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Building a collaborative economy over a telecommunications network held in common

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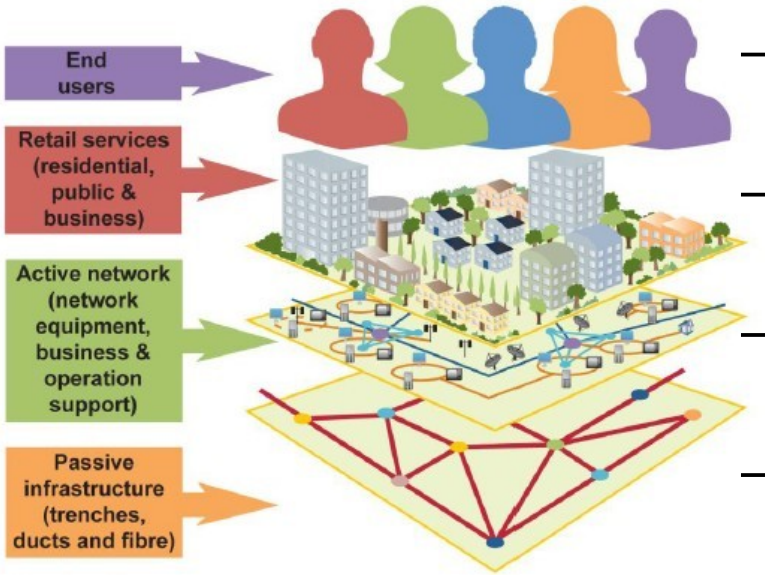
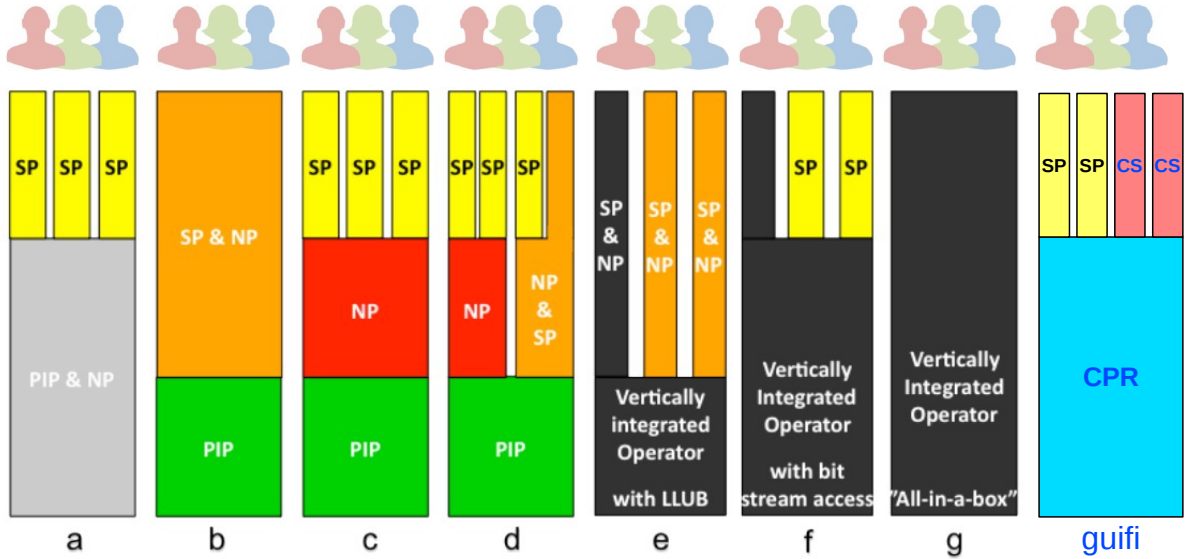
Access network layers



(Alcatel-Lucent)

Business models



PIP – Physical Infrastructure Provider
NP – Network Provider
SP – Service Provider
LLUB – Local Loop Unbundling

CPR – Common Pool Resource
CS – Community service

(Forzati 2010)

