

# BRESAT



## PROJECT PROGRESS TO DATE AND NEXT STEPS

### SEVILLE

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Ministry of  
Communications and Works



Regione Toscana



JUNTA DE ANDALUCÍA  
CONSEJERÍA DE ECONOMÍA, INNOVACIÓN Y CIENCIA



Donoussa  
Municipality of Youth and Small Enterprises





# AGENDA

1. BRESAT Objectives
2. Progress To Date
3. Objectives for Today





# BRESAT Objectives

- Study previous satellite broadband schemes & learn from experiences
- Identify needs of regions & key criteria for success of future schemes
- Develop a cost-benefit analysis template for satellite broadband
- Develop best practice recommendations
- Develop aggregation approaches
- Identify potential pilots & potential funding sources
- Disseminate outputs across EU regions.



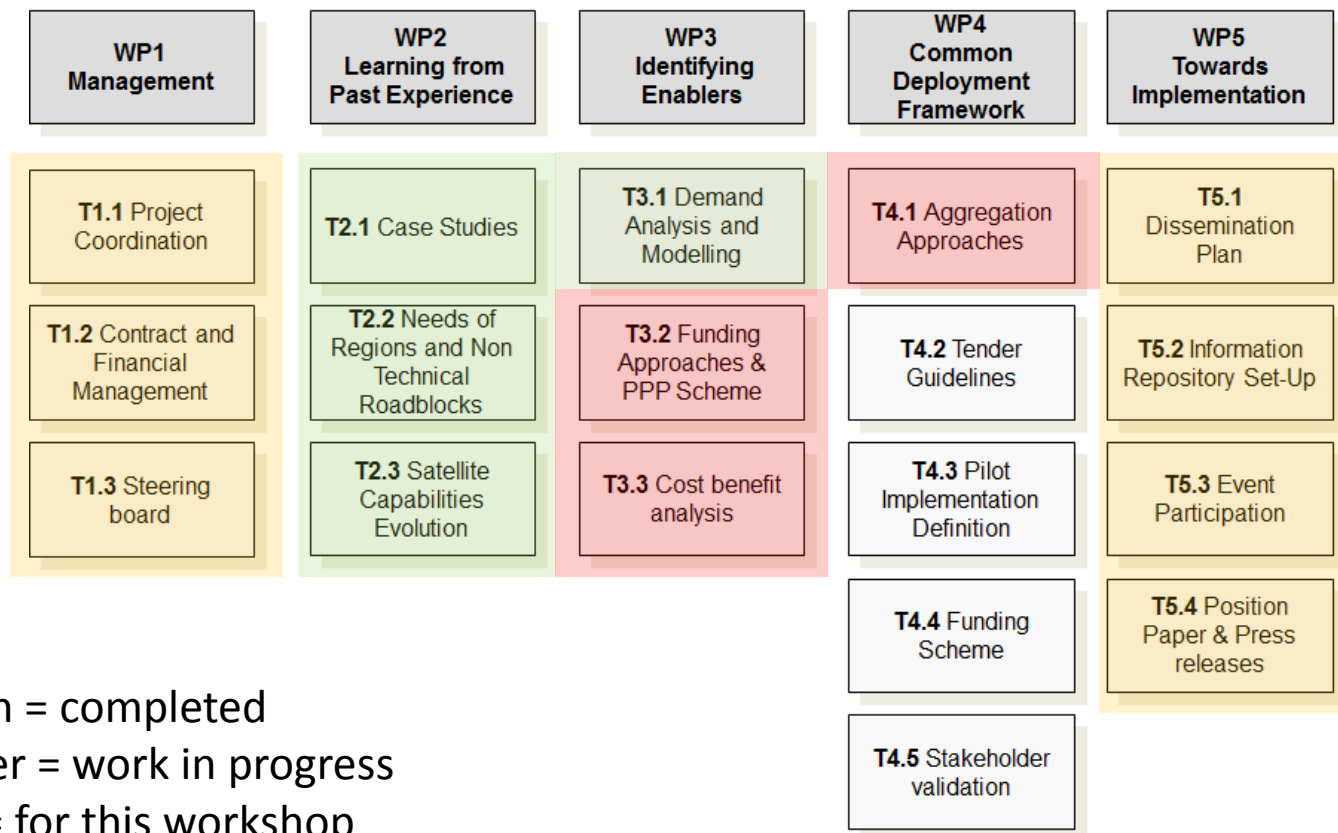


# PROGRESS TO DATE





# Project Work Plan



Green = completed  
 Amber = work in progress  
 Red = for this workshop  
 White = not started





