

# Creating a brighter future

#ftthwebinar

„FTTH Cost Model 2017“

# FTTH Cost Model 2017

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Regulatory Expert  
FTTH Council Europe



Presenter:

**Raf Meersman**

CEO  
Comsof



# FTTH Council Europe



A sustainable future  
for Europe  
enabled by  
Fibre to the Home





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See you next year in Valencia, Spain  
13-15 February 2018



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Council Europe

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## SAVE THE DATE!

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# Webinar

- 20-25 minutes presentation
- 15-20 minutes Q&A
- Please write your questions in the questions box of the webinar system
- Relevant questions that are not answered during the webinar will be answered by email
- The slides will be available for download after the webinar
- The webinar is recorded and can be viewed as video-stream afterwards. The video will be available on the website of the FTTH Council Europe within one week
- Slides and information about the availability will be sent to registered attendees by email



# FTTH Council Europe

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**#ftthwebinar**





# FiberPlanIT

BY COMSOF

Results and Model of the FTTH Council Europe

## Cost for FTTH in EU28

Raf Meersman  
CEO, Comsof

May 19, 2017  
FTTH Council webinar



# Project History

- 2012 (Munich): Cost FTTH in EU27 = 202B EUR
- 2013 (London): Cost FTTH for Germany = 46B EUR
- 2016 (Luxembourg): Cost FTTH in Luxembourg
- 2017 (Marseille): Cost FTTH in EU28 = 210B - 137B EUR

