



**Financements Horizon 2020
pour l'Industrie du Futur**



Horizon 2020 en quelques mots

☐ Le « + »

- Le plus grand programme de RDI au monde
- ~1 Md€/an pour les équipes FR (mais un potentiel additionnel de 50%)
- Des taux de subvention (très) intéressants
- Une valeur-ajoutée centrée sur l'Open Innovation

☐ Le « - »

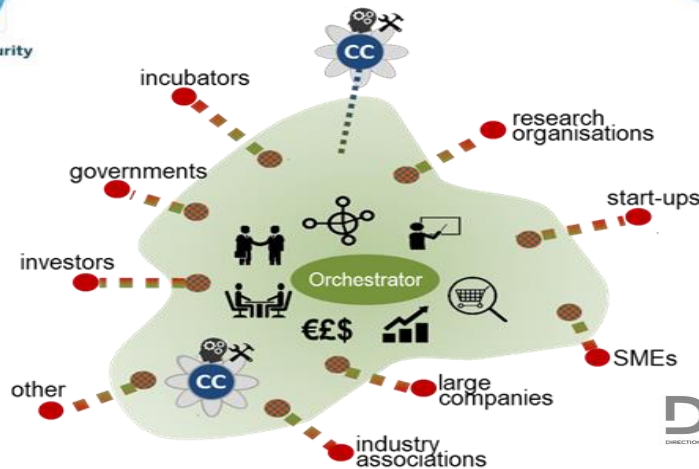
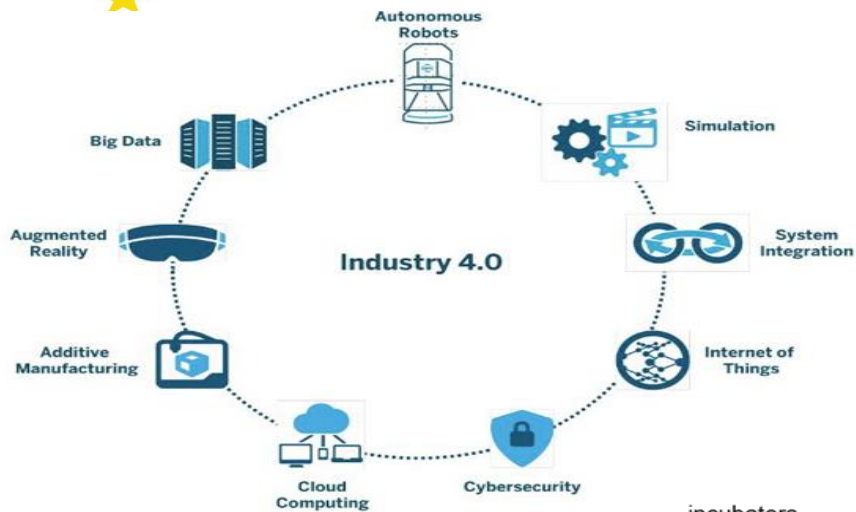
- Un cycle de programmation dans le temps long
- Une phase d'apprentissage longue
- Des projets complexes à monter et nécessitant un investissement important
- Un taux de succès faible

☐ Deux enjeux majeurs (pour les TIC)

- Acceptation et déploiement des TIC dans les secteurs traditionnels
- Mise en place de standards européens

Objectifs:

- Diffuser les connaissances
- Offrir des compétences et de moyens



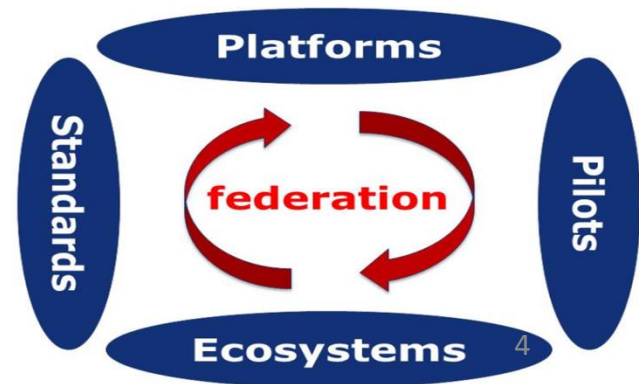


Plateformes

Objectifs:

