Rural Networks and regulation

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Vahta d.o.o.

- An infrastructure operator from Slovenija, operating FTTH open access bitstream networks in a deep rural area (1.000 sq.km., 5% of the country, with average population density of less than 35 inhabitants per sq.km.);

- Involved in PPP and EU funds for building broadband networks since 2007;

- Active internationally by sharing our experience through EU projects (PPP4Broadband) and directly.

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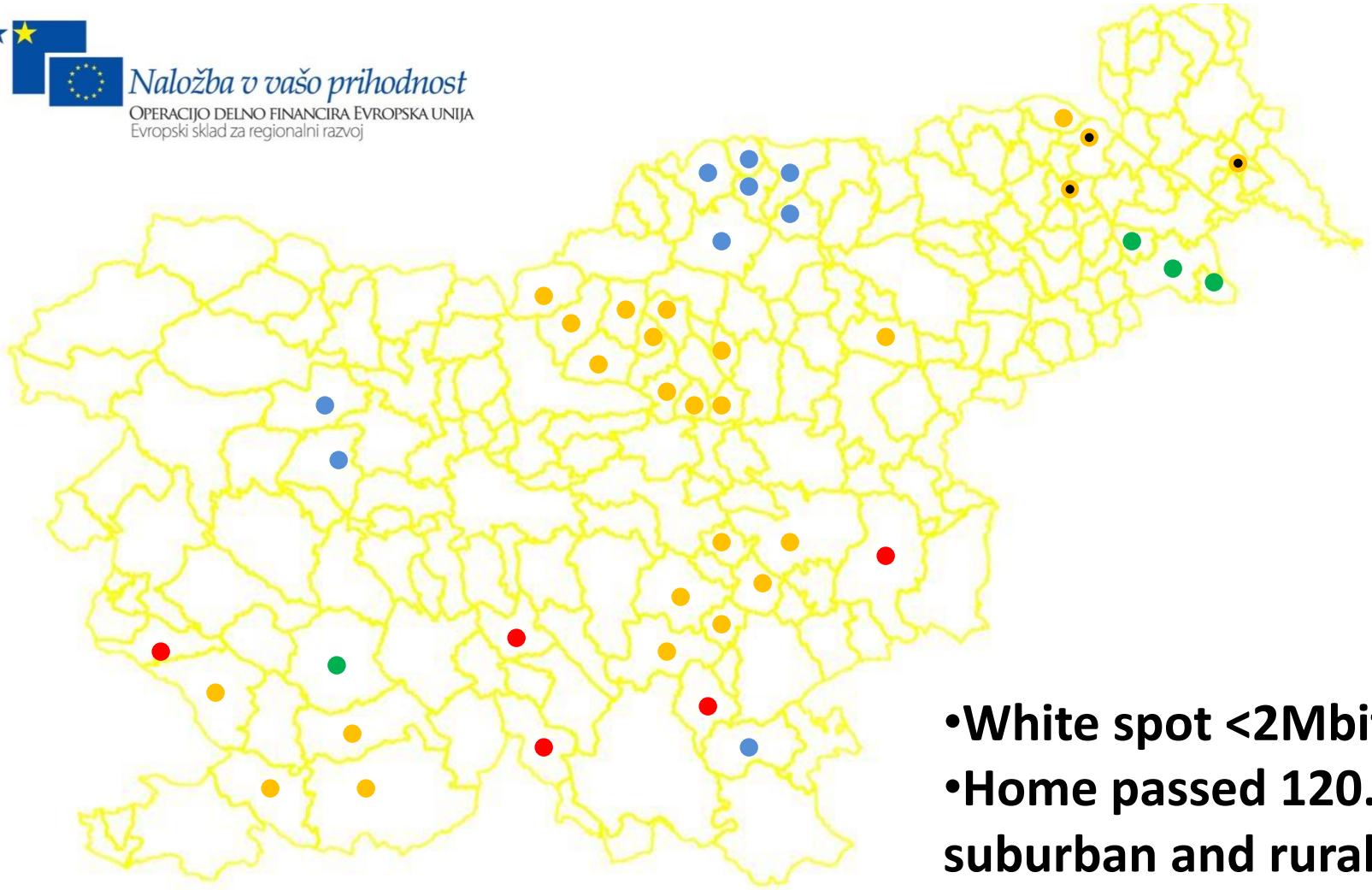
OAN in Slovenia

Naložba v vašo prihodnost
OPERACIJO DELNO FINANCIRA EVROPSKA UNIJA
Evropski sklad za regionalni razvoj



- **White spot <2Mbit**
- **Home passed 120.000 in suburban and rural areas**

Geopedia.si

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Natural monopolies can lead to market defections – OAN is the solution

Fixed broadband is THE ONLY industry where natural monopoly is possible without paying concessions!