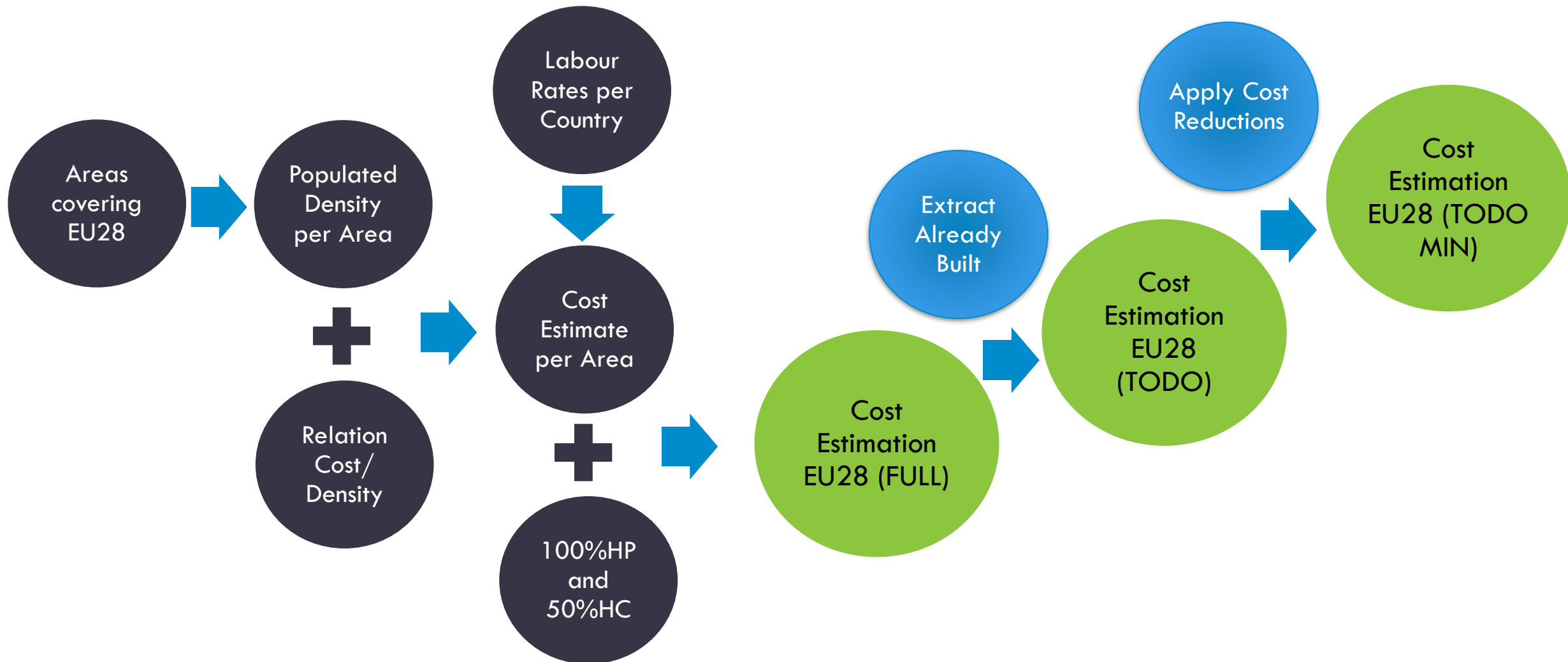


# Project Objective

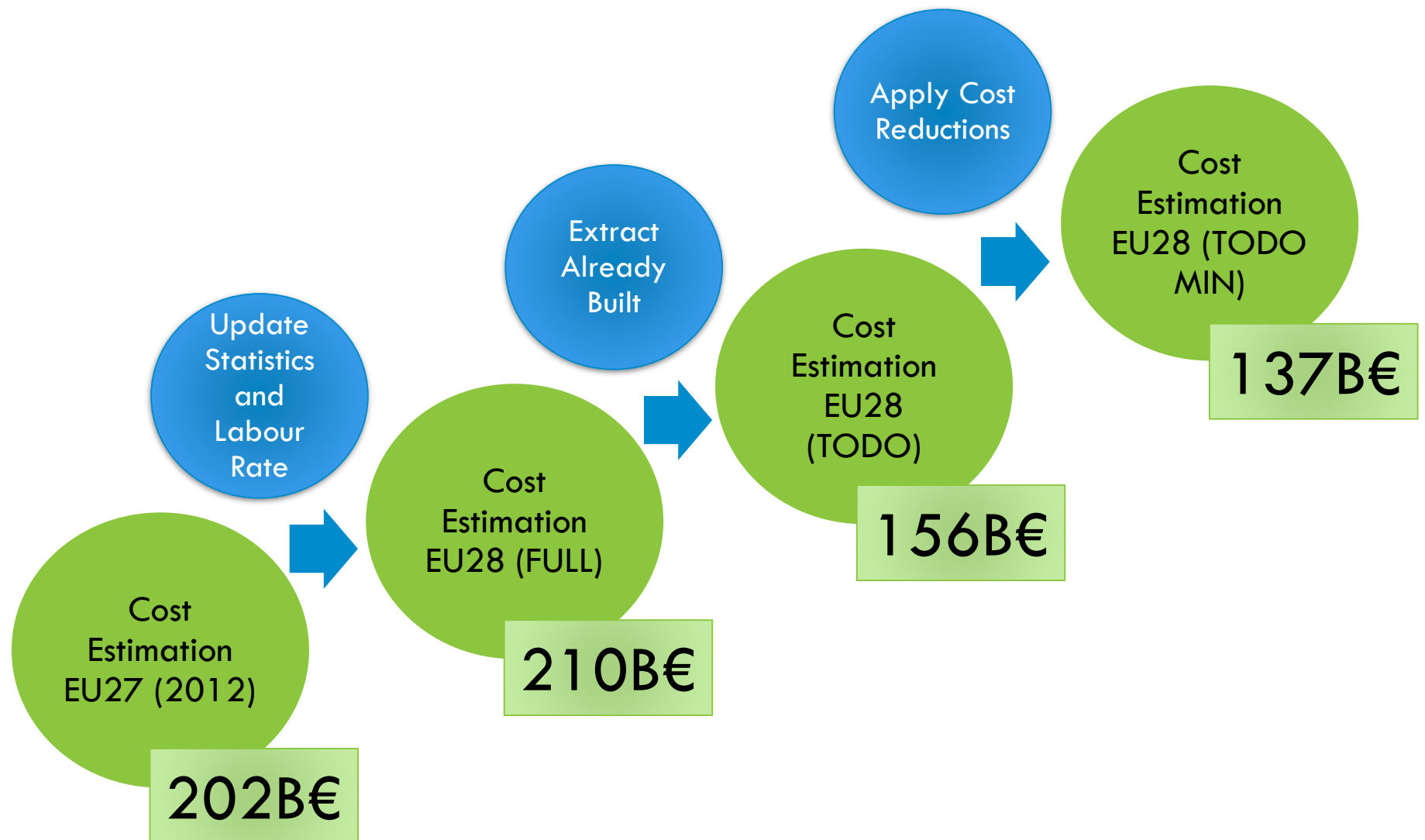
Estimate Cost of FTTH rollout for 100% HP + 50% HC in EU28

- Based on **reliable**/realistic cost estimations
  - GIS based designs (> 3M homes)
  - labour index per country
  - efficient deployment methods
- **Extrapolated** based on EU28 statistics
- Extract **already built** areas
- Apply **cost reduction** opportunities

# EU28 Project Approach (2017)



# Results



# Reference Calculations

# GIS based Realistic Network Calculations

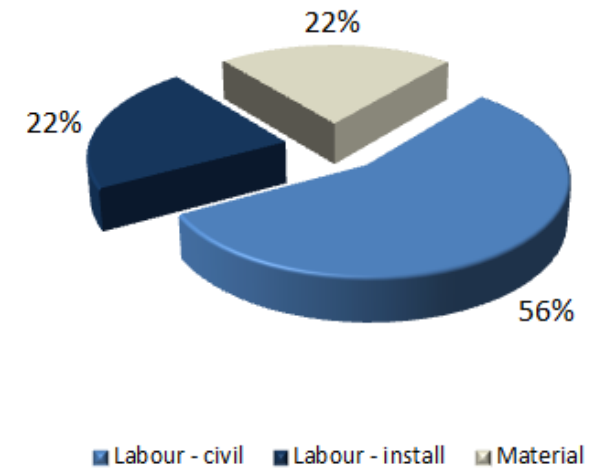
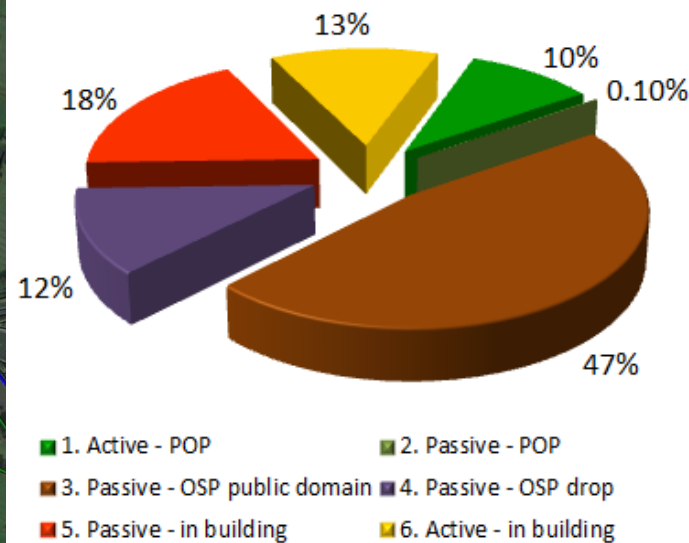
Optimised  
Network  
Plan

