
Impact of users' communities on broadband economics

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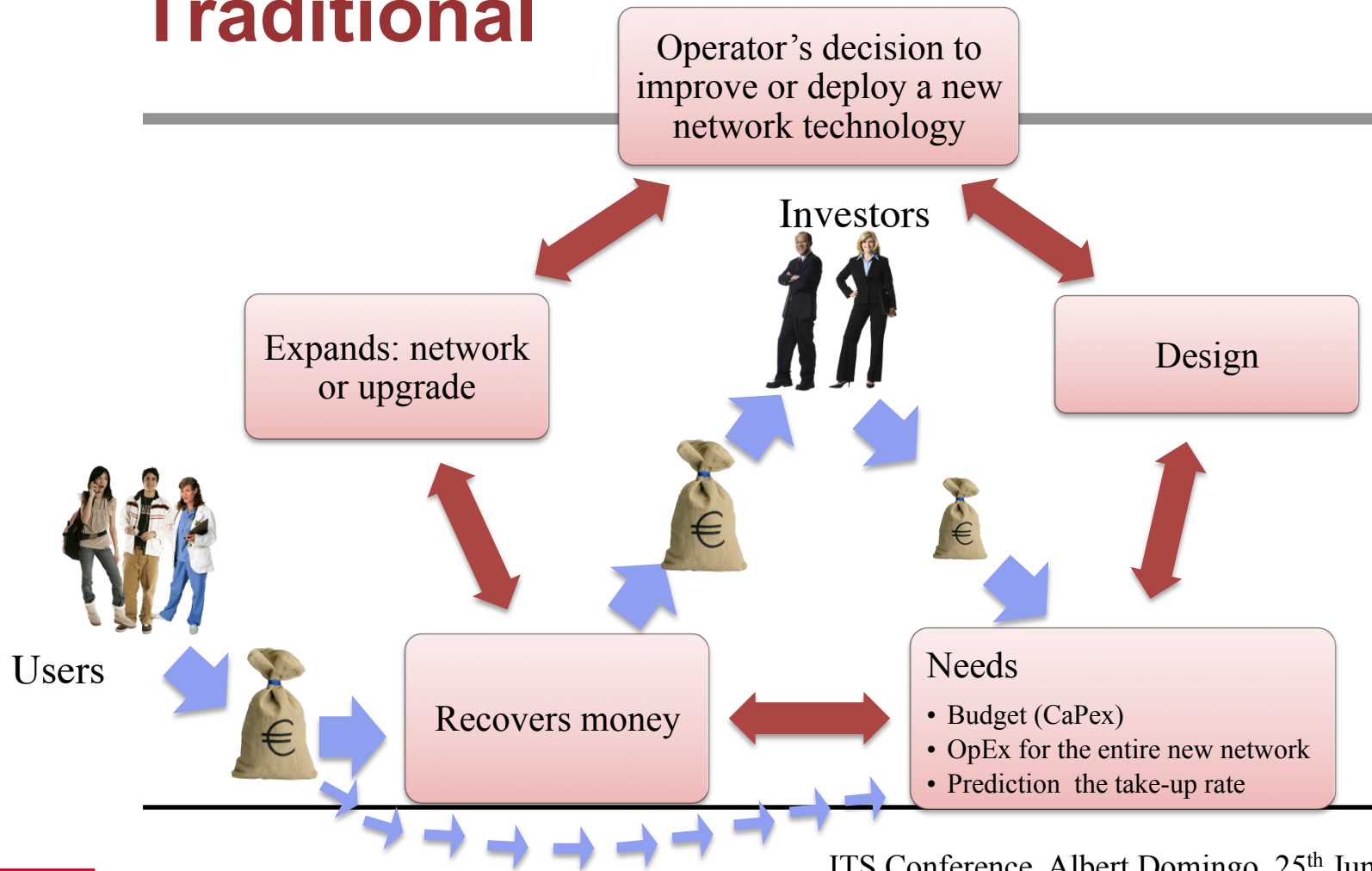
Agenda

- Introduction
- Traffic aggregation
- Techno-economic model (dense urban areas)
- Results
- Conclusions