# Case Studies

- Mostly voucher schemes or voucher plus schemes which offset initial broadband installation costs and sometimes rental.
- 1 x PPP scheme (NBNco in Australia)
- 1 x infrastructure scheme (US)
- 1 x scheme paid for satellite broadband completely (everything free)
- Most were for domestic households but some were for schools, government buildings and other end-users.
- Systems Integrators were used when installations were more complex (e.g. schools/government buildings) and networking was involved





# What Worked Well

- Aggregation schemes which bring down the monthly subscription costs through economies of scale - consumers are very price sensitive and ADSL broadband is very cheap.
- Removing up-front costs to the consumer to stimulate take-up.
- Offering a range of broadband packages that allow consumers to upgrade usage allowance or higher speeds.
- Good regional level engagement with decision makers.
- Short timescales for deployment





# Summary of Needs Of Regions

Schemes need to:

- Enable regions to meet the EC Digital Agenda (including local variations and any specific local objectives)
- Create economic growth
- Fill in gaps in broadband “White Areas”
- Be affordable by the region
- Be affordable by consumers
- Meet EC state aid guidelines (e.g. technology neutral and meet other broadband state aid regulations)







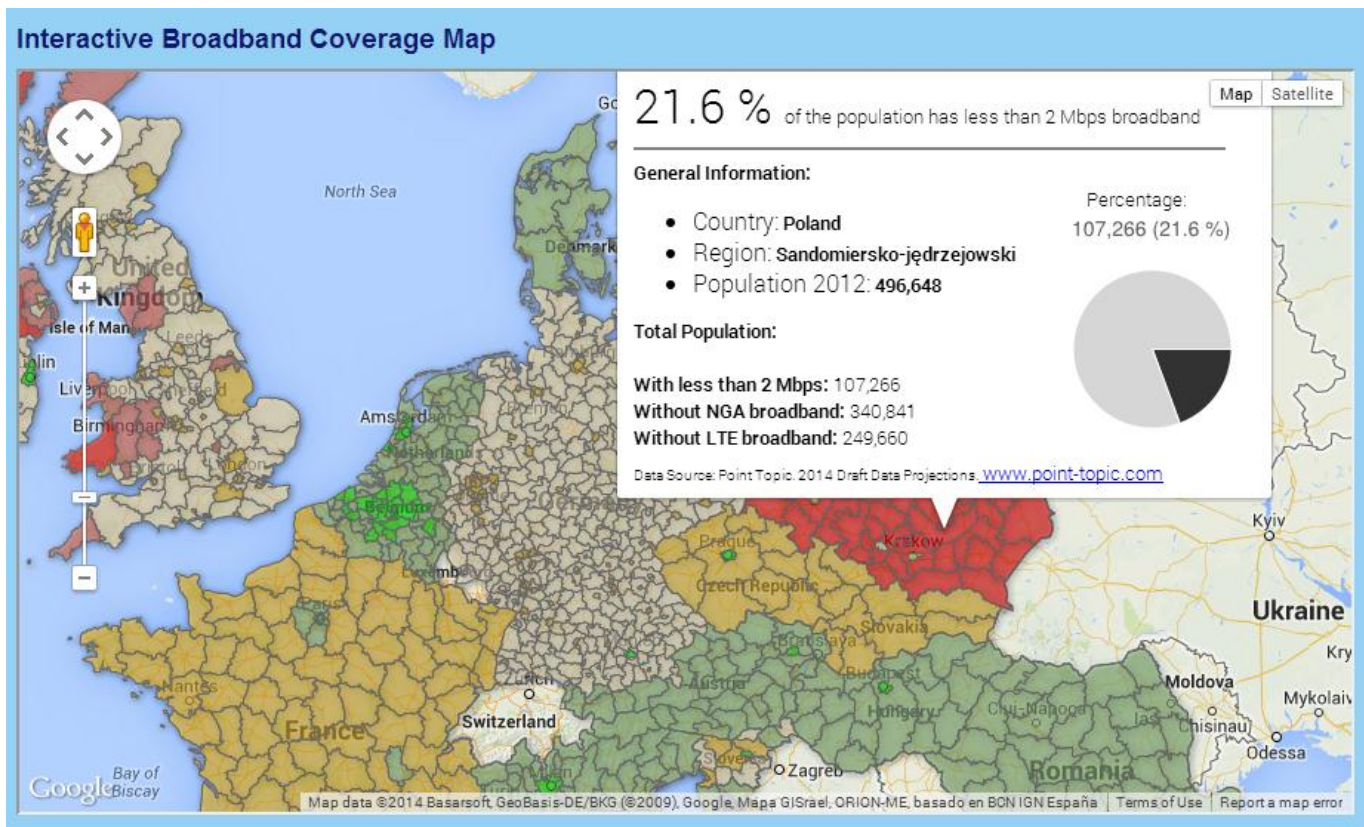
# Satellite Capabilities & Evolution

TIMELINE	2005	2010	2015	2020
<b>Generation</b>	•Ku-band satellites	•1st Gen Multi beam Ka-band satellites	•2nd Gen multi beam Ka-band satellites	•3rd Gen multi beam Ka-band satellites
<b>Service capability</b>	•Internet broadband	•High speed broadband internet	•Very high speed broadband internet	•Very high speed broadband internet
<b>Max Service rate (Download)</b>	•2-3 Mbps	•~10-20 Mbps	•~30-50 Mbps	•~100 Mbps
<b>Number users per satellite</b>	•~ 100 K	•Several 100 K	•Up to 1 M	•~ 1 M
<b>Example of service offer</b>	•Astra2Connect (SES), Tooway (Eutelsat)	•Tooway service via KaSat (Eutelsat) •A2C enhanced Ka capacity (Astra) •Custom/select offers via Hylas1 (Avanti)		
<b>Capacity per satellite (Gbps)</b>	•~5	•50 – 100	•150 - 200	•> 500
<b>Space segment enabling technologies</b>	•Broadcast satellites	•Antenna system with dishes up to 2 m diameters to allow beamwidth of <math><0.5^\circ</math> •Efficient Ka band feeds, amplifiers and filters	•Antenna system with dishes up to 3.5 m diameters to allow beamwidth of <math><0.3^\circ</math> •Wide band Ka amplifiers •Q/V band feeder Tx/Rx	•Antenna with dishes up to 5 m diameters to allow beamwidth of <math><0.2^\circ</math> •Flexible allocation of bandwidth among the beams •Improved pointing accuracy
