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What is internet-by-satellite and why should a Public Authority consider it? **Are internet- by- satellite solutions too complex? What kind of support material is needed?** Is satellite broadband any good? **Which applications does it allow? What are satellite broadband limitations?** What are the quality and performance criteria to decide among the various broadband technologies? **Is satellite broadband affordable? How does a Public Authority efficiently procure satellite broadband? Who has contractual relations with the Public Authority?** Is satellite broadband eligible for local subsidies? **How can an administration ensure that its subsidy has been properly spent? How does satellite broadband compare with other solutions in term of cost-benefit analysis? Is satellite broadband eligible for state aid? Can it be considered as infrastructure?** Does financing a satellite solution mean financing an "Open Architecture" solution? **Does it allow competition? Can a public administration own the satellite infrastructure it is financing?**

Satellite broadband

Now anywhere in Europe

At performance and conditions comparable to ADSL offers

All Public Administrations want to know can be found in this flyer




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Satellite broadband

September 2013

Since 2011, satellite broadband technology has made a major progress in term of technical and economic performance. Five years ago, Internet-by-satellite was widely seen as too expensive for the consumer market whilst also offering poor performance in comparison with traditional broadband solutions, but this is no longer true today. Satellite broadband now fully compares with ADSL technically and economically; fibre connectivity is of course far ahead in term of performance, but typically at higher price and not yet available to all users across Europe.

This FAQ flyer is a decision-support tool for Public Authorities who are considering supporting this solution so that all citizens have the possibility of getting fast broadband internet at affordable prices. Indeed, while subscription fees and modem purchase for ADSL and satellite broadband services are equivalent, satellite broadband necessitates acquiring a personal satellite dish. This additional cost can be subsidised by public funds in order to bring broadband internet to all citizens at equivalent cost. This FAQ flyer thus addresses both the characteristics of satellite broadband solutions and ways for Public Authorities to provide state aid compliant support.

If you are a Public Administration, all you want to know can be found in this flyer.

If you are a Consumer please ask for the other flyer: **Satellite broadband for Consumers**

Send us further questions at **info@project-saber.eu**

For further information go to **http://www.project-saber.eu**

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Satellite broadband
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1. What is internet- by- satellite and why should a Public Authority consider it?

- Internet- by- satellite, also referred to as satellite broadband, is a high speed internet connection made via communications satellites instead of a telephone landline or other terrestrials means. It provides a bi-directional connection, meaning the possibility to download and upload data between the internet and your computer.
- It is available everywhere and immediately across Europe unlike other broadband solutions (no need for the local authority to deploy a terrestrial support network).
- It is the only broadband solution for those who live in areas without or with slow terrestrial or wireless/ mobile broadband access. It can complement terrestrial and wireless networks to ensure 100% broadband coverage across Europe.
- It is recognised by the EU as the immediate gap filler while waiting for ADSL or fibre – if planned and technically feasible. European Commissioner Nelly Kroes, in charge of the Digital Agenda for Europe (DAE), stated in June 2013: "Basic Broadband is now virtually everywhere in Europe – satellite performance has improved, helping to cover the 4.5% of population not covered by fixed basic broadband. The Commission is now focused on getting better take-up of satellite where this can bridge remaining gaps."
- Choosing satellite broadband services generate local jobs: qualified Internet Service Providers (ISP, also referred to as Distributors) and antennas installers. Across Europe, SES, Eutelsat and their distributors have already trained several thousands of local antennas installers.
- Choosing satellite broadband services enables Public Authorities to ensure the continuity of their public services, typically in the field of e-health and e-administration. Satellite broadband services can support large scale WiMax and Wi-Fi solutions.

2. Are internet by satellite solutions too complex? What kind of support material is needed?

- Internet- by- satellite solutions are not complex. They require an antenna (a white satellite TV-like dish, though slightly bigger at 70 cm diameter) connected to a modem inside the house (as for traditional solutions): this replaces the connection to the copper network through the phone line or to fibre. There is no need for any specific software application on the Personal Computer.
- The positioning of the antenna is a bit more accurate than for a TV-antenna, so a guidance system (generally sound-based) is incorporated. The antenna can be installed by an average user.
- Legal authorization is not normally required for installing a satellite dish but it is recommended to check local legislation for possible similar restrictions in historic areas or areas of natural beauty. No specific procedure towards the Telecommunication administration is required to install the satellite dish (in other terms, no specific radio-equipment licence or fee is needed).

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3. Is satellite broadband any good? Which applications does it allow?

