

# *guifi*•*net*

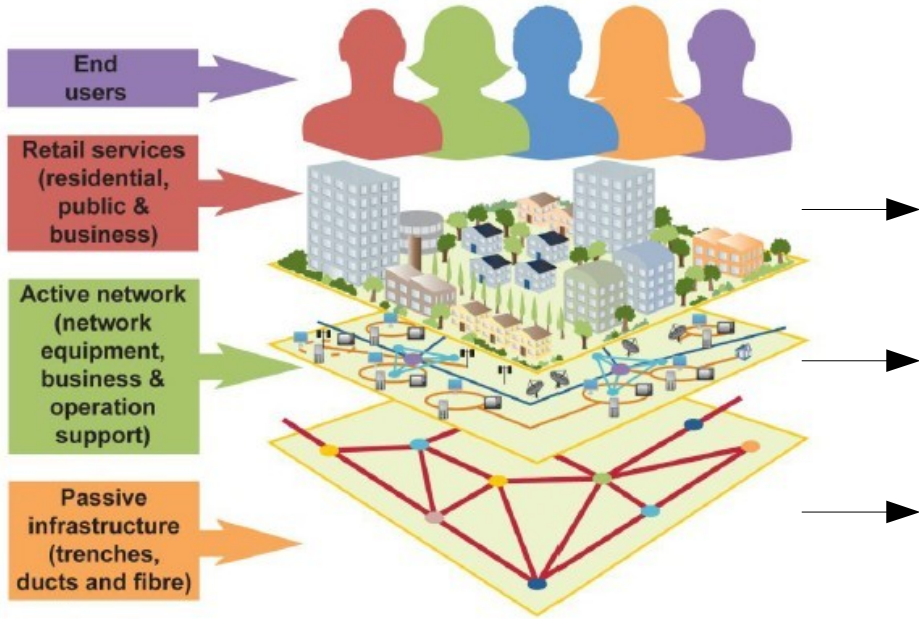
Building a  
**COLLABORATIVE ECONOMY**  
over  
Networks held in **COMMON**

Broadband Europe NGN Awards  
*Innovative model of financing, business and investment category*

1r Congrés de SobiraniaTecnològica  
Barcelona, Feb 20th 2016  
**guifi.net Foundation**  
*fundacio@guifi.net*

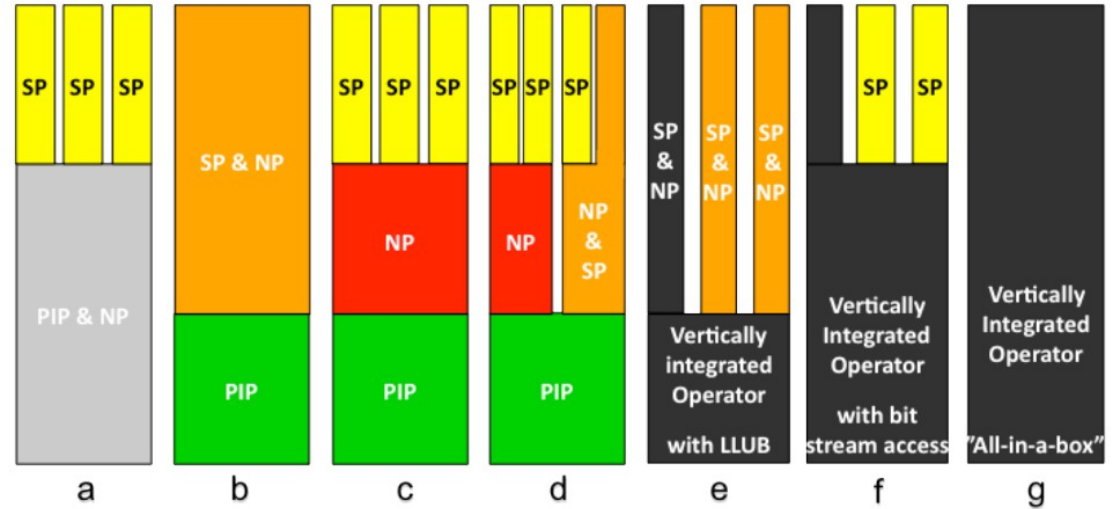
- Supply chain models
- guifi.net model
- How public administrations can help