The risk is to influence the market mechanisms with public funds – non allowed state aid! Beside the administrative solutions (national state aid scheme notifications and new GBER rules) it is critical for public partners that are involved in broadband network projects to recognise the risks of creating an infrastructurural monopoly.

„A natural monopoly occurs when the most efficient number of firms in the industry is one. A natural monopoly will typically have very high fixed costs meaning that it‘s impractical to have more than one firm producing the good.“ http://www.economicshelp.org/blog/glossary/natural-monopoly/

“[a]n industry in which multiform production is more costly than production by a monopoly”
William Baumol (1977)

Imposing Open Access mechanisms limits the possibility of monopolistic behaviour from the infrastructure operator‘s side, and stimulates the competition on the service provider‘s side.

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EU Guidelines

EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks (2013/C 25/01) (some points):

-Mapping of the existing situation and of economic interest for future 3 years (very tricky);

-Technological neutrality (very tricky);

-Wholesale access;

-Reasonable profit: „Any profit in excess of a reasonable profit, i.e. **profits beyond the average industry return on capital** for deploying a given broadband infrastructure, could be assigned to the financing of the SGEI in the nonprofitable areas while the remaining profits could be part of the financial compensation granted.“;

-Clawback mechanism: „Member States should implement the clawback mechanism if the aid amount of the project is above EUR 10 million (113). Granting authorities can **foresee** that any extra profit reclaimed … could be spent for further broadband network expansion …“;

-An accounting separation obligation for the winning bidder.

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Wholesale access

„ … wholesale access enables third-party operators to compete with the selected bidder (when the latter is also present at the retail level), thereby strengthening choice and competition in the areas concerned by the measure while at the same time avoiding the creation of regional service monopolies…“

„… subsidised companies should provide **a wider range of wholesale access products** than those mandated by NRAs under sectoral regulation to the operators who have significant market power …“

„… Such wholesale access should be granted as early as possible before starting the network operation…“

„…should be offered for at least a period of 7 years…“

„…the average published wholesale prices that prevail in other comparable, more competitive areas of the country or the Union shall be taken…(the role of NRA)“

„**Aid to ultra-fast broadband networks: on black spots -** the subsidised network will be based on an open architecture **operated as a wholesale only network**;“

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Wholesale access II

„…The subsidised network must therefore offer access under fair and non-discriminatory conditions to all operators who request it and will provide them with the possibility of effective and full unbundling. Moreover, third-party operators must have access to passive and not only active network infrastructure. Apart from bitstream access and unbundled access to the local loop and sub-loop, **the access obligation should therefore also include the right to use ducts and poles, dark fibre or street cabinets**…“

„…in areas with low population density, where there are limited broadband services, or for small local companies, **the imposition of all types of access products might disproportionately increase investment costs without delivering significant benefits in terms of increased competition**. In such a situation, one may envisage that access products requiring costly interventions on the subsidised infrastructure not otherwise foreseen (e.g. co-location in intermediary distribution points) be offered **only in case of a reasonable demand from a third-party operator**. “

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Wholesale access as a business model

Wholesale only works as a business model (also in rural areas), given that a proper financing source is available.
Fibre is the most futureproof technology, and also the cheapest in term of total cost of ownership, if calculated upon long enough periods (20 years at least).
A business model can work also with market sources of financing, other that public grants, if some conditions are met.

The goal is to diminish the risk of investment.
The main risks:

- Not meet the cost prospection (CAPEX) – investment risk;
- Not meet the revenue prospection.

The revenue risk can be split into:

- Not meet the prospected take-up rate;
- Not meet the prospected ARPU (average revenue per user).

How can the regulation help?

Measures for reducing cost already being taken EU-wide.

