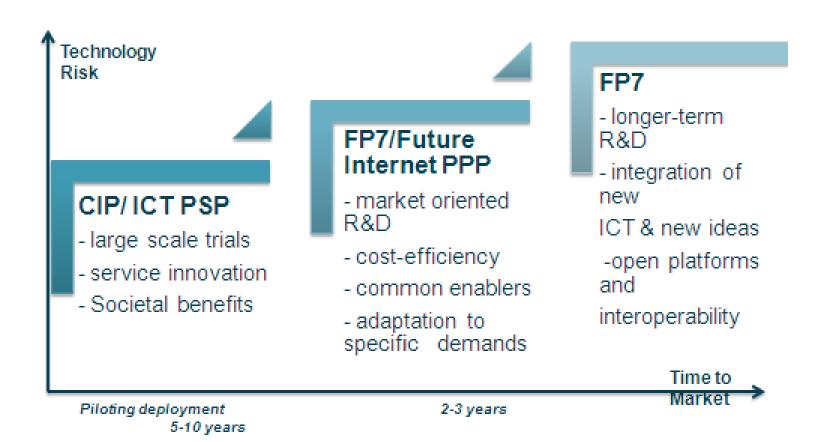
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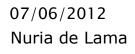


# The FI PPP: Towards an innovation landscape

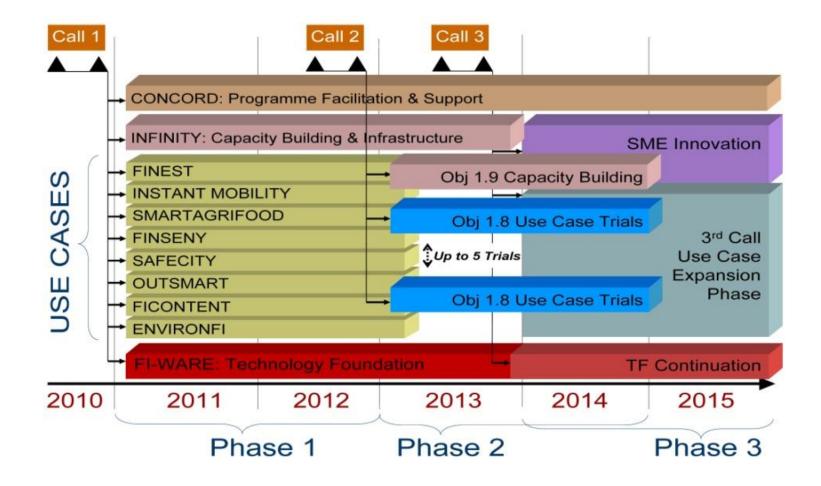




# FI PPP Programme Implementation: Technology aligned with needs









### FI-WARE: Some figures and data

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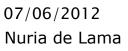


26 partners 5 Universities 4248 Person Months (excl. open calls)

Total Funding 41 M€ Open calls 12,3 M€ Total budget 66,4 M€

Three years duration

# FI-WARE: Collaboration with Usage Areas







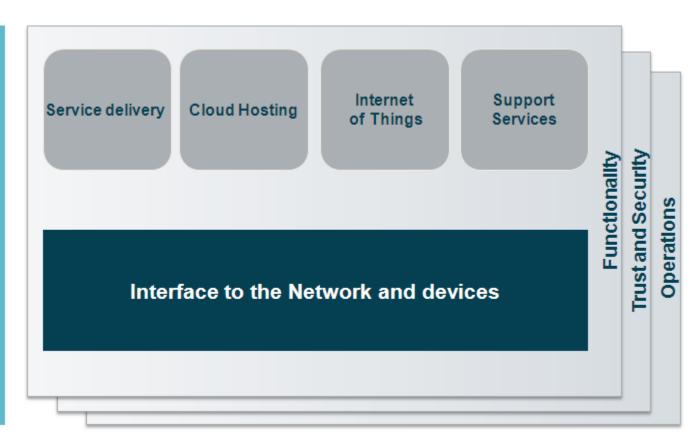


# FI Core Platform Architecture: main chapters









### FI-WARE and Big Data



- The FI-WARE project addresses, among others, the following Data Management topics:
  - Publish/ Subscription
  - Complex Even Processing (CEP)
  - Multimedia analysis
  - Unstructured data analysis
  - Meta-data pre-processing
  - Semantic annotation and application support
  - Big Data analysis, based on
    - Hadoop (heterogeneous MapReduce platform mainly used for ad-hoc data exploration of large sets of data.)
    - MongoDB: a scalable, high-performance, open source, document-oriented database.
    - <u>SAMSON Platform</u>: high-performance streaming MapReduce platform that is used for the **near-real time analysis of streaming data**.



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### **BIG: Key facts**



Type of project: Coordination Action (CA)

Duration: 24 monthsBudget: 3,055 Meuro

Funding: 2,5 Meuro

Consortium: 11 partners

#### Overall objective

Address technical, business and policy aspects of IIM and Big Data with the aims of shaping the future of the area, positioning it in H2020 and bringing the necessary stakeholders into a self-sustainable industrially-led initiative to enhance EU competitiveness taking full advantage of Big Data.





