



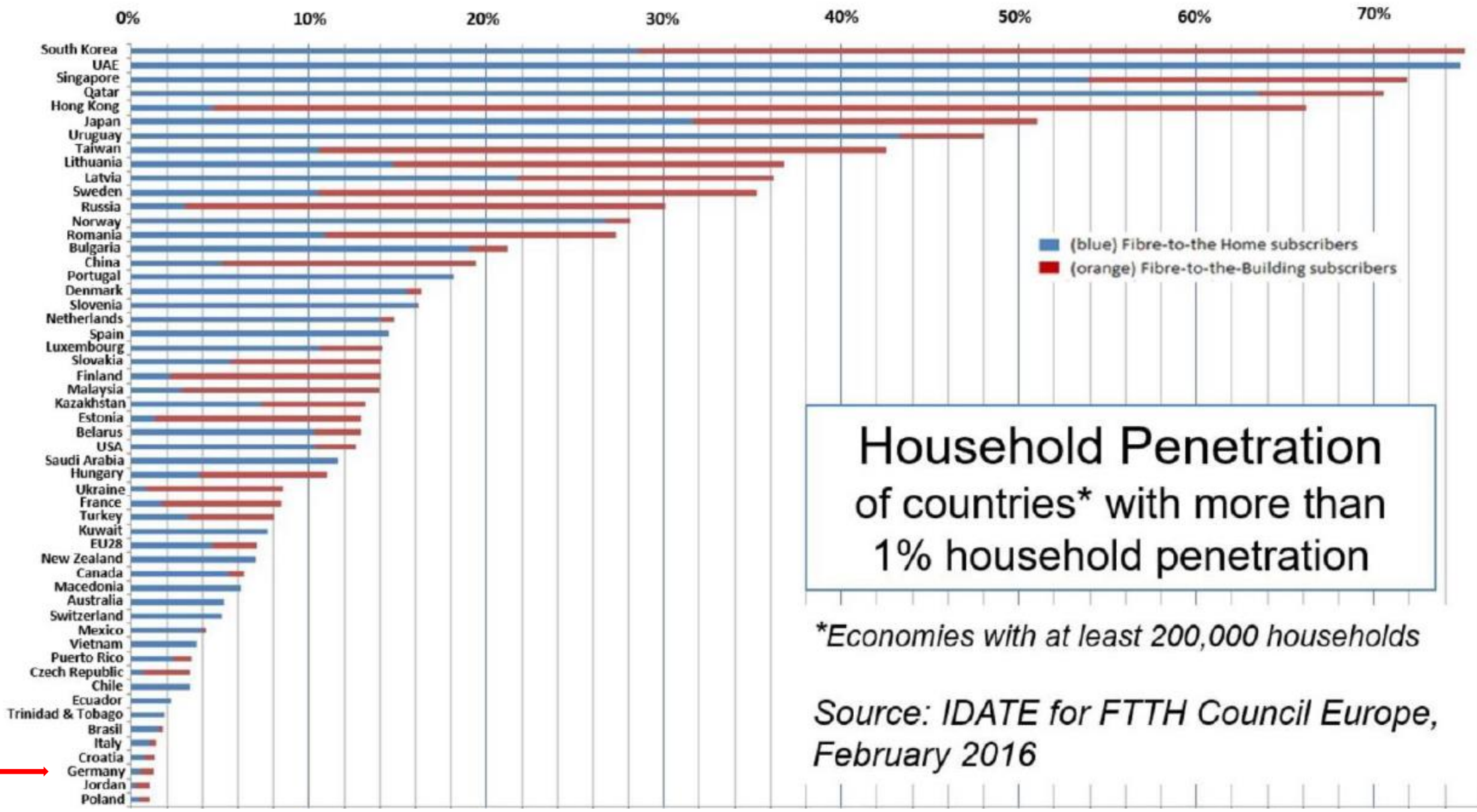
Automated and Cost-Optimized Strategic Fiber Planning with the ArcGIS platform – The latest from Germany

Christoph Zonsius, Esri Deutschland GmbH
TelUG@GeoConx, Phoenix
October 2016

Germany at its best...



