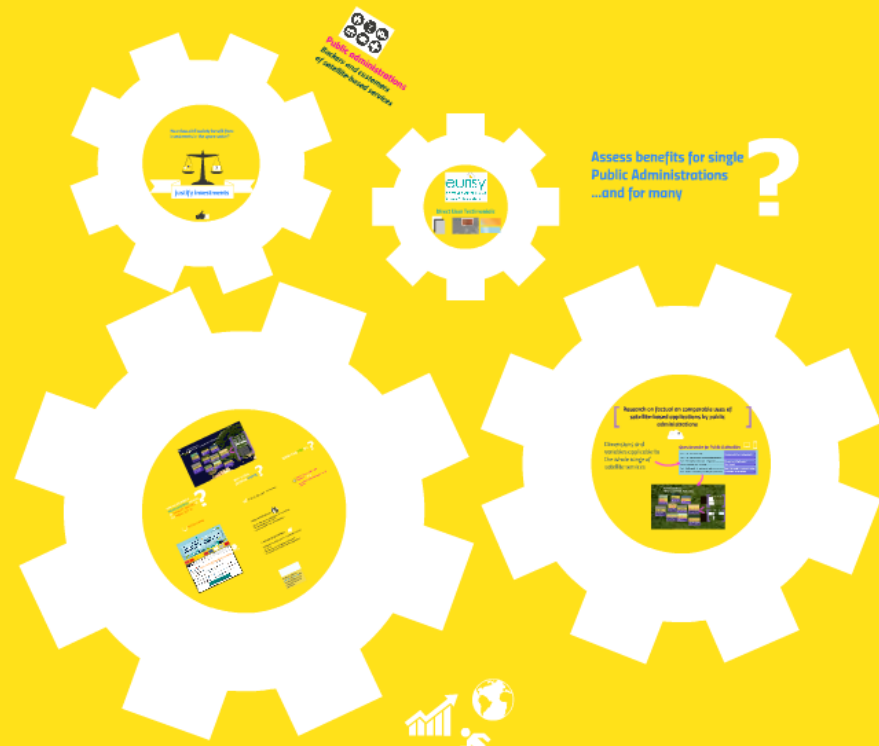


Collecting feedback from public authorities using satellite- based services

4th Copernicus National User Forum
Prague, 12th May 2015



Assess benefits for single
Public Administrations
...and for many ?