Associated  
Bill of  
Material

Accurate  
Cost  
Estimation

3 cost types  
(labor civil, labor install,  
material)

7 cost categories  
(Active POP, Passive OSP  
Cables&Ducts, Passive OSP  
Nodes, ... , Active Home)





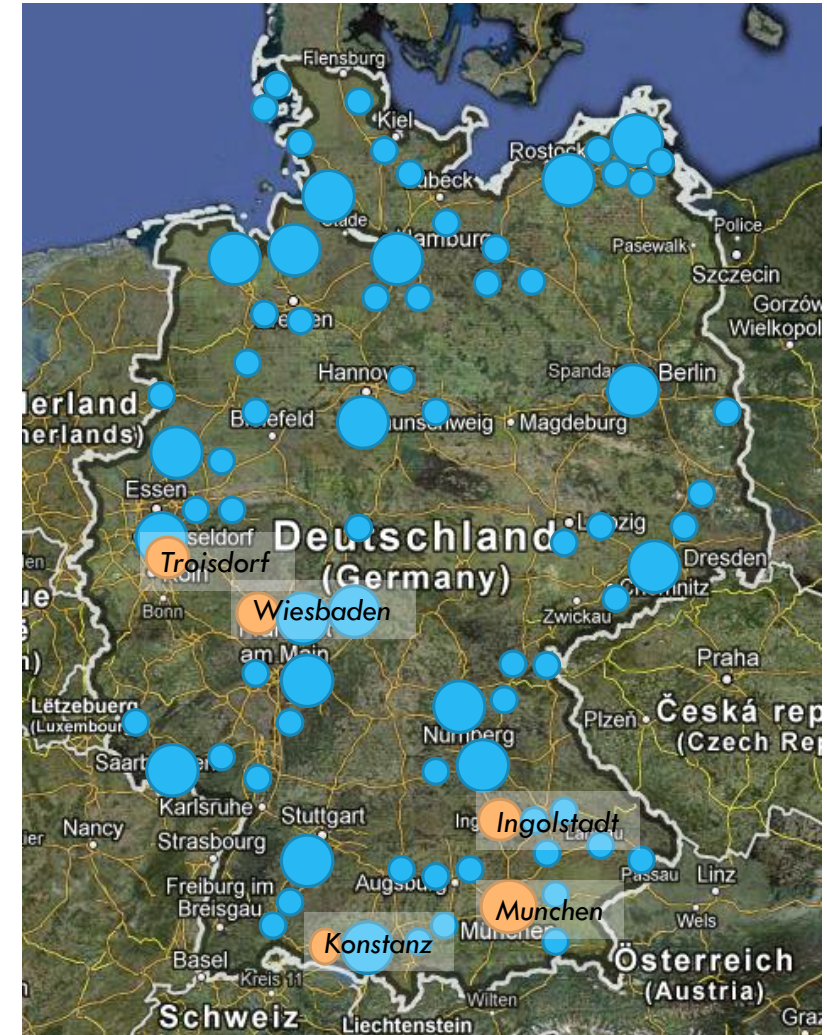
# Reference Calculations

Initially based on 15 different geographical areas across Europe

- 355k Homes x 2 scenarios
- Mix SDU/MDU
- Mix Rural to Dense

Second phase (Germany)