The regulation can relieve also both of the revenue risks:

- Not meet the prospected take-up rate;
  - Modify the rules on existing LLU in case of a new FTTH deployment;
  - Set the rules on mandatory copper switch-off when certain take-up % has been reached on the complementary FTTH network.

- Not meet the prospected ARPU (average revenue per user):
  - Set the ex-ante Open Access Networks regulation in terms of pricing.

Regulating the OAN prices

- Set the markets (markets 3a, 3b and 4, depending on definition);
- Defining prices through a cost oriented, efficient operator based model.
- LRAIC BU is fine!! No need to invent a new regulation model.

Anyone who wants to invest in telecommunication infrastructure on rural areas should have the revenue per user defined by the model. In the eyes of the financial investors this means that the effective ARPU will not be the result of a contractual discussion between a (small) infrastructure operator and a (big) service provider. This basically brings the risk on the revenue side to zero!

Regulating the OAN prices II

- Can be done also with ex-post regulation measures!

- Define by regulation that the position of a significant market player AT THE INFRASTRUCTURAL LEVEL is held by the operator that has a take-up bigger that 50% (could be more than one at a time, on different technologies);
- Regulate the SMP with LRAIC BU;
- Geographical segmentation could be needed, operators should be able to request for the segmentation (smallest size should be defined by regulation.

Future proofing

REGULATION (EU) No 283/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 March 2014 on guidelines for trans-European networks in the area of telecommunications infrastructure and repealing Decision No 1336/97/EC

(20) In its resolution of 12 September 2013 on the Digital Agenda for Growth, Mobility and Employment, time to move up a gear, the European Parliament emphasised that **a revised** forward-looking Digital Agenda for Europe **target for 2020 is** to connect **all** **Union households with broadband connections delivering 100 Mbps, with 50 % of households subscribing to 1 Gbps or more.**

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Questions?

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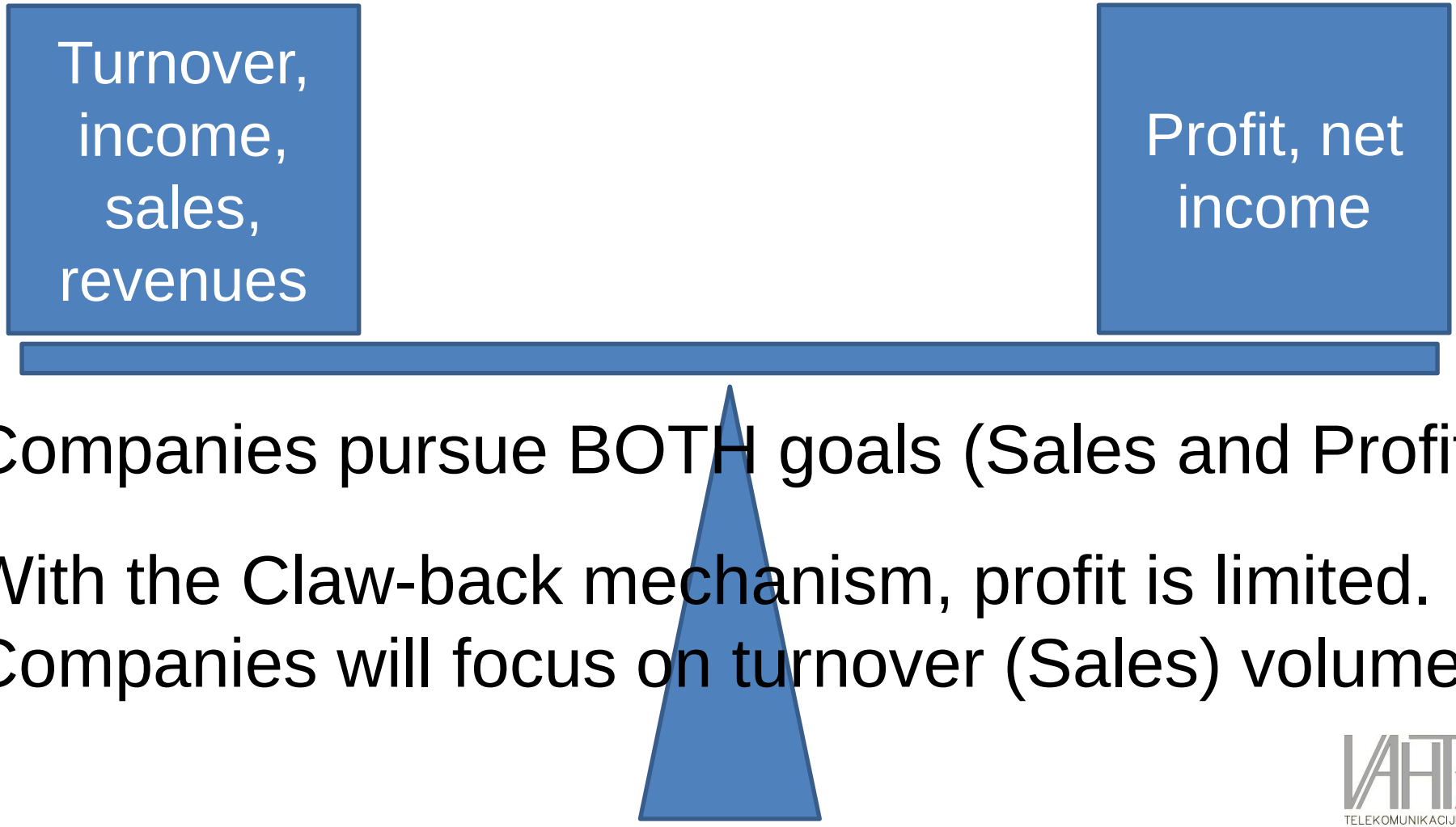
SUPPORT SLIDES (no need to translate from this point on)

