

Optical fiber as a commons in the neighborhood of Viladordis

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Description of the initial scenario

- **Location of the neighborhood:** Viladordis is a small rural nucleus (300 inhabitants) 3km from the city of Manresa (75,000 inhabitants)
- **Administrative unit:** Viladordis is considered a neighborhood of Manresa
- **Geography:**
 - Nucleus with concentrated houses
 - Scattered farm houses (Masies)
- **Communications:** Existing communications were precarious
 - ADSL with low bandwidth <1Mbps and continuous cuts
 - WIMAX Communications with low capacity and high prices

Community wireless network

- **Construction of a community wireless network in 2010**
 - Initial support of about 12 houses
 - Being operating for about 5 years
 - Community maintenance done in associative way with one person with technical expertise to carry out the maintenance
 - Initial contributions of €35 per household to have the right of connection
 - Private equipment per user/household costs about €150-200
 - Final support for about 35 homes
 - Quotas per household were of €40 per semester
 - Creation of reserve funds to deal with extensions and maintenance based on surplus quotas

Estimation of costs

- **Budget for the creation of a fiber network:**
 - Connect to the next point of common fiber network 10km away
 - Approximate cost of €45,000
- **Priority to backbone fiber to reach the community wireless node:**
 - *Phase 1:* Obtain funding to reach the community node
 - *Phase 2:* Allow planning to finance fiber to interested homes

Financing and cost sharing

- Freedom to choose option:
 - Mandatory contribution from each home to build fiber optics to the wireless node: €600
 - Optional contribution by anyone who wants fiber to the home: €1,500
- About 50 homes are required to carry out the project
- A survey among the neighbors:
 - Few families refuse to contribute money
 - One part chooses fiber to the wireless node
 - Another part chooses fiber to the home
 - The number of participants reaches around 50
- The surplus money reaches €5,000 becomes a buffer
- The Guifibages Association (current service provider) is requested if it can contribute another buffer of €5,000 more

Tax deductions

- The Spanish law allows individuals to deduct in donations made to Foundations
 - The first €150 up to 75%
 - Above €150 the deduction is 30%
- The Guifi.net Foundation dedicates donations received to the creation of a communications network of universal reach and available to everyone: **The Viladordis project** is activated

Funding collection phase

- For 2 years €600 per household is collected in the form of a donation preferably of 2 people per household with €150 per person
- It is accepted that some households do not contribute €600 in exchange for contributing €100 per year forever

Table with different contribution options

	2016	2017	2018	2019	2020	2021
F2Node	€300	€300	-	-	-	-
F2Node	€100	€100	€100	€100	€100	€100
FTTH	€300	€300	€450	€450	-	-
FTTH	€300	€300	€300	€300	€300	-
	Radio			Fiber		

Installation phase

- A fiber installer is contracted to carry out the deployment
- The installation is carried out during the next year after donations of €600
- Households committed to fiber at home continue to contribute until reaching €1,500
- At the end of the network installation, 30 households made the donation of €1,500
- At the beginning of the next year (nowadays) 10 households more are going to donate the total of €1,500 and are waiting for the fiber installation

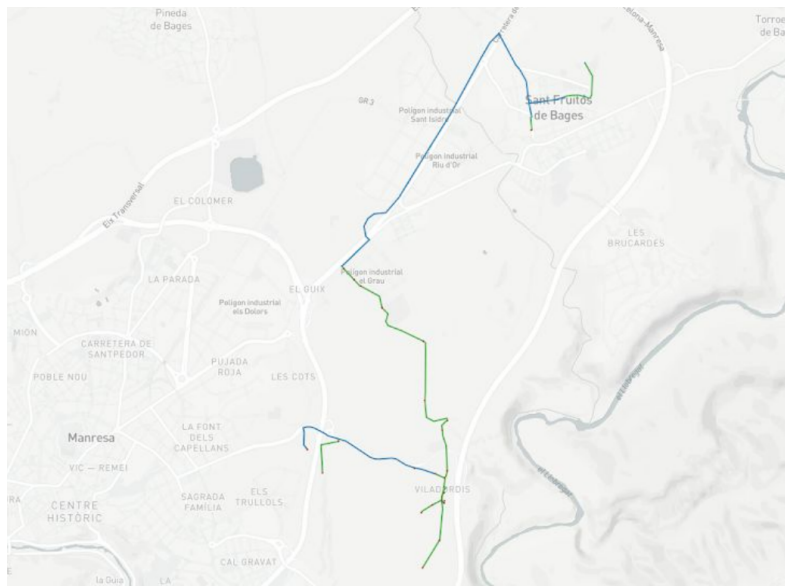
Summary table of final Income/Expenditure 2018

Income		
Quantity	Mode	Total
5	F2Node(€600)	€3,000
5	F2Node(€100)	€1,500
30	FTTH(€1500)	€45,000
10	FTTH(€1200)	€12,000
		€61,000

Expenditure (CAPEX)		
Quantity	Zone	Total
1	Backbone	€30,000
1	Sant Fruitós	€5,000
1	Manresa	€10,000
40	User Drop	€8,000
		€53,000

We have a surplus to extend optical fiber to other locations

Map of the deployment



Some photos of the deployment: building facade



Some photos of the deployment: Pole installation



Maintenance phase

- Agreement with the installers of a commitment for repairing when any failure
- Monthly donation of €6 is made as part of an economic buffer to face eventual maintenance (OPEX)
- The resulting fee to the user, if he chooses the Guifibages Association as operator, is €15 per month where the €6 maintenance fee is already included
- Internet access is achieved through a regional optical backbone over a wholesale-only fiber operator, connected to a shared pool of Internet carriers in Barcelona, both operated by the Guifi.net Foundation

Conclusions

- It is possible to have broadband communications in rural areas where traditional operators do not see interest
- Coordination between neighbors is needed to provide the necessary funding
- It is necessary flexibility for each individual to find their place in the project
- Tax deductions are a great incentive since that leads to the final cost being approximately 25% of the total
- The neighbors' initiative has been possible thanks to the existence of the Guifi.net project with the presence of different actors such as the Foundation and associative operators (Guifibages Association)
- The final existence of this network promotes other neighbors to join later