- Promouvoir l'adoption de plateformes européennes
- Diffuser l'innovation dans des secteurs traditionnels

- ❑ Objectif: créer des « *B2B operating system* » sur certains secteurs verticaux
- ❑ Doit réunir plusieurs briques clés:
 1. infrastructure technologique (e.g. Android)
 2. Réseau/place de marché/communauté (e.g. Airbnb)
 3. Données (e.g. webmethods)
- ❑ Plusieurs étapes clés:
 1. Intégration de la plateforme (*Interoperability frameworks; Reference, architecture*)
 2. *LS piloting (labs and test beds)*
 3. Développement des écosystèmes
 4. Etablissement de standards mondiaux
- ❑ Réutiliser et intégrer des initiatives existantes!



Regional Investments

Best practice
Experimentation
in zzz lab

Best practice
Experimentation
in xyz lab

Industrial Investments

Close-to-reality
experimentation in
xxx model factory

Real production
OEM x with supply
chain

Member States / Associated Countries Investments

Large scale
experimentation in
yyy lab

SME testing facility
at zyx digital
innovation hub

Development and integration
of platforms, reference
architectures, ...

**EU
Investments**
FoF / SPIRE / ECSEL / ...



DT-ICT-07-2018-2019: Digital Manufacturing Platforms

- 2018: Agile Value Networks: Lot-size One
- 2018: Zero-defect Processes and Products
- 2019: Machines & Human Competences
- 2019: Sustainable Value Networks

2018: 48 M€

2019: 47 M€



DT-ICT-08-2019: Agricultural Digital Integration Platforms 30 M€

DT-ICT-09-2020: Digital Service Platforms for Rural Economies 30 M€



DT-ICT-12-2020: Smart Hospital of the Future 25 M€

DT-TDS-01-2019: Smart and Healthy Living at Home 60 M€



DT-ICT-10-2018-2019: Interoperable and Smart Homes and Grids 30 M€

DT-ICT-11-2019: Big Data Solutions for Energy 30 M€

Cross-cutting issues, IoT, Big Data, Security...

DT-ICT-13-2019: Digital Platforms/Pilots Horizontal Activities, 4 M€
Including Preparation of a digital industrial platform for the construction sector, 1 M€

