



# BIG DATA H2020

***Journée thématique BIG DATA AMU/PREDON  
CPPM, Luminy, le 27/11/2015***

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# Big Data in ...

- 1. Excellence  
Scientifique**
- 2. Primaute Industrielle**
- 3. Défis sociaux**

# HORIZON 2020

Depuis le 1<sup>er</sup> janvier 2014, le programme **HORIZON 2020** a remplacé les Programme Cadre de Recherche (7ePCRD), Programme Cadre pour la Compétitivité et l'Innovation (CIP) et l'Institut Européen de Technologie (IET).

HORIZON 2020 recentre les financements sur la réalisation de **3 priorités** pour la période 2014-2020 :

- **Excellence Scientifique**
- **Primaute Industrielle**
- **Défis sociétaux**

Chacune de ces priorités regroupe différentes thématiques. L'obtention des financements est basée sur un système d'appels à projets, qui peuvent être ouverts (appels blancs) ou à contrario proposés sur des sujets extrêmement précis.

Le programme est doté de **79 milliards d'euros** pour soutenir l'ensemble des acteurs de la chaîne d'innovation à travers leurs travaux.



# RÈGLES DE PARTICIPATION

- Toute entité légale peut participer (« Open to the world »)
- Zone géographique:
  - Europe : Etats Membres, Etats Associés, Non-EU countries (Pays tiers)
- Consortium:
  - RIA/IA Au minimum, 3 entités légales de 3 Etats-membres ou Etats associés différents
  - Exception notamment pour les mono-bénéficiaires (Outil PME, ERC, Marie Curie)



# Règles de financement

- **Un seul ensemble de règles pour les 3 piliers**
  - Valable pour tous les programmes et activités
  - Valable pour tout type de partenaires
- **Un taux de financement unique**
- **Taux de financement des coûts directs éligibles**

Thème fléché	<< Non-profit >> organisations	Entreprises
Recherche	100%	100%
Innovation	100%	70%





# Horizon 2020 – couvre la chaîne de l'innovation

**TRL = Technology Readiness Level**

1	2	3	4	5	6	7	8	9
Basic Principles Observed	Technology Concept Formulated	Experimental Proof of Concept	Technology validation in lab	Technology validation in relevant environment	Demonstration in relevant environment	Demonstration in operational environment	System complete and qualified	Successful mission operations

ERC FET

Pilier II et Pilier III

Actions Marie-Curie

SME Instrument

Fast Track to Innovation

**Research and Innovation Action (100%)**

**Innovation Action (70%)**

# Structure du programme

## 3 PRIORITÉS

### EXCELLENCE SCIENTIFIQUE

- Conseil européen de la recherche (E.R.C.)
- Actions Marie Skłodowska-Curie
- Technologies futures et émergentes (FET)
- Infrastructures de recherche

### PRIMAUTÉ INDUSTRIELLE

- TIC
- Technologies clés génériques (KET) :
  - microélectronique
  - photonique
  - nanotechnologies
  - matériaux avancés
  - systèmes de production
  - biotechnologies
- Espace
- Innovation dans les P.M.E.
- Accès au financement à risque

### DÉFIS SOCIÉTAUX

- Santé, bien-être, vieillissement
- Sécurité alimentaire, bioéconomie...
- Energies sûres, propres, efficaces
- Transports intelligents, verts, intégrés
- Climat, environnement, matières premières
- Sociétés inclusives et novatrices et capables de réflexion
- Sociétés sûres

Where?

# Big Data: vers une “data-driven economy”

2003-2017 : + 27% et 50Milliards \$

By 2020 :

- +1.9% PIB UE
- + 3.75 millions d'emplois (directs et indirects)

Source : SRIA, juillet 2014

- Besoins : outils, plateformes, algorithmes, applis
  - Mots clés : availability, access, combining, data at rest, data in motion, multi-lingual sources, data integrity, data privacy, open data, data visualization
- Big Data, a new scale (*smart cities*)

