

# The SABER Project: satellite broadband for European Regions

Mario A. Gomarasca<sup>1</sup> and Vittorio Vallero<sup>2</sup>

<sup>1</sup>*National Research Council of Italy, IREA, Milan, Italy; gomarasca.m@irea.cnr.it*

<sup>2</sup>*Piedmont Region, CSI, Turin, Italy; vittorio.vallero@csi.it*

**Abstract.** The purpose of the SABER Thematic Network is to create a long term, sustainable environment in which stakeholders interested in tackling the Digital Divide by contributing to the roll out and take-up of broadband for all, at increasing speeds, and in particular through satellite-based services, can proactively collaborate. The scope of the SABER Thematic Network is to create the conditions for the most efficient and effective contribution of satellite systems to support the achievement of the objectives set in Europe 2020 and subsequently in the Digital Agenda for Europe (DAE). The activities of the SABER Thematic Network will include the development of a communication plan and working protocols and the launch of a knowledge management platform to facilitate the creation and promotion of an information repository. Members will participate in extensive intelligence gathering and a series of workshops and expert round table discussions will be undertaken to iteratively review, and validate the network's findings and good practice case studies. These activities will be used to share knowledge and experience. Finally the activities of the network will be mainstreamed into partners' organizations and other relevant organizations such as ESOA, ISI, NEREUS and ESA to ensure the ongoing sustainability of the activities.

**Keywords.** Satellite broadband, Digital Divide, Digital Agenda for Europe (DAE).

## 1. Introduction

The Digital Agenda for Europe (DAE) [1] has an objective to bring basic broadband to all Europeans by 2013 and seeks to ensure that, by 2020, all Europeans have access to higher internet speeds above 30Mbps and 50% or more of European households subscribe to internet connections above 100Mbps.

The main objective of the SABER Thematic Network [2] is to address the requirements of contribution of satellite systems to 100% EU broadband coverage in the frame of the Information and Communication Technologies Policy Support Programme (ICT – PSP), Work Programme 2012 of the European Commission. The SABER Thematic Network will bring together regional authorities, and analyze the experience of those which have used satellite solutions for broadband access, in order to:

- develop guidelines for deployment,
- share best practices, and
- disseminate information

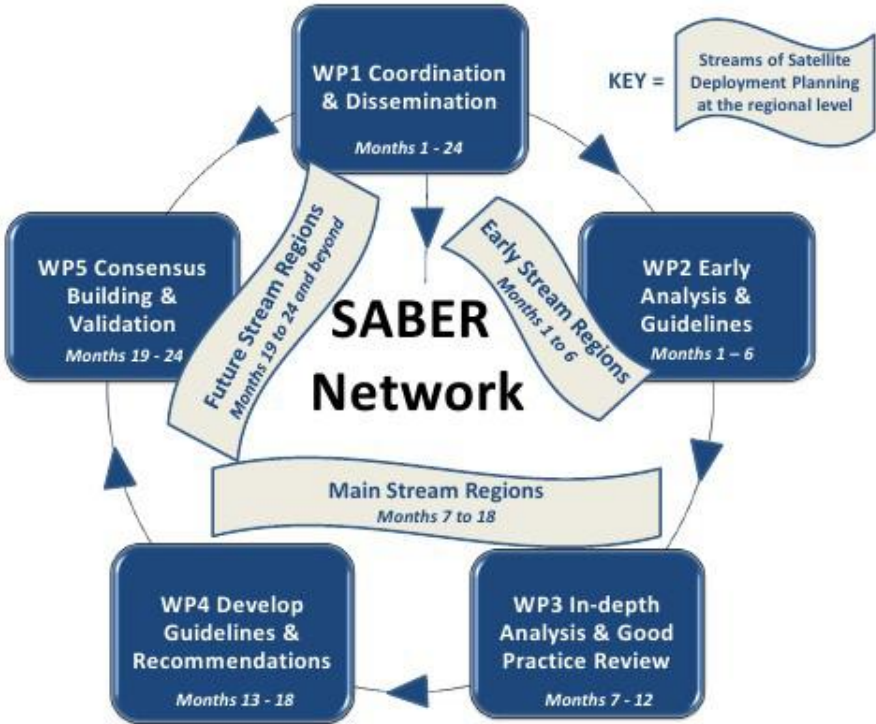
to regions across Europe in need using a common, easy to access, information repository which offers access to relevant information including cost benefit analysis of broadband access by satellite, satellite offers and technical capabilities, state aid, business models, funding options including demand aggregation and recommended solutions to non-technological roadblocks. The SABER Thematic Network will explore the possible use of regional funds in relation to demand aggregation schemes and assistance, and will propose plausible adaptations in call specifications to incorporate satellite communication solutions in such calls.