Deutsches Forschungszentrum für Künstliche Intelligenz GmbH





















### **Project objectives**



#### Main Missions

- 1. Build a self-sustainable Industrial community around Big Data in Europe
  - Technical level establishing the proper channels to gather information
  - industrially-led initiative to influence adequately the decision makers
- 2. Promote adoption of earlier waves of big data technology
- 3. Tackle adequately existing barriers such as policy and regulation issues
- Concrete Objectives (and outputs from BIG project)
  - ▶ **Define Stakeholders and players** in the value chain (D2.3 Sector's Requisites).
  - ► Elaborate a clear picture of existing technological trends and their maturity (D2.2 Technical white papers )
  - Acquire a sharp understanding of how big data can be applied to concrete environments/sectors (D2. 4 Sector's Roadmap)
  - ▶ **Disseminate results and involve** different stakeholders (D3.4 Project Dissemination Reports and D3.5 Stakeholder engagement activities)
  - ▶ **Define priorities based on expected impact** (D.2.5 Integrated Roadmap )
  - Contribute to EU competitiveness and position it in Horizon 2020 (D4.2 IPR, Standardization Recommendations)

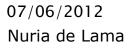


### BIG: approach (I)



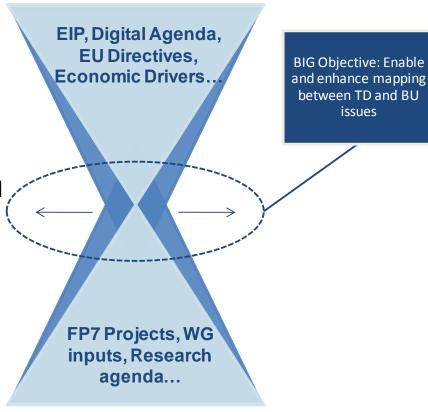
- Not only technology, but also business, policy and regulation;
- Not only generic plans for research, but specific plans for adoption for those sectors that are positioned for greater gains from the use of Big Data;
- Not only theoretical activities including roadmaps, coordination and dissemination aiming at future actions, but also actions in the course of the project to foster understanding and adoption of current technology solutions;
- Not only development activities in the a limited timeframe (the duration of the project), but the creation of an operational framework (including stakeholder engagement and leadership, organizational structures and technical infrastructure) as a starting point for future work that will go beyond the project duration

### BIG: approach (II)



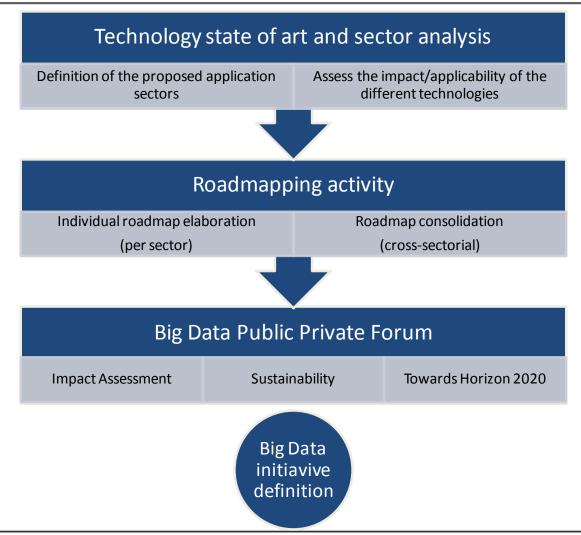


- Presence of the right profiles in the consortium to drive this process to the level of influence and impact we are aiming for
- An open philosophy will be applied to all the documents generated by the project, which will be made public to a wider community for active contribution and content validation.
- ▶ BIG is by nature a cross-disciplinary initiative with many angles.
- Reach a coherent and sensible result that satisfies the research community and high level decision makers at the same time. Thus a top-down and bottom-up approach have been defined.



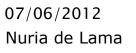
### **BIG:** major activities







### **BIG:** methodology





Identification and prioritization	Current Research Area Maturity Level	Preliminary vision	"Gap" table	Assessment and Conclusion
What is there (in terms of technology)?	Which is the level of maturity?	Which support actions are needed?	Which metrics should be used?	Which are the impacts?
What is needed (domain requirements)?  What benefits will it bring to the stakeholders?	Can it be implemented?	How can it be done?	Which is the actual situation?	What are the residual challenges?
	What is the time to market?	When can it be done?	What do we want to achieve?	Highlight barriers, strengths, future directions
	Is there any kind of restrictions?	Links between topics (technology/sectors needs)?	How to fulfill the existing gap (cost/timeframe)?	

### **BIG:** project structure



#### Industry driven working groups

Health Public Sector Finance & Telco, Media & Retail, Energy, Transport

Needs Supply

#### **Value Chain**

Data acquisition Data analysis Data curation Data storage Data usage

- Structured data
- Unstructured Data
- Event processing
- Sensors networks
- Streams

- Data preprocessing
- Semantic analysis
- Sentiment analysis
- Other features analysis
- Data correlation

- Trust
- Provenance
- Data augmentation
- Data validation
- NOSQL

**RDBMS** limitations

Cloud storage

- Decision support
- Decision making
- Automatic steps
- Domain-specific usage

**Technical areas** 

## **Atos Research & Innovation Nuria de Lama**

#### Thank you



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