# Access network layers

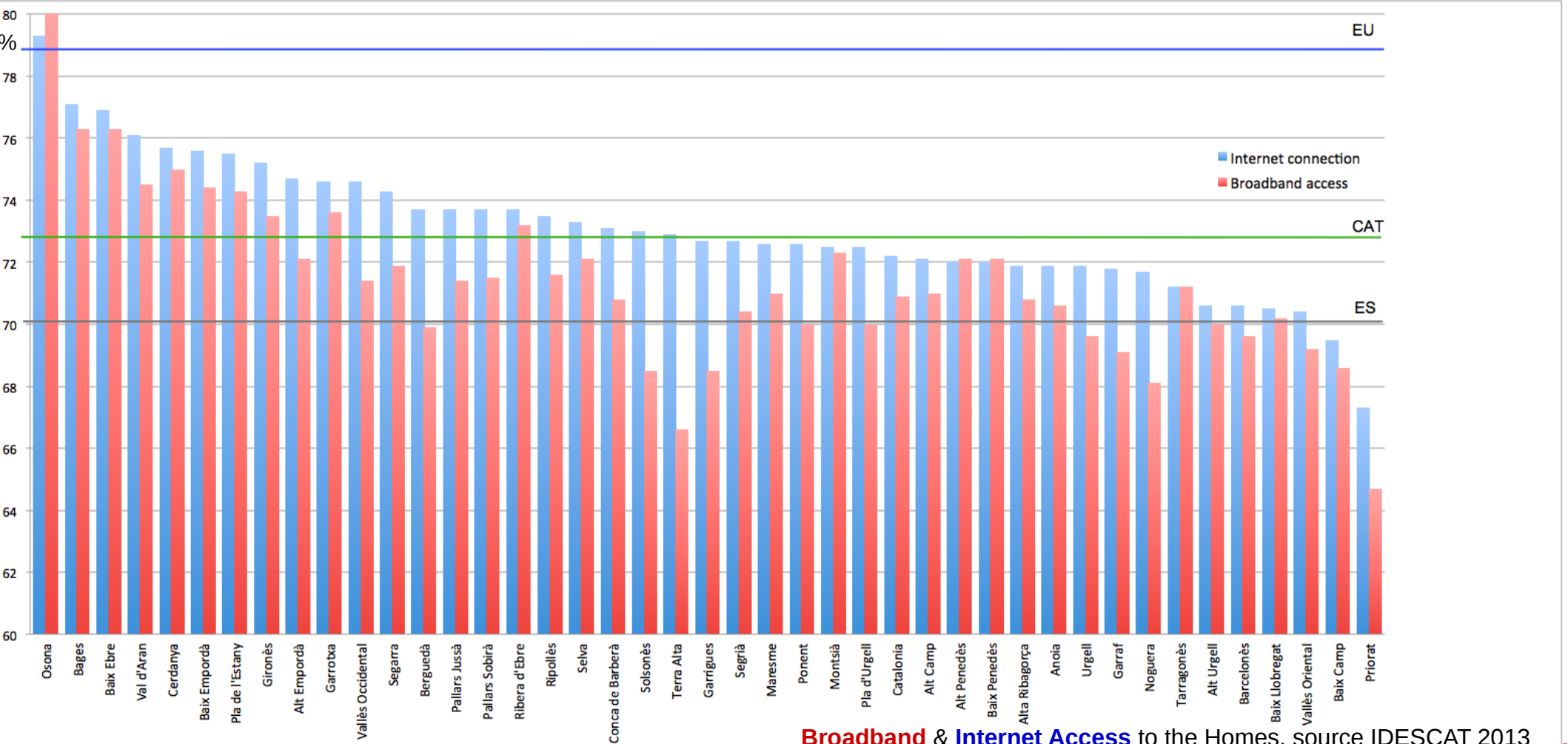


(Alcatel-Lucent)