Access network layers & Business models

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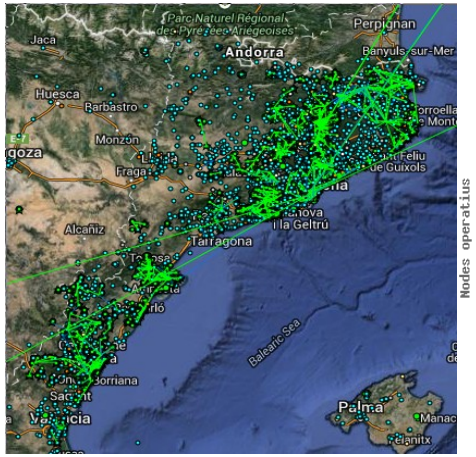
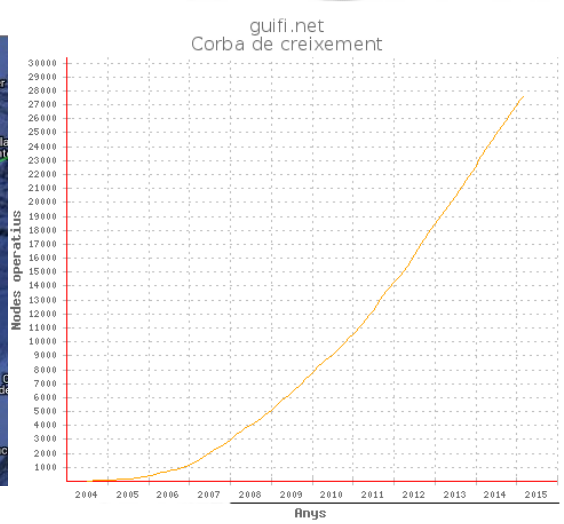
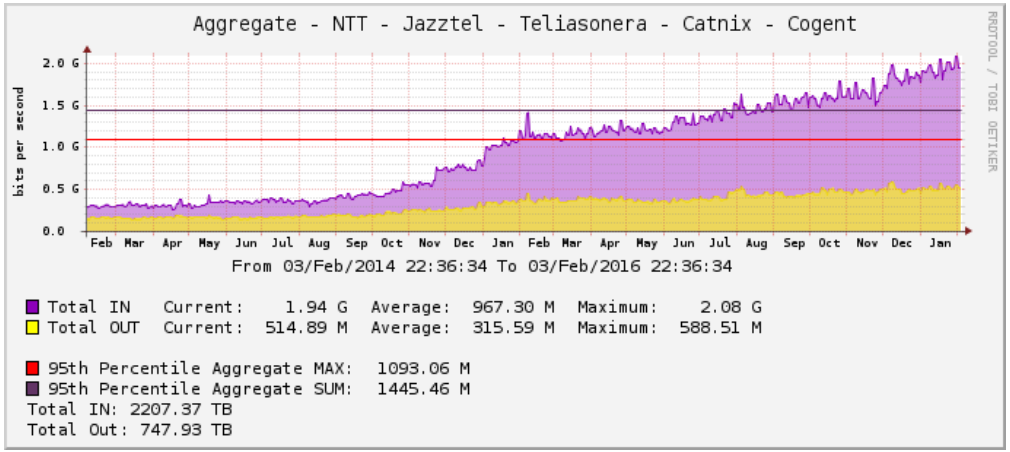
- Guifi.net is a telecommunications network
  - Free
  - Open
  - Neutral
  - Held as *common pool resource*
  - Under a license (the FONN Compact)







- It's not just about "being able to do it"
  - But about actually "be doing it"
- As Guifi.net, since 2004
- With a Foundation, since 2008
  - Non-profit, non-partisan, without conflicts of interest
- Scaling
  - Growing exponentially at triple digit every year
  - > 30.000 active nodes
  - 18 Optical Fibre PoPs around Catalonia
  - CAPEX > 7 M€
  - OPEX nearly 3 M€ yearly turnover
- Awards:
  - 2007 Catalan National Award
    Telecommunications category
  - 2015 European Broadband Award – best project in the innovative model of financing, business and investment category