- extended with more than 230 areas
- covering more than 2,3M homes



# Cost Model Scope

## 100% HP:

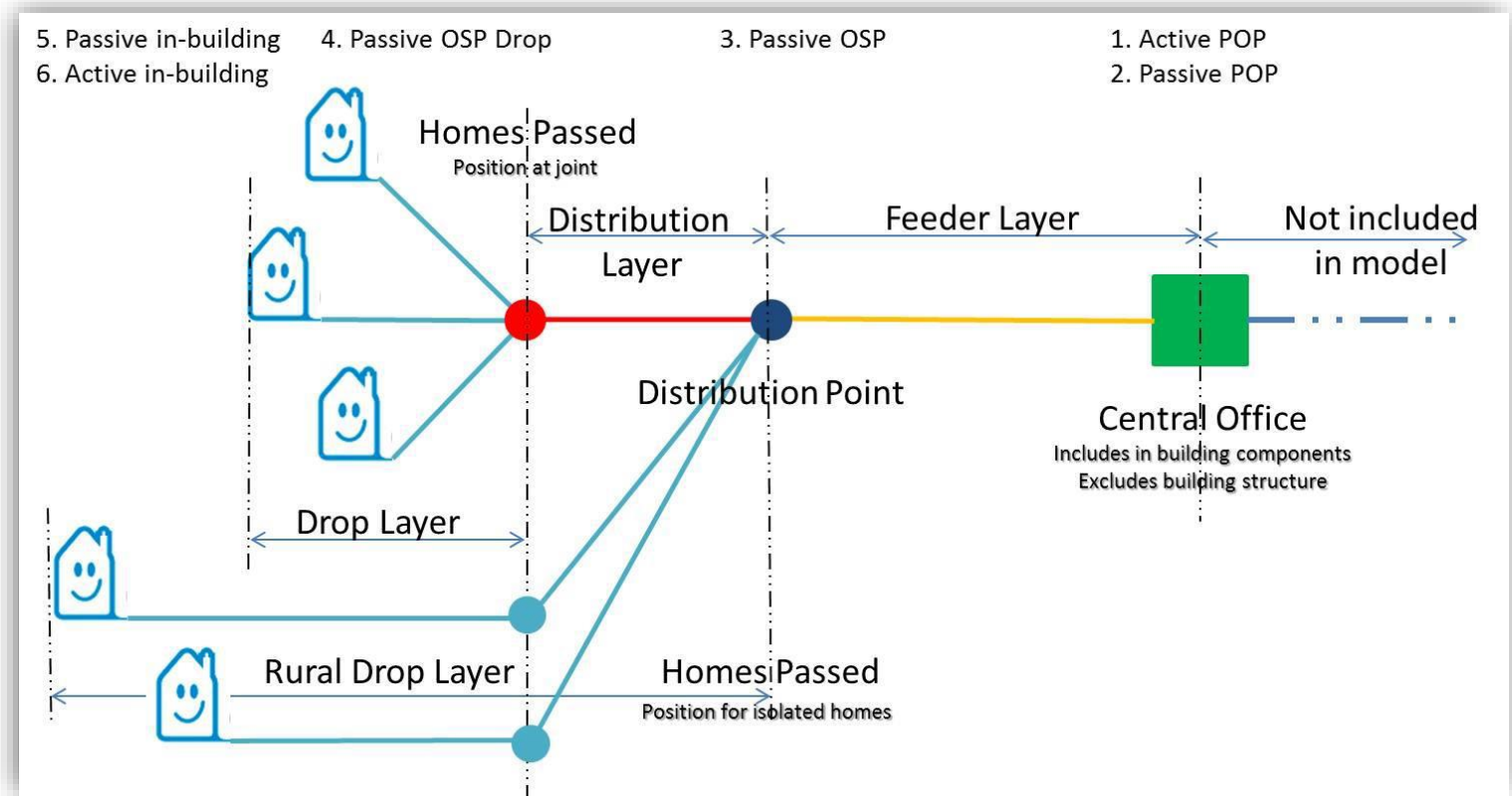
- From ODF in CO
- To Drop Point\*

## 50% HC:

- OLT in CO
- Drop + Termination at Home
- ONT at Home

## Not included:

- CO housing
- CPE
- Pre and post-construction

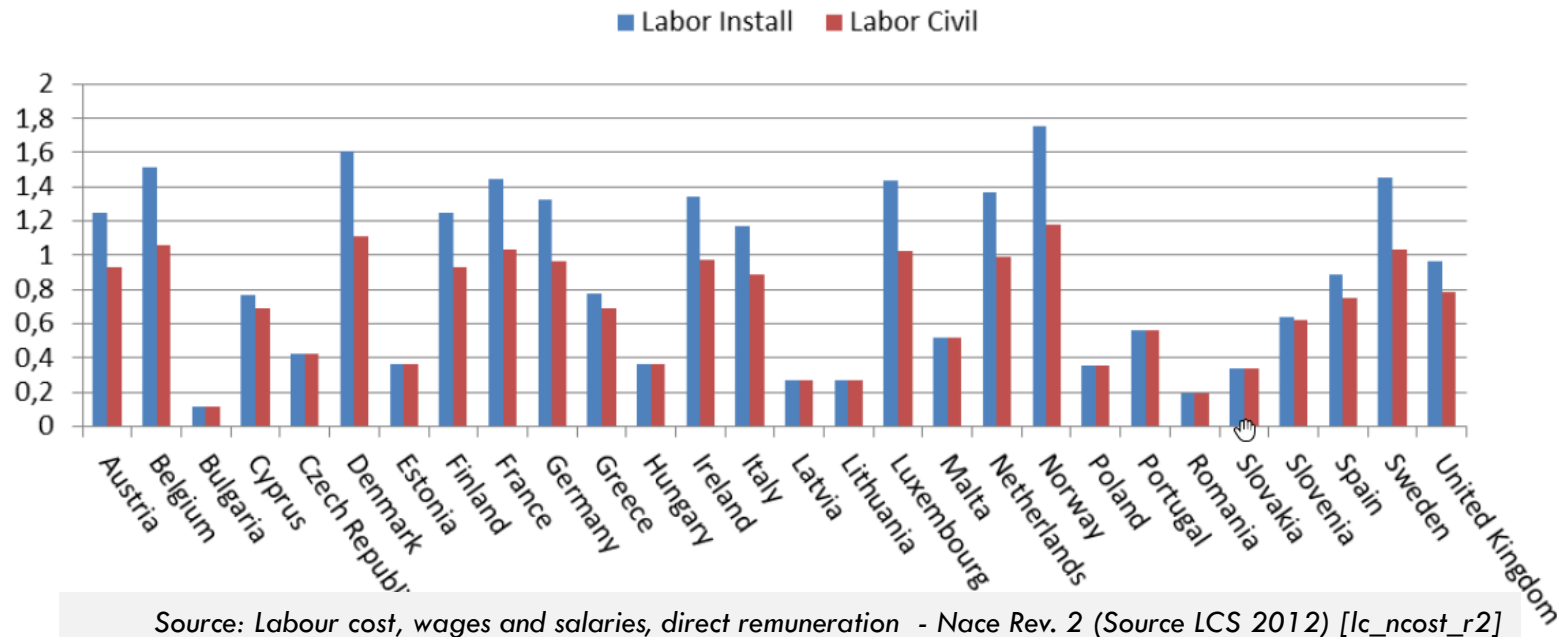


\*For isolated homes: all dedicated routes in public domain are also considered HC