The axiom of technological neutrality

Any technological solution that can fulfill the requirements about capacity should be allowed!?
Is it true that any broadband solution has the same effect on GDP?
Is it true that private companies will surely choose the most efficient technology for solving the broadband problem of an area??

Business as usual

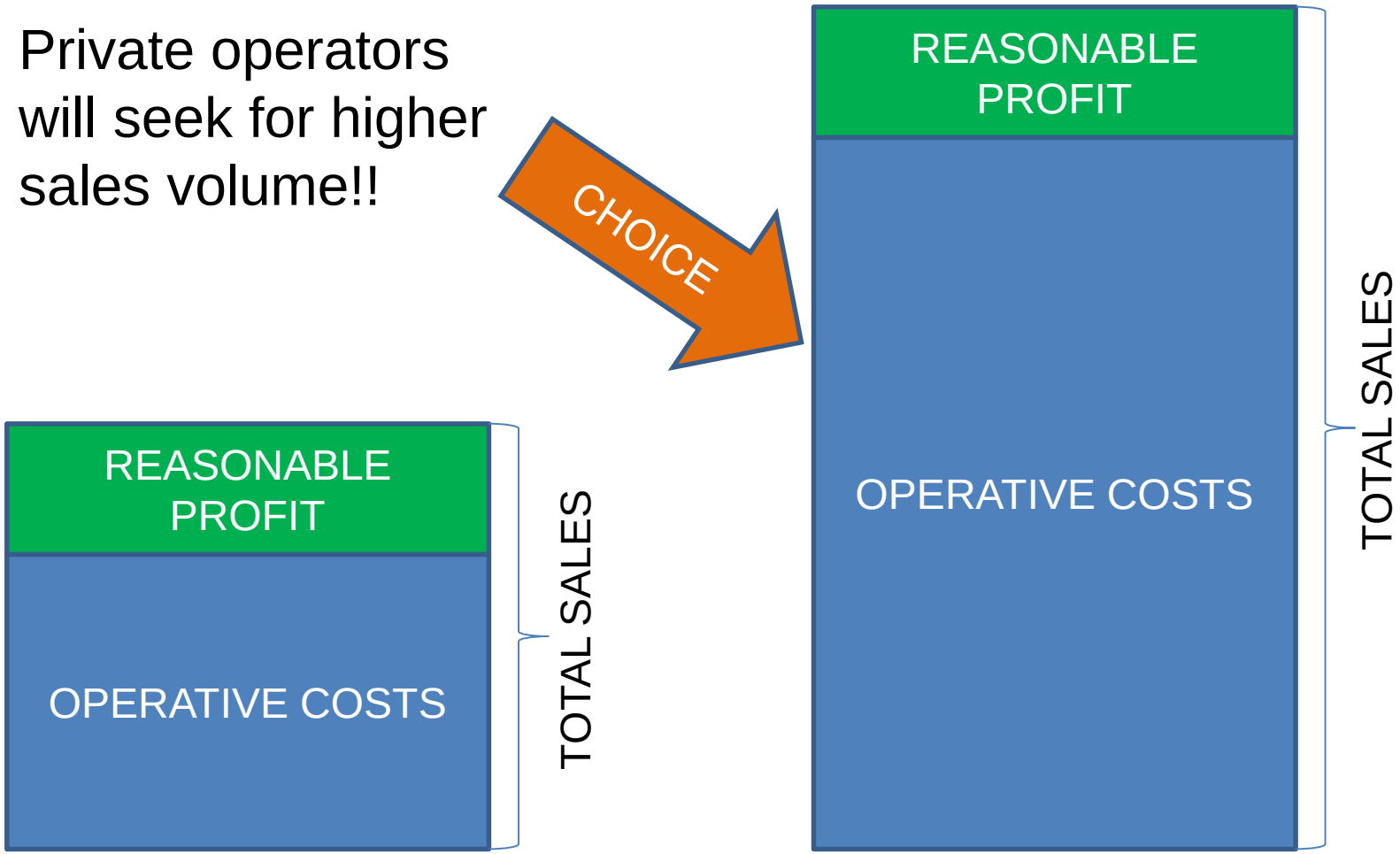


Companies pursue BOTH goals (Sales and Profit)

With the Claw-back mechanism, profit is limited.
Companies will focus on turnover (Sales) volume.

Higher sales with limited profit?

Private operators will seek for higher sales volume!!



Works until OPEX can be recovered from the end users of an area.

In some areas (rural!?) users might not have any other choice!

DILEMMA

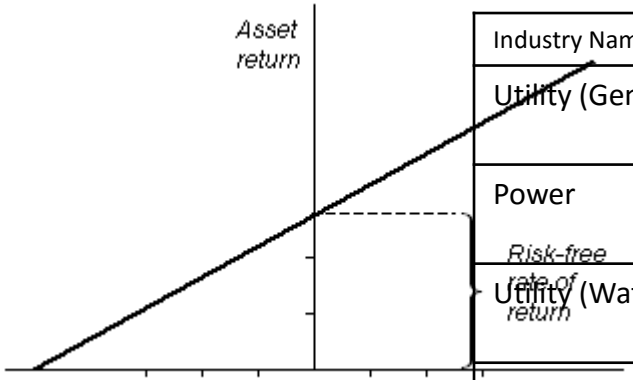
In projects that are financed / co-financed / assisted by the public partner, there must be a mechanism to prevent new forms of market failure!

How to choose the most efficient solution by preserving the axiom of technological neutrality?