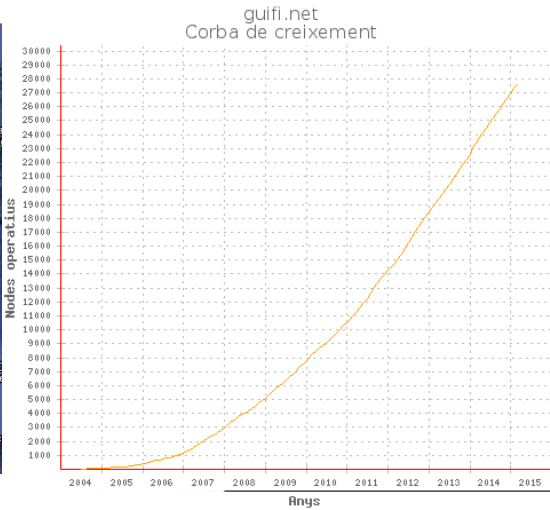
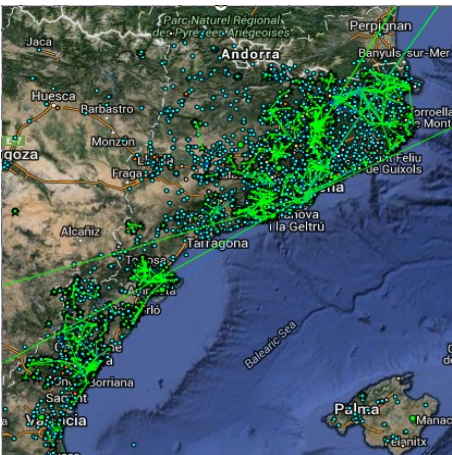
# Business models



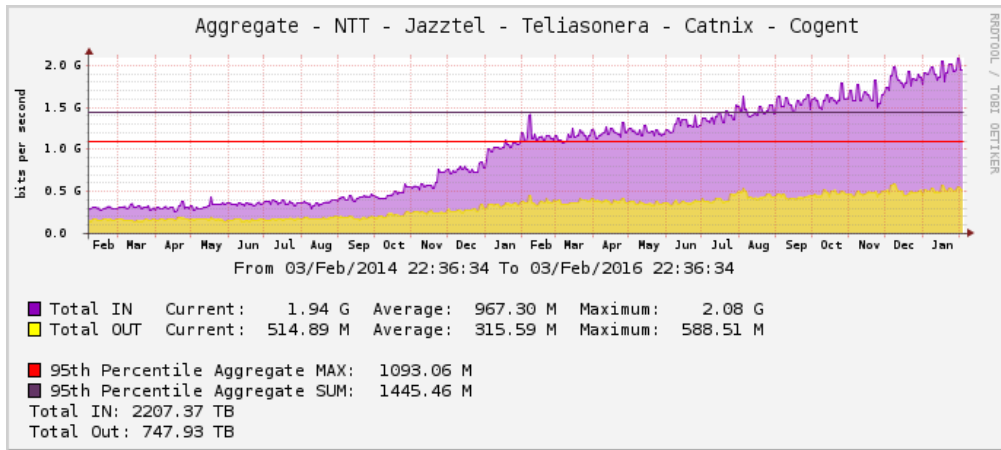
- Supply chain models
- **guifi.net** model
  - The **commons** in the telecom industry
- How public administrations can help



Broadband & Internet Access to the Homes, source IDESCAT 2013



- Not just about “we can”
  - But also “we do”
- In guifi.net, since 2004
- With a Foundation, since 2009
  - Non-profit, non-partisan, without conflicts of interest
- Scaling
  - Growing exponentially at triple digit every year
  - > 30k nodes
  - 18 Optical Fibre PoPs around Catalonia
  - CAPEX > 7M€
  - OPEX nearly 3M€ yearly turnover
- Awards:
  - 2007 Catalan National Award – category on Telecommunications
  - 2015 European Broadband Award – category on innovative model of financing, business and investment





- **User Access / Last Mile**

- Goal: internet for everyone
- Typically 90% of the total cost
- Starting wireless
- Later, extending to Fibre Optics: Aerial, conduits...

- **Territorial Transport**

- Needed for Last Mile deployments' interconnection
- Reusing existing public infrastructures: Roads, Railways, Water pipes, Power lines, etc.
- “de facto” a large distributed neutral IX
- Already present in many Catalan counties

- **Full Transit**

- To the Carrier House and to the Regional IX (CATNIX)
- 10GB/s ports
- Redundant internet uplink (independent carriers)
- Peering with almost all the ISPs present at the IX

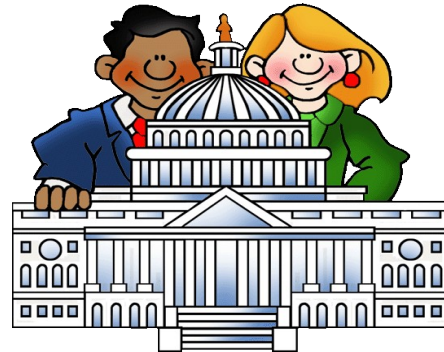
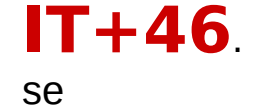
Layers of activity: Full cycle

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A Collaborative Economy with ...

