



eltic-Plus⁺
Smart Connected World



**The Celtic-Plus EUREKA
European R&D Programme
*Future Internet and Smart Cities***

Jacques Magen, Celtic-Plus Chairman

Opportunidades de Internet del Futuro
en entornos de Smart Cities

13 de mayo 2014, Madrid



Before I start...

Reading the new Paris airport magazine *Paris Worldwide* yesterday:

“Investigation – Smart Cities”

“Implementing a citywide solution and using it as standard benchmark, “a demo”, in essence, is the strategy adopted at the European level by all private sector participants in the smart city market”

“The development of digital technology and mobility constitutes a major change in the tourist experience”

Fleur Pellerin, Minister of External Trade

“Developed by the Spanish company Gowex, the Gowex free Wi-Fi app is one of the best ways to connect to free hotspots (private and public) in major cities worldwide”

“Cities in the US now have Chief Data Officers”

About Celtic-Plus

Celtic-Plus is a European EUREKA R&D programme dedicated to networking technologies and services

– *bottom-up, flexible, industry-driven, close to the market*

Celtic-Plus has 10 years of experience in European projects covering R&D and Innovation

– *Impact and innovation are crucial to Celtic-Plus (and to EUREKA)*

- Celtic-Plus Core Group Members:**



Celtic-Plus: an intergovernmental EUREKA strategic initiative

Celtic-Plus process

- Bottom-up proposals 2 times per year
- “Label” granted by the Celtic-Plus “Core Group”
- Public funding provided by national authorities
- Monitoring by Celtic Office and national authorities (2 reviews per project)
- **Industrial R&D&I**

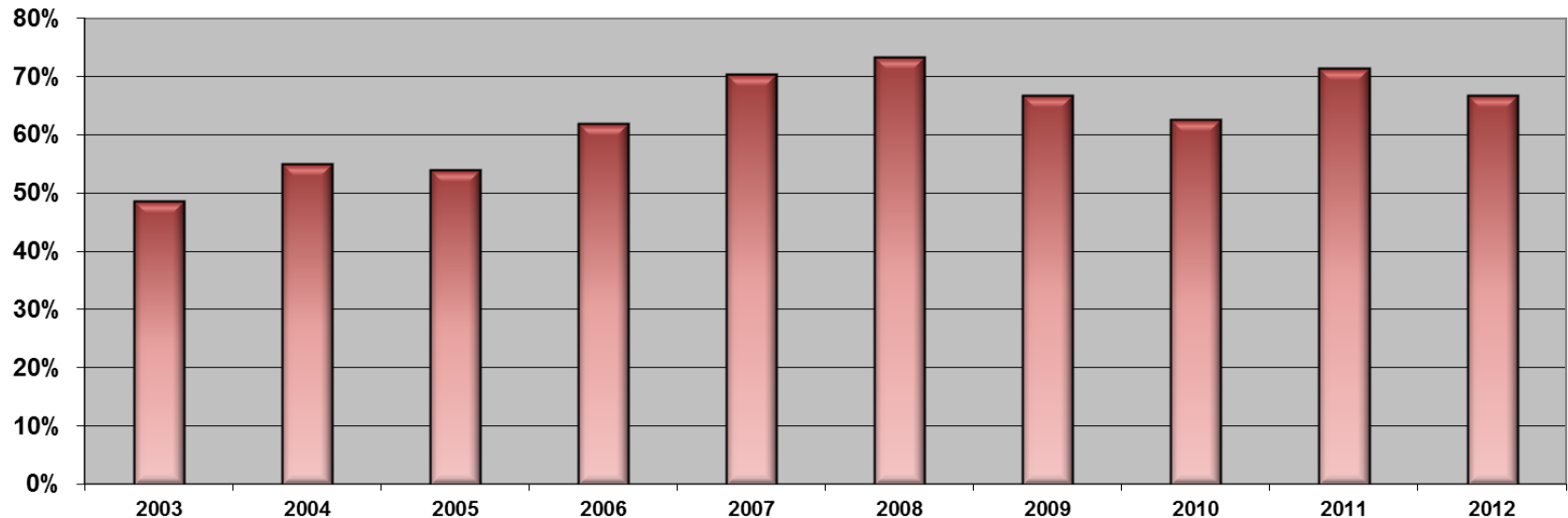
FP7/H2020 process

- *Top-down proposals at fixed deadlines*
- *Public funding provided by EC*
- *Quarterly reports, bi-annual reviews by EC*
- ***R, R&D projects (and Innovation projects in H2020)***
- ***1 out of 5-10 proposals is funded (?)***