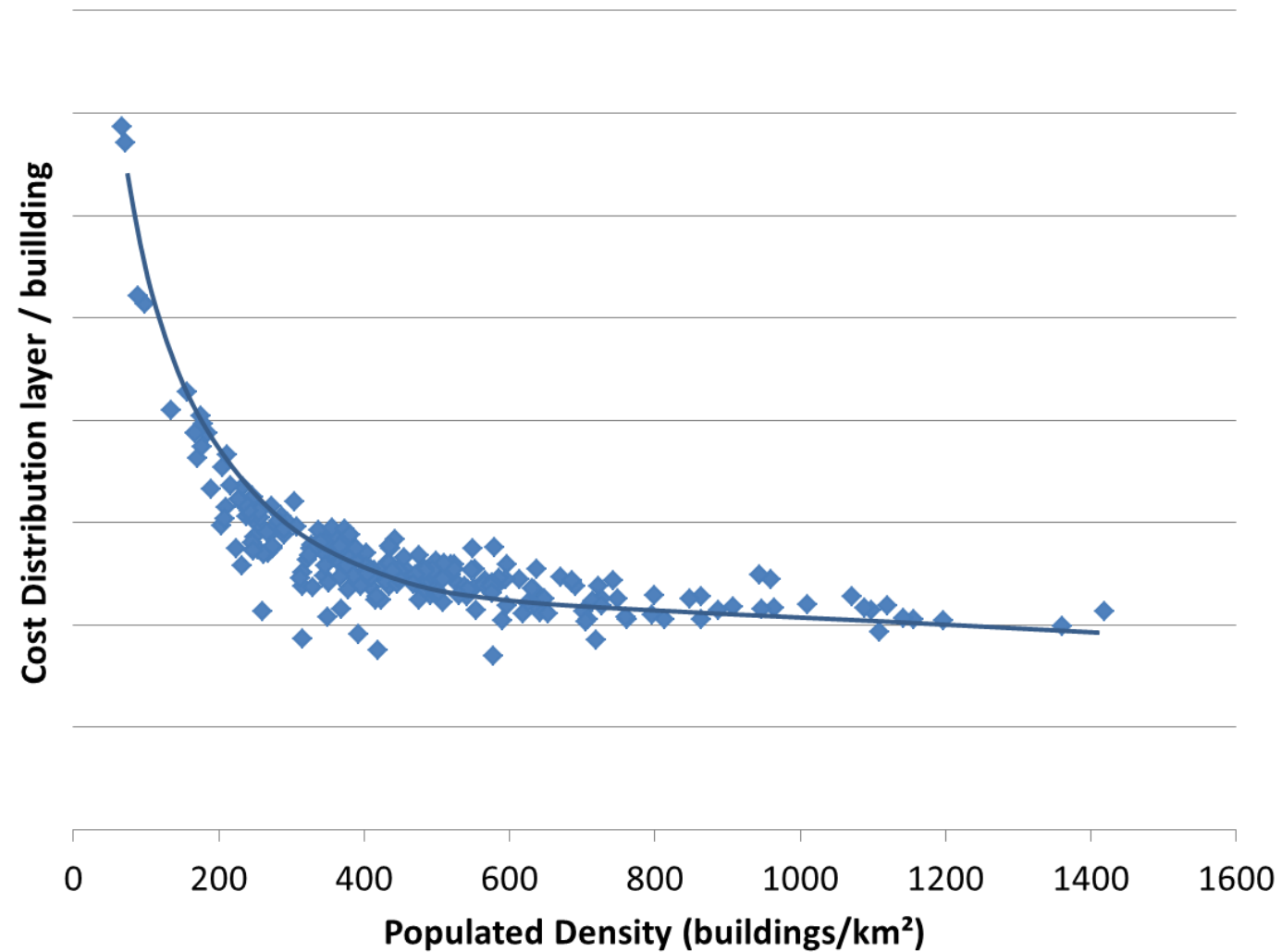
# Cost Model Scope

Based on mix of real design rules and unit costs

- P2P / P2MP
  - Cascaded splitting 1:32
- Fully underground with microducts
  - 60cm traditional trenching
  - Mini- and micro trenching (30%)
- Labour costs adjusted per country
  - Civil costs lower due to import of cheaper labour from other countries