ENLARGE SAMPLE
Increase productivity



EUR 6.3 billion



EUR 4.3 billion



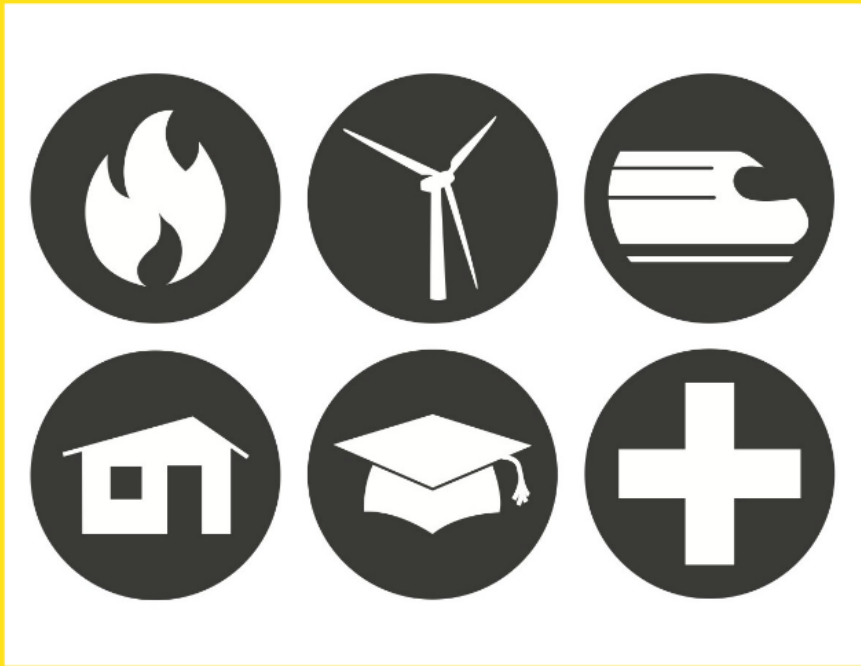
EUR 1.73 billion



EUR 325.3 million



justify investments



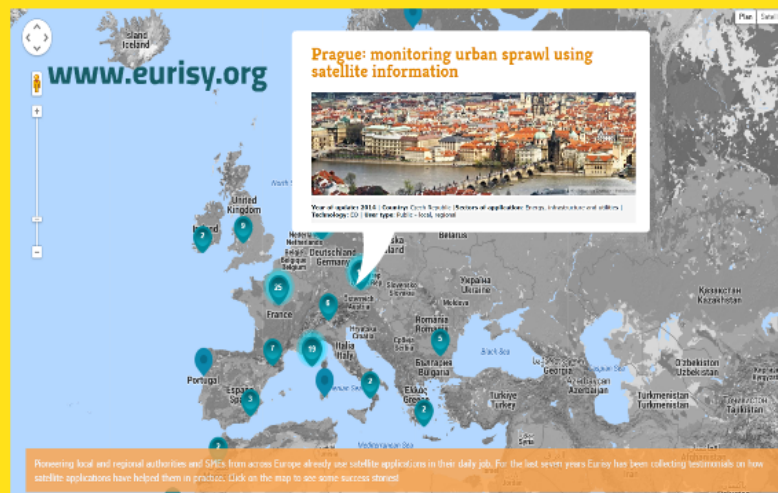
Public administrations
Backers and customers
of satellite-based services



Direct User Testimonials



Direct User Testimonials





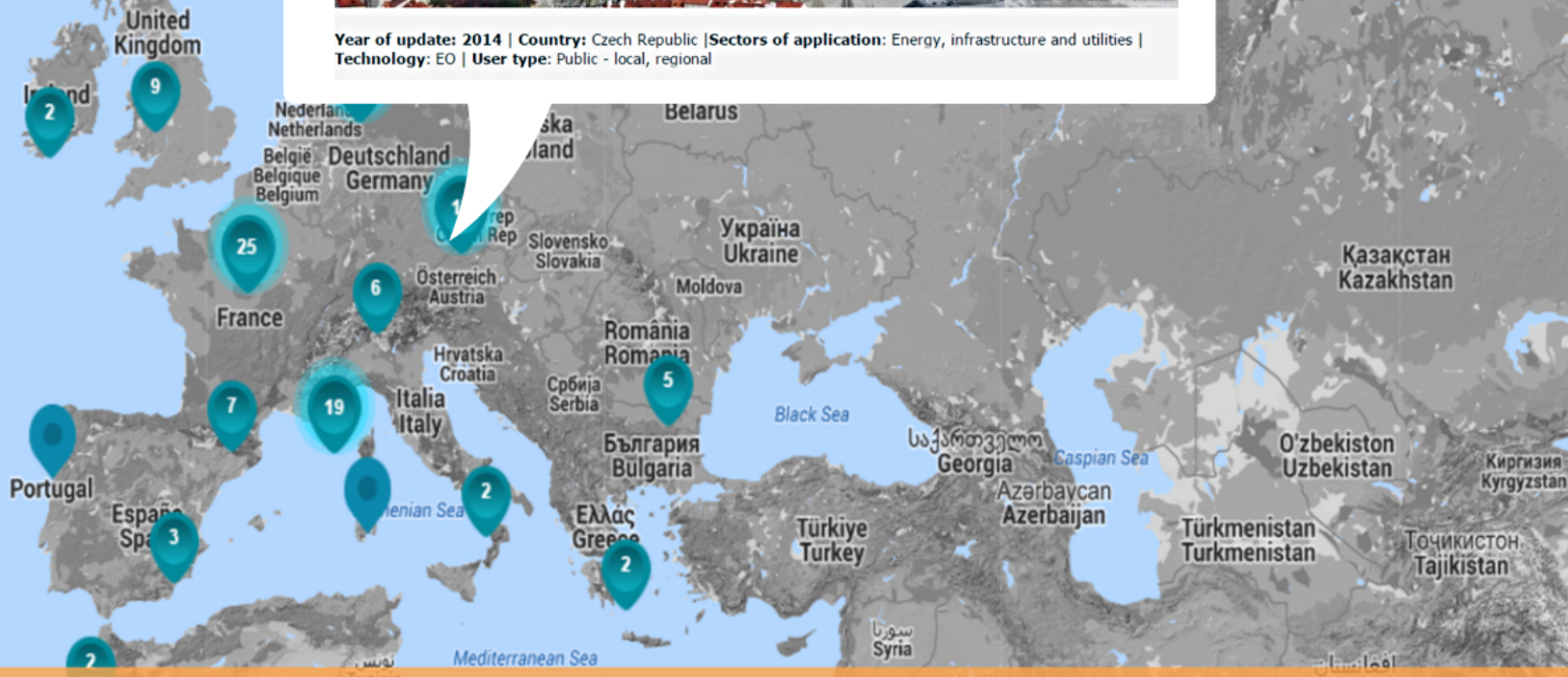
www.eurisy.org

Island
Iceland

Prague: monitoring urban sprawl using satellite information



Year of update: 2014 | **Country:** Czech Republic | **Sectors of application:** Energy, infrastructure and utilities | **Technology:** EO | **User type:** Public - local, regional



Pioneering local and regional authorities and SMEs from across Europe already use satellite applications in their daily job. For the last seven years Eurisy has been collecting testimonials on how satellite applications have helped them in practice. Click on the map to see some success stories!