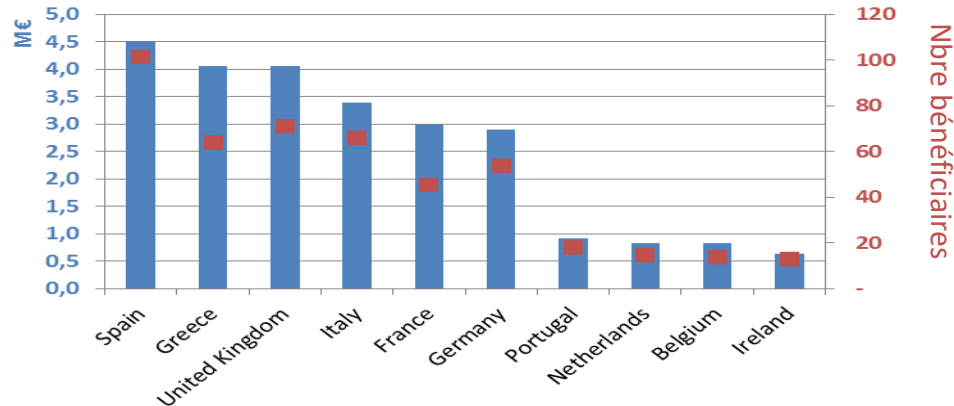




CASCADE FUNDING AUJOURD'HUI

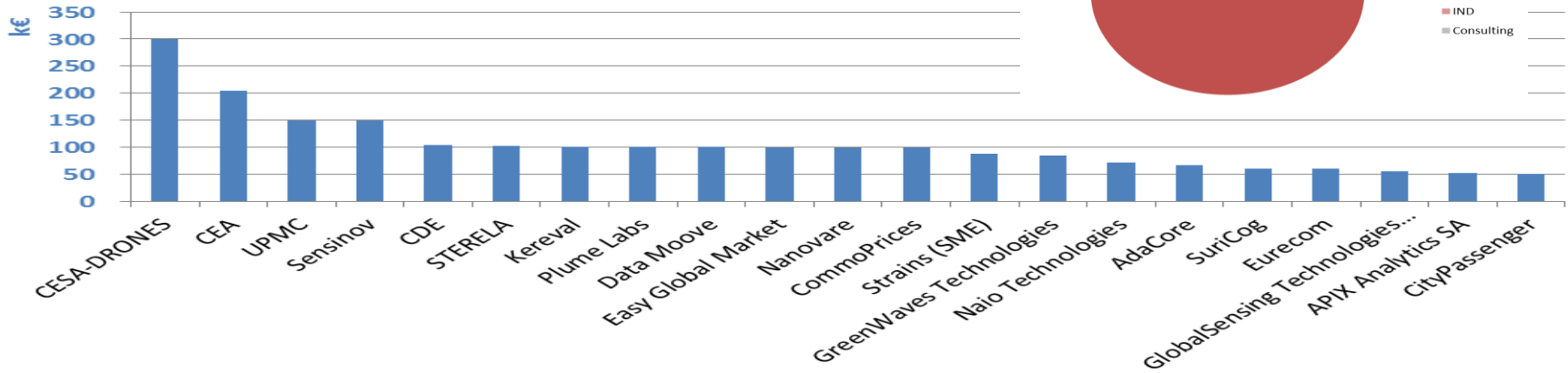
Eléments statistiques - Europe

- ❑ 51 projets Cascade funding LEIT/ICT lancés depuis 2014 pour une subvention totale CE de 381 M€ (10%) dont 124 M€ via qui seront distribués au total via FSTP
- ❑ ~30 M€ déjà distribués via des appels; entre 25 k€ et 150 k€, ~600 bénéficiaires