By evaluating the projects on their TOTAL COST in the entire life cycle, and not only on their initial investment value !!

The projects with the lowest TC are the most efficient!

Is Broadband risky for equity investors?



$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

Source of graph and formula: Wikipedia, „CAPM"

Higher risk => Higher expected return

Broadband is infrastructure, and has low risk.

Industry Name	Number of firms	Beta	D/E Ratio	Tax rate	Unlevered beta
Utility (General)	20	0,56	69,35%	29,93%	0,38
Power	106	0,68	85,11%	16,03%	0,40
Utility (Water)	20	0,75	57,90%	14,52%	0,50
Telecom. Services	**82**	**0,94**	**71,23%**	**8,40%**	**0,57**
Coal & Related Energy	45	1,28	86,63%	2,44%	0,69
Retail (Distributors)	87	1,00	43,82%	16,18%	0,73
[illegible]	193	0,85	17,26%	5,80%	0,73
Retail (General)	21	0,98	35,62%	25,03%	0,77
Computer Services	129	0,9	20,48%	9,94%	0,78
Chemical (Basic)	47	1,01	29,67%	6,27%	0,79
Tobacco	12	0,9	20,83%	14,23	0,80

Bloomberg industry data, 2008

Source: Damodaran, Stern Univ, 2014

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Any broadband is good!