# guifi.net

Network as a Commons



Smart Citizens (Volunteers)

Smart Governments

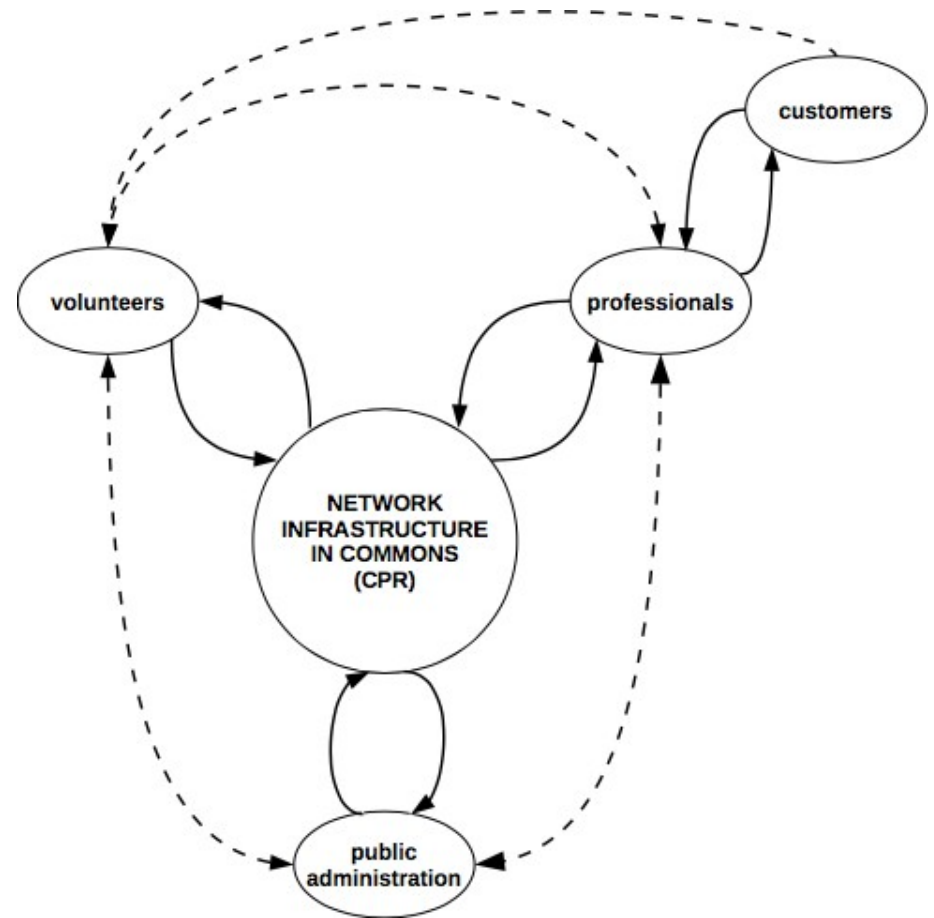
Smart SME's & Orgs

Ecosystem: Participants & Stakeholders

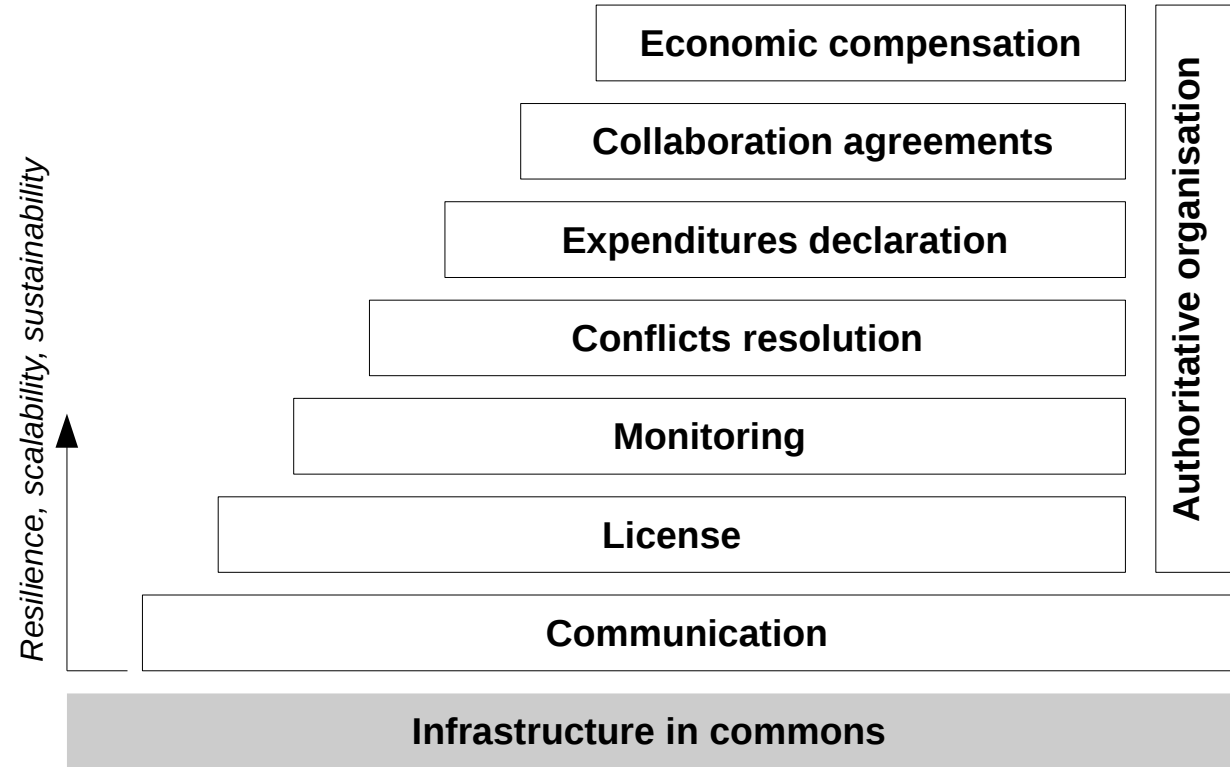




- Foundation
  - Common Pool Resource (CPR) Governance
- Public Administrations
  - Manage Public Domains
- Professionals
  - Provide services
  - Generate Income from customers
- Volunteers
  - Contributing to the CPR



- Sustainable design
- Based on collaborative economy
  - E. Ostrom (2009 Nobel Prize in Economics) principles
- Based on free market, but
  - Non-speculative
  - Fair trade
- win-win ecosystem
  - Rises funding
  - enables economies of scale
- Accountable
- Implemented through
  - Written consensus rules (license)
  - Signed agreements



- Expenditures declaration

- Public

- Criteria
- Information

- Economic compensation

- Balances

- Contributions
  - CAPEX
  - OPEX
- Resources usage
  - Bandwidth, # of fibre connections, ...

- Clear return of investment & fair business models

Totals mensuals per l'any 2014

Supplier	gen	feb	mar	abr	mai	jun	jul	ago	set	oct	nov	des	Total
59855-Gurbtec Telecom	2,688.55	461.91	3,286.92	2,999.42	487.58	3,409.20	15,462.74	1,500.42	10,562.02	9,230.01	4,134.68	8,735.37	62,958.81
61891-Priona.net	-	-	-	853.05	-	-	-	-	2,699.54	-	275.68	39.53	3,867.80
61722-Gaufix.net - Internet a l'abast de tothom	2,643.26	3,875.98	5,592.41	1,590.64	396.80	641.30	1,535.03	1,671.10	3,386.53	3,211.91	3,801.38	2,747.77	31,094.11
31251-http://www.setup.cat	326.70	36.30	238.04	477.11	84.38	113.84	75.64	369.84	-	-	-	-	1,721.85
71369-Ramon Roca	-	-	-	-	-	-	1,200.00	720.00	-	480.00	-	-	2,400.00
													<b>102,042.57</b>

Expenses & Contributions (e.g.: = 100€)

Resource Usage (%)