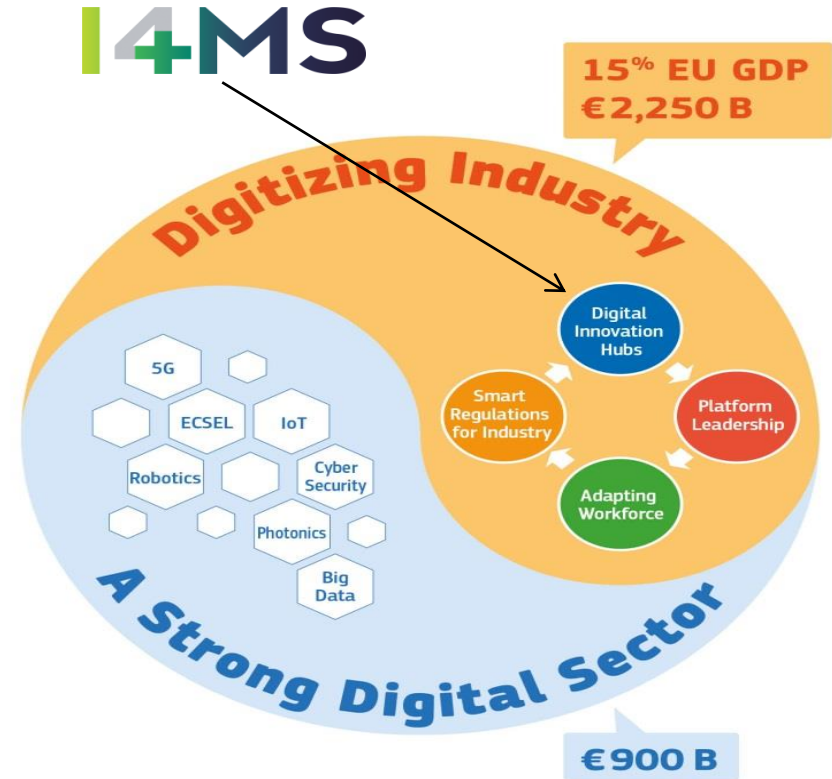


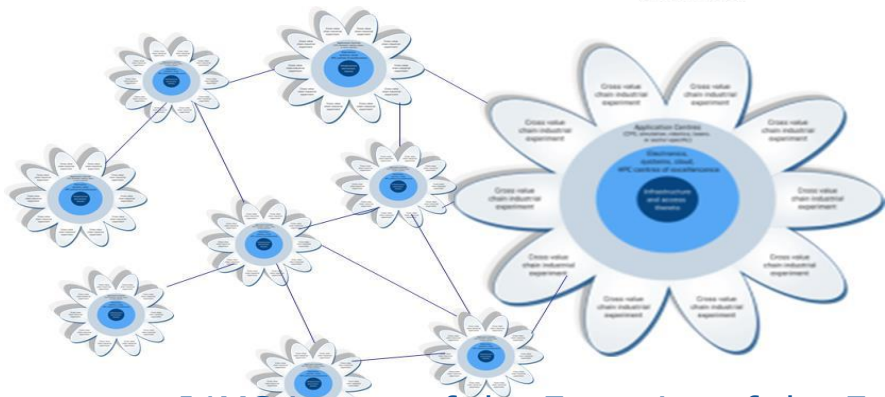
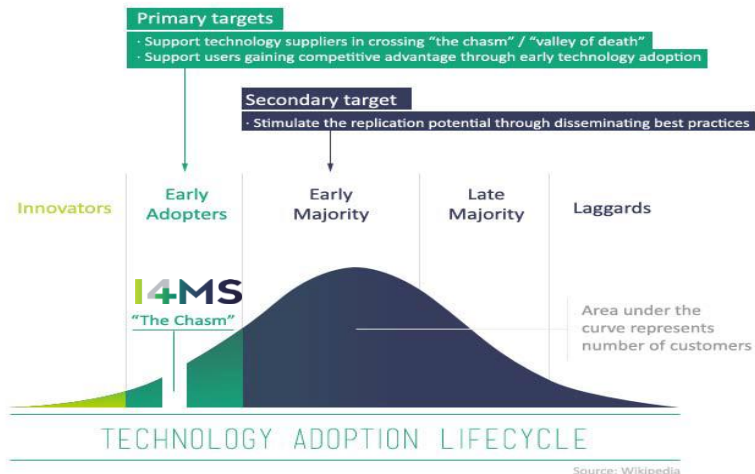
Eléments statistiques - Europe

☐ 3M€ pour FR (10%) via FSTP



I4MS is one of the key initiatives of the European Commission to shape the pan-European network of Digital Innovation Hubs





I4MS is part of the Factories of the Future PPP

- ☐ Phase 1 + 2: 75 + 35 M€ of EU funding
- ☐ 7 + 4 large projects
- ☐ 40 + 30 competence centres
- ☐ 140 + 80 experiments
- ☐ 22 Members States and Ass. Countries
- ☐ Focus on 4 areas of ICT adoption in the FoF:
 - HPC cloud-based modelling, simulation and analytics services
 - Industrial robotics systems
 - Laser-based manufacturing
 - Smart sensors systems, CPS and IoT

Usine du Futur et

Nanotechnologies

Advanced **M**aterials

Biotecnologies

Processes

Introduction

- Les appels Usine du Futur sont distribués comme suit:
 - TIC pour l'utilisation de l'IT comme enabler
 - cPPP Factory of the Future
 - cPPP SPIRE*
 - NMBP pour les technologies non ICT (matériaux, machines...)
 - 2018 - 23 topics - indicative budget ~ 550 M€
 - 2019 - 21 topics - indicative budget ~ 500 M€
- La mise en place des appels NMBP se fait encore de façon “traditionnelle”:
large majorité sur des appels RIA/IA.
 - La mise en place de Lignes Pilote a été un début vers de plus large expérimentations
 - La publication d'appels visant à démultiplier les possibilités d'expérimentation a été réalisée à partir des appels 2018: via les Open Innovation Test Beds (OITB)
 - A terme, 24 Open Innovation Tests Beds seront déployés – 150 M€.



