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
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

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<tbody>
<tr>
<td>F2Node</td>
<td>€300</td>
<td>€300</td>
<td>-</td>
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<tr>
<td>F2Node</td>
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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

<table>
<thead>
<tr>
<th>Income</th>
<th>Expenditure (CAPEX)</th>
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<tbody>
<tr>
<td><strong>Quantity</strong></td>
<td><strong>Mode</strong></td>
</tr>
<tr>
<td>5</td>
<td>F2Node(€600)</td>
</tr>
<tr>
<td>5</td>
<td>F2Node(€100)</td>
</tr>
<tr>
<td>30</td>
<td>FTTH(€1500)</td>
</tr>
<tr>
<td>10</td>
<td>FTTH(€1200)</td>
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<tr>
<td><strong>€61,000</strong></td>
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</table>

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.