

## **Lessons Learned in Municipal Owned Fiber Networks**

**FiberWeek 2010, Croatia**

**Dr. Igor Brusic**

**SBR Juconomy Consulting AG**

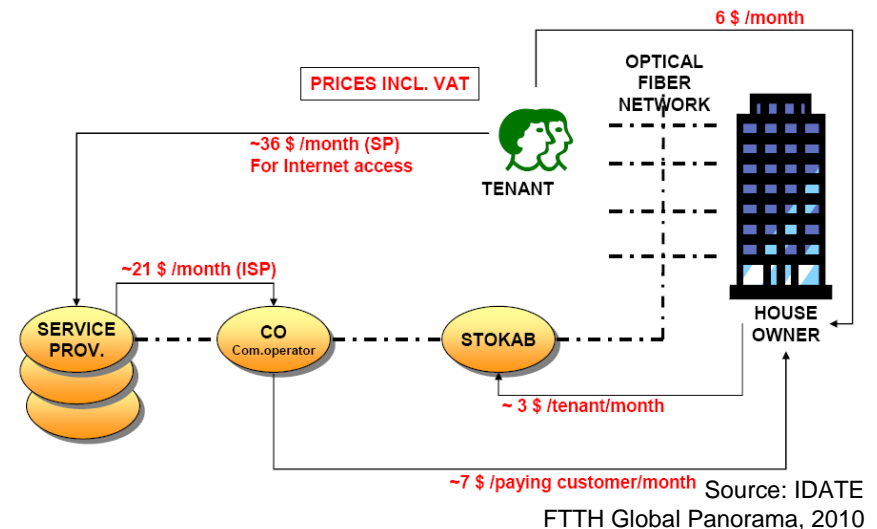
**Split, 29.04.2010**

---



# Sweden / Stockholm / Stokab

- Stokab has been established in 1994
- 100% owned by the City (Stockholms Stadshus AG)
- Premise – building an optical network which can be used by all operators under the same conditions
  - Dark fiber provider
- Real estate companies (like Familje Bostader) are using Stokab for inter connecting their buildings
- In 2008 – Stokab starting to connect 100.000 social flats by 100 Mbit/s (Stokab as ISP)
- Today over 5.600 km of infrastructure (1.200.000 km of optical fibre)
- Actual cost for 100 Mbit/s: 9,80 Euro



# The Netherlands / Nuenen / OnsNet

- Suburb of Eindhoven: 25.000 inhabitants, 8.500 households, 25% retirees
- Project initiated by Kees Rover („OnsNet“ = our network) + Housing association Helpt Elkander + Volker Wessels (Reggefibre) + Emtelle
  - Started in July 2004 and finished by December 2004!
- The first year free of charge: 97% accepted the offer (7.300)
- Afterwards: 20 Euro membership, 16 Euro Internet, 10 Euro telephony, 14 Euro TV (90% remain Internet service subscribers, 80% telephony and 75% TV)
- Since September 2008: 7,50 Euro for 51 TV programmes (incl. HDTV)
- Very good marketing, local TV (broadcasts of weddings from the church, real time transmission from the market place, video services) and local radio
- Actual cost for 100 Mbit/s: 12,50 Euro