Activity

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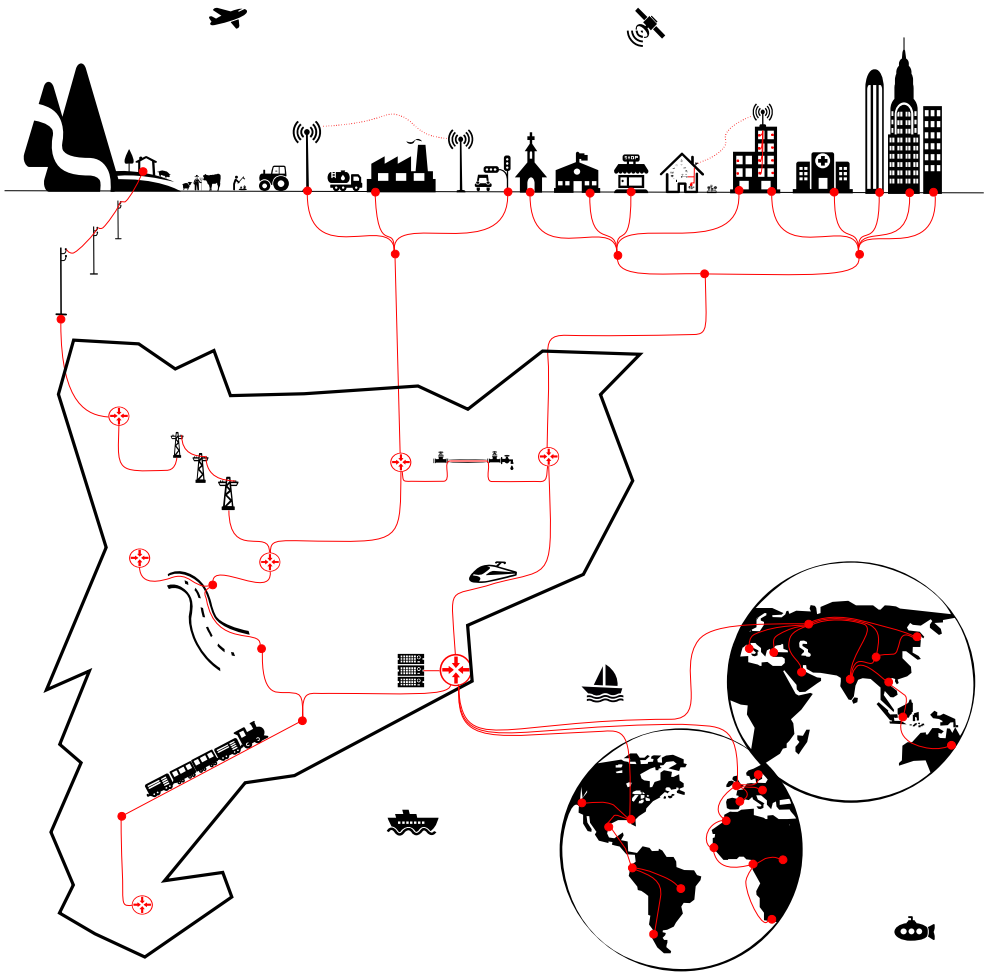

- **User Access / Last Mile**
  - Goal: internet for everyone
  - Typically 90% of the total cost
  - Starting wireless
  - Later, extending to Fibre Optics: Aerial, conduits...
- **Territorial Transport**
  - Needed for Last Mile deployments' interconnection
  - Reusing existing public infrastructures: 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)
  - 10 Gbps 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 ...