Celtic-Plus Proposal Success Rate

50 to 70%

Success rate: submitted proposals to running projects



Programme statistics

Celtic & Celtic-Plus (11 years)	# of projects	Total effort (PY)	Total costs (M€)
Completed	87	5357	552
Running	25	2011	241
Labelled in 2013	8	714	76
Total	120	8082	869

Status May 2014

- Number of active organisations: > 500
- Number of active countries: 28

Results and Impacts

New or improved products	540
Number of directly generated patents	326
Prototypes/ field trials	234
Number of standards contributions	500
Number of publications/ conferences	1200
Number of PhD/ Master thesis	310
Estimated RoI: around 50 x	>15 B€

*) figures extrapolated for 74 closed projects on the basis of 33 evaluated project outcomes

Project Highlights



Broadband Optical networks Budget: 64.8 M€	Broadband mobile networks Budget: 12.8 M€
High-speed optical networks for Future Internet 10 times faster This 65 M€ project has laid the ground for 100 Gb/s optical networks.	Global standards for 4G Technology on LTE-advanced bringing Europe back into the driver's seat for high-speed mobile systems
World class developments on the optical layer and network integration: <ul style="list-style-type: none"> ➤ 21 new products ➤ 15 improvements of existing products 	59 contributions to 4G mobile communication standardisation, paving the way to roll-out LTE-Advanced.
Spanish budget: 2.3 M€ - share: 3.5 % Partners: Telefónica I+D, Telnet Redes Inteligentes, CTTC, University of Malaga, University of Zaragoza	Spanish budget: 128 k€ - share: 1 % Partner: Universidad Politécnica de Valencia

Both projects were Celtic Gold Award and Innovation Award winners
 100GET was also nominated for the EUREKA Innovation Award 2013

More Project Highlights

2014 Celtic Award Winners (1/2)



Broadband 4G access networks Celtic Innovation award 2014 Budget: 7.9 M€	Elastic Optical Networks Celtic Gold Award 2014 Budget: 5.2 M€
New ITU standard G.fast for realizing a 1Gb/s hybrid fibre-copper solution for up to 200 m normal copper lines; as successor of x-DSL .	EO-Net project brings “elasticity” to optical transport networks. Elasticity becomes an enabler to achieve Scalability, Cost and Energy efficiency.
G-fast is becoming widely accepted at operators and in press: 07/2013 Austria Telekom: Field trial 10/2013 BT: Field trial 02/2014 DT: Field trial 02/2014 Telia Sonera: Helsinki Pilot	<ul style="list-style-type: none"> • 18% cost reduction (network upgrade) • Elasticity in new commercial chipset • 30% energy savings (day/night traffic adaptation) • 5 “elastic” products under development • 8 Prototypes and Field trials
Spanish budget: 2.1 M€ - share: 26.6% <ul style="list-style-type: none"> • Telefónica I+D, • Universidad Politécnica de Madrid • Marvell Hispania S.L. • Telnet Redes Inteligentes SA 	<ul style="list-style-type: none"> • No Spanish participation