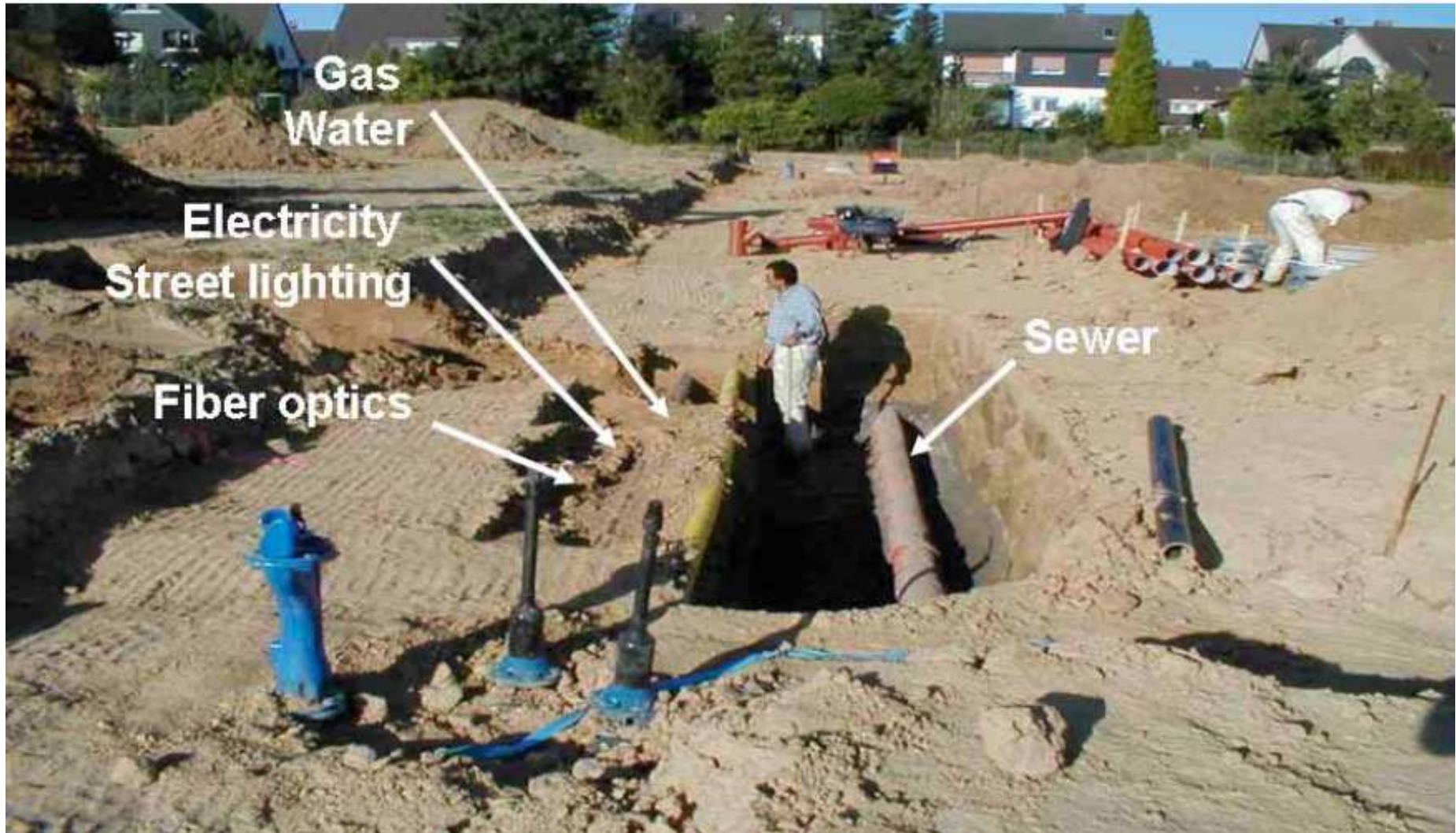


# Germany / Schwerte / Ruhrpower

- Schwerte: 50.000 inhabitants, 20 km from Dortmund
- Utility provider Schwerte (provider of electricity, gas, heat, water, waster water and street lighting)
  - Starting by cable-TV in 2003
  - Since 2005 optical network infrastructure
- Excellent support by the mayor of the town
- New company - Ruhrpower (47% utility provider Schwerte, 23,5% town of Dortmund, 23,5% RWE)
- Services: first VoIP and Internet on their own, after difficulties by Versatel
- Investments are treated as long term invest
- End of 2009 - 1.000 optical access customers
- Actual cost for 10 Mbit/s: 20 Euro