Pakistan

**Assess benefits for single
Public Administrations
...and for many**



Research on factual and comparable uses of satellite-based applications by public administrations



Dimensions and variables applicable to the whole range of satellite services

Questionnaire for Public Authorities



Part A – The Public Service Body	Implementation frameworks.....	2
Part B – The Satellite-Solution: Motivations and framework.....		3
Part C – The Satellite-Solution: Costs and operation	Processes/ Challenges/.....	4
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Part F – Contact details of the person filling the questionnaire	environment & society.....	11





Space for Smarter Government Programme



Dimensions and
variables applicable to
the whole range of
satellite services



Questionnaire for Public Authorities



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Part F – Contact details of the person filling the questionnaire	environment & society	11

Phase:
Public Authorities



Preliminary phase: 10 European Public Authorities



Environment Agency: EO to manage floods

2014 cost: £10,000



UKCW: satcom for breast cancer detection

improved service with same costs



CCME: EO for oil spill detection

free service decreased pollution




Satellite-based map for Wales

costs 1/4 of previous map



EGNOS to support landing in Alderney

£1 million to achieve same precision with ground equipment



Flanders: satnav to regulate traffic lights

€140,000 saved yearly



Diemen: EO to manage soil resilience

costs 0,25% of annual maintenance budget



Lyon: EO for solar

costs 1% of energy annually produced



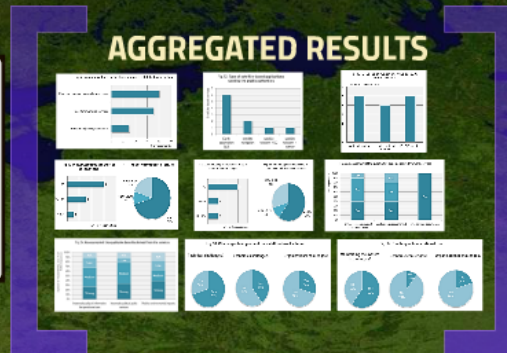
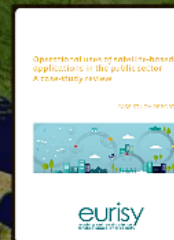
Alsace: EO to protect biodiversity

billion euros penalties avoided



Arno River Basin: EO for slope monitoring

27,000 landslides identified and 10,000 classified as active



Operational uses of satellite-based applications in the public sector

A case-study review

ANALYTICAL REPORT



eurisy
acting collectively to
bridge space and society

Respo

Fig.