More Project Highlights

2014 Celtic Award Winners (2/2)



High Performance Telemedicine platform Celtic Silver Award 2014 Budget: 6.4 M€	Next Gen. Networks for Broadcast (DVB) Celtic Bronze Award 2014 Budget: 13.3 M€
<p>First Multi-domain Celtic project with 3 hospitals. Unified Service Platform with 5 prototypes in 5 countries. Doctor from CHU Nancy considers easy to use.</p>	<p>DVB-T2: Validation of HD standard and 2 new standards for mobile handheld TV reception. DVB technologies have been adopted especially in Asia and in Africa.</p>
<ul style="list-style-type: none"> • Home care system deployment VODAFONE: 500 units sold in Madrid (target 4,000 units in 2014) • Videoconference system for the Spanish Red Cross • Network deployment in hospitals in France is under consideration • 7 new and 5 improved products 	<ul style="list-style-type: none"> • 5 from 8 validation testing's of DVB-T2 • Contribution of 10 % to new mobile standards: DVB-T2-Lite and DVB-NGH • 13 new and 8 improved products • dimensioning tools for DVB deployments
<p>Spanish budget: 3.4 M€ - share: 53.4%</p> <ul style="list-style-type: none"> • Merkum Energética (coord.) • I2CAT • Androme Iberica • Other Side Mirror • Informática El Corte Inglés • Planet Media Studios 	<p>Spanish budget: 3.3 M€ - share: 25.0%</p> <ul style="list-style-type: none"> • Integrasys • HISPASAT • AICIA • UPVLC • Universidad del País Vasco

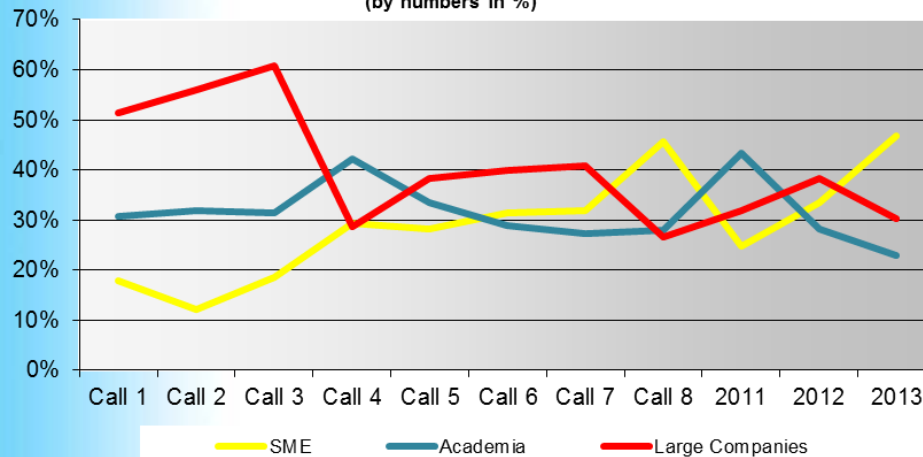
HIPERMED Award in Monaco



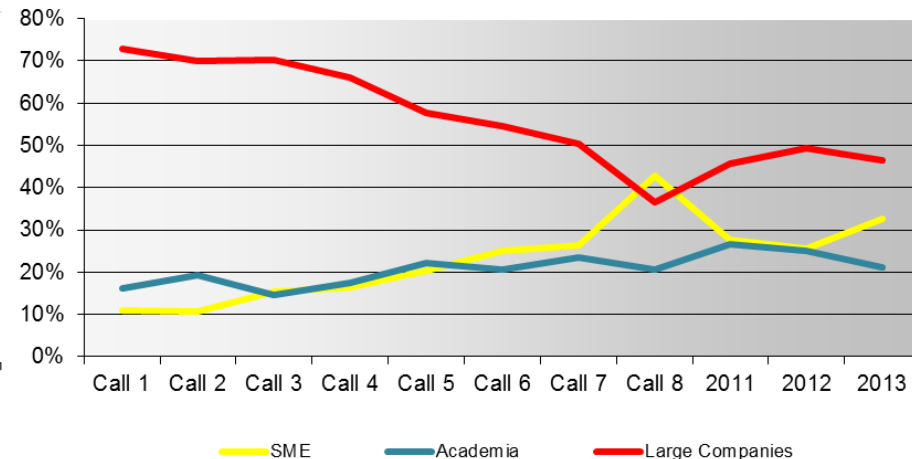
Type of organisations involved



Types of companies
(by numbers in %)



Types of companies
(by budget shares in %)



In 2013:

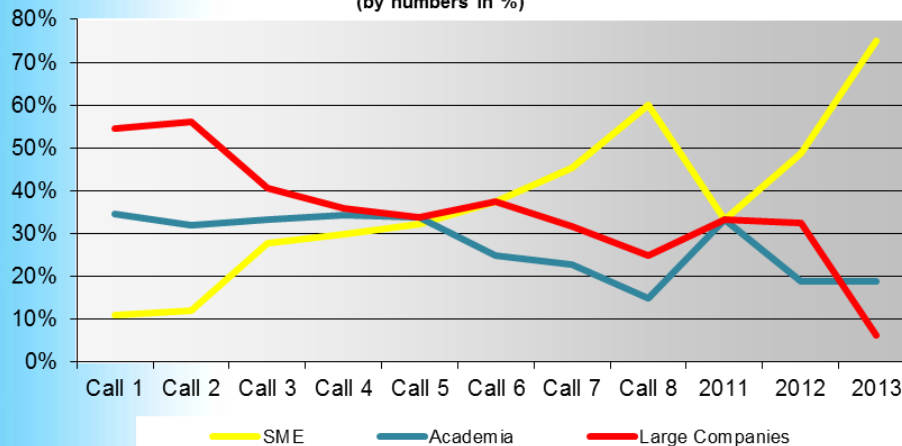
- Almost 50% of all partners are SME's
- SME's reaching more than 30 % of the overall Budget



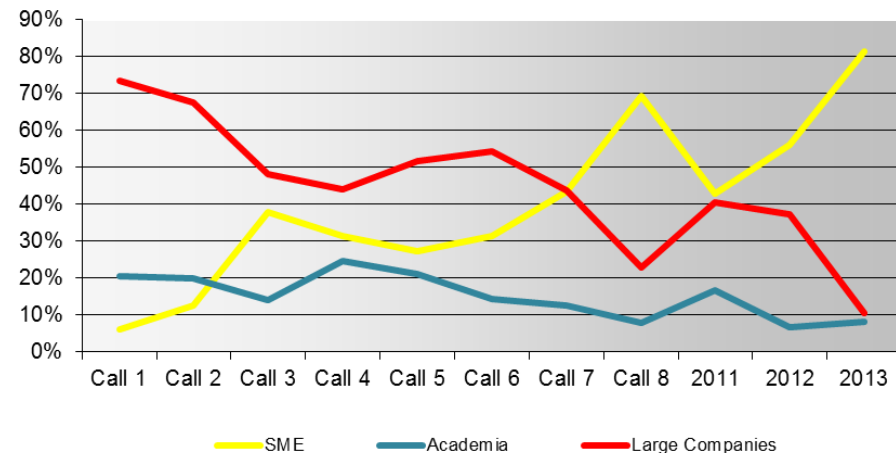
Type of organisations involved



Types of companies
(by numbers in %)



Types of companies
(by budget shares in %)