# Trendlines for each network layer



# Extrapolation



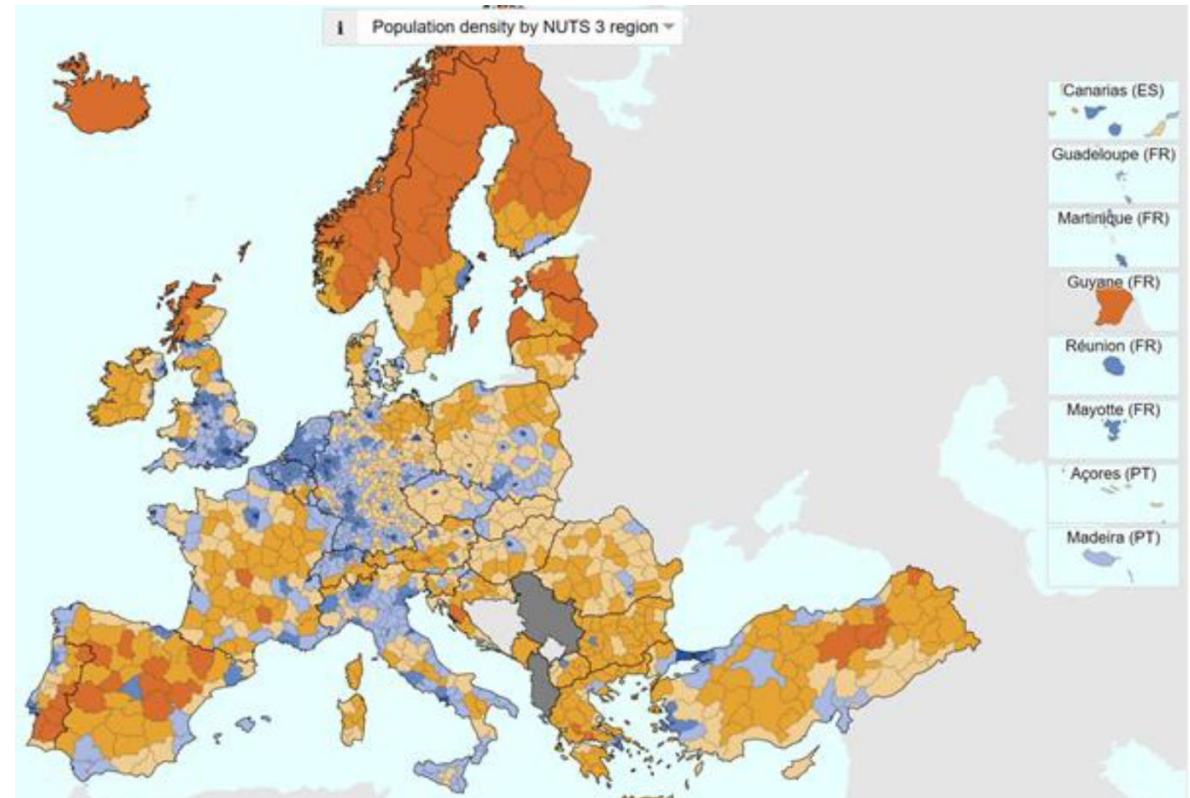
# Units for Statistics: NUTS 3

## Eurostat NUTS classification

- 28 countries at NUTS 0
- 98 regions at NUTS 1
- 276 regions at NUTS 2
- 1342 regions at NUTS 3

## NUTS3

- Area size
- Population  
=> Area Density



Source: Eurostat

# Extrapolation based on density

Populated area per NUTS3



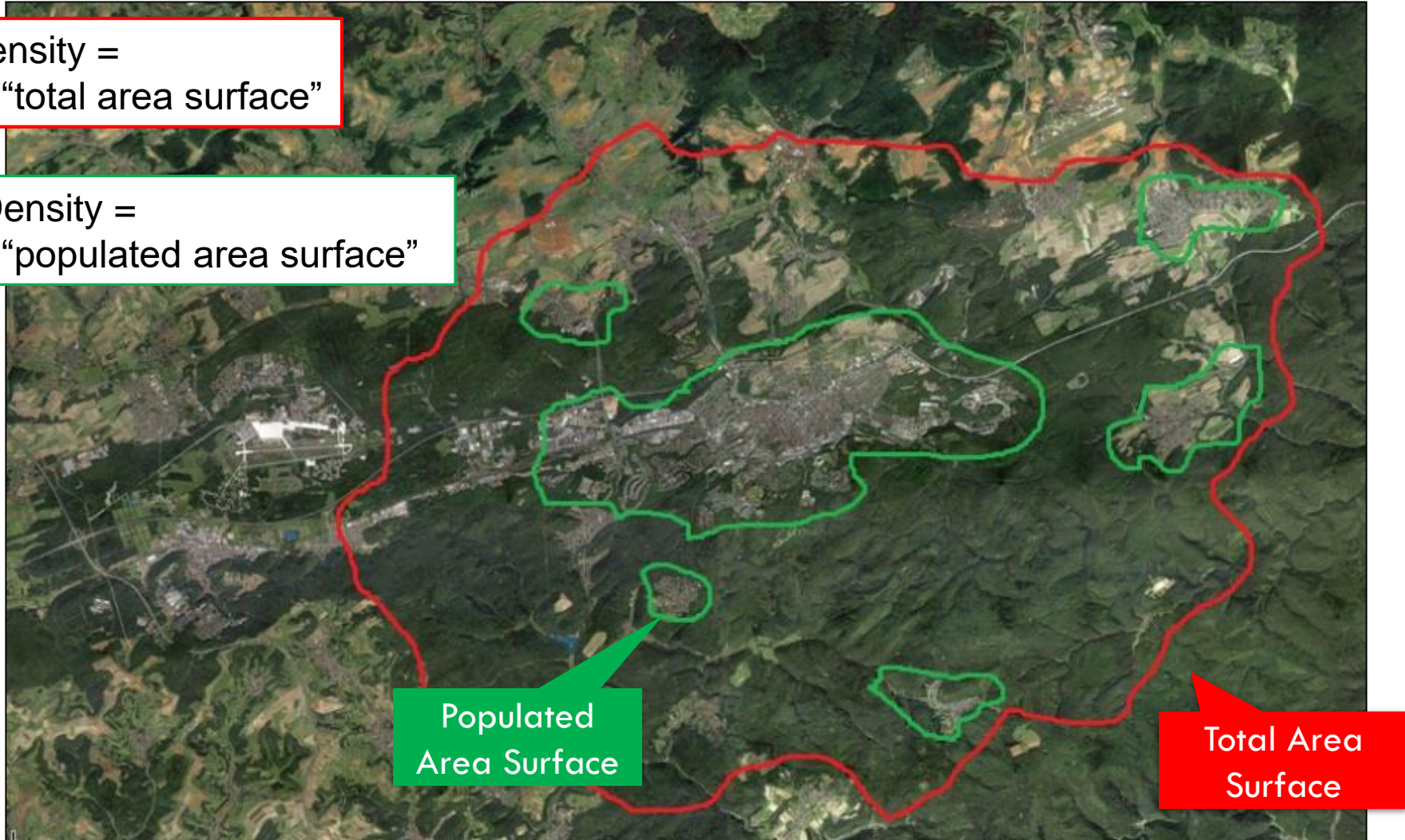
Background = Google Streets/Satellite  
Green = Area covered with Residential Building



# Populated Density

Standard Density =  
population / “total area surface”

Populated Density =  
population / “populated area surface”