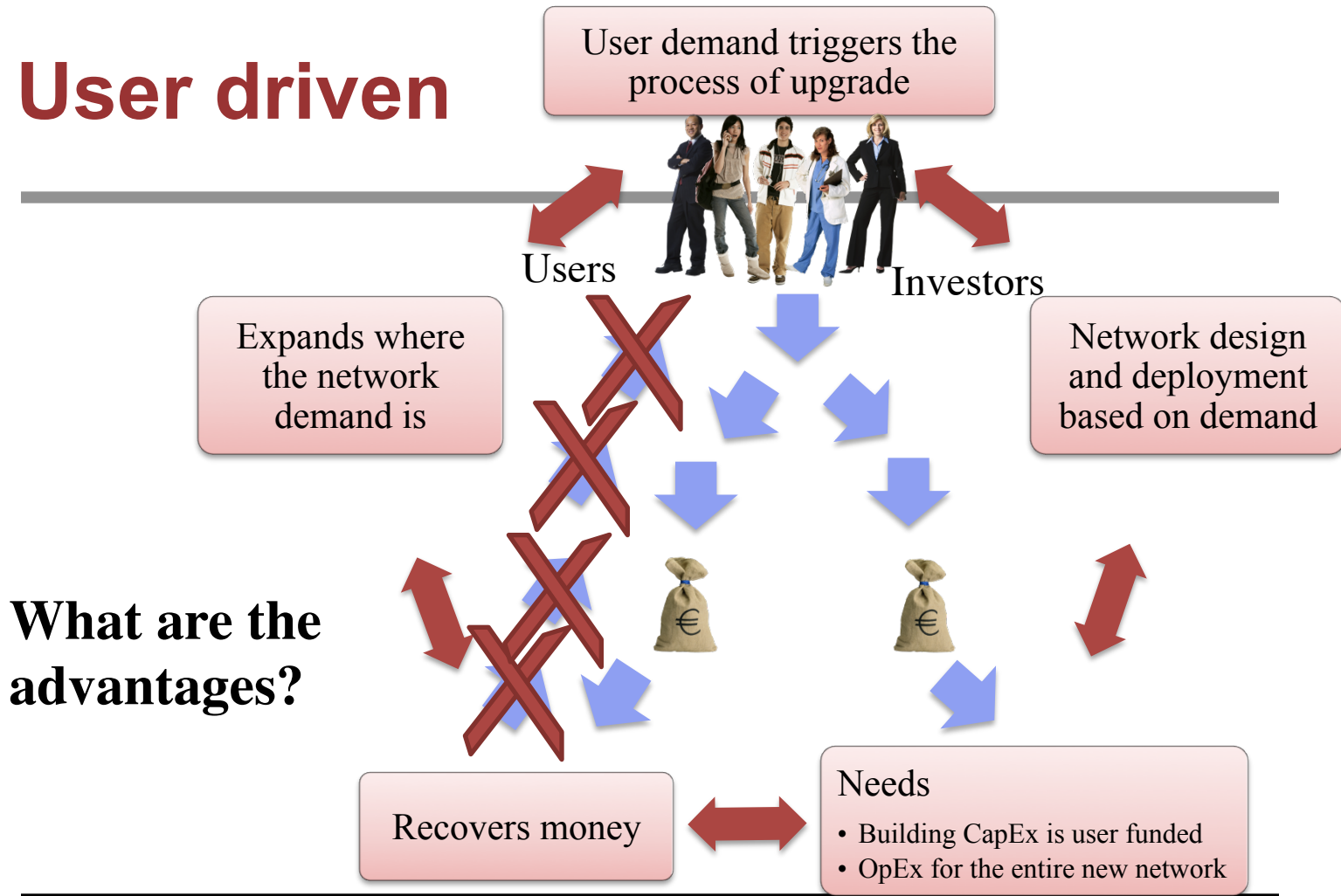
Introduction



Traditional



User driven

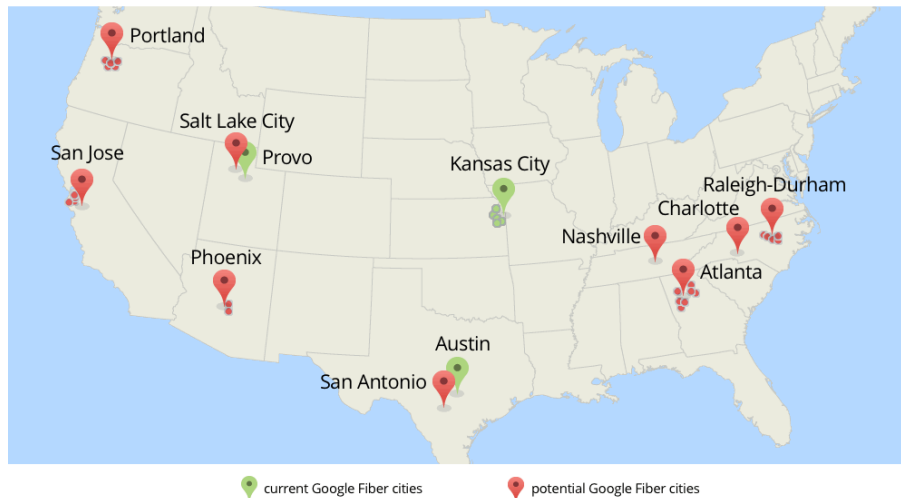


User and operator agreeing on a deployment? Win-win?

- User motivation to invest?
 - Cheaper retail's offer
 - More speed -> real broadband
 - More decision for services
 - Community
 - Operator motivation to leave users take the lead:
 - Lower deployment costs
 - In-Building problem solved
 - Stronger customer retention
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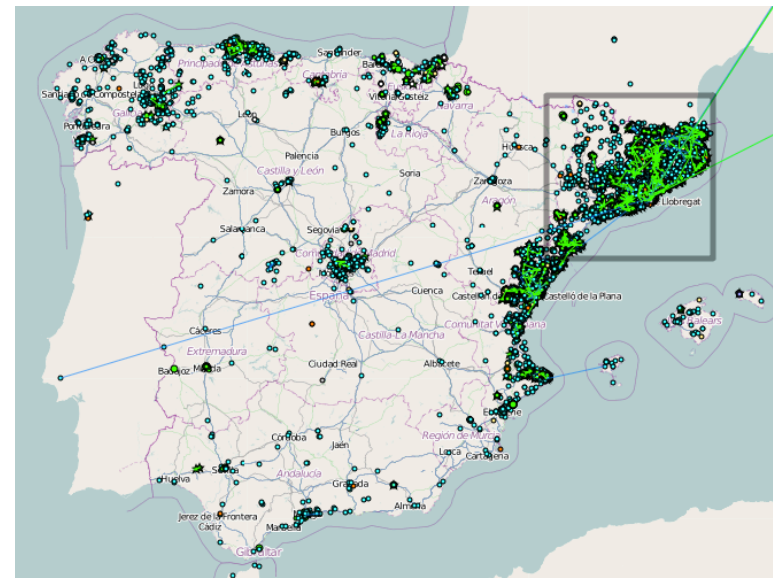
Is it happening?

Google Fiber



Domingo, A.; Lehr, W. (2013)

Guifi.net (Wireless and fiber)



Oliver, M.; Zuidweg, J.; Batikas, M. (2010)

In-Building

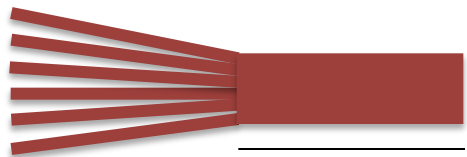
- 1 Gas deployment
- 1 Electricity deployment
- 1 Water deployment
- “N” Telco’s deployments



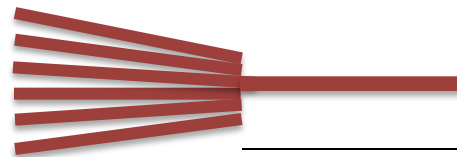
Traffic aggregation

Statistical Multiplexing, SM

- Different user data traffic merged into one traffic flow
- Carriers tend to use heuristic metrics and their own experience to balance the equation.