# 1.1/ FUTURE EMERGENT TECHNOLOGIES (FET) PRO ACTIVE

Titre de la ligne	Type de projet & budget	Deadline
FETHPC-2 – 2017 Transition to Exascale Computing	Research and Innovation Action  EC Contribution : 2-4M€  Budget : 40M€	26/09/2017

- a) High productivity programming environments for exascale
- b) Exascale system software and management
- c) Exascale I/O and storage in the presence of multiple tiers of data storage
- d) Supercomputing for Extreme Data and emerging HPC use modes
- e) Mathematics and algorithms for extreme scale HPC systems and applications working with extreme data

## 1.2/ E-INFRA

Titre de la ligne	Type de projet & budget	Deadline
EINFRA-12-2017 Data and Distributed Computing e-infrastructures for Open Science	Research and Innovation Action EC Contribution : 5-8M€ Budget : 40M€	28/03/2017

2 areas covered to make research data discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable

- a) Secure and agile data and distributed computing e-infrastructures (in complement to INFRADEV-4-2016, "Towards a European Research and Science Cloud")
- b) Access and preservation platforms for scientific information

## 1.3/ E-INFRA

Titre de la ligne	Type de projet & budget	Deadline
EINFRA-21-2017 Platform-driven e-infrastructure innovation	Research and Innovation Action  COFUND PPI: ?? M€ (a); 4-5M€ (b); 2,5-3M€ (c);  Budget : 26M€	28/03/2017

a) Support to Public Procurement of innovative HPC systems, PPI

b) e-Infrastructure prototypes:

(b1) Universal discoverability of data objects and provenance: Prototyping an e-infrastructure service, based on standards and best-practices, for the uptake of a Digital Identifier e-infrastructure for digital objects (articles, datasets, collections, software, nomenclature, etc.), researchers and contributors, which cuts across geographical, temporal, disciplinary, cultural, organisational and technological boundaries, without relying on a single centralised system but rather federating locally operated systems to ensure interoperability.

(b2) Computing e-infrastructure with extreme large datasets: Develop service prototypes to cope with very large data resources. It should include the basis software layers supporting applications such as modelling, simulation, pattern recognition, visualisation, etc. The developments should be supported by robust mathematical methods and tools.

## 2.1/ LEIT SPACE

Titre de la ligne	Type de projet & budget	Deadline
EO-2-2017 EO Big Data Shift	Research and Innovation Action EC Contribution : 1-2M€ Budget : 7,5 M€	??

**To support access to Copernicus** dedicated mission data and Copernicus service information to public and private users.

Two strands :

- i) the evolution of the **Copernicus data infrastructure**;
- ii) the **adaptation of big data technologies to Copernicus user scenarios**

Participation of SMEs encouraged

Proposals should take into account needs emerging from ongoing linked actions within Copernicus including the dissemination platform; access to data and the Collaborative Ground Segment. To that end an information document will be made available as part of the general call package.

## 2.2.1/ LEIT ICT – 14 – 2016 - 2017

Titre de la ligne	Type de projet & budget	Deadline
ICT-14-2016-2017  Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation	Innovation Action  EC Contribution :  1-3 M€ (1); up to 7 M€ (2)  Budget : ???	12/04/2016

Europe lacks a **systematic transfer of knowledge and technology** across different sectors and there is an underdeveloped **data sharing and linking culture**. Traditionally, data has been collected and used for a certain purpose within sectorial "silos", while using data across sectors for offering new services opens new opportunities for solving business and societal challenges. The lack of **agreed standards and formats**, and the low rates of publishing data assets in machine discoverable formats further hold back data integration.

The challenge is to break these barriers and to foster exchange, linking and re-use, as well as to integrate data assets from multiple sectors and across languages and formats. A more specific challenge is to create a stimulating, encouraging and safe environment for experiments where not only data assets but also knowledge and technologies can be shared.