NMBP Work Programme 2018-2020

INDUSTRIAL SOLUTION REVOLUTION

The priorities



INDUSTRY 4.0



HEALTH



**DE-CARBONISATION
ENERGY**



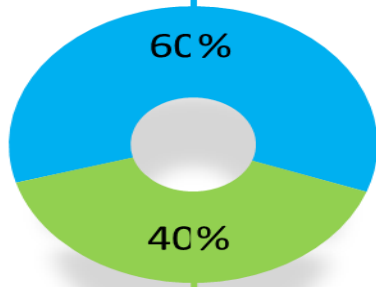
**CIRCULAR
ECONOMY**

NMBP Call: which traceability?

Priorities

Bringing the digital to the physical world

Industry 4.0



Circular Economy (20%)

Climate, Energy (20%)

Climate, Energy and the Circular Economy

Calls

FOUNDATIONS
for tomorrow's industry
(~395M€)

TRANSFORMING
European industry
(~525M€)

Industrial SUSTAINABILITY
(~665M€)

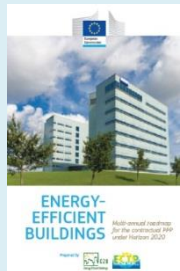
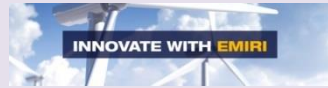
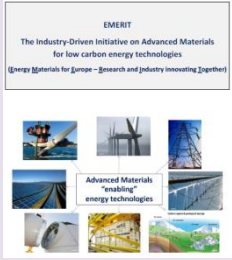
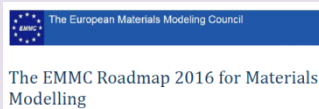
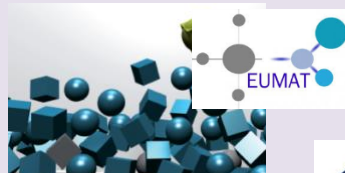
Impacts

→ Eco-system for design/testing/upscaling

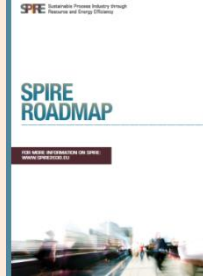
→ Global industrial leadership for re-industrialisation

→ Less energy input, more energy/ resource efficiency

Context of Reference



Acronym	Title	Start date	End date	Call topic	Details
3D-HIPMAS	Pilot Factory for 3D High-Precision MIM Assemblies	01-10-2012	30-09-2013	FuF-NMP-2012-5	Results: 11 Demos: 0
ABLE	Adaptive Automation in Assembly For B2C roller-works satisfaction in Evolvable context	01-10-2010	30-09-2019	FuF-2010-04	Results: 2 Demos: 0
ACTIONPLANT	ActionPlant - The European ICT Forum for Factories of the Future	01-06-2010	31-05-2012	FuF-ICT-2010-10.1	Results: 1 Demos: 0
ADALM	Sensor based adaptive laser micromachining using ultrashort pulse lasers for zero-failure manufacturing	01-01-2015	01-01-2018	FuF-ICT-2014.1.a.181	Results: 4 Demos: 0
ADAFACOR	Advanced Digital technologies and virtual engineering for mini Factories	01-09-2013	31-08-2016	FuF-NMP-2013-6	
ADMCOM	Advanced manufacturing routes for metal/Composite components for Aerospace	01-10-2013	30-09-2016	FuF-NMP-2013-10	
ADVENTURE	Adaptive Virtual Enterprise	01-09-2011	31-08-2014	FuF-ICT-2011.2.3	Results: 8 Demos: 8



NMBP Work Programme 2018-2020

INDUSTRIAL SOLUTION REVOLUTION

Mission 1

FOUNDATIONS FOR TOMORROW'S INDUSTRY

- OPEN INNOVATION HUBS
- MATERIALS CHARACTERISATION
and COMPUTATIONAL MODELLING
- GOVERNANCE, SCIENCE-BASED RISK
ASSESSMENT AND REGULATORY
ASPECTS