< 1%
1% - 5%
> 20%

of respondents, as a % of total responses
100
90
80
70
60
50
40

AGGREGATED RESULTS

Fig. 4: Main motivations for first investing in a satellite-based system

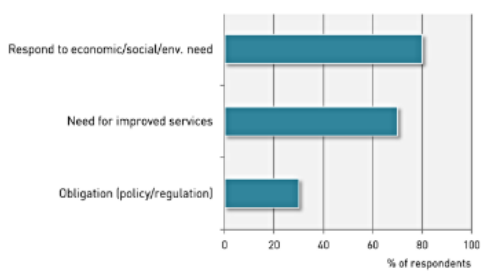


Fig. 12: Type of satellite-based applications used by the public authorities

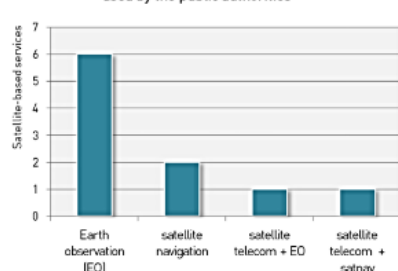


Fig. 17: Sources of funding for the satellite-based service

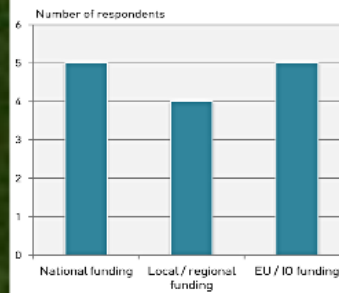


Fig. 18: Initial investments as a share of annual budget

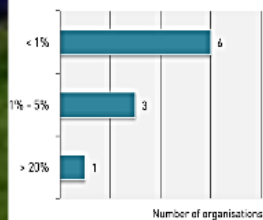


Fig. 19: Initial investments in the service

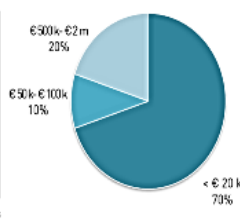


Fig. 22: Annual operational costs as a share of annual budget

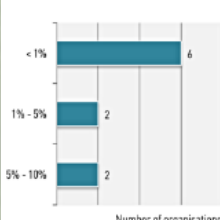


Fig. 23: Annual operational costs to use the satellite-based service

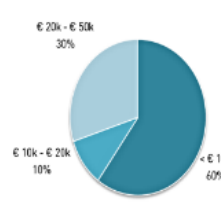


Fig. 33: Assessment of the quantitative benefits derived from the services

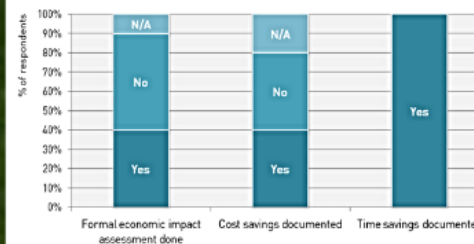


Fig. 34: Assessment of the qualitative benefits derived from the services

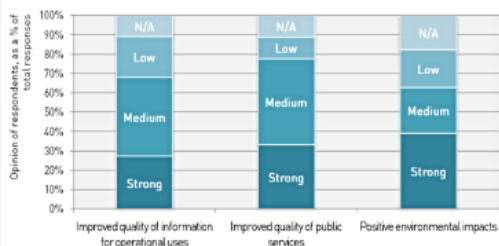


Fig. 38: Challenges to implement the satellite-based solution

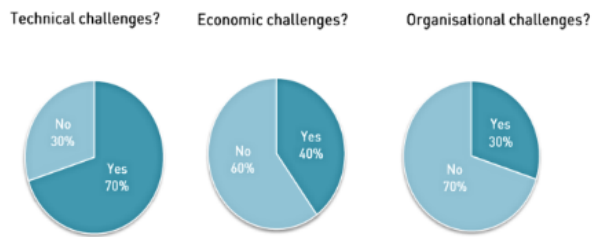
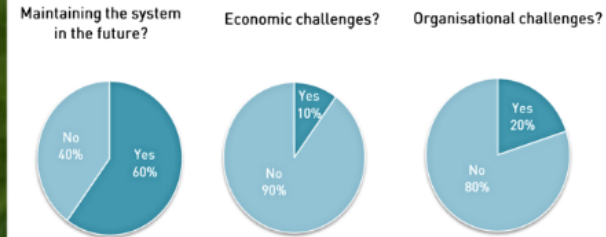


Fig. 39: Challenges to operational use



Operational uses of satellite-based applications in the public sector

A case-study review

CASE-STUDY REPORTS



Confluence.
Solar was among the green
PV systems were installed
energy potential and the
monitoring tool were entru
Hespul.
Based on data extracted fro
output of the panels in their
energy potential of a solar
difference, an alert is sent
The PV installations produ
estimates that to operate
approximately the double, r
The use of the system by Ly
Immediately after the instal
the satellite-based solution
KEY-FACT: The satellite-bas

Case-study: Use of at Alderney Airport

Weather conditions and co
of the runways, can ma
experienced pilots to app
Airport, regularly forcing
cancel scheduled flights.

Alderney had always had
supported by a non-dire
support landing operations
but not vertical guidance to

In 2011, ESSP (Europe
proposed to the local airli
its aircrafts landing in Ald
both lateral and vertical
approach the runway w
navigation support, inclu
which might have prevente

The system's requirements
Aviation Authority (CAA), w
designed by NATS (former
airline. The operation was

The testing phase lasted 1
The system is currently ins

The EGNOS system was r
requested to participate in
integrate the system into th

KEY-FACT: It would have
EGNOS with ground equip

CASE STUDY REPORTS

Case-study: Satellite data support solar energy production in the sustainable city quarter "Lyon Confluence" (France)

The 50% Local Public Societal Lyon Confluence is the local public redevelopment entity created in 1999 by Citeo-Lyon to manage the Lyon Confluence Habitat, a major urban project of requalification of an area of 100 hectares near Lyon's historic centre.

Funded under the PIS Concept initiative, the Renaissance project aimed at building a sustainable model, neighbourhood relying on green energy in Lyon Confluence.

Solar was among the green energy sources chosen. 11 PV systems were installed and the assessment of the energy potential, and the implementation of a PV monitoring tool were entrusted to the local association Hespit.