# Populated Density

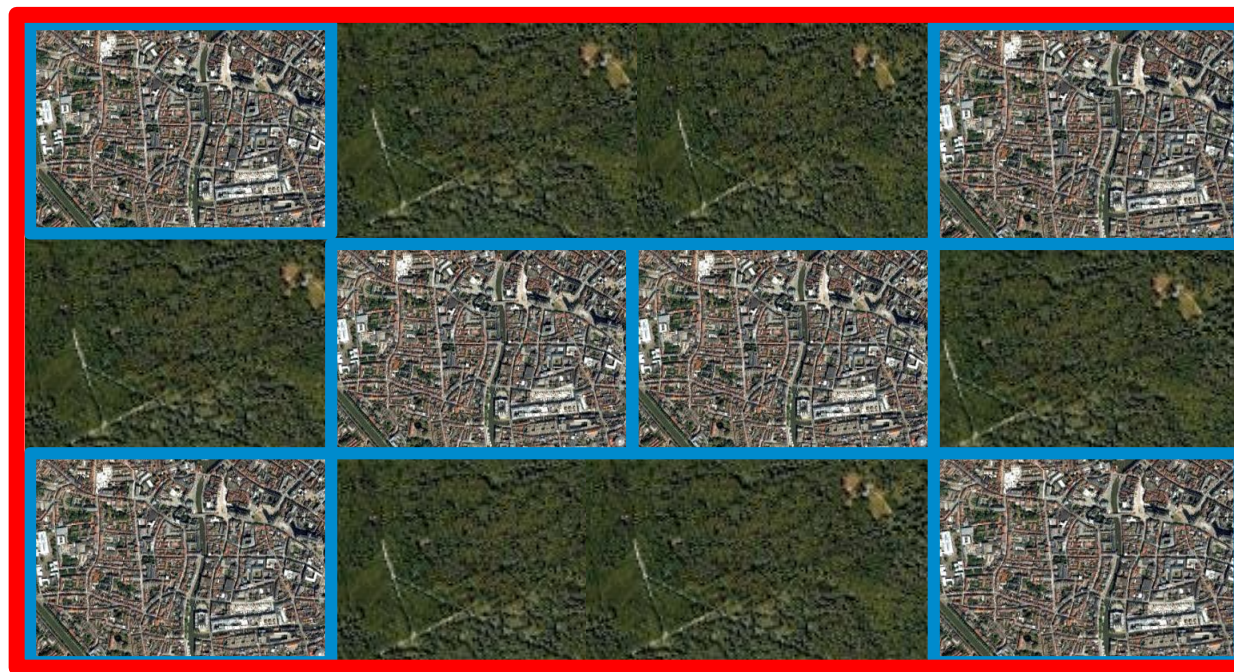


Cost Area 1

Density =  $6X / 6Y$

Density =  $6X / 6Y$

≈



Cost Area 2

Density =  $6X / 12Y$

Density =  $6X / 6Y$

>

≈

Populated Density is  
best measure for  
extrapolation

# Populated Density

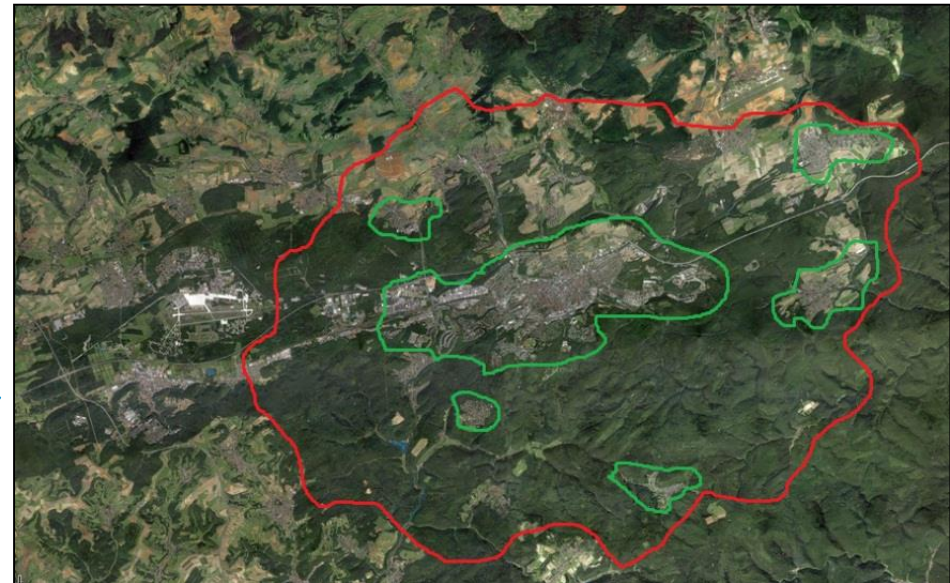
Populated Density (Population / “Populated Area Surface”)

- Exclude unpopulated area (forests, rivers, agriculture fields, ...) from NUTS 3 area size
- Land use overview available at eurostat by NUTS 2 regions

Divides area of NUTS 2 region in 5 categories:

1. agriculture
2. forestry hunting and fishing
3. heavy environmental impact
4. services and residential
5. no visible use

Concentrate on areas  
with residentials





# Already Built

# Already Built

## Input:

- Amount of households already passed per country
  - iDATE data produced for FTTH council

## Method:

- Extract passed households from most dense NUTS3-areas
- Recalculate cost for remaining households per NUTS3

A large, solid blue triangle that points towards the top right corner of the slide, occupying the right half of the image.