- 1/ Data integration activities (1)
- 2/ Data experimentation incubators (2)

## 2.2.2/ LEIT ICT – 15 – 2016 - 2017

Titre de la ligne	Type de projet & budget	Deadline
ICT-15-2016-2017  Big Data PPP: Large Scale Pilot actions in sectors best benefitting from data-driven innovation	Innovation Action  EC Contribution :  10-15M€  Budget : 15 M€	12/04/2016

Possible industrial sectors for **Large Scale Pilot** actions include (but are not limited to) health, energy, environment, earth observation, geospatial, transport, manufacturing, finance and media. Although Large Scale Pilot actions are required to have a **strong focus in a given industrial domain**, they may involve cross-domain activities where these provide clear added value. Large Scale Pilot actions will **propose replicable solutions by using existing technologies or very near-to-market technologies** that could be integrated in an innovative way and **show evidence of data value**. Their objective is to **demonstrate how industrial sectors will be transformed by putting data harvesting and analytics at their core**.

Large scale pilot with a strong focus in a given industrial domain putting data harvesting and analytics at their core.

## 2.2.3/ LEIT ICT – 16 – 2016 - 2017

Titre de la ligne	Type de projet & budget	Deadline
ICT-16-2017  Big data PPP: research addressing main technology challenges of the data economy	Research and Innovation Action  EC Contribution :  2-5M€  Budget : 5M€	25/04/2017

Significant opportunities for value generation from (Big) Data assets are lost because **the available software and IT architecture solutions are not adapted** to the processing, analysis and visualisation of data in a situation where the volume, velocity and variety of the data are increasing rapidly. **The challenge is to fundamentally improve the technology, methods, standards and processes, building on a solid scientific basis, and responding to real needs.**

This RIA is expected to address cross-sector and cross-border problems or opportunities of clear industrial significance.

- Software stacks designed to help programmers and big data practitioners
- Distributed data and process mining
- Real-time complex event processing over extremely large numbers of high volume of data

## 2.2.4/ LEIT ICT – 17 – 2016 - 2017

Titre de la ligne	Type de projet & budget	Deadline
ICT-17-2016-2017 Big data PPP: Support, industrial skills, benchmarking and evaluation	RIA EC Contribution : 2 M€ Budget : 2 M€	CSA EC Contribution : 5 M€ Budget : 5 M€

**RIA :** The benchmarking action will **identify specific data management and analytics technologies of European significance**, define benchmarks and organize evaluations that allow following their certifiable progress on performance parameters (including energy efficiency) of industrial significance. The benchmarking and **evaluation schemes will liaise closely with data experimentation/integration (ICT-14) and Large Scale Pilot (ICT-15) projects** to reach out to key industrial communities, to ensure that benchmarking responds to their real needs and problems, and to provide a basis for measuring the success of the PPP.

**CSA :** **Support the community building**, the administration and governance of the cPPP, in close collaboration with the cPPP governance bodies; facilitate discussion on relevant topics such as the framework conditions of the data economy; organise events and contribute to synergies and coordination between the actors and stakeholders of the cPPP and beyond. **Support the establishment of national centers of excellence.**

## 2.2.5/ LEIT ICT – 18 – 2016 - 2017

Titre de la ligne	Type de projet & budget	Deadline
ICT-18-2016: Big data PPP: privacy-preserving big data technologies	RIA  EC Contribution : 2 M€ (1&2)  Budget : 2 M€	CSA  EC Contribution : 1 M€ (3&4)  Budget : 2 M€

- Substantial improvement of **technologies for data access, processing and analysis to better protect consumer and personal data** (1)
- Substantial improvements toward **creating a secure environment for data experimentation/integration projects** (2)
- Ethically sound approach** to big data processing (3)
- Improve the dialogue** between data subjects and big data communities (4)

## 3/ DEFI 1. SANTÉ

Titre de la ligne	Type de projet & budget	Deadline
SC1-PM-18-2016 Big Data supporting Public Health policies	Research and innovation action EC Contribution : 3-5 M€ Budget: 10M€	16/02/2016

Proposals should focus on how to better acquire, manage, share, model, process and exploit the huge amount of data **to develop integrated solutions that support public health authorities** of Member States and associated countries in particular in healthcare system management, long-term policy making and **increase the ability to provide actionable insights at the point of care**.

For example : **systems for determining and monitoring the combined effects of environment, lifestyle and genetics on public health**

Focus should also be on the governance of Big Data in order to use it proficiently across organisations and at policy levels. Integrated solutions should include suitable approaches towards securing security and privacy issues.