Compensation Balance To **Compensate** or **Pay**



Orange Operator  
30 - 45 = **-15€**

Green Operator  
25 - 10 = **+15€**

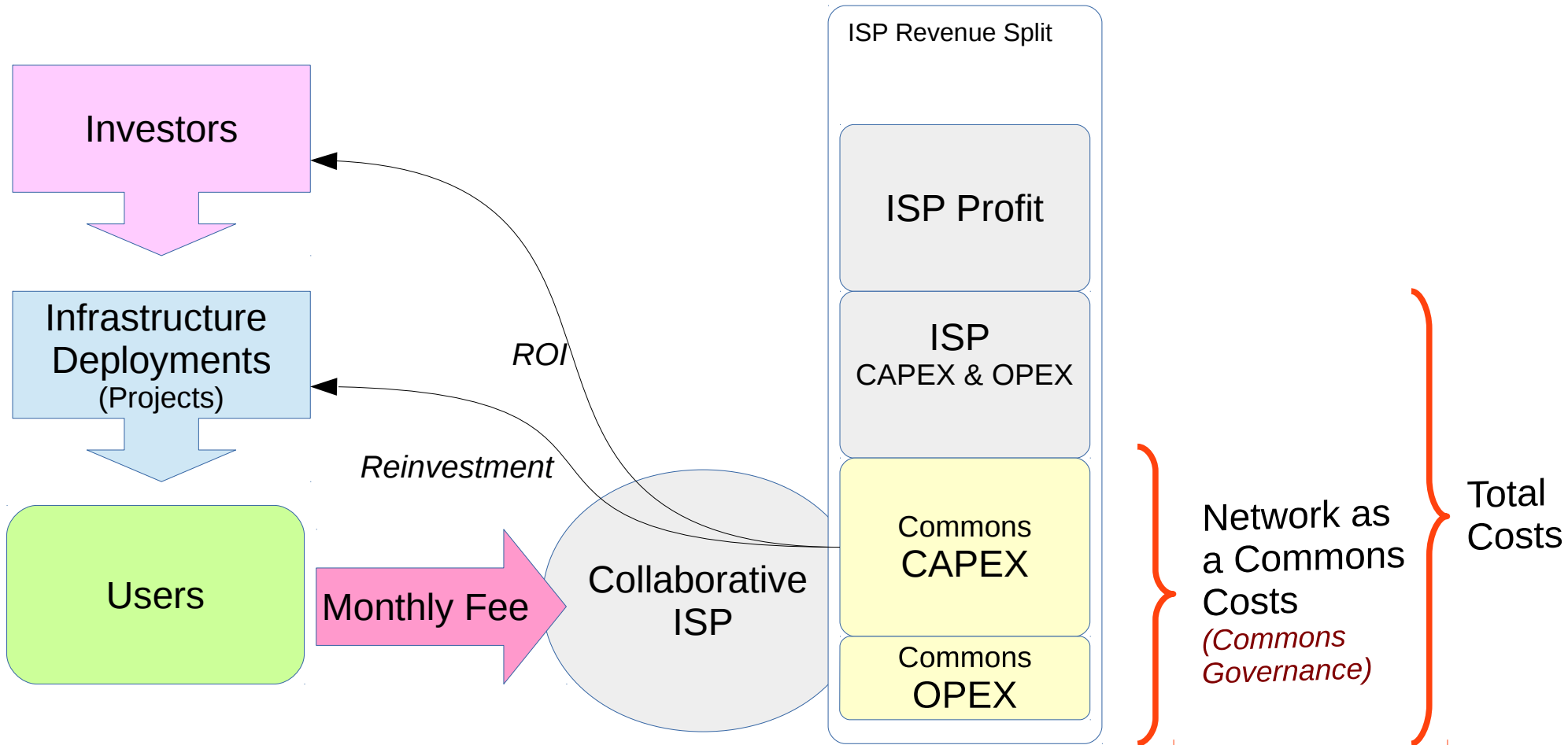
Blue Operator  
15 - 15 = **0€**

Installer/Maintainer  
25 - 0 = **+25€**

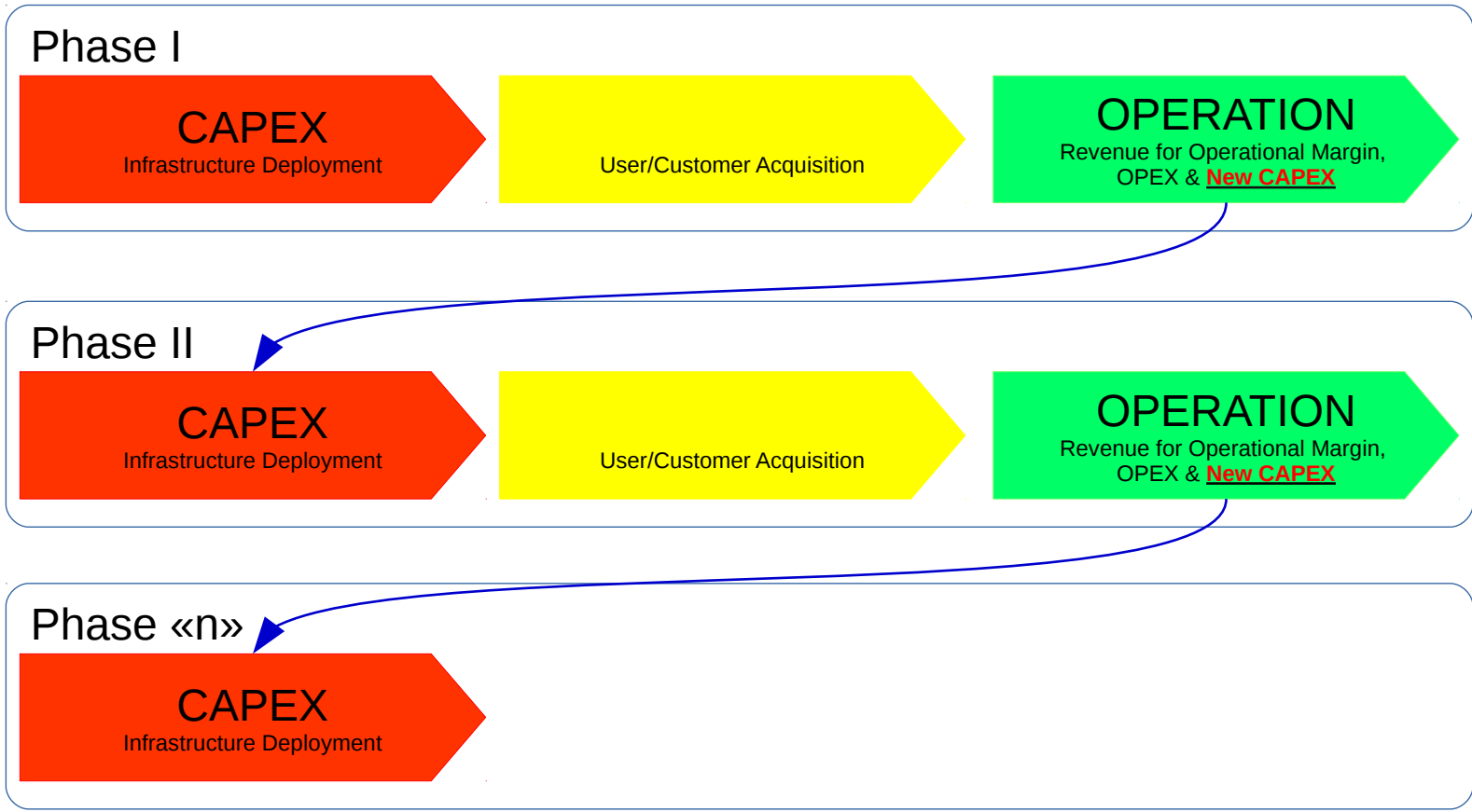
Yellow Operator  
0 - 30 = **-30€**

- Accounting by Operator to ensure/enable
  - Best accounting practices for sustainability with no extra administrative effort
  - Commons Governance
  - Transparency
  - Tax exemptions when applicable
  - Cash flow / Liquidity comfort
  - Enforced by signed agreements

Accounting Commons Deposits By Operator		
	Income	Outcome
OPEX	Fixed amount from recursive payments from customers for providing services	Expenses from Compensations ( <b>Maintenance &amp; Upgrades</b> )
CAPEX	Fixed amount for providing line <ul style="list-style-type: none"> <li>• Upfront (single payment)</li> <li>• Financed, recursive payments at market rates</li> </ul>	Expenses for <b>New deployments</b>



Project



Recursive Organic Growth (based on projects)

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# Model based on **Commons & Collaborative Economy**

- Disruptive
  - But healthy & robust
- Transparent & non-discriminatory
  - Fair economy & high standards on business ethics
- Efficient & Long term sustainable
  - Provides critical mass, economy-scale effects, cost effectiveness
- Best practices, Organic, Non-speculative
  - Risk mitigation

# Lessons Learned

- A crowdsourced network infrastructure held in commons is attainable
- Suitable for everybody: users, enterprises, and public administrations
- All E. Ostrom principles applies
- Strictly adhered to the basic principles:
  - Open and non-discriminatory access
- Clear definitions, written rules is a must
- Diversity of participation
  - Social engagement
  - Effective tools for participation
- Infrastructure held and governed as a Common Pool Resource
- Governed by a neutral (a multi-level?) authoritative organisation



- Supply chain models
- guifi.net model
- How public administrations can help

# Establish the foundations for

- Ensuring an ordered, coherent and coordinated action to boost
  - the **deployment of Next Generation Networks**
  - a varied supply of advanced telecommunication services and internet access **for the general population**
- Easing the implementation and deployment of **smart public services**
- EU & regulatory compliance: **Avoid fraud** & legacy practices