The image displays a screenshot of the Ruhrpower website. The main navigation menu lists services: STROM, GAS, WASSER, KABEL-TV, TELEFONIE, INTERNET, PAKETÜBERSICHT, AGB, GVV und AVB, and VERÖFFENTLICHUNGSPFLICHT NACH EEG. A large bracket on the right side of the menu is labeled „Powerplay“. Below the menu, a 3D graphic shows the pricing for various services: 1 Mbit mehr Speed je 1 Euro, Telefonie Flatrate 10 Euro, Digital-TV 9 Euro, 5 Mbit Flatrate 5 Euro, Telefonie 5 Euro, Kabel-TV 5 Euro, and Glasfaser Anschluss\* 10 Euro. The website header includes 'STADT RUHRPOW' and 'RUHRPOWER Stadtwerke Schwerte'. The footer shows 'NETZE | TECHNIK | SCHWERTE.DE'.

# Germany / Schwerte / Ruhrpower

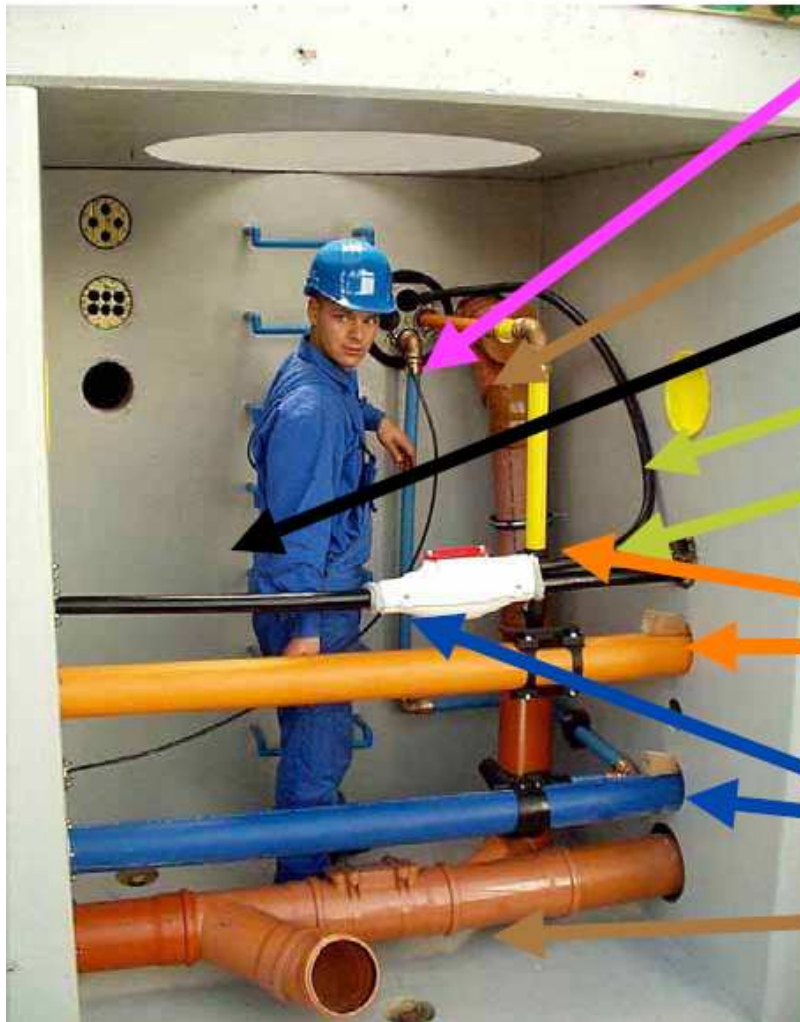


Source: FTTH – new ways for a utility, <http://zukunftsbuero.com/pdf/FTTX.pdf>

# Germany / Schwerte / Ruhrpower



Source: FTTH – new ways for a utility, <http://zukunftsbuero.com/pdf/FTTX.pdf>



## Future means „Multi-Utility“

Multimedia cable: Voice, Data & TV

Sewer connection

Street lighting cable

Electricity connection

Electricity main distribution cable

Gas connection

Gas main distribution line

Water connection

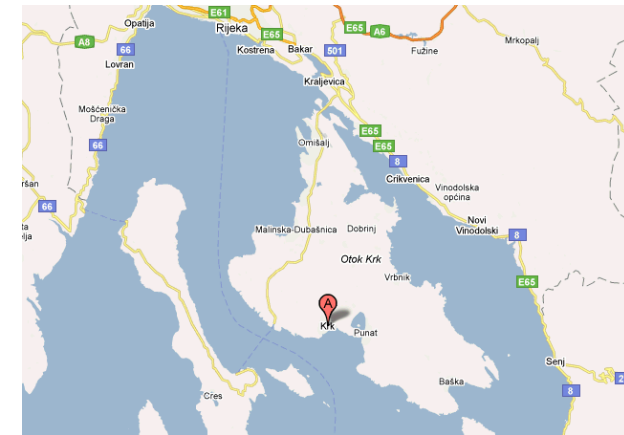
Water main distribution line

Sewer main line