<b>Ground segment enabling technologies</b>	•Return channel added to the broadcast channel •Adapted transport protocols for enhanced QoS	•Ka band radio front end •Fade mitigation techniques •Radio resource management compatible with the multi gateway topology	•Q/V band feeder link with space diversity scheme •Q/V band Amplifiers and antenna systems for the gateway •Radio interface with interference mitigation techniques against inter beam interference •Cognitive Radio techniques to exploit spectrum shared with Fixed Service	•Virtualisation of CPE base band processing •Self installation antenna for the terminals





# Demand Forecast





# European Structural Funding & State Aid

- ERDF (European Regional Development Fund)
- EAFRD (European Agricultural Fund for Economic Development)
- CEF (Connecting Europe Facility)
- Existing underspend

State Aid: New Regulations from mid 2014

- GBER (General Block Exemption Regulation)





# BRESAT Web Site

**BRESAT**  
Helping to Address the Digital Divide Across Europe

[Make an Enquiry](#)

**Fast, reliable broadband is crucial for both consumers and businesses and essential for economic growth and job creation.**

The European Commission has called for governments to ensure that all its citizens have access to broadband and with three million people in rural areas not covered by fixed and mobile broadband networks, governments have turned to satellite broadband to bridge the gap.

This European Commission funded project is working with local and regional authorities to develop guidelines for satellite broadband schemes and design projects that can deliver 100% broadband coverage to the most rural communities.

Implementing broadband in these areas is not always commercially viable for the private sector, so there are a number of different funding sources which can be used. The project also provides an information portal for authorities looking to take advantage of this funding.

[Interactive Broadband Coverage Map](#)  
Click to view

- [Objectives](#)
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# OBJECTIVES FOR THIS WORKSHOP





# OBJECTIVES FOR TODAY

1. Look at emerging 'Superfast' Satellite broadband
2. Finalise Cost-Benefit Analysis Approach
3. Vote on & agree our BRESAT Funding Recommendation
4. Lowest Cost Approaches to Aggregation
5. Dissemination





# Finalise Cost Benefit Analysis

- How is the economic benefit of broadband justified in ERDF applications?
- What is the process?
- Develop a cost-benefit template for satellite broadband





# Aggregation Approaches

- Find out how to use aggregation to make services as affordable as possible
- Discuss how they can be incorporated in to our recommendation.