Dedicated Broadband

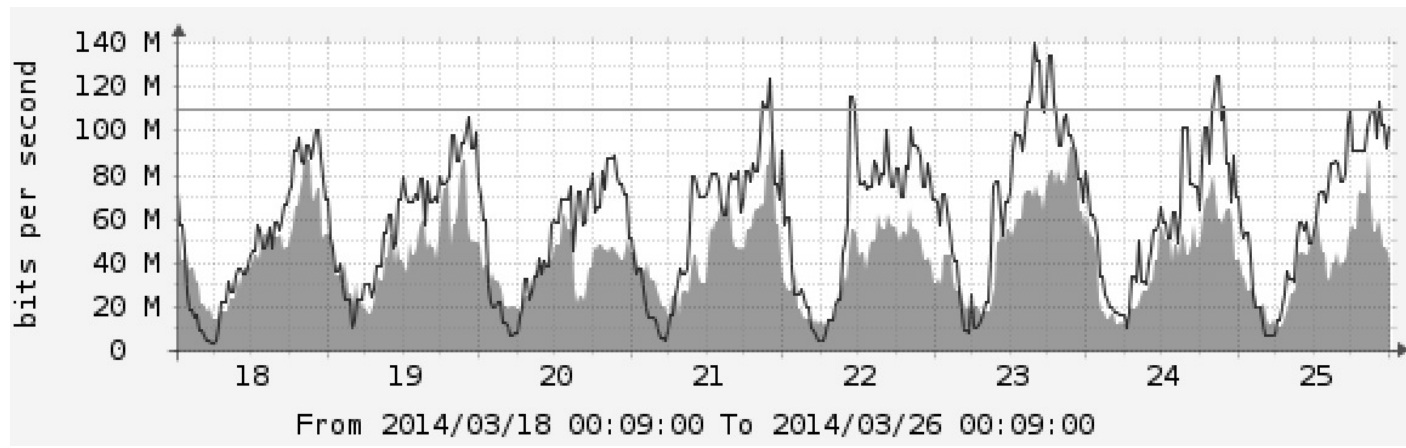


SM Access

- Most carriers apply a rule based on selecting a variable value between 2% and 5% to seize the bandwidth needed for the common trunk depending on the number of users
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Empirical measures

- 572 subscribers to 15/15 Mbps average speed
- Dedicated without multiplexing -> 8.6Gbps
- Need -> 171.6Mbps & 429Mbps (2% and 5% values)



Empirical measures

- Averages per each home
- Focus on serving the Peak Rates during the busy hour periods
- Upload continues to be lower than download stream (consistent during all days)

	Daily Average	Peak Rate
Upload	0.67 Mbps	1.01 Mbps
Download	0.99 Mbps	1.33 Mbps

Techno-economic model

Model assumption: Buildings

Building Type	Buildings in each category	Percentage over the total number of buildings	Average number of households	Total number of homes ¹⁶
A	26,498	9%	3	73,084
B	19,808	29%	11.9	235,493
C	24,361	62%	19	503,467