269 M€

Mission 2

TRANSFORMING EUROPEAN INDUSTRY

- FACTORIES OF THE FUTURE
- BIOTECHNOLOGY
- MEDICAL TECHNOLOGY
INNOVATIONS

340 M€

Mission 3

INDUSTRIAL SUSTAINABILITY

- SPIRE
- CATALYSING THE CIRCULAR
ECONOMY
- CLEAN ENERGY THROUGH
INNOVATIVE MATERIALS
- CULTURAL HERITAGE
- ENERGY-EFFICIENT BUILDINGS

447 M€

Each orientation is translated into CALL and EXPECTED IMPACT

Les calls 2019 :

NMBP

Call - FOUNDATIONS FOR TOMORROW'S INDUSTRY

1.1 OPEN INNOVATION TEST BEDS

DT-NMBP-03-2019: Open Innovation Test Beds for nano-enabled surfaces and membranes (IA)

1.2 MATERIALS CHARACTERISATION and COMPUTATIONAL MODELLING

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

1.3 GOVERNANCE, SCIENCE-BASED RISK ASSESSMENT AND REGULATORY ASPECTS

NMBP-17-2020: Regulatory science for medical technology products (RIA)

Call - TRANSFORMING EUROPEAN INDUSTRY

2.1. FACTORIES OF THE FUTURE (FOF)

DT-FOF-05-2019: Open Innovation for collaborative production engineering (IA)

DT-FOF-06-2019: Refurbishment and re-manufacturing of large industrial equipment (IA)

DT-FOF-08-2019: Pilot lines for modular factories (IA 50%)

DT-FOF-12-2019: Handling systems for flexible materials (RIA)

DT-NMBP-18-2019: Materials, manufacturing processes and devices for organic and large area electronics (IA)

DT-NMBP-19-2019: Advanced materials for additive manufacturing (IA)

2.2 BIOTECHNOLOGY

BIOTEC-02-2019: Boosting the efficiency of photosynthesis (RIA)

CE-BIOTEC-05-2019: Microorganism communities for plastics bio-degradation (RIA)

Call - INDUSTRIAL SUSTAINABILITY

3.1. SUSTAINABLE PROCESS INDUSTRY (SPIRE)

CE-SPIRE-04-2019: Efficient integrated downstream processes (IA)

CE-SPIRE-05-2019: Adaptation to variable feedstock through retrofitting (IA 50%)

DT-SPIRE-06-2019: Digital technologies for improved performance in cognitive production plants (IA)

3.2. CATALYSING THE CIRCULAR ECONOMY

CE-NMBP-25-2019: Photocatalytic synthesis (RIA)

3.3. CLEAN ENERGY THROUGH INNOVATIVE MATERIALS

LC-NMBP-27-2019: Strengthening EU materials technologies for non-automotive battery storage (RIA)

LC-NMBP-32-2019: Smart materials, systems and structures for energy harvesting (RIA)

3.5. ENERGY-EFFICIENT BUILDINGS (EEB)

LC-EEB-01-2019: Integration of energy smart materials in non-residential buildings (IA)

LC-EEB-03-2019: New developments in plus energy houses (IA)



Open Innovation Test Beds

Budget WP
2018=75 M€
2019=50 M€
2020=40 ? M€



Lightweight nano-enabled multifunctional composite materials and components

DT-NMBP-01-2018



Safety Testing of Medical Technologies for Health

DT-NMBP-02-2018



Nano-enabled surfaces and membranes

DT-NMBP-03-2019



Bio-based nano-materials and solutions

DT-NMBP-04-2020



Nano-pharmaceuticals production

DT-NMBP-06-2020



Functional materials for building envelopes

DT-NMBP-05-2020



Characterisation

DT-NMBP-07-2018



Materials modelling

DT-NMBP-11-2020

NMBP 2018-2020 – Timing

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2019	
Opening: 16 Oct 2018		
DT-NMBP-03-2019 (IA)	50.00	22 Jan 2019 (First Stage)
		03 Sep 2019 (Second Stage)
DT-NMBP-08-2019 (RIA)	37.80	22 Jan 2019 (First Stage)
DT-NMBP-10-2019 (RIA)		03 Sep 2019 (Second Stage)
NMBP-15-2019 (RIA)	27.80	
DT-NMBP-12-2019 (CSA)	4.00	03-sept-19
NMBP-34-2019 (CSA)	3.00	