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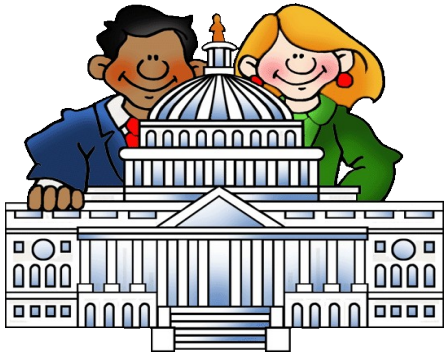
Network as a Commons

Smart Citizens (Volunteers)



Smart Governments

Smart SME's & Orgs

Ecosystem: Participants & Stakeholders

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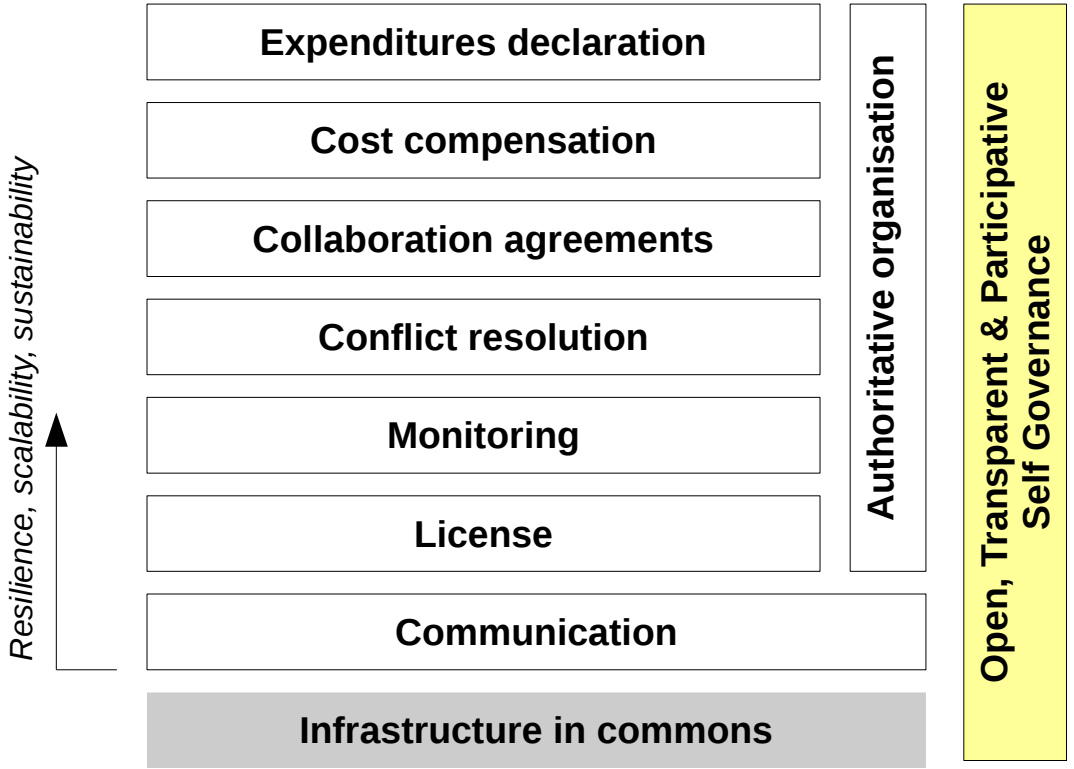
- Sustainable design
- Based on collaborative economy
  - E. Ostrom (2009 Nobel Prize in Economics) principles
- Based on free market, but
  - Non-speculative
  - Fair trade
- win-win ecosystem
  - Rises funding
  - enables economies of scale
- Accountable
- Implemented through
  - Written consensus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



