guifi.net
Gurb, Spain

This project demonstrates that such a complex and ambitious endeavour can succeed when its three main components – technological, economic and social – are managed coherently.

In 2003, in the rural municipality of Gurb, about 70 km north of Barcelona, farms, businesses and 2,500 residents and workers relied on their mobile phones for Internet access. Low population density and distances from the Internet Exchange Point[1] made the cost of providing high-speed wired connections uneconomic for incumbent[2] telecommunications operators.

guifi·net started in 2004 in the region of Osona, Catalonia. It is a bottom-up, citizen-driven project with the objective of creating a free, open and neutral telecommunications network based on a commons model. Neighbours volunteered to deploy the network across geographic points using radio links and Wi-Fi routers, and Internet access was provided to homes, offices, farms, public buildings and more.

To give the project a legal identity, the community set up the "Private Foundation for the Open, Free and Neutral Network, guifi·net". In 2008, through the guifi·net Foundation, guifi·net became a registered telecommunications operator.

Gurb City Council committed to deploy optical fibre throughout the municipality using a small flexible high-density polyethylene duct within the existing water infrastructure. Using this system, any resident with access to the municipal water network can also access the optical fibre network, and the Internet via any telecommunications operator willing to share this common network.

The first deployment of optical fibre began in August 2009. As of November 2018, guifi·net comprises over 35,000 operating nodes, mostly in Catalonia but also in the Valencian Community, the Balearic Islands, Madrid, Andalusia, Asturias and the Basque Country. At present, hundreds of homes and offices access the Internet via guifi·net's fibre connections, and thousands do so via radio links. It is estimated that over 50,000 people are served through the commons-based network.

The project's governance rules define the terms and conditions in which businesses can obtain economic profit out of the exploitation of the guifi·net network.

guifi·net is a comprehensive initiative where stakeholders cooperate to plan, deploy and operate network infrastructure as a Common Pool Resource. Its mission is to protect and promote the networks held in common. To support this, it makes a set of tools available to anyone wishing to contribute to expanding the network.

The development of this common pool infrastructure eased the access to quality, fairly-priced telecommunications in general and broadband Internet connections in particular. It also generated a model for collaborative economic activity based on proximity and sustainability. The growth of the commons-based network infrastructure was possible due to the development, in parallel, of guifi·net as a social project in the telecommunications field.

The whole community participated in the project. This included volunteers acting alone or through users' associations and cooperatives; free-lance or self-employed workers and enterprises performing professional network deployment and maintenance tasks and offering commercial services over it; users hiring a telecommunications service; different public administration levels fostering the deployment of the commons-based network to provision their citizens, as well as private and public organisations and institutions.Among the many community networks in Europe, guifi·net appears to have the largest number of nodes and participants.

Compared with conventional telecommunication infrastructure models, guifi·net's model is socially and economically effective: socially, because it is based on the non-discriminatory and open access[3] principles that empower people and preserve the infrastructure's independence; and

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1   Internet Exchange Point (IXP): the physical infrastructure through which Internet service providers (ISPs) and content delivery networks (CDNs) exchange Internet traffic between their networks.

2   An incumbent telecommunications company is a former monopoly that still has a dominant market share.

3   Where the owner or manager of the network does not supply services for the network; these services must be supplied by separate retail service providers.

economically, because the sharing paradigm on which it is based, the common pool resource, maximises the utilisation of the resources (such as using existing water infrastructure for fibre deployment). It also has the achievement of having many (30+) micro service providers competing for customers using a single shared infrastructure while simultaneously collaborating to build and maintain it.

Good practices in project planning

✓ Taking into account the impact of the plan on territorial cohesion (sustainable territorial economic development, competitiveness, better connectivity of territories)

✓ Mapping public passive infrastructures (poles, ducts) and examining whether they can be used and under which conditions

✓ Taking into account the type of measures adopted to exploit the synergies between different infrastructures and to establish cooperation between relevant stakeholders in terms of building and investing in high-capacity infrastructure

✓ Taking into account the scalability, robustness, resilience and easy maintenance of the infrastructure

✓ Taking into account the direct and indirect socio-economic impacts attained by the project including the impact on the affordability of services for end-users taking into consideration the quality of services offered (e.g.: price / quality; price / speed)

✓ Paying attention to project coordination and management

Leading organisation	La Fundació privada per a la Xarxa Oberta, Lliure i Neutral, guifi·net
Financing	Compensation system: The governance system means that commercial operators using guifi·net must allocate a proportion of the fees they charge for their services to the maintenance, upgrade and development of the commons network. This ensures the medium to long-term sustainability of the network. Within the governance arrangements are mechanisms to ensure that when two or more operators share the same infrastructure, they contribute to its sustainability in a fair and balanced way, proportionate to their use of resources.
Speed / Performance	≥30 Mbps (Megabits per second) The network connected to the Catalonia Neutral Internet Exchange Point in January 2011 with a 100 Mbps port and upgraded its connection to 1 Gbps (Gigagibts per second) in 2013.
Technology	The network is self-organised and operated by the users using unlicensed wireless links and open optical fibre links.
Average price of standard service for households	€35/month (taxes included) for optical fibre internet access €24/month (taxes included) for Wi-Fi access
The network	Over 35,000 active nodes and approximately 63,000 km of wireless links, as of July 2018