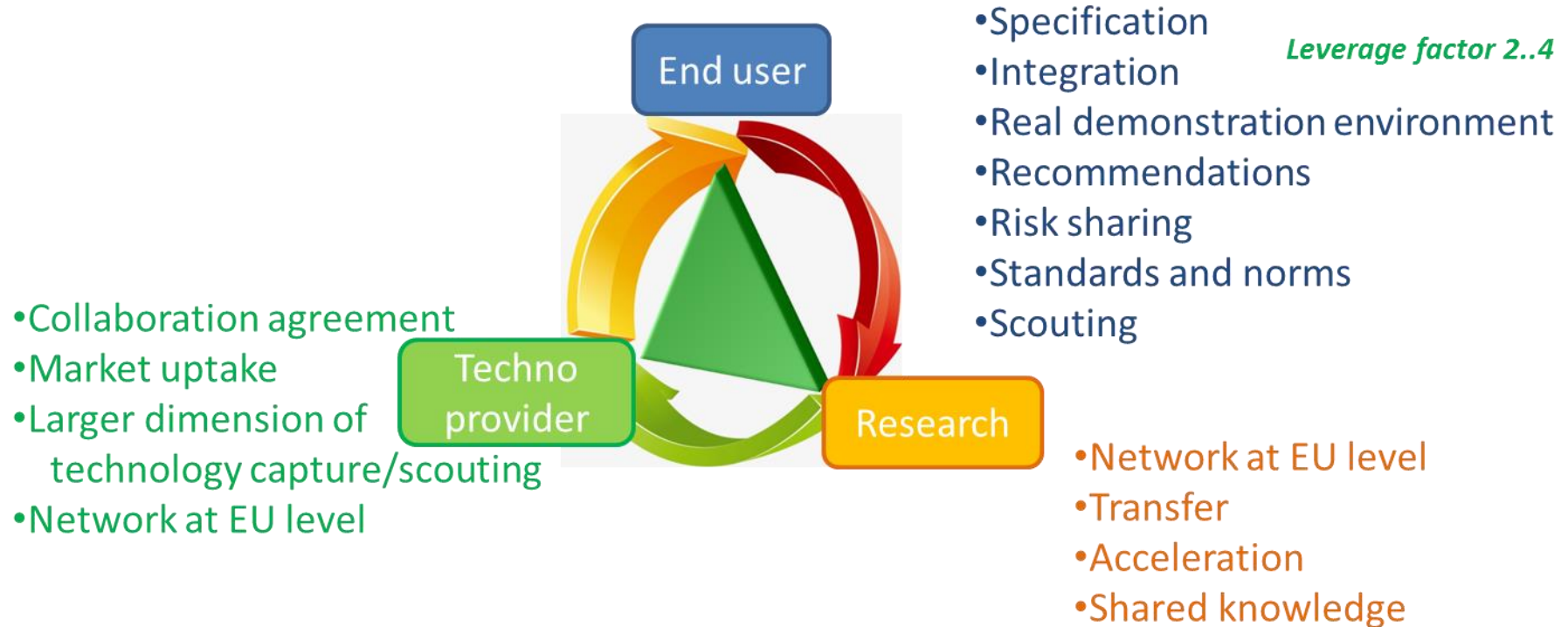
Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2019	
Opening: 16 Oct 2018		
CE-SPIRE-04-2019 (IA)	65.80	21 Feb 2019
CE-SPIRE-05-2019 (IA)		
DT-SPIRE-06-2019 (IA)	32.90	
LC-EEB-01-2019 (IA)	53.50	21 Feb 2019
LC-EEB-03-2019 (IA)		
LC-EEB-05-2019-20 (IA)		
CE-NMBP-25-2019 (RIA)	18.46	
LC-NMBP-27-2019 (RIA)	65.10	22 Jan 2019 (First Stage)
LC-NMBP-29-2019 (RIA)		03 Sep 2019 (Second Stage)
LC-NMBP-32-2019 (RIA)		
LC-NMBP-35-2019 (IA)	25.00	