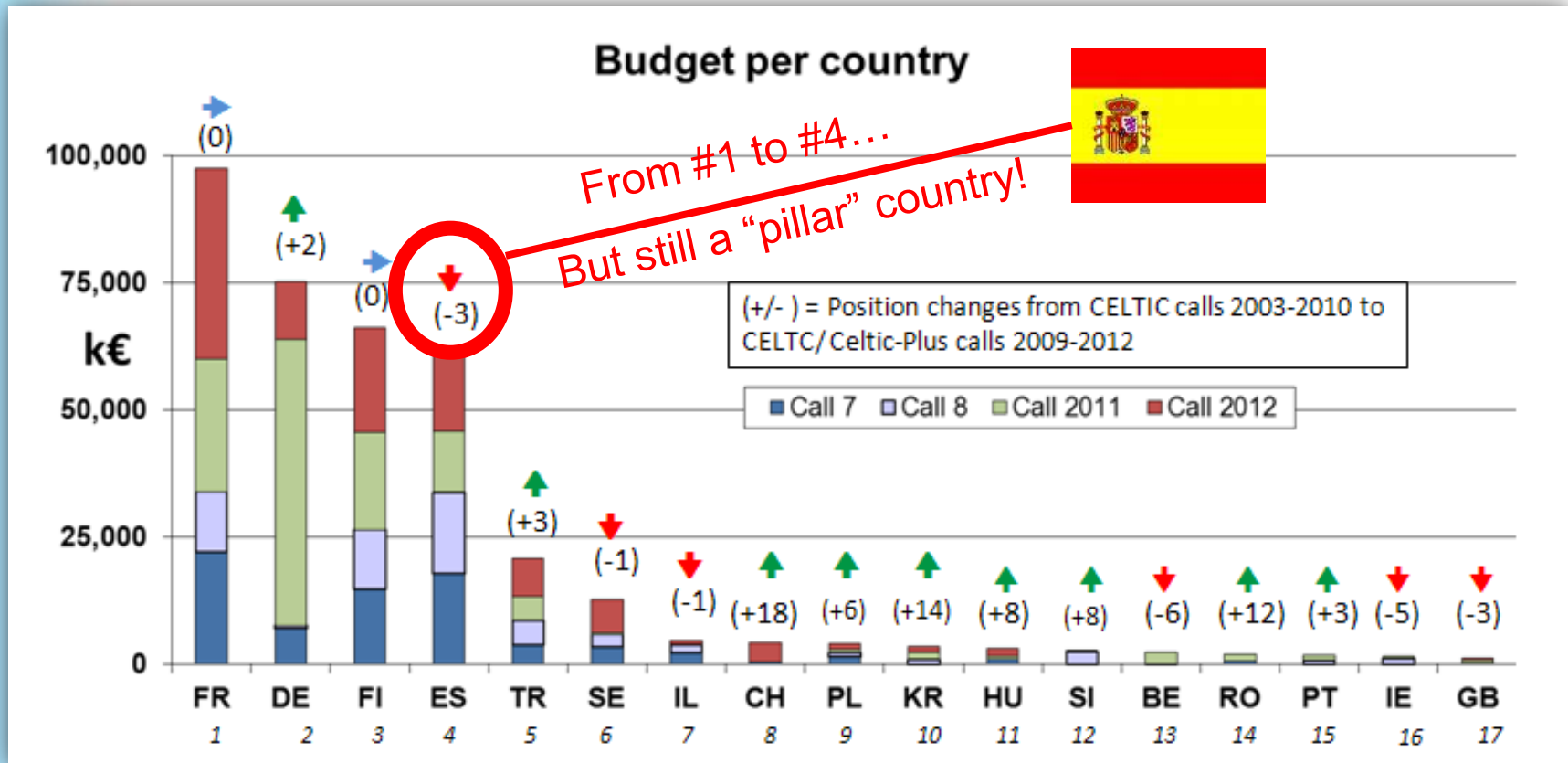
In Spain in 2013:

- There has been a strong decrease in large industry participation
- SME's now reaching more than 80 % of the overall Budget



**Celtic-Plus is an R&D programme for all types of industry players
It allows SMEs to get involved with key players at European level**

Country Participation



Evolution in country participation between all CELTIC calls (2003-2010) and still running latest CELTIC and Celtic-Plus calls (2009-2012)

Why participate in Celtic-Plus projects?