Based on data extracted from satellite imagery, Hespit analysed solar variations to assess the potential energy output of the panels in their location, and to monitor the proper functioning of the installations by comparing the energy potential of a solar panel with its actual output. This comparison is performed every hour; in case of difference, an alert is sent so that the faulty PV system can be repaired as soon as possible.

The PV installations produce 500 kW per year, for an annual production of approximately EUR 125,000. Hespit estimates that to operate and maintain the installations without the satellite-based solution would cost approximately the double, requiring at least one hour of work per day on each installation.

The use of the system by Lyon Confluence also inspired other public or private organisations all around Europe. Indeed, only after the installation of the solar equipment in Lyon Confluence, the Mayor of other Alpes cities asked the satellite based solution to monitor a PV system on the roof of their premises.

KEY-FACT: The satellite-based solution costs 1% of the value of the energy annually produced (approx. EUR 125,000).

Case-study: The Traffic and Telematics Division of the Flemish Agency for Roads and Traffic uses Satnav to optimise transit of regional trams

The Traffic and Telematics Division of the Flemish Agency for Roads and Traffic used a system of cables and physical loops to ensure priority in traffic for the trams and buses of the Flemish public transport company.

The management of this system was outsourced to a local private company. In 2008, the company proposed to test a system of virtual loops, supported by satellite navigation and short range radio signals, on the regional coastal tramway.

The Satnav solution was first tested on few trams and traffic lights, and then extended to the whole coastal tramway network between 2011 and 2013.

Special training was needed for the staff of the Agency and the provincial operators to start using the new system, but no organisational changes were necessary and the staff of the Agency did not request innovation. Afterwards, the system has been operationally used with no further need for training or external assistance.

A first assessment of the new system estimates savings for about EUR 140,000 per year, resulting from reduced annual maintenance costs. Time-savings have been also documented, as well as an improved quality of the information available and of the services offered to the public.

KEY-FACT: Estimated EUR 140,000 saved each year.

Case-study: The City of Diemen (the Netherlands) copes with soil resilience with the support of satellite imagery

In Diemen soil can sink up to two cm per year, forcing the municipality to heighten the entire public space about once every twenty years, including all roads, sewers and public gardens.

The Department of Infrastructure of the city was inspired by the experience of Italian scientists using ED to monitor soil movements after the Earthquake in L'Aquila. The Department identified a local company which could provide the service, and in 2011 acquired a city-wide deformation map based on satellite imagery.

The deformation map shows the resilience rate of the soil in specific locations, enabling the organisation to prioritise maintenance cycles with no or little need for expensive, time-consuming ground measurements.

The map cost approximately 0.25% of the organisation's annual budget for maintenance of roads, sewers, and other infrastructure. Its use does not entail any costs, excluding those associated with human resources and concrete infrastructure maintenance works. It will need to be updated with new satellite data approximately every ten years.

KEY-FACT: To assess soil resilience with traditional methods [namely ground measurements] would cost and entail an effort in terms of time of at least ten times the cost of contracting the satellite-based deformation map.

Case-study: Use of EGNOS to support approaching and landing at Alderney Airport

Weather conditions and constraints created by the location of the runways, can make it very difficult even for experienced pilots to approach and land at the Alderney Airport, regularly forcing operators to delay, divert or cancel scheduled flights.

Alderney had always had a non-precision approach (NPA) supported by a non-directional radio beacon (NDB) to support landing operations. This approach provided lateral but not vertical guidance to pilots.

In 2011, ESNP (European Satellite Services Provider) proposed to the local airline to test the EGNOS system on its aircrafts landing in Alderney. The new system provides both lateral and vertical guidance. Pilots can hence approach the runway with no need for ground-based navigation support, including in low-visibility conditions which might have prevented or delayed landing in the past.

The system's requirements type and frequency of signals and service standards were identified by the UK Civil Aviation Authority (CAA), while the new Instrument Approach Procedures and the Low Visibility Procedures were designed by NATS (formerly National Air Traffic Services) with inputs from the Airport authorities and the local airline. The operation was certified by the European Aviation Safety Authority in December 2011.

The testing phase lasted 12 months before the introduction of the system on an operational level during 2012. The system is currently utilised on six aircrafts, and has been used everyday during the last two years.

The EGNOS system was ready to use, and its provision was fully outsourced by the Airport, which was only requested to participate in the creation of the new procedures needed by the pilots and the Airport authorities to integrate the system into their operations.

KEY-FACT: It would have cost GBP 1,000,000 (EUR 1,279,000) to achieve the same precision offered by EGNOS with ground equipment.

Case-study: The Central Command for Maritime Emergencies, Germany, relies on EO for oil spill detection

The Central Command for Maritime Emergencies (CCME) started exploring the potential of satellite imagery to monitor sea pollution back in 1999.