## 3/ DEFI 4. TRANSPORTS

Titre de la ligne	Type de projet & budget	Deadline
MG-8.2-2017  Big data in Transport: Research opportunities, challenges and limitations	Coordination and Support Action  EC Contribution : 0,5-1,5 M€  Budget: 2 M€	01/02/2017

**Provide useful information and suggestions** on the prerequisites of successful big data implementation in the transport sector **from a socio-economic point of view**.

Identification of methodological issues and the development of necessary tools in order to allow for **effective data mining and data exploitation**.

**Analysis of the barriers and limitations** of the transportation system to exploit big data opportunities.

**Examine the institutional and governmental issues and barriers** concerning the application of big data in transport providing policy recommendations towards "data openness" and sharing. Issues of legitimacy and public acceptance (e.g. privacy, data security, etc.) are important and should be adequately addressed.

## 3/ DEFI 5. CLIMAT & ENVIRONNEMENT

Titre de la ligne	Type de projet & budget	Deadline
SC5-20-2016  European data hub of the GEOSS information system	Research and innovation action  EC Contribution : 9-10 M€  Budget: 10M€	08/03/2016

Develop a GEOSS European hub consisting of **an innovative web-based IT platform to provide users with a unique access point (gateway) to the diverse European range of Earth observation data** (space-based and in situ data, from research and operational data infrastructures, across disciplines and communities) **and services**, as well as other relevant data sources such as socio-econom

**The European hub shall be open to academia, the public sector and to the European private sector.** Its core concepts of data federation and user customization shall support an open ecosystem of services and business opportunities and build on past EU research investments in support of the GEOSS information system. Proposals should address the sustainability issue of this platform beyond the project lifetime and a governance model driven by the public sector with possible contributions from private entities.

## 3/ DEFI 6. SOCIETES INCLUSIVES

Titre de la ligne	Type de projet & budget	Deadline
CO-CREATION-06-2017 Policy-development in the age of big data: data-driven policymaking, policy-modelling and policy-implementation	RIA EC Contribution : 4-5 M€ Budget: 11M€	CSA EC Contribution : 0,5 M€ Budget: 0,5M€

**RIA :** Proposals should apply their methodology to policy areas addressing societal challenges. **Application and improvement of existing quantitative tools is preferable.** Sociological as well as behavioural science approaches are encouraged, especially where they aim **to develop a deeper understanding of how public policy and services interact with citizens.** If relevant, proposals also need to analyse the suitability of the proposed software.

**CSA :** Following an assessment of the needs of public administrations, the multidisciplinary network will **identify methods, tools, technologies and applications for their implementation in the public sector**, taking into consideration activities also undertaken outside the European Union and considering specificities relevant to different policy domains of public activity. The activities will conclude with the outlining of a roadmap for future research directions.

## 3.1/ DEFI 7. SECURITY

Titre de la ligne	Type de projet & budget	Deadline
SEC17 - BES – 2017: Architectures and organizations, big data and data analytics for customs risk management of the international goods supply chain trade movements	Research and innovation action  EC Contribution : 5 M€  Budget: 10M€	24/08/2017

**Risk management of the movement of goods** through the international supply chain requires identifying, evaluating and **analysing the full range of largely diverse threats and risks** associated with goods and their movements, at the EU, national, and intercontinental levels.

Common repositories that take advantage of existing instruments such as the Advance Cargo Information System, which are under-utilised and under-exploited for risk management purpose, can support the intelligent use and management of complex and large amount of data, exploiting unstructured data, supporting operational and situational awareness of customs authorities, adding intelligence by means of state-of-the-art **technologies including in the fields of Big Data, Data Analytics, Data mining, Visualization, Intelligent User's Interfaces, Insight knowledge and knowledge representation, artificial intelligence, automatic language translation**. The governance of access to such repositories need to be addressed.