Les calls 2019

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2019	
Opening: 28 Nov 2017		
DT-NMBP-20-2018 (IA-LS)	15.00	08-mars-18
Opening: 16 Oct 2018		
BIOTEC-02-2019 (RIA)	31.00	22 Jan 2019 (First Stage)
		03 Sep 2019 (Second Stage)
DT-NMBP-18-2019 (IA)	20.00	22 Jan 2019 (First Stage)
DT-NMBP-19-2019 (IA)	20.40	03 Sep 2019 (Second Stage)
CE-BIOTEC-05-2019 (RIA)	10.00	05-mars-19
DT-FOF-05-2019 (IA)	106.60	21 Feb 2019
DT-FOF-06-2019 (IA)		
DT-FOF-08-2019 (IA)		
DT-FOF-12-2019 (RIA)		

Answer to H2020 Calls?

Which added-value? Which approach?

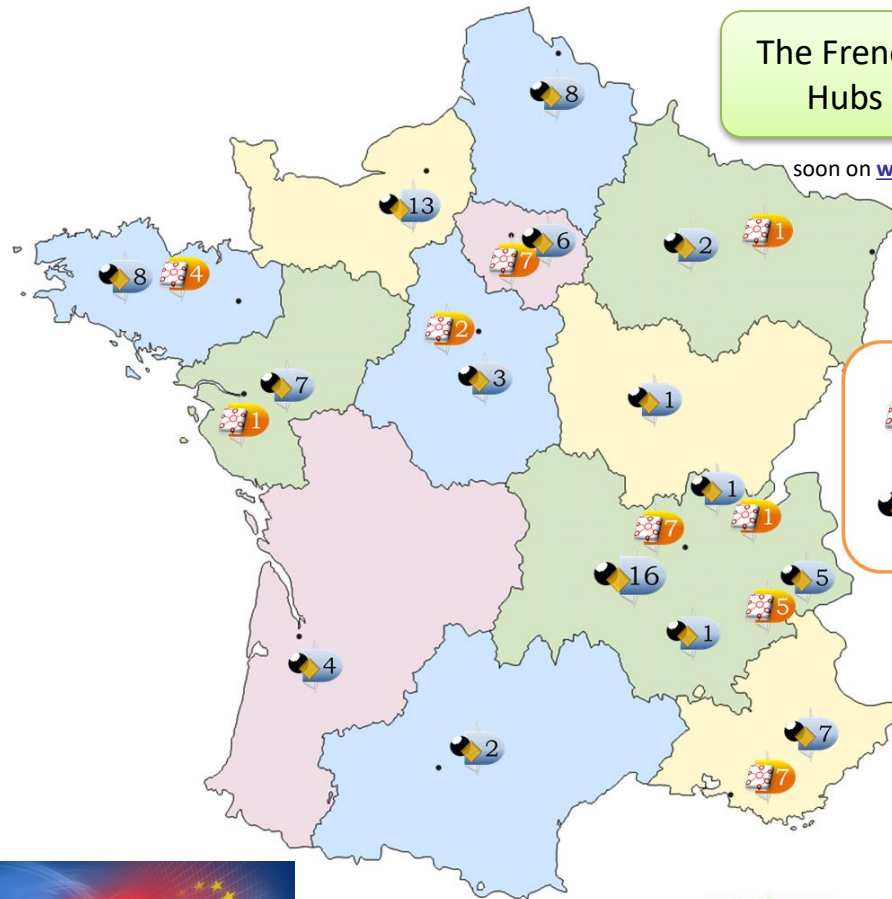




Merci

The French Community of Hubs and Test Beds

soon on www.horizon2020.gouv.fr



(digital) Innovation Hubs
including
Competence Centers



Competence Centers



<http://www.horizon2020.gouv.fr>



<https://scanr.enseignementsup-recherche.gouv.fr/>