•For every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year. *Source: The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data. Robert Crandall, William Lehr and Robert Litan, the Brookings Institution, 2007*
•An increase in the broadband penetration rate by 10 percentage points raises annual growth in per-capita GDP by 0.9 to 1.5 percentage points. Source: Broadband Infrastructure and Economic Growth, 2009. Nina Czernich Oliver Falck, Tobias Kretschmer and Ludger Woessmann
•According to the U.S. Department of Commerce, between 1998 – 2002 communities that gained access to broadband service experienced an employment growth increase of 1% to 1.4%, a business establishment increase of 0.5% to 1.2%, and a rental value increase of 6%

It does good, but….

Key findings

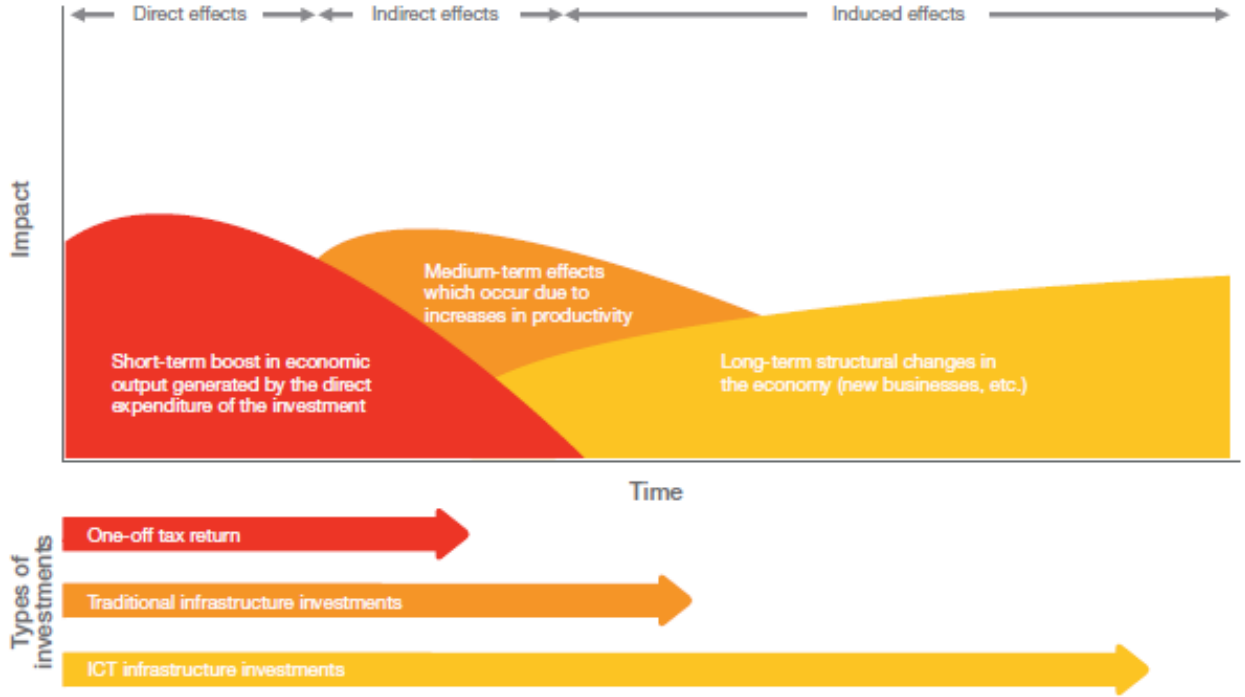
> Doubling broadband speeds for an economy can add 0.3 percent to GDP growth, in a simulation relative to the base year 2008

> The benefits of faster broadband can be categorized as:

assed innovation

ccess to services

more efficient



almers, 2013

Source: Arthur D. Little research (covering more than 120 reports from leading research institutes)

