People's Technology

Innovation

How Catalan villages built their own broadband networks

High-speed internet is as essential as water and electricity say farmers

Remote Catalan villages have become creative in laying their own fibre optic cables

11 HOURS AGO by Ross Tieman

For more than five years, clients complained about the poor WiFi at Christina Herrera's hotel in the Catalan village of Tortellà. This year, her hotel's online rating surged, however, after it was hooked up to Guifi.net, a community telecoms network.

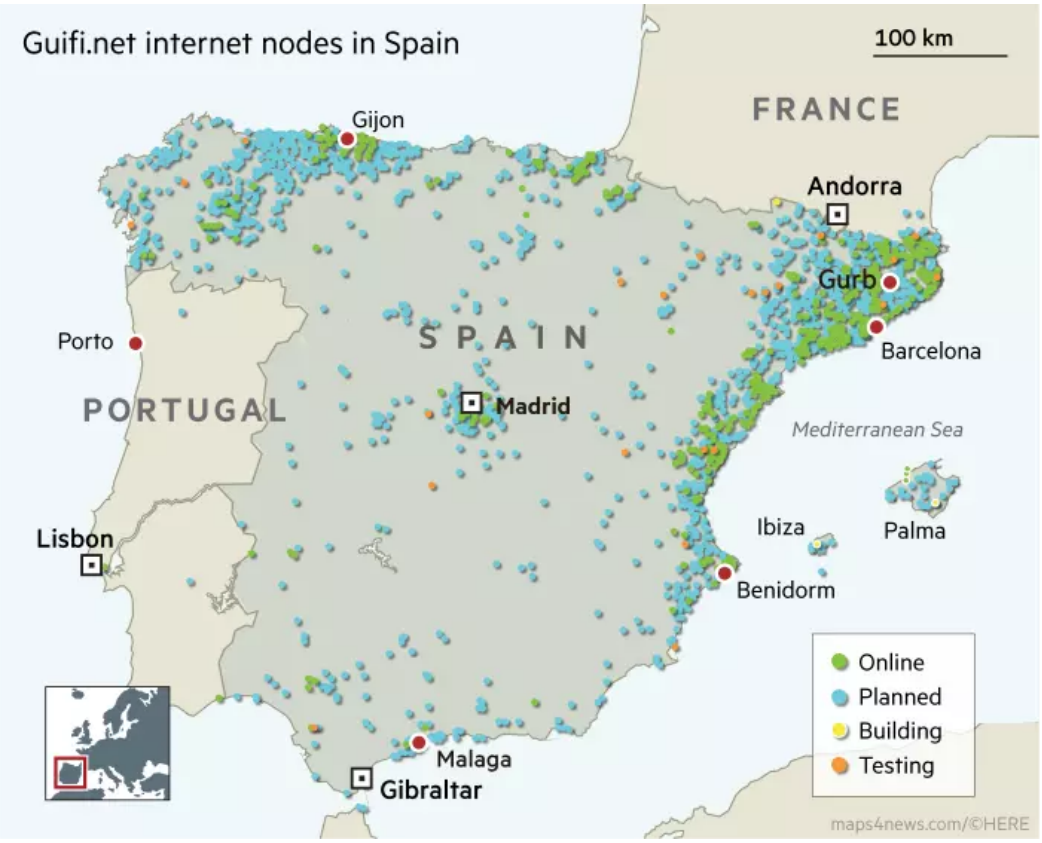
"The first thing guests ask about is WiFi," says Ms Herrera. "Nowadays, it is more important than the breakfast." With an optical fibre cable running into reception from the Guifi.net box across the street, 30 guests can now stream video simultaneously — ample for a 14-room hotel. She is no longer hamstrung when competing with rivals in nearby towns.

Since the beginning of the year, almost 250 of the 400 or so properties in Tortellà have signed up for optical fibre connections to the Guifi network. At little more than €40 a month for a fibre and cell phone package, Guifi.net's retail partners claim to offer far more bandwidth and speed, at a lower price, than rival operators — where rivals exist.

The most compelling argument for most users is that Guifi reaches areas other networks do not. Guifi.net began in 2003 as a community initiative to provide WiFi to residents across the largely rural municipality of Gurb, about 70km north of Barcelona.

Gurb's town hall and school, on the outskirts of the town of Vic, had broadband access. But in the village, farms and other local businesses, 2,500 residents and workers had to rely on their cell phones for internet access. Low population density and distances from the exchange made the cost of providing high-speed wired connections uneconomic for incumbent telecoms operators.

Ramon Roca, a senior manager in the computer industry, was frustrated by his lack of access at home and suggested solving the problem by stringing a WiFi aerial from the town hall to a nearby grain silo.



Gurb's community-based solution has since attracted steadily expanding interest across Catalonia — a relatively populous region of small towns and villages scattered across rugged hills and fertile valleys — as well as in other parts of Spain and Europe, where incumbent operators have been reluctant to invest.

Mr Roca's brother, Joan, is mayor of Gurb and president of Osona county council. He says: "Part of our role as a municipality is to ensure internet access. For farms and rural residents, broadband is a basic service. Today, a farmer can't operate without water, electricity and broadband."

For example, he says, Gurb's 100 or so farms have around 40,000 cows and pigs. Farmers have to provide regular online reports to animal health authorities, and broadband has become central to their businesses. The combination of good road access and broadband now underpins the municipality's prosperity and its growing population.