In 2004, the organisation participated to a consultation of the European Maritime Safety Agency (EMSA) on the possibility of using satellite remote sensing to detect oil spills in the sea. Among other European coastal authorities, the CCME was able to express its needs in terms of number of images needed, frequency of delivery, resolution, and other parameters.

The organisation actively participated with private service providers, research and space institutions, and with other coastal authorities in the development of CleanSeaNet, a near real-time European satellite-based oil spill monitoring and vessel detection service, freely provided by EMSA to Member States.

Since 2011, the CCME uses the service to spot and remove oil spills and to identify potential polluters, contributing with human and technical resources to the operational use of the information received. Training sessions are regularly organised by EMSA for the staff of the organisation.

Not only the amount, but also the size of the oil spills detected in the German Seas decreased over the past three years. By addressing the issue of oil spills in seas through a shared system among member states, it was possible to reduce the costs of both building and operating the service, and to put pressure on service providers to improve its capabilities.

KEY-FACT: Free service, decreased pollution.

Case-study: Breast Screening Unit at University Hospital Coventry and Warwickshire, Salcom use in public health campaigns

The University Hospitals Coventry and Warwickshire (UHCW) is a teaching hospital in the West Midlands, UK.

The Breast Screening Service at UHCW uses two vans, equipped with screening units, to perform breast screening tests outside the hospital. Until recently, the staff collected these tests into a hard disk to then transport them to the laboratories by car. The hospital had thought about using a 3G connection to "virtually" transfer the tests, but this would drop very often.

In 2012, within the ESA-funded "Mercury" project, the two vans were equipped with a satellite connection to secure the transfer of the screening tests to the radiologists in the hospital.

Moreover, GNSS data (date and location) was embedded into the patient medical data. Two years later, after completion of the project, the organisation performed a cost-benefit assessment of the system. The satellite-based solution was evaluated as cost/neutral compared to the old procedure, while enabling the users to save time and avoiding the risk of losing clinical data during their transfer into hard disks.

The pertinence of the satellite-based system proposed to the hospital, the adaptability of the solution to pre-existing procedures, and the assessment of its added-value, were all elements that facilitated both its adoption and its consecutive operational use.

KEY-FACT: Improved service with same costs.

Research on factual and comparable uses of satellite-based applications by public administrations



Dimensions and variables applicable to the whole range of satellite services

Questionnaire for Public Authorities



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ENLARGE SAMPLE

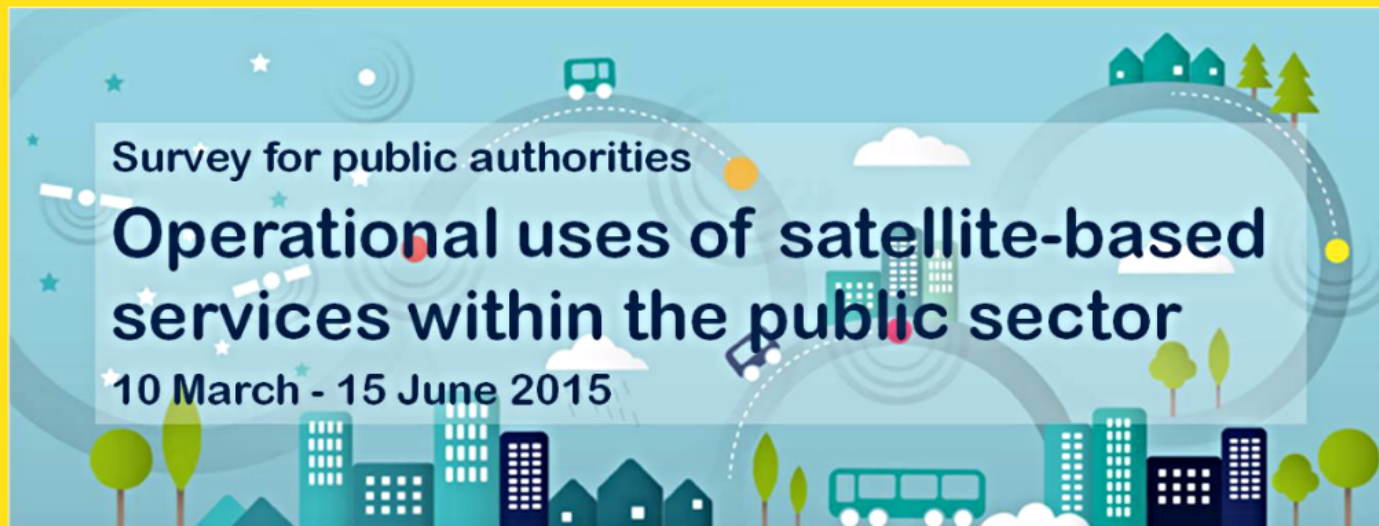
increase productivity

HOW DO WE BUILD A
KNOWLEDGE BASE ON USES
OF **SATELLITE SERVICES** IN
THE PUBLIC SECTOR





Online survey



The Survey Why a survey for public authorities? Background English

You Are Here: [Home](#) // [Events](#) // Survey: Operational uses of satellite-based services within the public sector // The Survey