**2. Activities and outcomes**

The activities of the SABER Thematic Network will include the development of a communication plan and working protocols and the launch of a knowledge management platform to facilitate the creation and promotion of an information repository. Members will participate in extensive intelligence gathering and a series of workshops and expert round table discussions will be undertaken to iteratively review, and validate the network’s findings and good practice case studies. These activities will be used to share knowledge and experience. SABER will work with regions in 3 streams; an early stream (for regions ready to plan deployments in the short term) a main stream (to support regions in achieving the 2013 DAE objectives) and a future stream (supporting regions to achieve the 2020 DAE objectives). Tools, methodologies and guidelines will be developed to assist regions in their own satellite broadband deployment planning. SABER will seek to build consensus between stakeholders on solutions to address broadband gaps across European regions. A final conference will be held to ensure that the results and outcomes of the network are disseminated as widely as possible. Finally the activities of the network will be mainstreamed into partners’ organizations and other relevant organizations such as ESOA, ISI, NEREUS and ESA to ensure the ongoing sustainability of the activities.

Subsequently, outcomes foreseen in the SABER Thematic Network will include:

- A critical assessment of actual satellite broadband service deployment and associated case studies.
  - The identification of regional requirements for planning satellite deployment.
  - The creation of a White Paper on use of satellite solutions to achieve 100% broadband coverage.
  - A future roadmap for satellite technology.
- A toolkit and set of guidelines for regions to support the deployment of appropriate satellite broadband solutions.



**Figure 1.** The structure of the SABER project.

### *2.1. Specific regional issues to be addressed by the SABER Thematic Network*

The objectives of the work programme have been designed to specifically address the issues faced by regions where parts of the community are not able to access broadband services and find themselves at an economic and social disadvantage. Such issues would include:

- Addressing the needs of communities that do not have available to them high quality and/or affordable broadband services
- Lack of expertise in developing relevant support programmes using public funds
- Addressing public servants' lack of access to case studies of successful publicly funded broadband schemes
- Lack of expertise in addressing the state aid issues associated with public sector intervention
- Public Administrations', companies' and households' reluctance to fully exploit new technologies, including ICT and Broadband
- Achieving appropriate cooperation with private sector operators/service providers that are willing and able to work in partnership rather than on a purely commercial basis.
- Identifying the most appropriate technology solutions to address specific needs and Circumstances
- Ensuring that technological solutions adopted have an appropriate lifespan to achieve a return on investment – as far as is possible, investment in technology should be future proofed
- The development of appropriate business models to satisfy the requirements of the funding bodies whilst recognizing the commercial realities faced by the satellite industry
- Dissemination of good practice and appropriate methodologies to reach as wide an appropriate audience that will result in a positive measurable impact on the DAE targets.