- Downloading and uploading files is as fast and reliable with satellite broadband as with ADSL. Web surfing is the same as other terrestrial and wireless solutions.
- Triple play packages (Voice Over Internet Protocol - VoIP) based on satellite solutions are now available: internet, TV and voice with the same internet dish (reversely, TV-only dish cannot be used for internet services). Satellite broadband also allows supporting video-conferencing.
  The latency impact (0.5 second delay) is not considered as annoying by the users for the voice applications.
- Offers range in terms of speed and monthly data allowance is typically equivalent or sometimes better than traditional ADSL:
  - Up to 20 Mbps download and 6 Mbps upload
  - As with wireless technologies, most subscriptions are capped in term of monthly data use.
    A 10 GB monthly volume is often associated to a 20 Mbps download subscription (down to 2 GB for 2 Mbps), which allows frequent internet usage, including downloading music and movies and downloading/posting videos.
- Services (internet connection) are guaranteed at least at 99.5% for the contractual period set by your local Service Internet Provider.

4. What are satellite broadband limitations?

- Satellite broadband does not allow massive downloading and video streaming because of the limitation on the monthly volume allowance (typically 10 GB per month, i.e a few movies).
- Satellite broadband is not well suited to online “fast twitch” or “first person shooter” interactive gaming because of longer delay (0.5s latency) than that of fixed broadband. It will work too slowly with buffered periods. Satellite broadband will work fine for “turn-based” games (e.g. chess).

5. What are the quality and performance criteria to decide among the various broadband technologies?

- The European Thematic Network SABER issued in 2013 guidelines for satellite services procurement aiming to fulfil the DAE 2013 target and available upon request at www.project-saber.eu. Those guidelines propose a list of technical criteria to be set by the implementing Public Authority in order to ensure high-quality broadband interventions that are technology neutral. Those criteria encompass:
  - a comprehensive cost/benefit analysis in order to determine the most economically advantageous solution in term of total cost per connected user

- the level of use of infrastructures already in place, in order to limit the need of public investment and potential competition distortion
- the timeliness of the broadband services deployment
- thresholds for download and upload speeds: 6Mbps/2Mbps
- a minimum global traffic allowance: 3 GB/month.

6. Is satellite broadband affordable?

- Monthly subscriptions compare with equivalent performance ADSL offers. On the European market, subscription starts from 18 €/month for a download speed up to 2 Mbps and 2 GB of monthly volume. Offers allowing 20 Mbps download start from 30 €/month.
- Satellite broadband subscription prices increase with the data allowance. Bill-shocks (unexpected charges, e.g when going beyond the data allowance) cannot happen with Satellite broadband contracts.
- As for terrestrial offers, prices vary a lot across Europe: for satellite broadband, these variations are due to specific marketing approach taken by each Internet Service Providers and the existence –or not – of local government support for satellite broadband.

7. How does a public Authority efficiently procure satellite broadband?

- The European Thematic Network SABER issued in 2013 guidelines for satellite services procurement aiming to fulfil the DAE 2013 target and available upon request at www.project-saber.eu. Those guidelines describe two approaches for procuring satellite broadband:
  - A call-off procedure leading to the selection of a pool of internet service providers. This solution provides financial aid in the form of a voucher payable to the service provider to procure and put into service an antenna and modem for satellite internet access for residents in areas where the scheme is implemented.
  - A tender leading to the selection of a unique provider for an area.
  - The list of service providers available across Europe can be found at www.broadbandforall.eu (click-on-your-country approach which embeds SABER input).

8. Who has contractual relations with the Public Authority?

- In most cases, Public Authorities have a contractual relation directly with the local Internet Service Provider(s).
- Satellite operators manage the central communication hub and network, and thus guarantee service continuity to the Internet Service Providers.

- Would a local Internet Service Provider fail to deliver the service contracted with a Public Authority, the satellite operators would propose another local distributor to the Public Authority.

9. Is satellite broadband eligible to local subsidies?

- Yes local subsidies are possible. Customer Premises Equipment (antenna and modem and their installation) can be subsidised by the municipality or the region (European Regional Development Fund - ERDF- and European Agriculture Fund for Rural Development- EAFRD- have already been used for such purpose):
  - Many municipalities/regions have deployed a Broadband Deployment plan: they reimburse the expenses or provide a voucher to get the equipment installed for free.
  - The average value of a grant covering Customer Premises Equipment purchase and installation is around 500 € (2013 prices).
- The option of monthly leasing also exists with most Internet Service Providers (typically an additional 5 to 8 €/month).