Source: FTTH – new ways for a utility, <http://zukunftsbuero.com/pdf/FTTX.pdf>

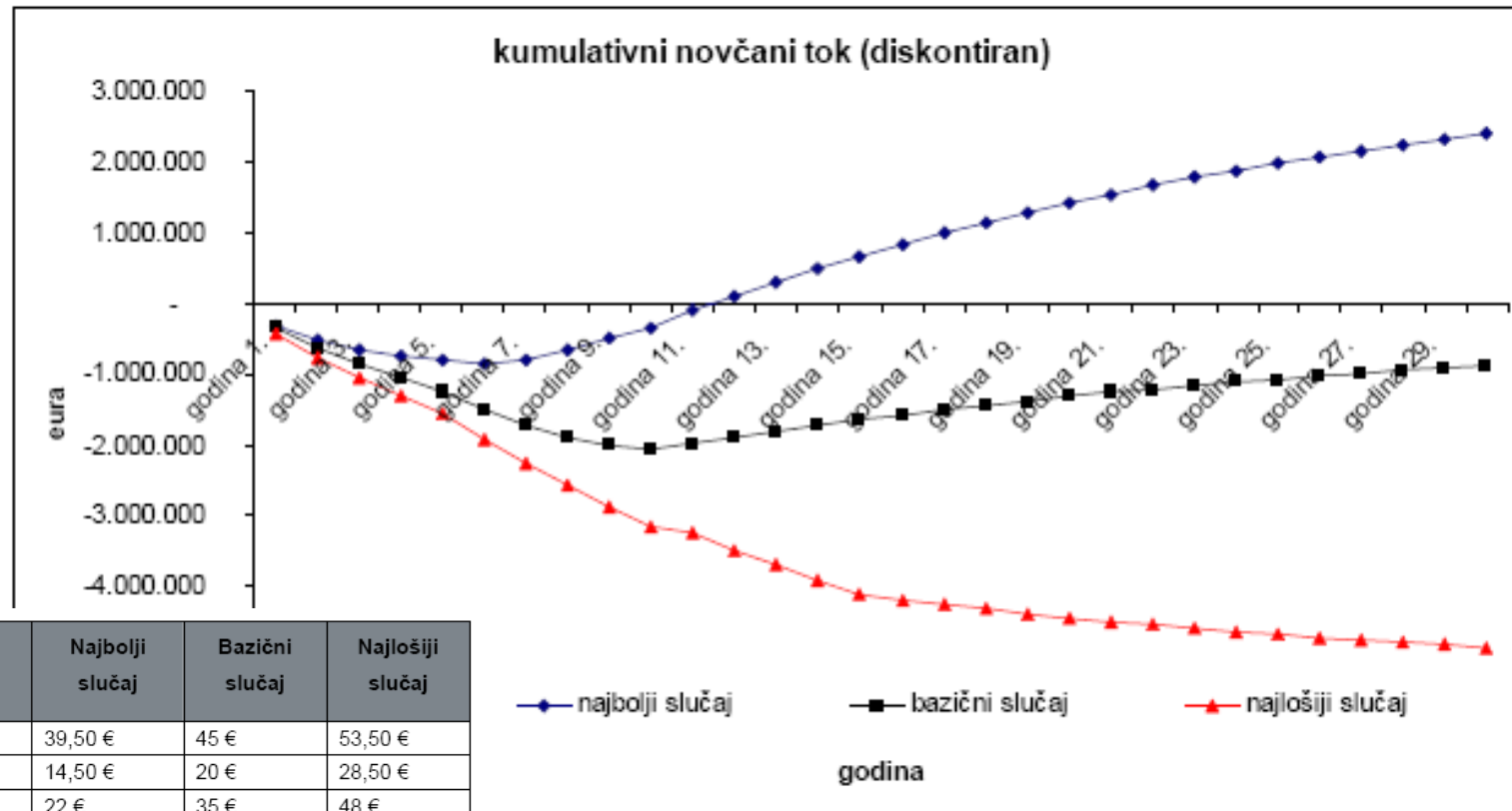
# Croatia / Island Krk / Town of Krk

- At the town council sitting in September 2009:
  - Collecting information about existing infrastructure (database)
  - At future civil work, obligation to collocate empty duct
  - Elaboration of a cost/benefit analysis
- The study can be downloaded at <http://www.grad-krk.hr/docs/GradKrkHR/documents/399/Original.pdf>
- Study results in short
  - There is very little interest for network operator to invest (968 Euro per HH)
  - Backbone and OPEX as bottleneck
- Next steps
  - Elaboration of a master plan
  - PPP and founding options
  - Education and promotion



# Croatia / Island Krk / Town of Krk





Ulazni parametar	Najbolji slučaj	Bazični slučaj	Najlošiji slučaj
CAPEX po metru, kategorija 1	39,50 €	45 €	53,50 €
CAPEX po metru, kategorija 2	14,50 €	20 €	28,50 €
CAPEX po metru, kategorija 3	22 €	35 €	48 €
Prihodi (poslovni partneri), godišnje	600 €	432 €	288 €
Prihodi (ostali korisnici), godišnje	300 €	216 €	144 €
Broj priključaka	Počevši sa 65 u prvoj godini te povećavanje do 2.700 u 8. godini	Počevši sa 65 u prvoj godini te povećavanje do 2.470 u 10. godini	Počevši sa 10 u prvoj godini te povećavanje do 1.300 u 15. godini

# The Netherlands / Amsterdam / Citynet

- 2001: The city negotiated with KPN and UPC about the setup of an NGN/NGA network in Amsterdam
  - Canceled by the operators because of bad business model
- Looking for alternatives: Private Public Partnership
  - City of Amsterdam
  - Five Amsterdam housing corporations
  - Investors (ING Real Estate and Reggefiber)
- 2005: Decision of the City council to realise the project
  - Investment of 30 million Euro for connecting 40.000 homes (12 million loan and 6 million by each partner)
  - EU-commission investigated and approved city investment
  - Ultimate goal is connecting 420.000 homes till 2013 for 300 million Euro
  - Infrastructure company (GNA) owned by all partners (since 2009 the stake of Reggefibre is 70%)
  - Open Access Model



# Amsterdam's three layers model

**Assumption: Lot of independent Internet service providers on the platform**

**Lesson learned: All ISPs in the Netherlands were bought by KPN and others**

**Assumption: Network operator will be very active (... to protect the seven years exclusivity)**

**Lesson learned: 2 months after winning the tender, BBned (subsidiary of TI) was on sale ... the BBned CEO left the company ... turbulences which have not stimulated the Citynet Project**