### *2.2. Specific industry issues to be addressed by the SABER Thematic Network*

Private sector satellite manufacturers, operators and service providers are also faced with issues specifically when wishing to engage in public sector interventions. Generally the issues faced are of a non-technological nature and would include:

Issues connected with regulatory, policy and state aid measures:

- A generally held assumption that subsidies to end users, in particular to help fund satellite terminals, are not eligible to structural and agricultural funding programmes
- The definition of Next Generation Networks and Next Generation Access (NGN-NGA) based on the longer-term objectives and targets set out in the DAE, would appear to be aimed at terrestrial services delivered over fiber networks. Using the principle of technological neutrality, a major issue for satellite operators is acceptance by public sector investment decision makers that satellite has the potential to deliver against the higher bandwidth targets set out in the DAE
- State Aid measures being designed more for terrestrial infrastructure supporting the roll out of new broadband networks, rather than being more technology neutral in supporting the delivery of broadband services to end-users (i.e. adopters). Furthermore, state aids measures do not currently fit with the specific satellite services architecture, for example in satellite broadband networks, the typical separation between backhaul and access does not exist.
- Issues connected with territorial and ownership of the network
- Satellite network operator's ground infrastructure (teleports, hubs, gateways) is often not based in the territories of the regions requiring the support
- The space and ground infrastructure are owned by the satellite companies, and the ownership of the end user terminals (CPE and antennae) remains with the final user, whereas, as public sector intervention in terrestrial broadband networks has developed, business models

have been introduced that allows the public sector to retain ownership of the asset and make it available to service providers in an open access manner

- Issues concerning competition and the market for broadband services
- Speculation that there is limited competition if subsidies are granted for satellite broadband services and therefore there is a potential to feed a monopoly/duopoly situation
- Speculation that satellite broadband services at the retail level are too expensive when compared to other terrestrial technologies such as ADSL, fiber and wireless.

If the private sector operating in the satellite communications sector is to play an active role in addressing the broadband service deficiencies existing, in particular in rural and remote areas across Europe, the above roadblocks must be addressed to create an environment where satellite broadband services is recognized as a competitive and complimentary alternative to terrestrial broadband services. The SABER Thematic Network partners will collaborate through the defined work programme to address the above issues, thus establishing satellite services as a viable service that can be exploited to address the Broadband penetration targets set in the DAE.

### 3. Consortium

The SABER Thematic Network has assembled an extensive partnership of 26 regional and industry organizations to ensure a wide range of expertise and experience within the network. The partnership comprises a triple helix of stakeholders including:

- Regional Organizations responsible for economic and social development at a regional level,
- Intermediaries that provide support at the regional level, and
- private sector companies, in particular companies that manufacture, deploy and operate satellite broadband infrastructure and services across Europe, and in particular, have extensive experience in publicly funded deployments.

Partners can be classified into three broad categories:

- Regional partners with experience of deploying satellite broadband solutions;
- Regional partners with an interest in exploring satellite broadband solutions, and
- Satellite industry partners with experience of addressing broadband deficits in regions across Europe and the globe.

The partnership brought together under the SABER Thematic Network, have a significant interest in addressing the challenges set out in the Action Area of the DAE “Fast and Ultra-Fast internet access”. The partners are also strongly committed to address the non-technological barriers that are preventing some regions adopting satellite broadband to address their broadband needs and hence bridging the ‘Digital Divide’.