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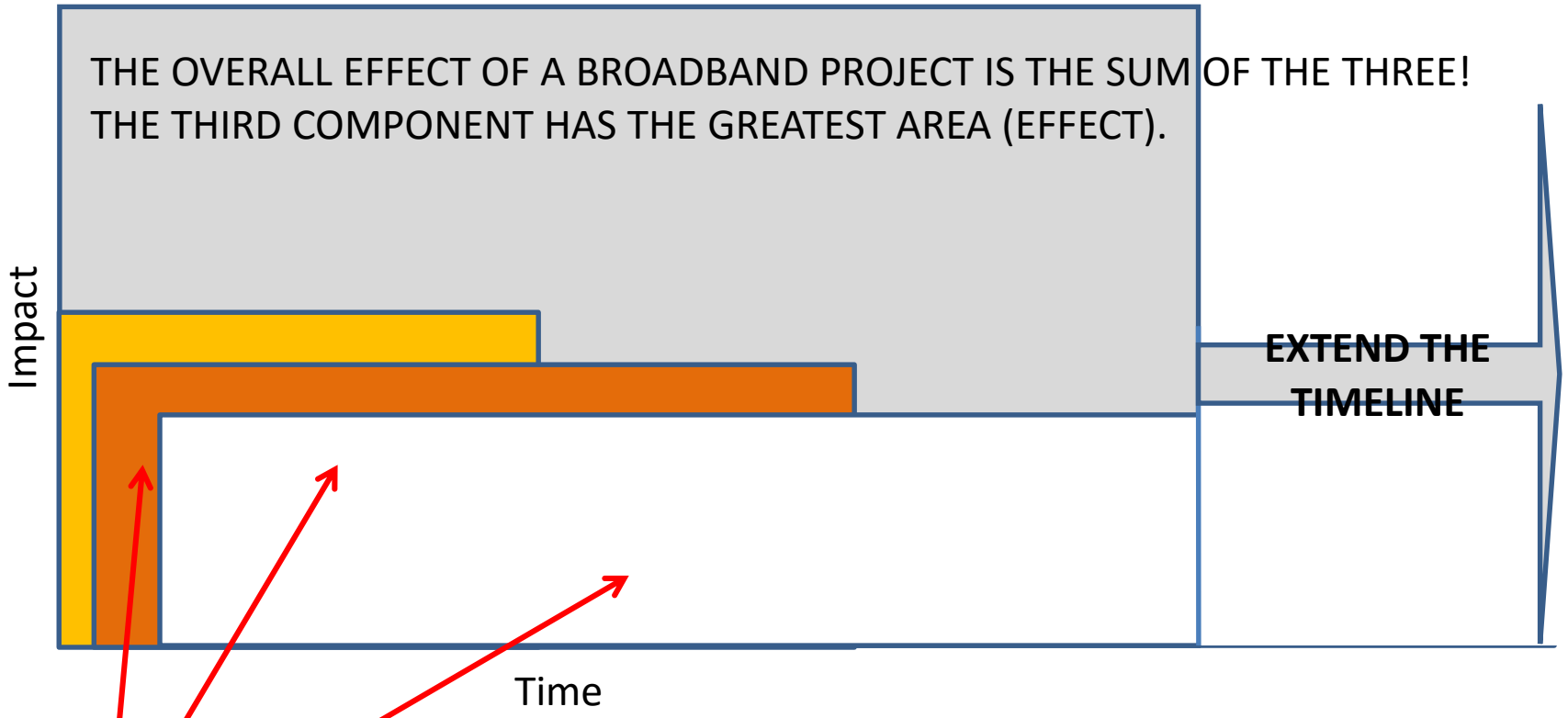
…not necessarily!



1. Short term, initial investment stimulated increase,
2. Mid term, productivity increase,
3. Long term, structural change induced increase.

Broadband is good if:

- If and only if the most durable technological solution is choosen!

    As long term perspective is crucial, in rural deployments this is even more important!

-If and only if the solution with the lowest total cost is choosen!

    As low operational costs are crucial, in rural deployments this even more important!

Final thoughts for rural projects

- Because of the (extremely) low population density, generalisation from projects in urban areas cannot be done!
- For the sustainability of the rural broadband projects, operational costs are very important (including the cost for mandatory equipment substitution). A long term planning is therefor required.

Final thoughts II

- If the total cost (investment plus operational) is calculated, in deep rural areas FTTH is the most economic solution.
- For the initial investment, it‘s not a problem of cost, but of the financing source.
- The recent Regulative from EU Commission about GBER (21.5.2014) might be a real game changer, as under certain conditions, Broadband projects smaller than 70M are relieved from state aid approval.

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