## 3.2/ DEFI 7. SECURITY

Titre de la ligne	Type de projet & budget	Deadline
DS-07-2017  Addressing Advanced Cyber Security Threats and Threat Actors	RIA  EC Contribution : 2-3 M€  Budget: 10 M€	Innovation Action  EC Contribution : 4-5 M€  Budget: 8 M€

**RIA :** The focus of the proposals should be on the development of novel approaches for **providing organisations the appropriate situational awareness in relation to cyber security threats allowing them to detect and quickly and effectively respond to sophisticated cyber-attacks.**

The solution may leverage techniques such as anomaly detection, visualisation tools, big data analysis, threat analysis, deep-packet inspection, protocol analysis, as well as **interdisciplinary research to counter threat actors and their methods.**

**IA :** Proposals **should develop innovative simulation environments and training materials** in order to adequately prepare those tasked with defending high-risk organisations to counter advanced cyber-attacks. In the context of cyber security attacks, proposals may also consider scenario building and simulation training to **prepare organisations' response and decision making processes in relation obligations stemming from applicable legal frameworks or in the wider context of managing crises and emergency situations.**

# SME INSTRUMENT

## FAST TRACK TO INNOVATION – PILOT

### EU-JAPAN JOINT CALL

Titre de la ligne	Type de projet & budget	Deadline
EUJ-02-2016: IoT/Cloud/Big Data platforms in social application contexts	Research and Innovation Action EC Contribution : 1.35 M€ Budget : 1.35 M€	19/01/2016

The scope is to realize IoT/Cloud/Big Data platforms in social application contexts. Specific requirements include multiple sensors and devices linked with big data analytics and cloud data management, edge-heavy computing, machine learning and complex event discovery, and a programmable IoT logic and IoT Data Warehouse.

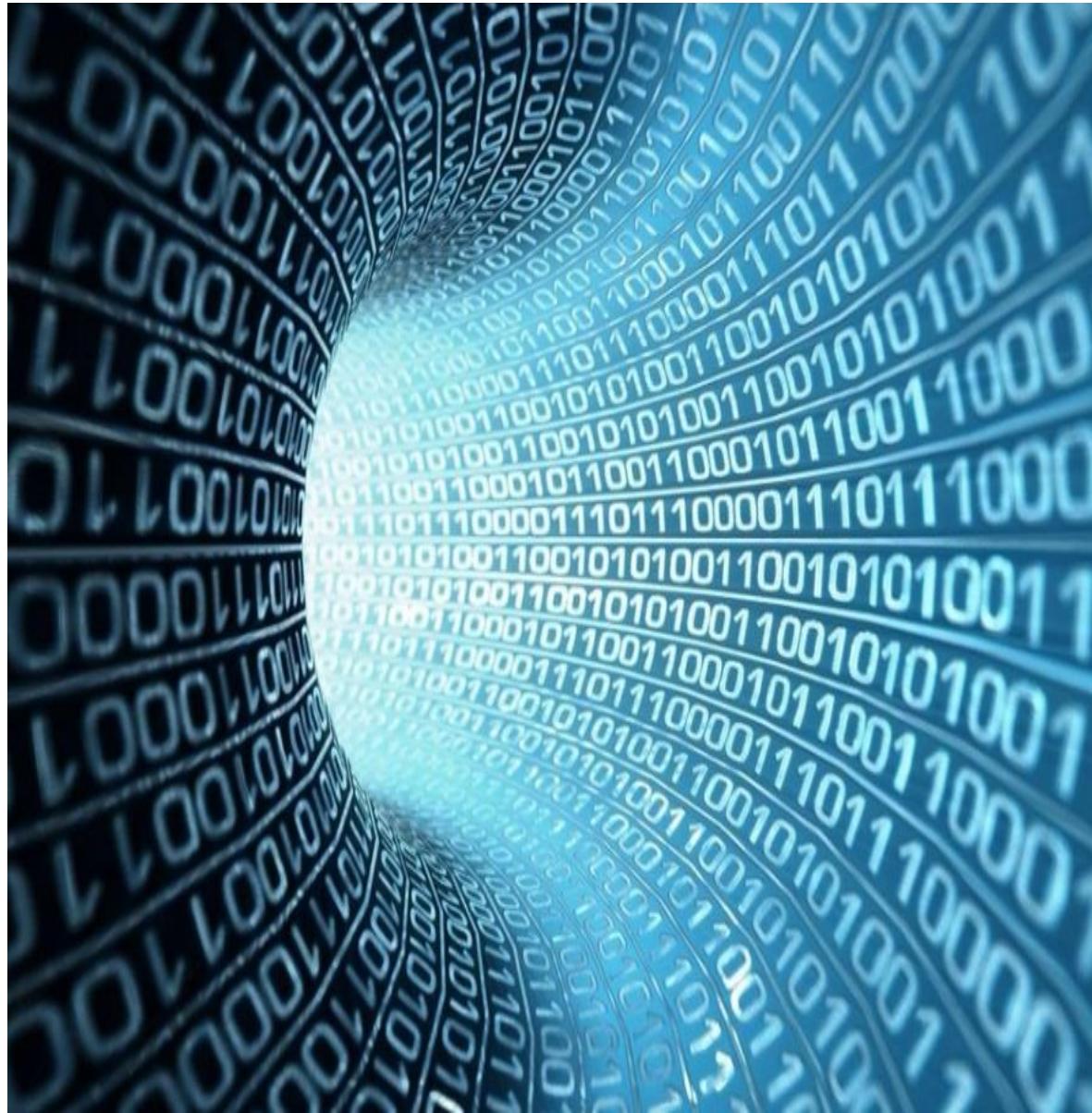
The research will address technological issues in big data application scenarios such as: elasticity and scalability of cloud data management; transregional federated clouds; distributed storage; distributed and/or edge computing; wireless sensor networks; cross-sectoral and spatio-temporal data analysis; etc. Applications related in particular to smart cities supporting urban needs and green manufacturing should serve as test-bed and verification areas.