**Industry-
driven**

**Bottom-
up**

Flexible

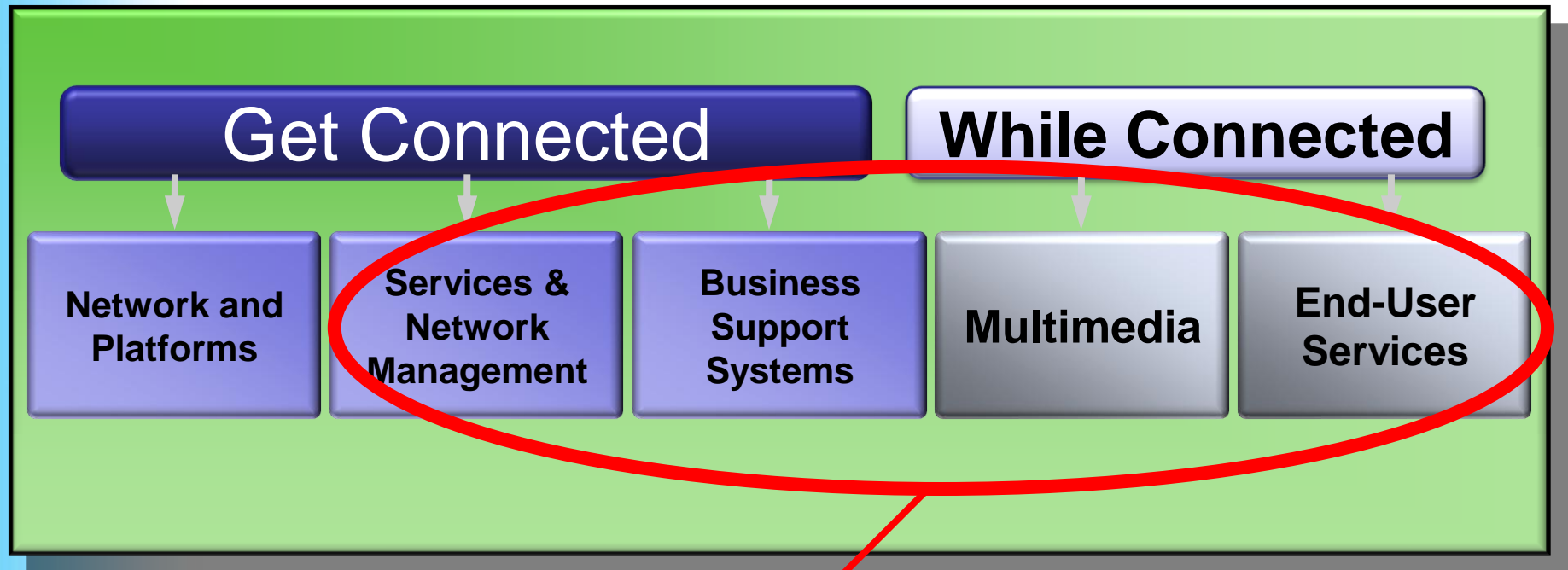
**Light
overhead**



Open to international cooperation

Main Research Areas

Smart Connected World



Services and Applications

The network foundation



All these issues are also related to Smart Cities network and IT infrastructures

Get Connected

While Connected

Future services

“Smart Cities”

Digital Citizen

Digital Identity

Digital School

Digital Home

Digital Car

Digital Transport

Digital Enterprise

Future Interfaces

More details in the Celtic-Plus “Purple Book”

- *“Smart City concept: provisioning all elements in the city, ranging from security for people’s life and goods, management of waste disposals, entertainment in the city, new ways of getting information, and advertisements”*
- Other important domains mentioned : intelligent transport, eHealth, energy-friendly solution, eGovernment
- *+ details on all mentioned “digital xxx” forming what is called today “smart cities”*
- *+ agreement with EC’s “Future Internet Public-Private Partnership” (FI-PPP) for more “Use Case” projects*



Celtic-Plus “Use-Case Factory” and the FI-PPP

- *Purple book: “Celtic-Plus is dedicated to pursue the most appropriate relationship with [...] the Future Internet PPP [...]”*
- Informal agreement with the EC: Celtic-Plus Use-Case projects may use FI-PPP technology via FI-Lab
 - Subject to specific agreements project per project
 - Only if relevant and needed –not mandatory
- Future Internet Paradigm in the health domain
 - Celtic-Plus **PISCES** is cooperating with FI-PPP **FI-STAR**



- **SMEs and web entrepreneurs can submit projects in Celtic-Plus to complement FI-PPP Phase 3**



Celtic-Plus and the 5G PPP



- Celtic-Plus will be an “associated member” of the 5G Infrastructure Association
 - As an associated member, we can
 - provide our views on requirements on future communication networks
 - be involved in shaping such systems
- **Our main objective:**
 - **Provide a complementary framework for more 5G projects**
 - The 5G PPP cannot support all excellent projects
 - And in particular **fill the potential gaps to better support the “pre-structuring model”** designed by industry (*proposed by Celtic-Plus*) and **support more large-scale experiments** (*requested by EC*)

Next in 2014



- 24 June: SASER Conference on:
„Secure European Communications“
 - High-level participations from politics, industry, research, and press
 - SASER exhibition and demos
- 25 June: Celtic-Plus Proposers' Day
 - Targeting Autumn call (15 October)
- Location: Kalkscheune Berlin
- Proposers Day in November or December; date TBC

Registration open!

In Conclusion:

Celtic-Plus provides an **R&D framework for Smart Cities related development**, from infrastructures to services

Celtic-Plus **complements and interacts with the FI-PPP, the 5G PPP and the national programmes** (incl. but not limited to Spain)

www.celticplus.eu