Principles – Self-Governance stack

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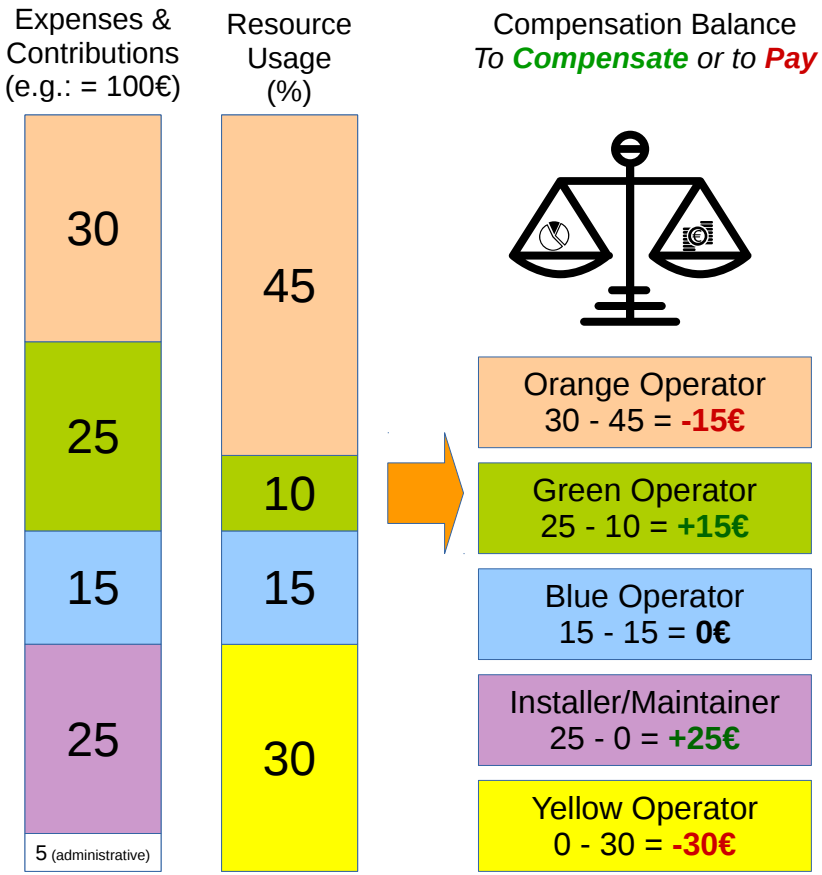
- Expenditures declaration
  - Public
    - Criteria
    - Information
- Economic compensation
  - Balances
    - Contributions
      - CAPEX
      - OPEX
    - Resources usage
      - Bandwidth, # of fibre connections, ...
  - Clear return of investment & fair business models