Meantime, Guifi.net has taken on a life of its own. In 2009, as the wider potential became clear, Ramon Roca and his collaborators set up the Guifi.net Foundation and registered with the Spanish Telecommunications Market Commission. They began laying optical fibre, linking farms and houses in a 2km network.

By sharing the costs of installing fibre and local WiFi relays that can be used by neighbouring premises, communities can often install broadband at a very competitive cost, says Mr Roca. "Optical fibre costs around €1 a metre. The installed cost is about €3 a metre if you suspend it between poles, or €6 if you lay it in a trench."

Guifi.net has been creative in finding cheap ways of connecting buildings with fibre. Municipalities often allow it to put cable in existing ducts, or in water or sewage pipes, substantially reducing installation costs.

From small beginnings in Gurb, Guifi.net has grown into a network linking more than 46,000 premises and 33,700 connection points or nodes. It is adding nodes at the rate of more than 100 a week and is developing quickly in Catalonia and Valencia.

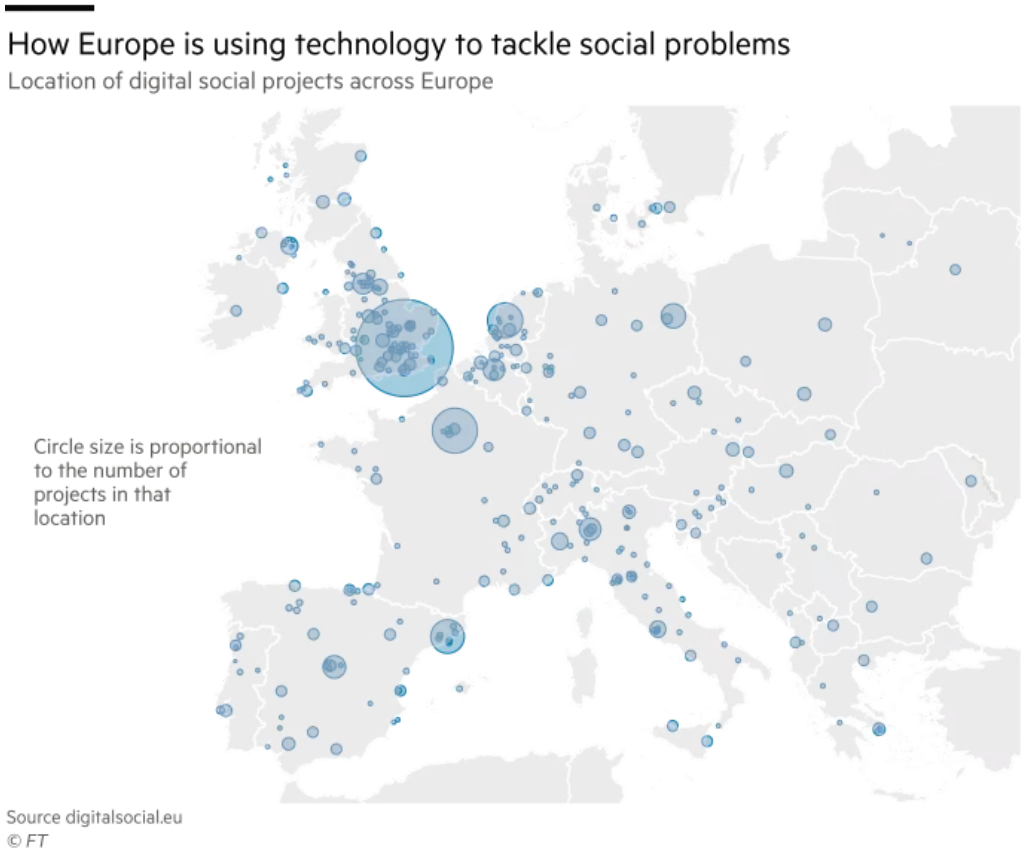
Different elements of the network are owned by a variety of individuals, businesses, municipalities and Guifi.net itself, but the network as a whole is underpinned by contracts that treat it as a common good. "Rural communities readily understand this idea of a common good," says Mr Roca. "Irrigation and grazing are also often held in common."

Local commercial partners are also involved. Ms Herrera's village was cabled at a cost of €200,000 by Estanis Sarquella, who owns a computer store in the nearby town of Besalú. He put up his home as collateral so that Girona Fibra could obtain a bank loan, which will be repaid by monthly fees it charges customers for their 'last mile' connection to Guifi's network. Many Guifi.net users know their broadband supplier personally, and can call or visit a local store for support.

Guifi.net may soon face increased competition from next-generation 5G telephony which promises high-performance broadband across a mobile phone network requiring no fibres. Mr Roca is convinced, however, that a commons-based system using optical fibre will remain cost-competitive.

Close to Gurb, in the county of Garrotxa, in the foothills of the Pyrenees, Francesc Canalias runs Sigma, a municipal service provider. He organises town hall meetings to convince communities to build broadband projects based on Guifi.net.

“Catalonia was a cradle of the industrial revolution,” he says. “We began with textiles, moved into metalworking, then food processing. I don’t know what the next industry will be, but we won’t have it unless we have broadband.”



Location of digital social projects across Europe