Cost Reduction

# Cost Reduction Opportunities

Aligned with Directive of EU Commission (2014/61/EU)

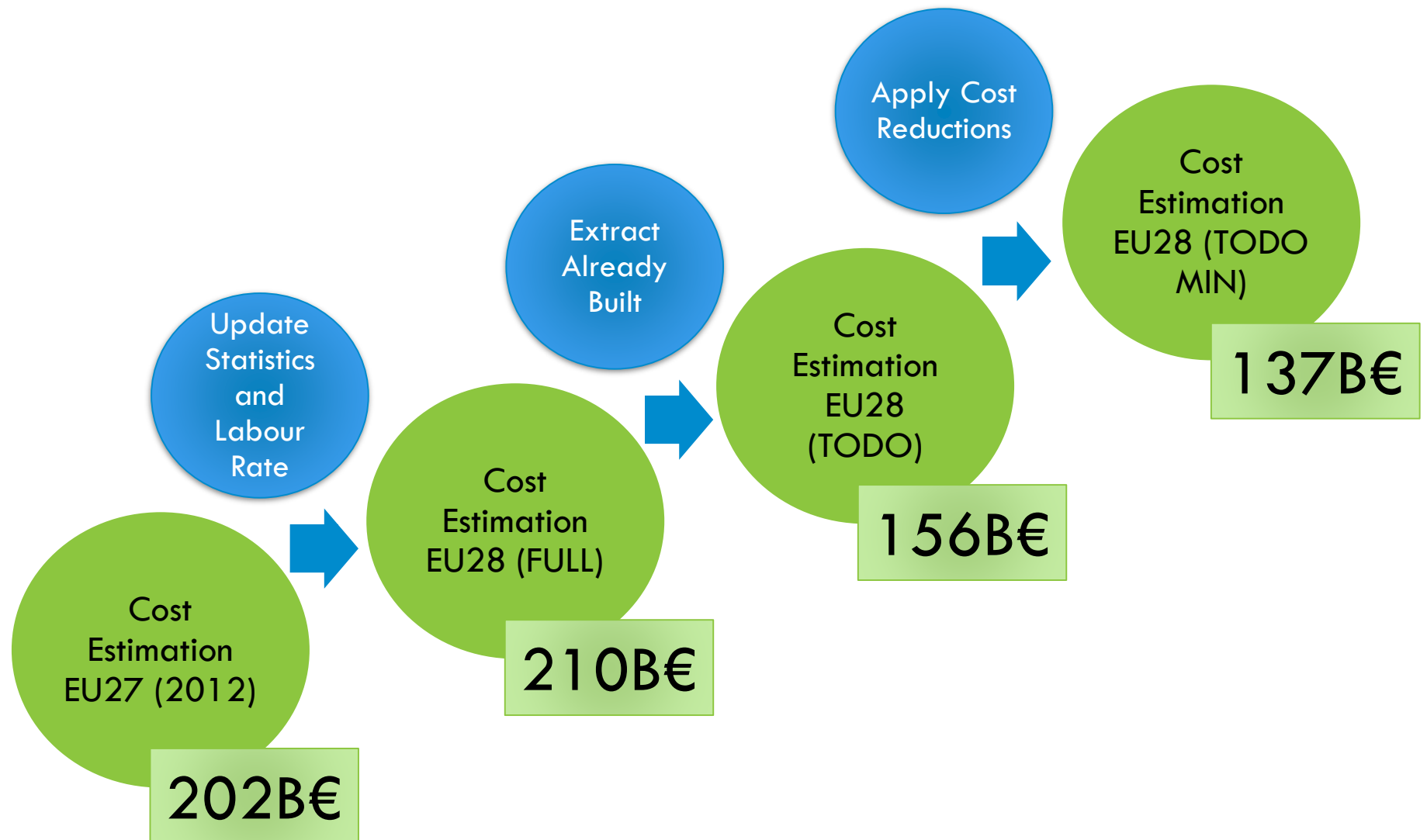
1. Reuse existing infra  
25% of Trenching cost (labour civil) replaced by cost to reuse ducts
2. Coordination and sharing of civil work  
10% of Trenches shared with other utility (cost reduced by factor 2)
3. Re-use in-building ready infrastructure  
5% of in-building costs eliminated

Overall impact: 12% on total cost

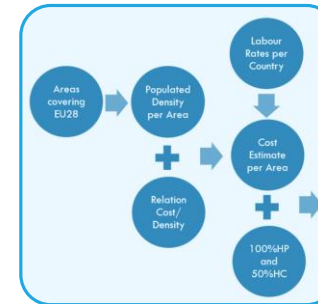
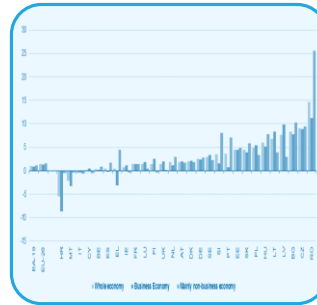
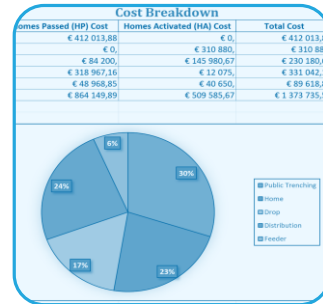


# Results

# Results



# Conclusions: Unique Model



Sample points: Real topologies based on real GIS data

Accurate bill of material (bottom-up) support HP/HC costs  
Material vs Install vs Civils

Correction for country specific labour costs and import cheap labour

Validated for very large areas (up to complete countries) in Germany, Belgium, UK, Ireland, Sweden, ...

Transparent on Model assumptions

See website FTTH Council

# Conclusions

- Conservative assumptions are chosen
  - Open to discuss about our assumptions
- Is full FTTH in EU28 possible?
  - Yes
- 137B EUR to built remaining FTTH areas
  - reach EU targets 2020 and far beyond



# FTTH Cost Model 2017

## QUESTIONS?



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