- 3 Building Types
- Dense urban: stacking B and C types -> 91% of buildings

Model assumption: Pricing

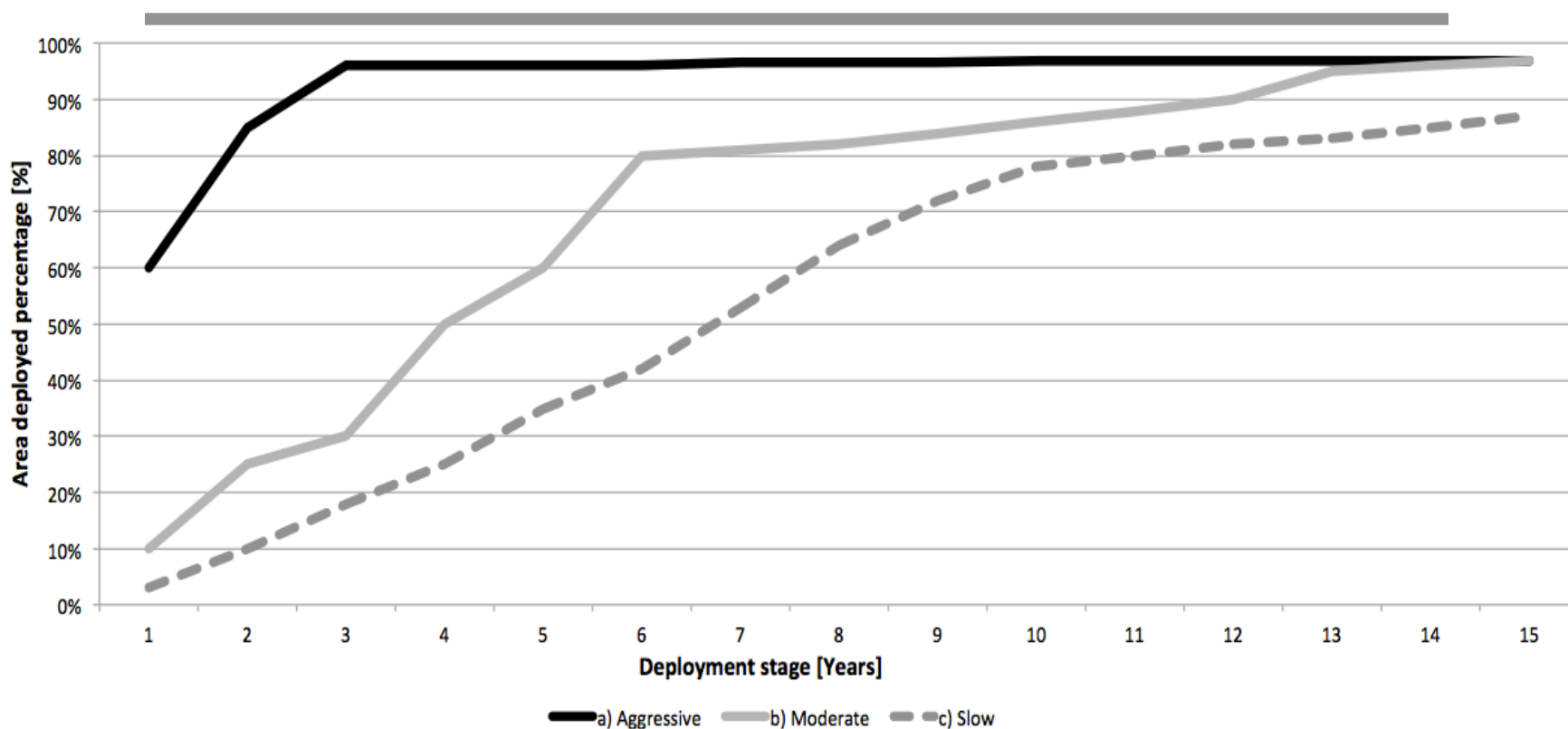
Model Category	Average number of homes	Average active subscribers (busy hour)
A	3	0.62
B	11.9	2.45
C	19	3.92

Offer Type	Household Installation	Household monthly fee	Community installation	Community* monthly fee
A (Equal)	€ 221	€ 32	€ 209·n	€ 32
B (Differentiated)				€ 128

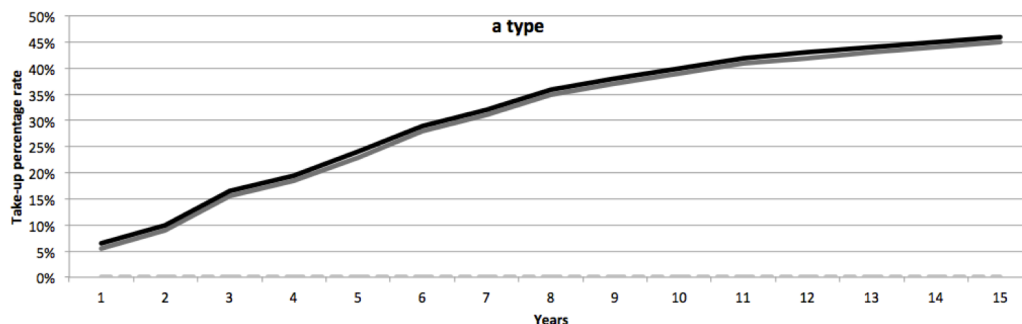
* Regardless the size of the community, the fee is kept constant