GLOBAL RANKING – end September 2015

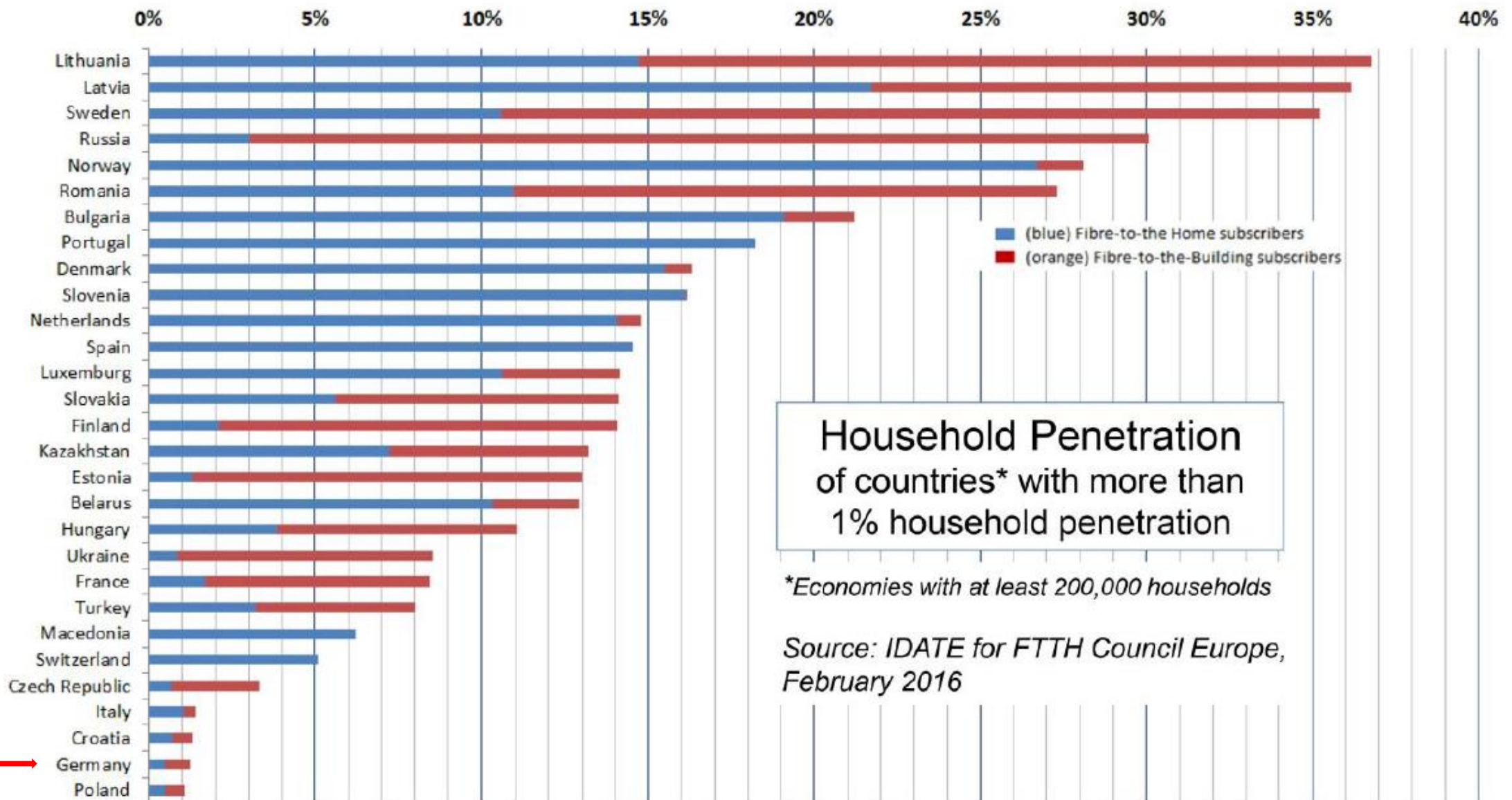


Household Penetration of countries* with more than 1% household penetration

*Economies with at least 200,000 households

Source: IDATE for FTTH Council Europe, February 2016

EUROPEAN RANKING – end September 2015



Household Penetration of countries* with more than 1% household penetration

*Economies with at least 200,000 households

Source: IDATE for FTTH Council Europe, February 2016

The glass fibre age

- + National broadband plans worldwide
- + Situation in Germany
 - > Governmental target set: ≥ 50 Mbit/s (Download) for every household in 2018