# OTHER ACTIONS

Titre de la ligne	Type de projet & budget	Deadline
Ground-breaking Horizon Prize on Big Data technologies	Inducement prize EC Contribution : 2 M€ Budget : 2 M€	08/11/2016

The purpose of this Horizon prize scheme is **to launch an ambitious sectorial challenge open to EU contestants for Big Data technologies in the field of prediction and deep analytics**, with the aim to stimulate real break-through for technology bottlenecks.

**The challenges will be identified and designed by the CSA resulting from ICT-16, call H2020-ICT-2015.** The CSA will also assist in implementing and administering the contest.



You've got an  
innovative idea  
on Big Data?  
Let's apply for  
EC fundings!



# Strategic documents & events

## 1. EUROPEAN BIG DATA VALUE CPPP - STRATEGIC RESEARCH AND INNOVATION AGENDA

[http://www.nessi-europe.eu/Files/Private/EuropeanBigDataValuePartnership\\_SRIA\\_v099%20v4.pdf](http://www.nessi-europe.eu/Files/Private/EuropeanBigDataValuePartnership_SRIA_v099%20v4.pdf)

## 2. EUROPEAN COMMISSION FUNDING PROGRAMMES

[http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference\\_docs.html#h2020-work-programmes-2016-17](http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-work-programmes-2016-17)