- Maximise the efficiency and synergies of public and private actions and investments
  - Stimulating the investment avoiding duplicities / overbuilding
  - Making it more sustainable by reducing recurrent expenditures
  - Maximising the usage and the return
  - Promote variety of options neither discriminating nor influencing business models (without excluding anybody/any option)
- Define the simple and clear bases for regional and local regulation and administrative procedures
- Agile and responsive coordination, preserving the unity and global efficiency
  - Adjusting the actions to the changing reality and integrating the new technologies and the innovative solutions
  - Respecting the regional and local particularities

# Possible Usages

## 1) Self-service

- Territorial and public connectivity
  - Pub. Adm. premisses
  - IoT

## 2) **Private** exploitation

- Infrastructure awarded to a private, public or public-private enterprise
- Retail supply to the general population or wholesale to other ISPs through resale subcontracting

## 3) All this but Also....As a **Common Pool Resource**

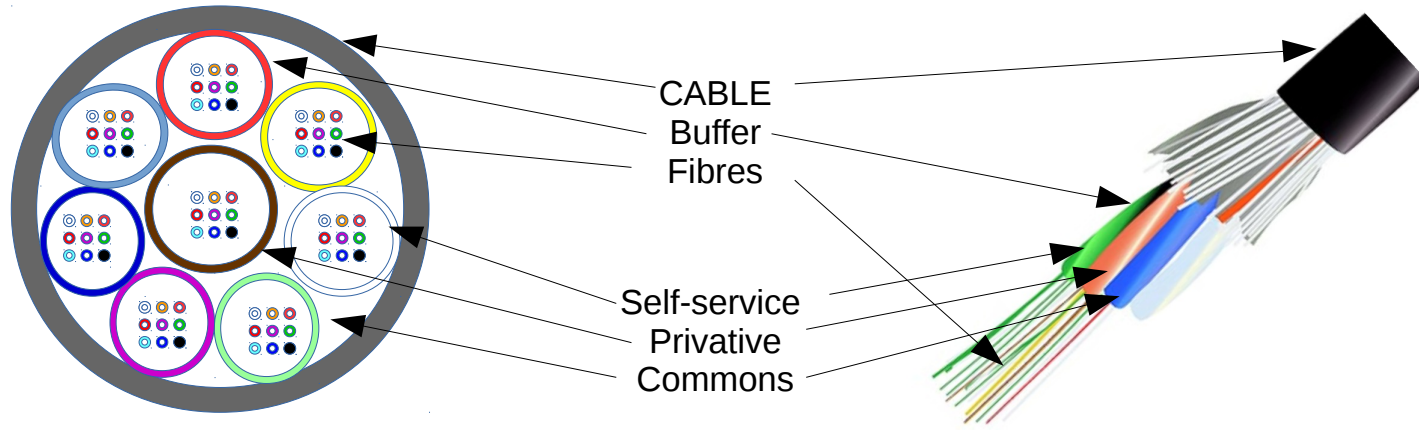
- Infrastructure is operated and share among the ISPs on equal terms
- Steward by a non-profit organisation which ensures the neutral exploitation without conflicts of interest with the ISPs exploiting the resources

# How to include all uses without exclusions?

By adopting the **Universal deployment format**

- Harmonises all possible usages (Self-service, private, Commons Pool Resource)
- Implementation in FO / NGN:
  - Cables with several buffers, buffers with several fibres
  - A buffer assigned to each usage; the rest assigned on-demand
  - When there are no spare fibres left: sharing enforced

# For NGN implementation



Universal deployment format

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# CAPEX

- Criteria of public administrations intervention:
  - 100% public or public-private, regardless the rate:
    - Universal format **always**
  - 100% private
    - ISPs
      - Up to the investor; no means to intervene
      - Avoid fraud: make sure the supply is available to everybody, at market / affordable price (within BIAC)
    - Self-provision (premises interconnection, lack of ISPs supply, etc.)
      - Promote the adoption of the public format, which already foresees the self-provision
    - Spare dug for the universal format
      - In any civil work

# OPEX

- Paid by those who make commercial usage always
  - Because they transfer these costs to their costumers
  - This is guarantees they contribute the required resources
- At least one ISP must commit to SLAs but can be more than one (concurrency is OK)
  - Compensation system activated if ISPs > 1
    - Dark fibre leasing costs also taken into account