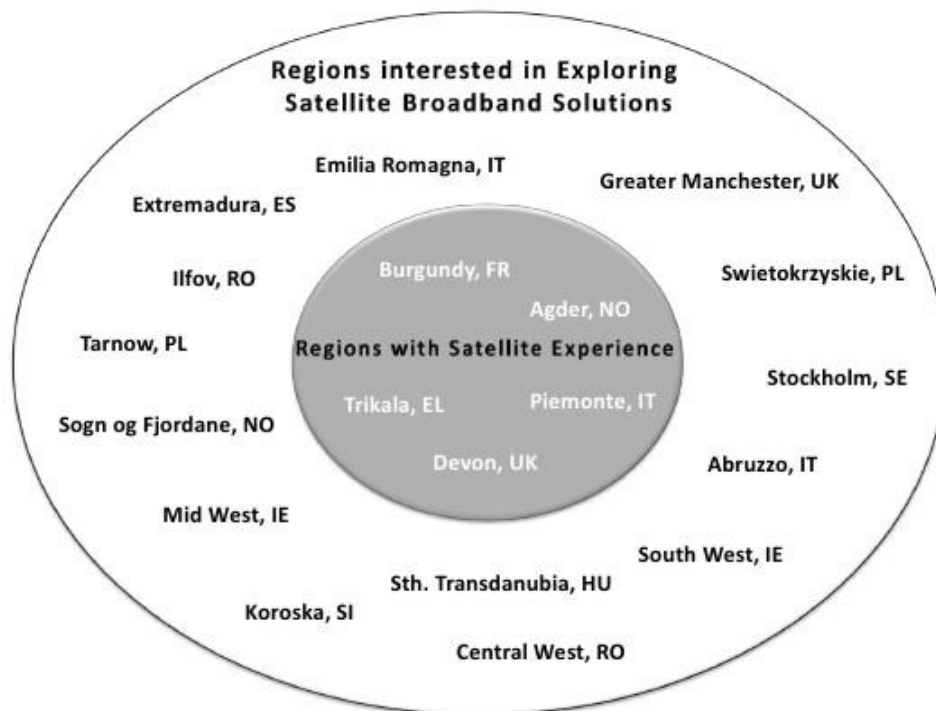


Figure 2. Partners of the SABER project.

## 4. Role and impact

### 4.1. Role

CSI-Piemonte is the coordinator of the network and leads on dissemination activities addressing broadband challenges.

Eutelsat, Skylogic, Astrium and SES Broadband Services are of support in gathering intelligence, producing early guidelines and carrying out an in-depth analysis of the intelligence. The market and deployment knowledge of the pan European industry partners, each leading players across the entire satellite broadband value chain, is utilized to source international case studies and to sketch out a future roadmap for satellite technologies.

Slí Nua Development collaborate in producing regional guidelines and toolkits to support regions in planning satellite broadband deployments. The six regional partners (BHV, Niverlan, eTrikala, ToscanaSpazio, CSI & Devon CC) with experience of satellite deployment will share their experience through presentation of case studies. All other regional partners (CNR-IREA, DGMEIT, Fundecyt, Lepida, WNRI, NEM, Acreo, SWRA, MWRA, COI, RDHOR, MIT, ETA2U, INFOTER and RCITT) will use and validate the guidelines, case studies and toolkits to consider satellite as an option in their regions.

All partners will actively participate in network round-tables, workshops and the conference. All partners will also disseminate the SABER findings to other regions and networks across Europe. All partners will validate the guidelines and toolkits to help fine tune them.

### 4.2. Impact

The overall impact of the project will be to make regions aware of, and act upon, satellite services as a possible solution to provide broadband coverage to their respective areas that have no prospect of being served with terrestrial services on a commercial basis. This will also facilitate bet-

ter inclusion of satellite solutions in public call specifications and more efficient use of public funds in addressing their broadband ‘not spots’.

A sustainable and long term environment will be created by stakeholders interested in tackling the digital divide by providing a positive contribution to the roll-out and take up of broadband through satellite based broadband services. This environment will provide an opportunity for regional and national stakeholders to participate in a knowledge sharing process for the planning of broadband deployment using satellite solutions including the feasibility of demand aggregation within and across regions and across member states.

Regions in need across Europe will have available to them a common approach towards large-scale deployment of satellite solutions supporting the objective of 100% EU broadband coverage. These regions will have available to them guidelines and toolkits to support them in their endeavor to address their broadband needs, both now and into the future, through effective public sector intervention. These guidelines and toolkits will take into account satellite developments that are taking place and which could have a positive impact on the achievement of the DAE 2020 objectives.

## **5. Dissemination and use of results**

The dissemination process has its main milestones at the workshops and roundtables. These moments are used to discuss the results of the analysis and to involve other relevant stakeholders such as regional and national authorities outside the partnership.

The overall impact of the project, i.e., regions being aware of, and taking into consideration satellite services as a possible solution to provide broadband coverage to their respective areas that have no prospect of being served with terrestrial services on a pure commercial basis, should be realized following the dissemination of the results and outcomes of the project. This will facilitate better inclusion of satellite solutions in public call specifications and more efficient use of public funds in addressing their broadband ‘not spots’. For some regions this will occur during the project’s timeframe, when they will gain access to tools and methodologies through the information repository and through their attendance at workshops.