“n” is the size of the community in number of households

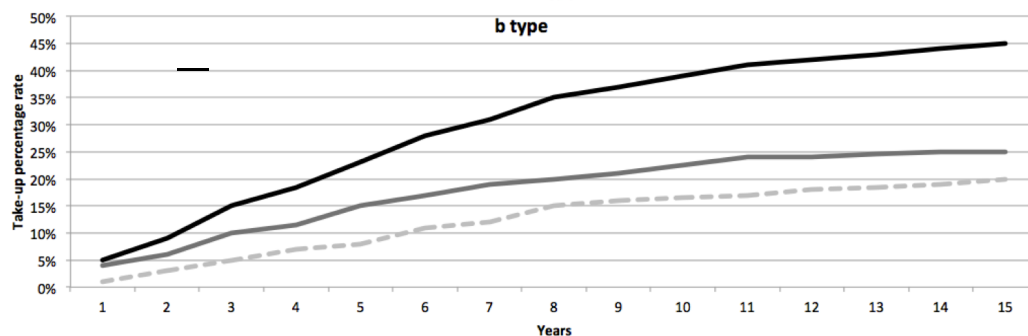
Model assumption: Deployment



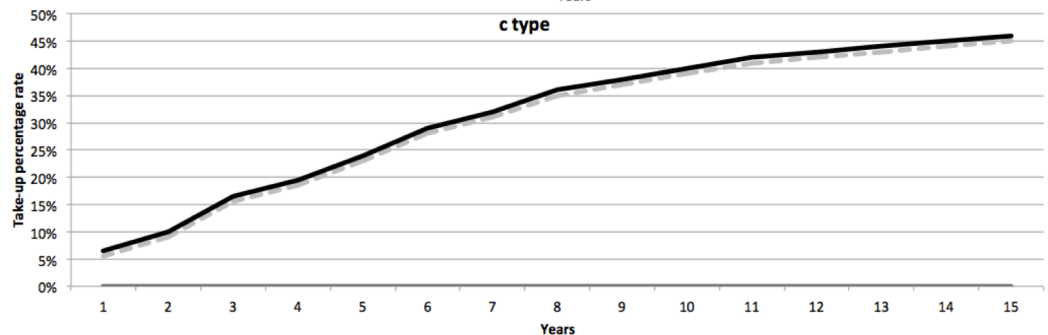
Model assumption: Take-up



- A type: Individual HH only
- B type: Mixed/Hybrid
- C type: Community only



- 45% of the market in 15 years



— Households — Communities — Total

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Page 17

Results

Results for same price

		Monthly retail offer price		
		Price scheme A (equal 32€/month)		
Deployment model	Take-up	NPV	ROI	PB
Aggressive	Type a) only households	5	4	3
	Type b) Mixed	6	5	4
	Type c) only communities	15	14	13
Moderate	Type a)	6	4	4
	Type b)	7	6	5
	Type c)	NS	20	18
Slow	Type a)	6	5	4
	Type b)	7	6	5
	Type c)	NS	NS	19