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
													102,042.57



Investment recognition & recovery

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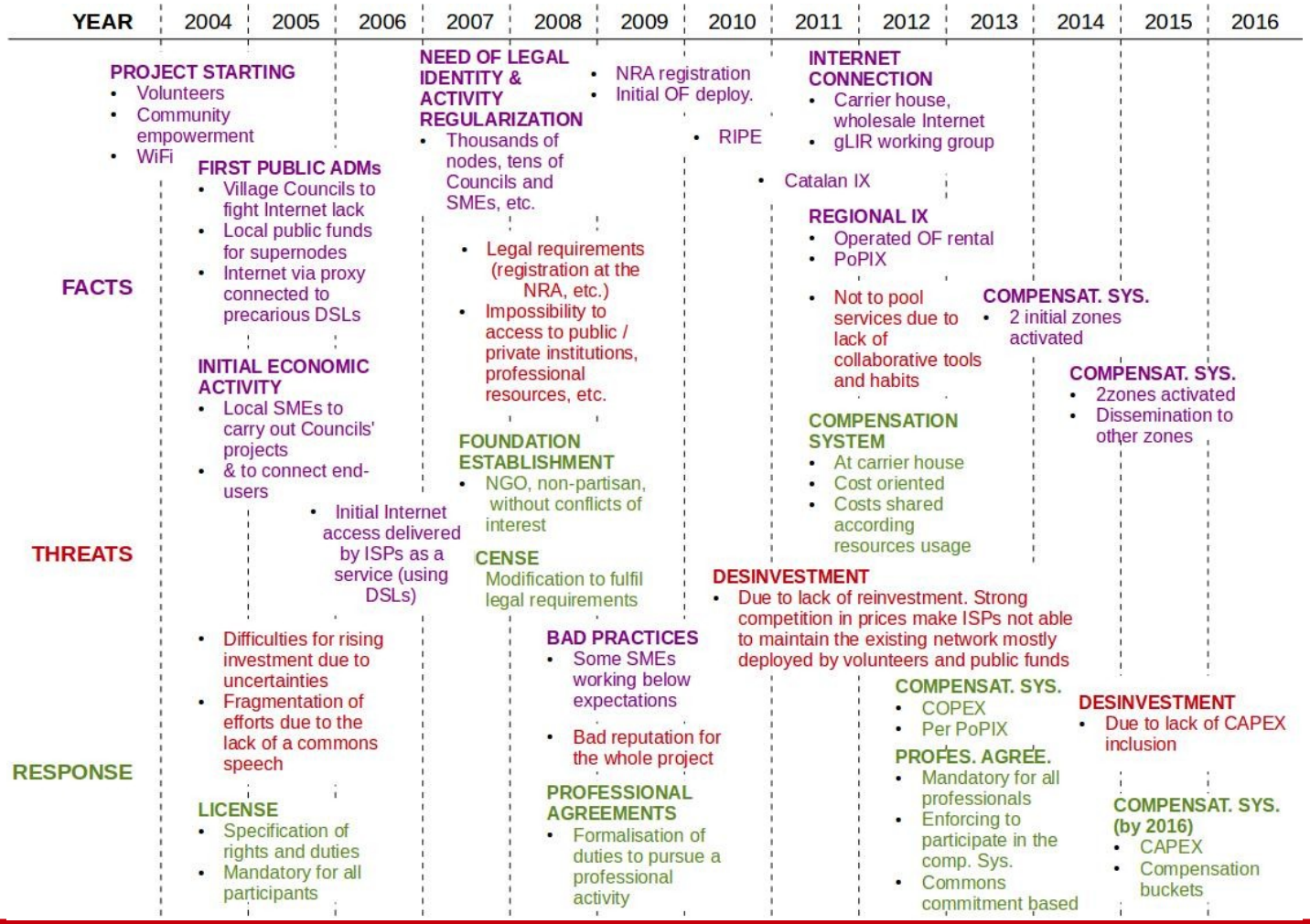

Evolution

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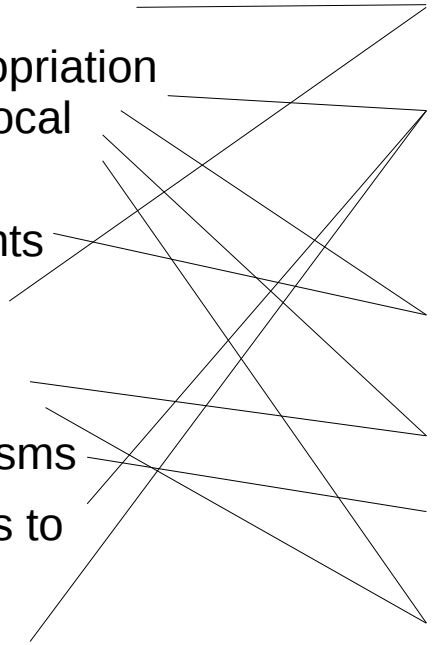
- A crowsourced network infrastructure held in commons is attainable
- Suitable for everybody: users, enterprises, and public administrations
- E. Ostrom principles applies
- Strictly adhered to the basic principles:
  - Open and non-discriminatory access
- Clear definitions, written rules is a must
- 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

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

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

Ostrom's design principles

1) Clearly defined boundaries
2) Congruence between appropriation and provisioning rules and local conditions
3) Collective-choice agreements
4) Monitoring
5) Graduated sanctions
6) Conflict resolution mechanisms
7) Minimal recognition of rights to organise
8) Nested enterprises



Developed tools

- Open Network Assets Listings, Open Provisioning & Open Monitoring Apps.
- Foundation as a cross-cutting org. without conflicts of interest
  - Localization & delegation, collaborative (regular meetings, web site, mailing lists, social networks...)
- Agreements & Service Level Commitments
  - FONN Compact & Compensation agreements
- Investment recognition and recovery
- Dispute resolution procedure
  - Conciliation → Mediation → Arbitration
- Best practices
  - Anti-corruption