During the project, members are seeking in disseminating the findings to other regions from outside the project’s membership. Each partner identifies regions from outside intending that the network could be scalable by at least a factor of 3, involving up to 100 European regions.

Figure 3 illustrates the range of dissemination regions and dissemination networks that the SA-BER partnership has already identified to disseminate the results of the project.

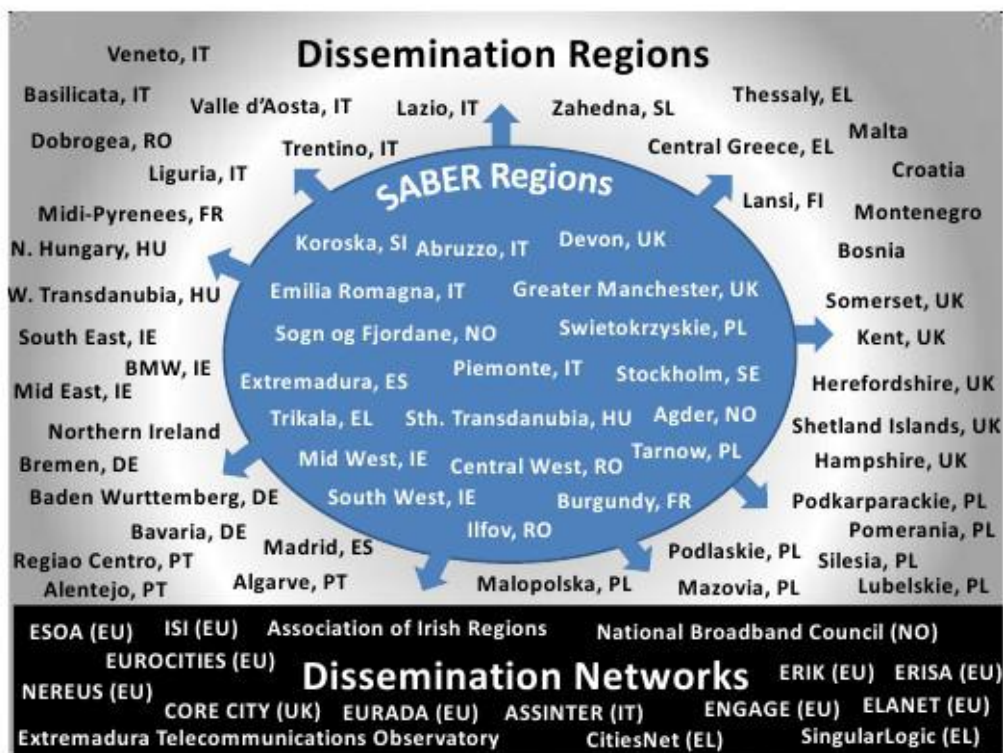


Figure 3. The European Regions involved in the dissemination network of the SABER project.

## 6. Conclusions

There is a recognition outlined in the DAE that without such strong public intervention, there is a risk of a sub-optimal outcome, with fast broadband networks concentrated in a few high-density zones with significant entry costs and high prices. The spill-over benefits created by such networks for the economy and society justify public policies guaranteeing universal broadband coverage with increasing speeds. Without such commitment and action, many remote and rural areas of Europe will be excluded and therefore are likely to become entangled in the vicious circle of higher bandwidth deprivation with all its consequences. If this situation were allowed to happen, then the broadband penetration targets set out in Europe 2020 and the DAE are very unlikely to be realized within the timeframes indicated.

The DAE highlights the key role that wireless (terrestrial and satellite) broadband can play to ensure coverage of all areas, including remote and rural regions, thereby overcoming the vicious circle of broadband deprivation. The SABER Thematic Network's raison d'être is to facilitate the sharing of experience and expertise between stakeholders to bring about such broadband coverage using satellite solutions.

## References

- [1] DAE, 2010, <http://ec.europa.eu/digital-agenda/en/digital-agenda-europe-key-publications>
- [2] SABER Project, 2012, <http://www.project-saber.eu>