[in](#) 23 [Twitter](#) [Google+](#) [Facebook](#) 26 [Email](#)

The survey www.eurisy.org / <http://bit.ly/1H16Mx0>

Are you a public authority?

Do you use a service based on satellite applications routinely, to perform your work?

If so, help us document your experience with satellite-based services by responding to this short questionnaire.

We are not looking for technical details, but for information on the implementation process, as well as on the tangible and intangible benefits of the satellite-based service used.

If you are not a public authority, but know public organisations using satellite services operationally, please send them the link to this survey, or contact the Eurisy staff at grazia.fiore@eurisy.org

TAKE THE SURVEY



10' min

WHY IS THIS
EXERCISE **USEFUL**





Statistically significant sample

PUBLIC ADMINISTRATIONS:



- **provide PAs with concrete figures to start or keep using satellite-based services**
- **understand user needs and bottlenecks**

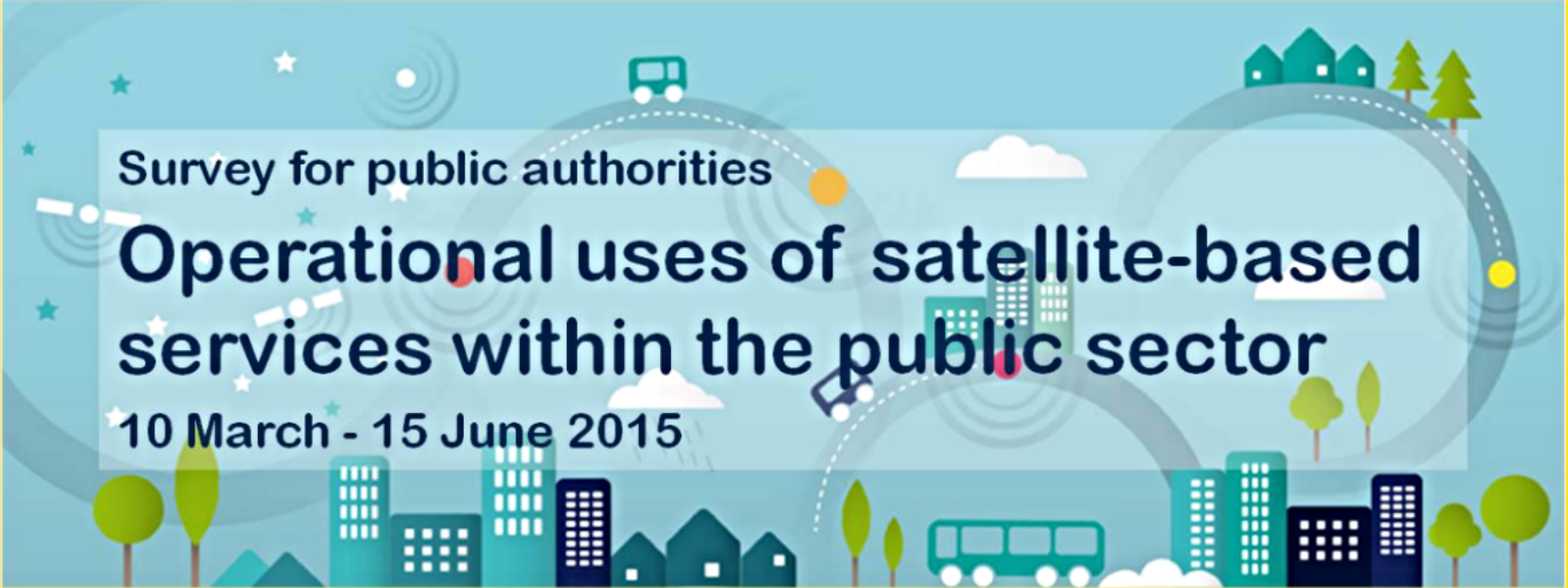


- **understand user needs and bottlenecks**

POLICY AND DECISION-MAKERS:



- **qualify and quantify return from space investments to society**
- **identify success frameworks and factors**
- **design better technology transfer programmes**

A banner with a light blue background featuring a stylized cityscape at the bottom with buildings, trees, and a bus. The top part of the banner has a satellite in orbit with signal waves and a dashed line path. The text is centered in a white semi-transparent box.