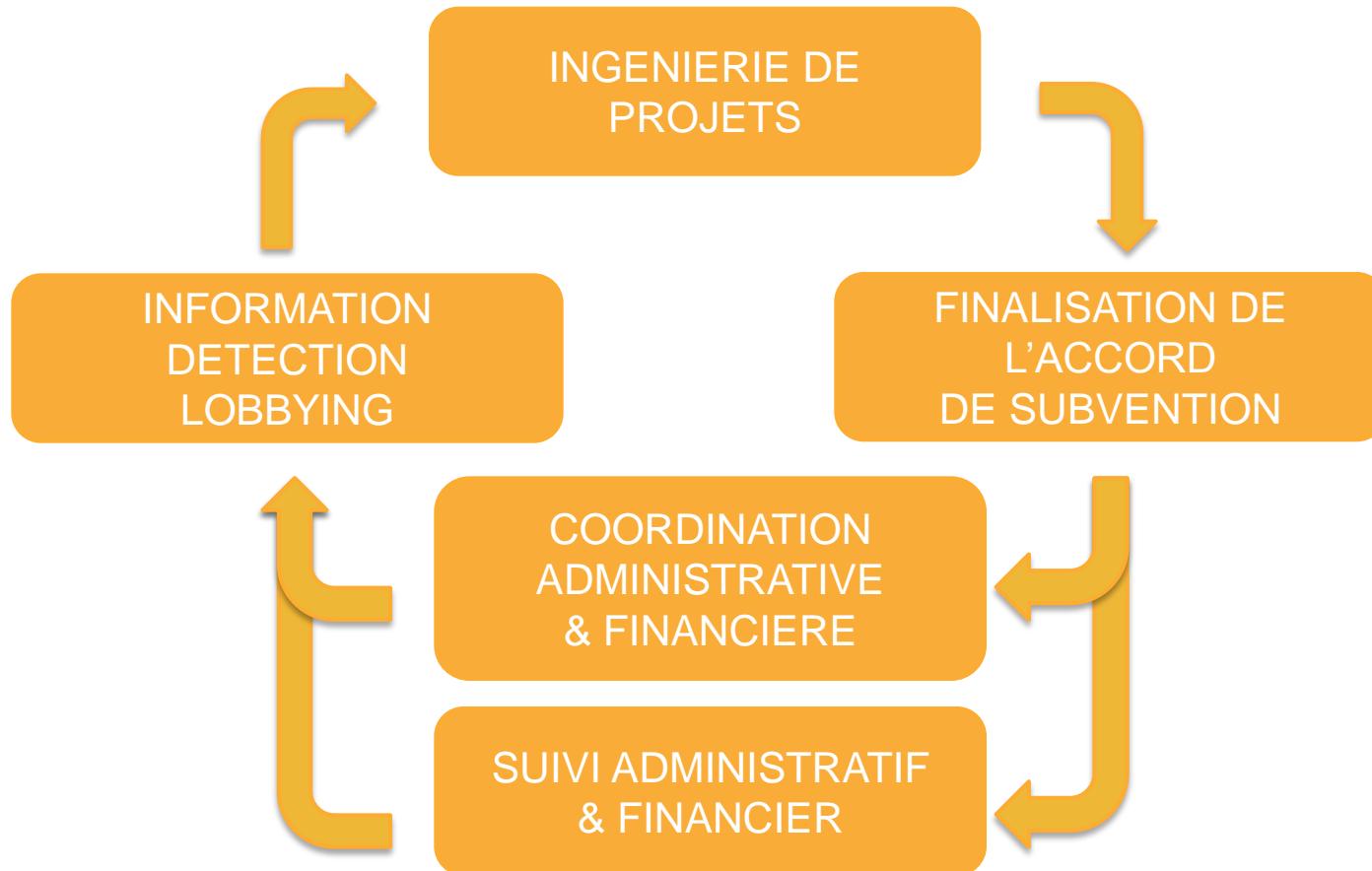
## 3. BIG DATA INFODAY – BRUSSELS – 14&15 JANVIER 2016

<https://ec.europa.eu/digital-agenda/en/news/big-data-information-and-networking-days-horizon-2020-topics>



# ACCOMPAGNEMENT PROTISVALOR

*Cycle de vie d'un projet européen*





# EQUIPE COMPETENCES

- ✓ Veille ciblée et diffusion régulière d'informations
- ✓ Identification d'opportunités de financements dans les appels européens,
- ✓ Conseils et Ingénierie de projets
- ✓ Pilotage, animation et gestion de projet
- ✓ Anticipation et gestion des aspects de Propriété intellectuelle du projet
- ✓ Gestion administrative et financière : RH, Comptabilité, Contrôle de gestion, Achat & facturation
- ✓ Maîtrise approfondie du fonctionnement de la Commission Européenne et des agences exécutives
- ✓ Connaissance du système de recherche Français et Européen
- ✓ Connaissance fine des thématiques de Recherche des laboratoire d'AMU
- ✓ Gestion des partenariats transnationaux et/ou intersectoriel, associant différentes cultures et secteurs professionnels

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*L'Equipe*