**Assumption: Infrastructure owner (GNA) will have to care only about rolling out the infrastructure**

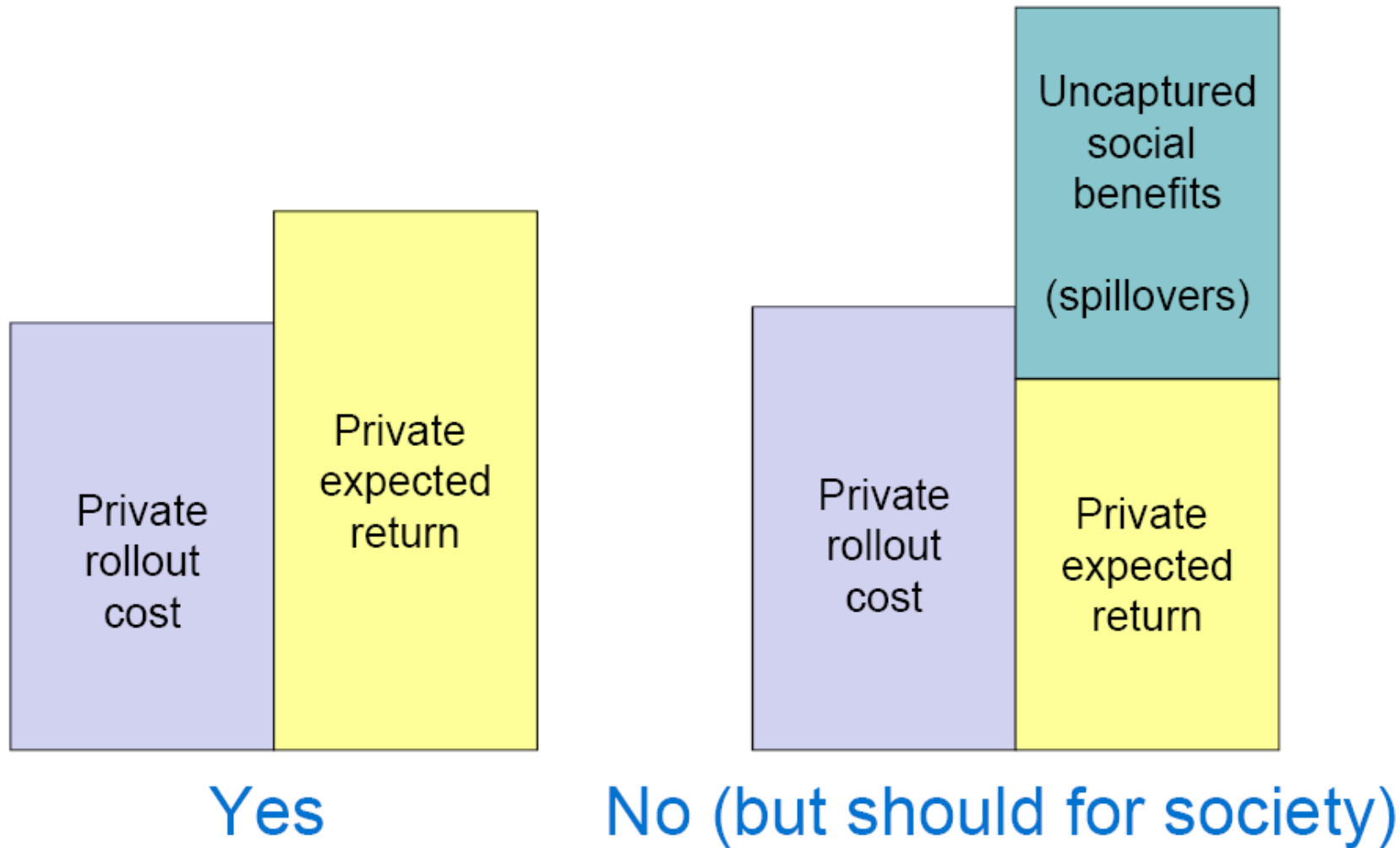
**Lesson learned: GNA was also in charge of marketing because of BBned story**