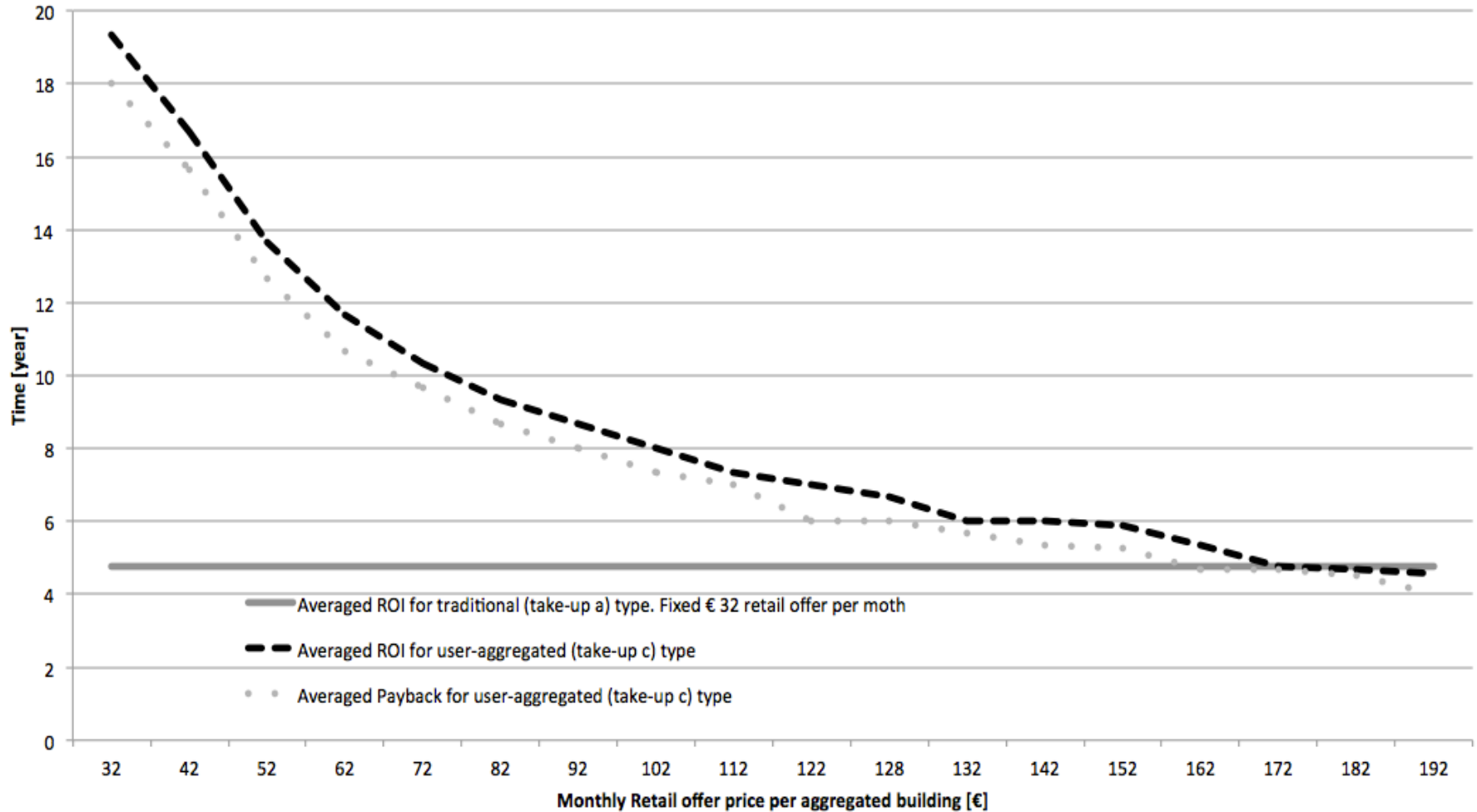
Time to achieve NVP > 0, ROI > 10% (in years)

Results for differentiated price

		Monthly retail offer price		
		Price scheme B (diff. 32€/128€/month)		
Deployment model	Take-up	NPV	ROI	PB
Aggressive	Type a) only households	5	4	3
	Type b) Mixed	5	4	4
	Type c) only communities	6	5	5
Moderate	Type a)	6	4	4
	Type b)	6	5	5
	Type c)	7	6	6
Slow	Type a)	6	5	4
	Type b)	6	5	5
	Type c)	7	7	6

Time to achieve NVP > 0, ROI > 10% (in years)

Pricing approach for communities



Conclusions

Conclusions (1/3)

- We conclude that the community model brings a 45% of savings when compared to traditional investment model:

CapEx: €132.8M for traditional and €73.2M for user driven

- Moving from single end-users to communities reduces both:
 - The potential revenues
 - The initial costs of the total investment
-

Conclusions (2/3)

- When the demand is aggregated
 - sustainability of the investment takes up to three times longer than expected,
 - it may even compromise the whole project becoming unsustainable
 - Pricing differentiation between individual and community users:
 - turn the model sustainable by reducing investment risks
 - Homogenous ROI among the different take-up predictions
-

Conclusions (3/3)

- This method can be followed by a new entrant that may disrupt the market when it gains a noticeable share of the market
- Aggressive deployments tend to generate lower payback periods
- Fiber is a mature technology, but it has a wide range of possible deployments
- The paper has studied the impact of users when they become more active into network deployment and how they may affect the market

Questions & Answers

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Page 26

FCC results

Normalized average
user traffic per Tier.
Source, chart 19 from
(FCC, 2013)