Survey for public authorities

Operational uses of satellite-based services within the public sector

10 March - 15 June 2015

**Routine exercise to
market and improve the
use of satellite-based
services among public
authorities**

WHAT CAN YOU DO ?



Take the survey and share your experience

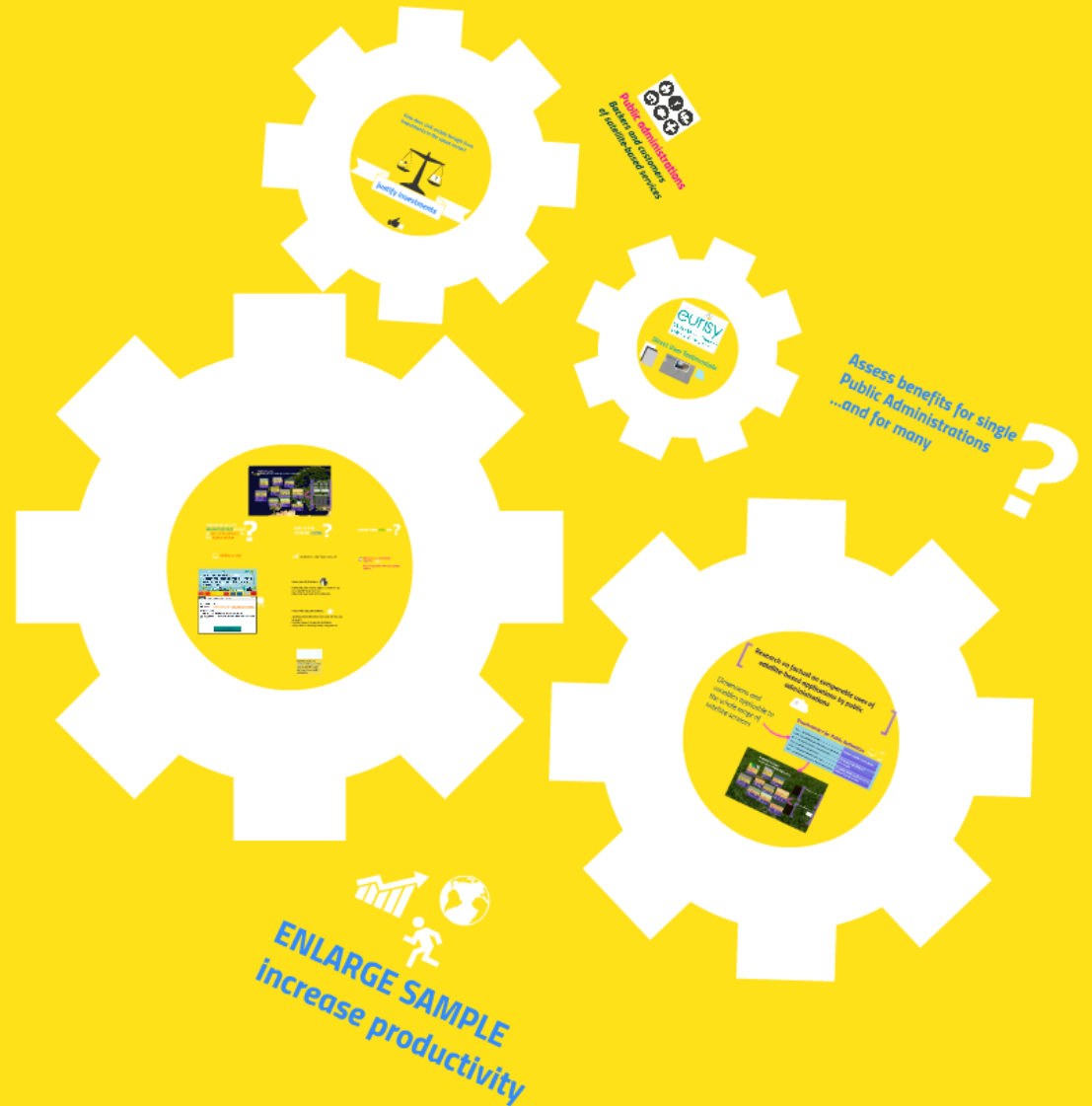


***Disseminate survey within your country/
network***

Collecting feedback from public authorities using satellite- based services



4th Copernicus National User Forum
Prague, 12th May 2015



Thank you!

eurisy
ACTING COLLECTIVELY TO
BRIDGE SPACE AND SOCIETY

www.eurisy.org

grazia.fiore@eurisy.org