# Amsterdam / Lessons Learned

- „The experience has resulted over the years in products like **miniature direct burial cables**, **special high-rise cables** with break-out windows to allow very fast builds inside MDUs, fibers that can bend sharply, **easy-install** Fiber Termination Units (FTUs) inside apartments, etc.“
- „Deploying buried cables to every apartment in a dense city is a **disruptive process**. You do not want to repeat it for decades so it needs to be done right ... **adding fiber later on is a nightmare.**“
- „Point-to-point fiber topology is the **most flexible and future-proof topology.**“
- „Deploying FTTH in these kinds of cities with a lot of MDUs, where you have to bury cables and distribute fiber inside buildings, **requires a different mindset and approach** compared to suburban deployments.“
- „Only 120,000 meters of trenching was needed for the first 40,000 connections, an average of **three meters per connection**. Roughly **80 percent of the costs were labor costs**, while 10 percent were fiber.“
- „The key to success is an **extensive preparation**, a **detailed design**, **good organization**, and **social engineering.**“

Source: Harman Wagter, CEO of GNA, How Amsterdam was wired for open access fiber, 2010

# Investments / Cost / Profit / Benefits



Source: OECD presentation, FTTH Council Europe Conference, Portugal 2010

# Business Model of a community

1. Value proposition	2. Architecture of added value	3. Revenue model
<ul style="list-style-type: none"> <li>▪ What benefits does the company provide?</li> <li>▪ The provision of broadband infrastructure as an essential factor for economic and social development of the community</li> <li>▪ Prevents companies of moving away and promotes the return of young people after completing their training or studies</li> <li>▪ Prevents the decline of prices of real estate and construction areas</li> <li>▪ Offers an advantage over communities without fiber</li> </ul>	<ul style="list-style-type: none"> <li>▪ What services are offered on which markets? How is the performance under different configurations (product / market strategies)?</li> <li>▪ Offering of passive fiber infrastructure to all operators on equal terms</li> <li>▪ Non-discriminatory access to the subscriber for all providers of broadband services</li> <li>▪ Each subscriber can use the services of any provider in any combination</li> </ul>	<ul style="list-style-type: none"> <li>▪ How is the money earned?</li> <li>▪ Direct revenue from the rental of lines (dark fiber)</li> <li>▪ Connection charges of subscribers</li> <li>▪ Revenue-sharing models with service providers</li> <li>▪ Indirect revenue (stable value of property, reduction of migration of companies, new enterprise settlements)</li> <li>▪ CO2-emission reduction (lower power consumption, teleworking, micro-trenching)</li> </ul>

- FTTH will be an integral part of the basic municipality infrastructure
- The driving force has to be inside the community
- Marketing of FTTH is totally different and very important for rising the number of homes connected
- Lack of information on the side of governments and decision makers inside towns and municipalities
- For a recovery from the economic crisis an increase in demand is needed which can be stimulated through public investments in infrastructure
- Building such a huge infrastructure generates employment
- The best value for money a town/municipality/state can get today!

## SBR Juconomy Consulting AG

Nordstrasse 116  
40477 Düsseldorf  
Germany

Tel: + 49 211 68 78 88 0  
Fax: + 49 211 68 78 88 33  
URL: [www.sbr-net.com](http://www.sbr-net.com)

Parkring 10/1/10  
1010 Wien  
Austria

Tel: + 43 1 513 514 0 15  
Fax: + 43 1 513 514 0 95  
URL: [www.sbr-net.com](http://www.sbr-net.com)

E-mail: [brusic@sbr-net.com](mailto:brusic@sbr-net.com)