10. How can an administration ensure that its subsidy has been properly spent?

- The European Thematic Network SABER issued in 2013 early guidelines for satellite services procurement aiming to fulfil the DAE 2013 target and available upon request at www.project-saber.eu. Those guidelines include recommendations to efficiently address the audit system to ensure compliance with EAFRD and ERDF regulations (on-the-spot check procedures).
- The guidelines recommend in particular pragmatic means to verify the proper spending of public funds, such as:
  - Photos tagged with GPS coordinates and date can be taken by the installer and sent to the Administration that manages the Audit.
  - Satellites operators can be asked to inform the Administration about the status of the antenna (ON or OFF; approximate localisation).

11. How does satellite broadband compare with other solutions in term of cost-benefit analysis?

Satellite broadband compares very well with other solutions from a cost-benefit point of view. Indeed:

- The satellite space and ground infrastructures are fully financed by the satellite operators.
- The only infrastructure cost left is that for Customer Premises Equipment (the antenna and its installation plus modem). Public Authorities are allowed to subsidize these equipment costs.

12. Is satellite broadband eligible for a state aid? Can it be considered as an infrastructure?

- Satellite Customer Premises Equipment (antennas and modems) is recognized as infrastructure eligible for public funding, provided the EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks are respected (see Legislation 2013/C 25/01).
- Beside national, regional or local funds, the main EU funds available for satellite broadband financing, managed at national/ regional level, are:
  - The European Agriculture Fund for Rural Development (EAFRD). See Art 52-b-i and Art 56 from the EAFRD Regulation 1698/2005. To check the availability of subsidies, you need to check the Rural Development Plan of your region or State.
  - The European Regional Development Fund Structural Fund (ERDF). To check the availability of subsidies please check the Regional Operational Programme of your region or the specific National Operational Programme.
- Subscription fees are not eligible at present (in 2013) to public funds aiming to support broadband deployment actions.

13. Does financing a satellite solution mean financing an "Open Architecture" solution? Does it allow competition?

Satellite broadband is an Open Architecture implemented through "bit-stream" access:

- Satellite broadband is an Open Infrastructure since the Satellite operator, who owns the satellite network, does not supply services for the network.
- Since satellite broadband services can be delivered everywhere (white areas, unbundled areas or not), it can be considered as a "Bit-stream" solution.

Satellite broadband deployment allows competition at several levels:

- Satellite operators only provide the infrastructure, the Internet Service Providers dealing with the provision of services. Satellite operators do not give nor request any exclusive rights to one ISP. There is no competition restriction on the ISPs market: the consumer and the Public Authorities can freely choose.
- Moreover, competition exists also among operators to sell their available in-orbit capacity to the pool of local Internet Service Providers.

14. Can a public administration own the satellite infrastructure it is financing?

- Generally, public grants in satellite broadband deployment schemes provide an individual satellite antenna and modem for users' premises, typically worth a few hundred euros. Maintaining the ownership of this Customer Premises Equipment at Public Authority level (in terms of accounting, liability, etc.) is often more expensive than the value of the grant itself, and as such whilst feasible is not recommended.
- Obviously, the above does not apply where the beneficiaries of the grant are Public Authorities themselves.
- This ownership model better fits a demand-stimulation action (unrecoverable funds) than a supply-support one.
- In Europe, the satellite itself belongs to the operator and its capacity is sold. The ownership of a tangible element of the satellite, such as a transponder (i.e. a situation in which the capacity of this element belongs to the contractor throughout the lifetime of the satellite in orbit, and therefore corresponds to CAPEX – CAPital EXpenditure) is very unusual even if it might be considered in very specific cases. Examples exist in the US and could be envisaged by over-sea regions of Europe.

15. Can Satellites achieve very high speed (100 Mbps and beyond)?

- High-Throughput Satellites (HTS) based on presently available technologies already deliver up to 20 Mbps internet access to any consumer. Customised offers for Professional users are available, with internet access speeds up to 50 Mbps.
- Within five years, newly-developed technologies will allow higher performance while maintaining a viable economic model. The technology developments which will allow this performance improvement are on-going. Services proposing 50 Mbps for the consumer should be feasible by 2017 and 100 Mbps by 2020.

16. Will satellite broadband still exist in 10 or 20 year? Will it be performing better?.

- The lifetime of the satellites in orbit today is about 15 years. Satellites are replaced over time by the satellite operators.
- In parallel, technology is evolving and should allow by 2020 offering consumers speeds of around 100 Mbps.