 - > 2015: + 2% of FTTH/FTTB household subscribers in Germany
 - > Main focus of private operators in urban areas: cities, conglomeration areas, industrial areas
 - > Main gaps in broadband network in rural areas \rightarrow 24,7% of population lives in rural areas in 2015*
 - > Governmental funded support programm for parishes and counties with a volume of 4 Billion Euros running until 2018
 - > BUT: Mid- to long-term faster connections required

Important Players in Broadband Rollout

+ Initiating Players:

- > initiatives by policy makers, private operators, and parishes and councils

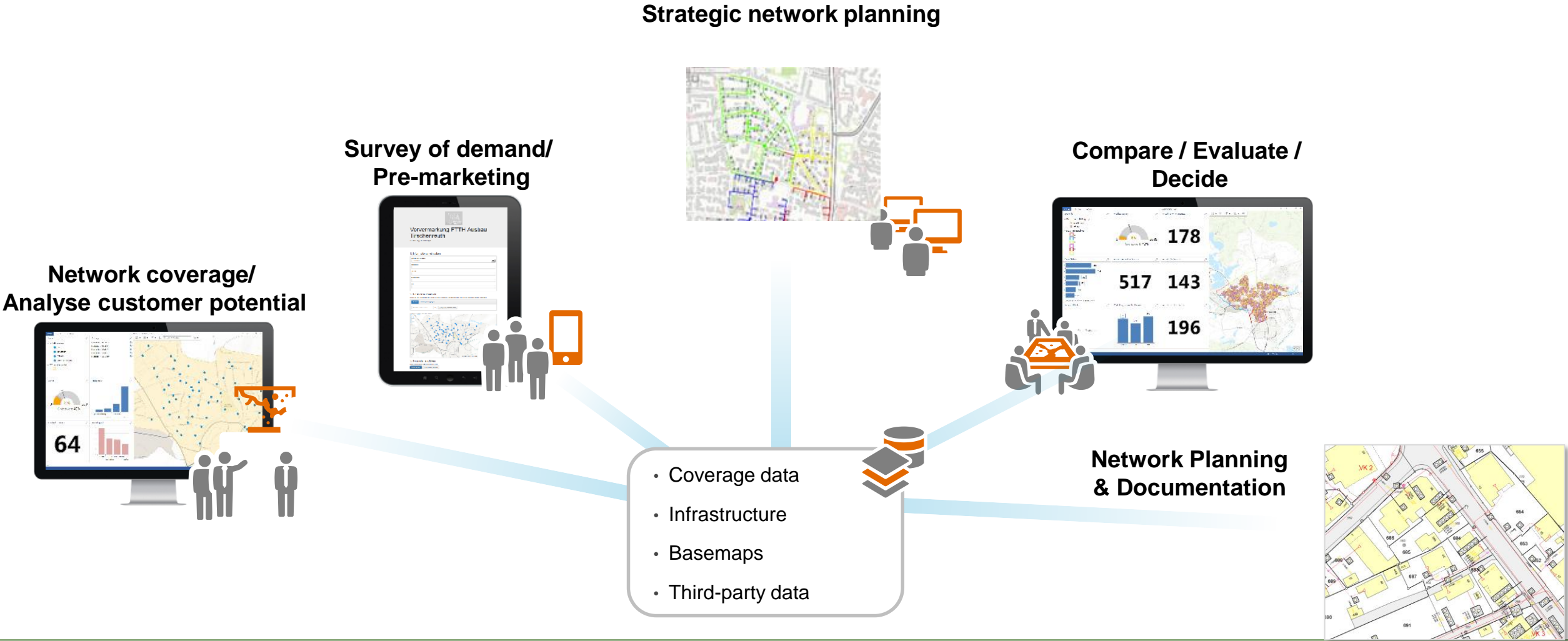
+ Operating Players:

- > Private operator
- > Auditing and consulting company
- > Engineering firm
- > Municipalities

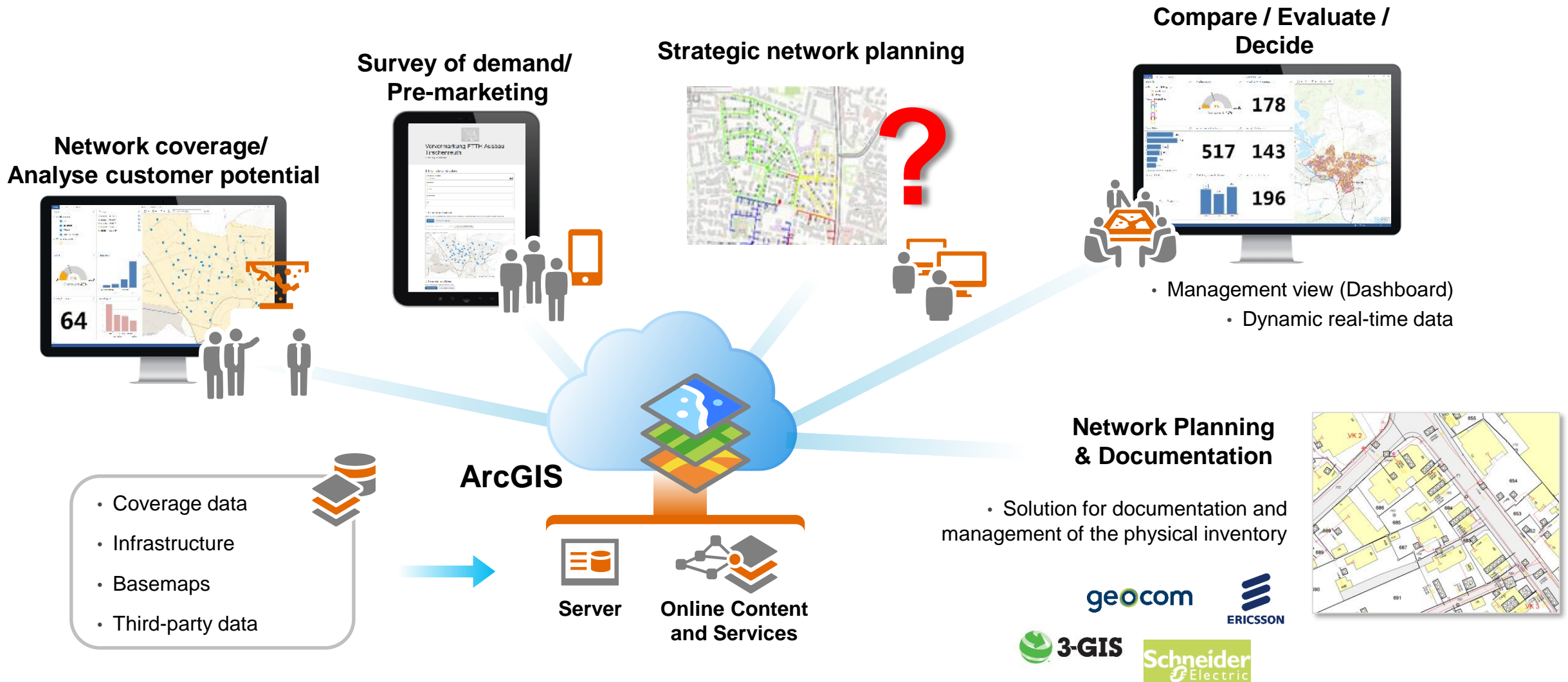
+ Controlling Players:

- > All the Initiators.. and
- > The Regulator

Important Geo-Broadband-Management processes



Geo-Broadband-Management are managed with ArcGIS



Fast@Home – Strategic fiber network planning

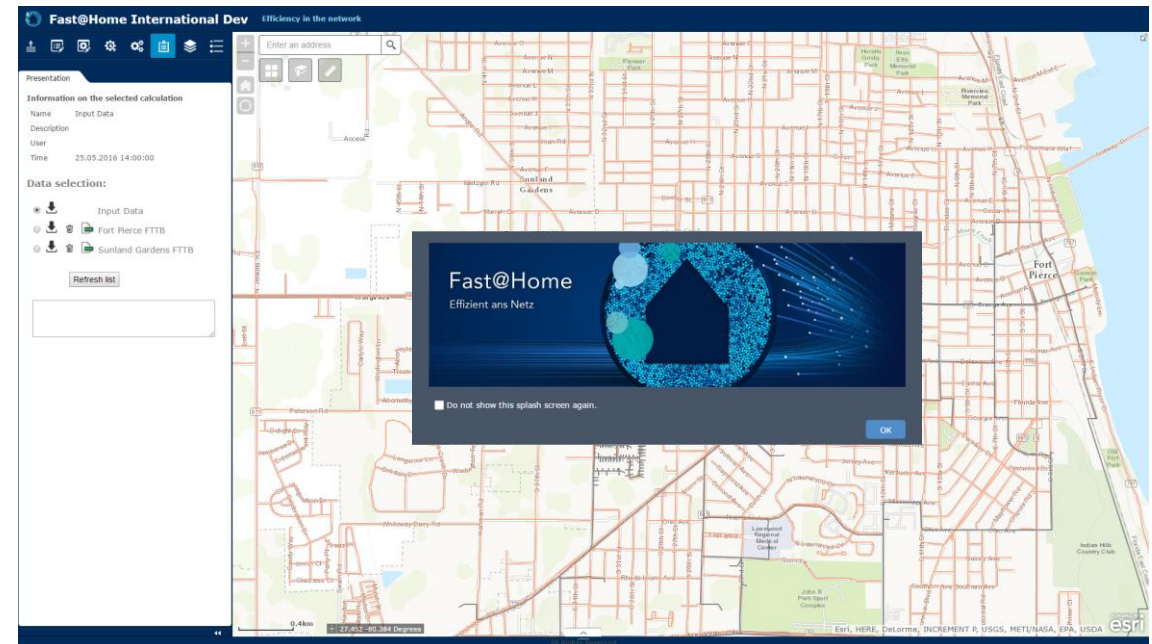
- + Automated and cost-optimised planning of fiber networks
 - > Including pipe and cable planning
 - > Customer-specific parametrisation (Pipes, cables, costs)
 - > Alternative planning scenarios
- + Automated bill-of-material generation
 - > Provides data for further investment decisions
- + Software as a Service – immediate access and use

+ Cooperation

atesio

Algorithms and industry knowledge

 **esri** Deutschland
WebApp / Hosting



Strategic fiber network planning - Necessary planning data



Edit

Select a template to create features

Calculation area

- Planning area
- inactive area
- Infrastructure area

Addresses

- Adressen

Central offices

- Central offices
- Central offices (inactive)

Streets

- Streets

Distribution point

- Distribution point

Distribution area border

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

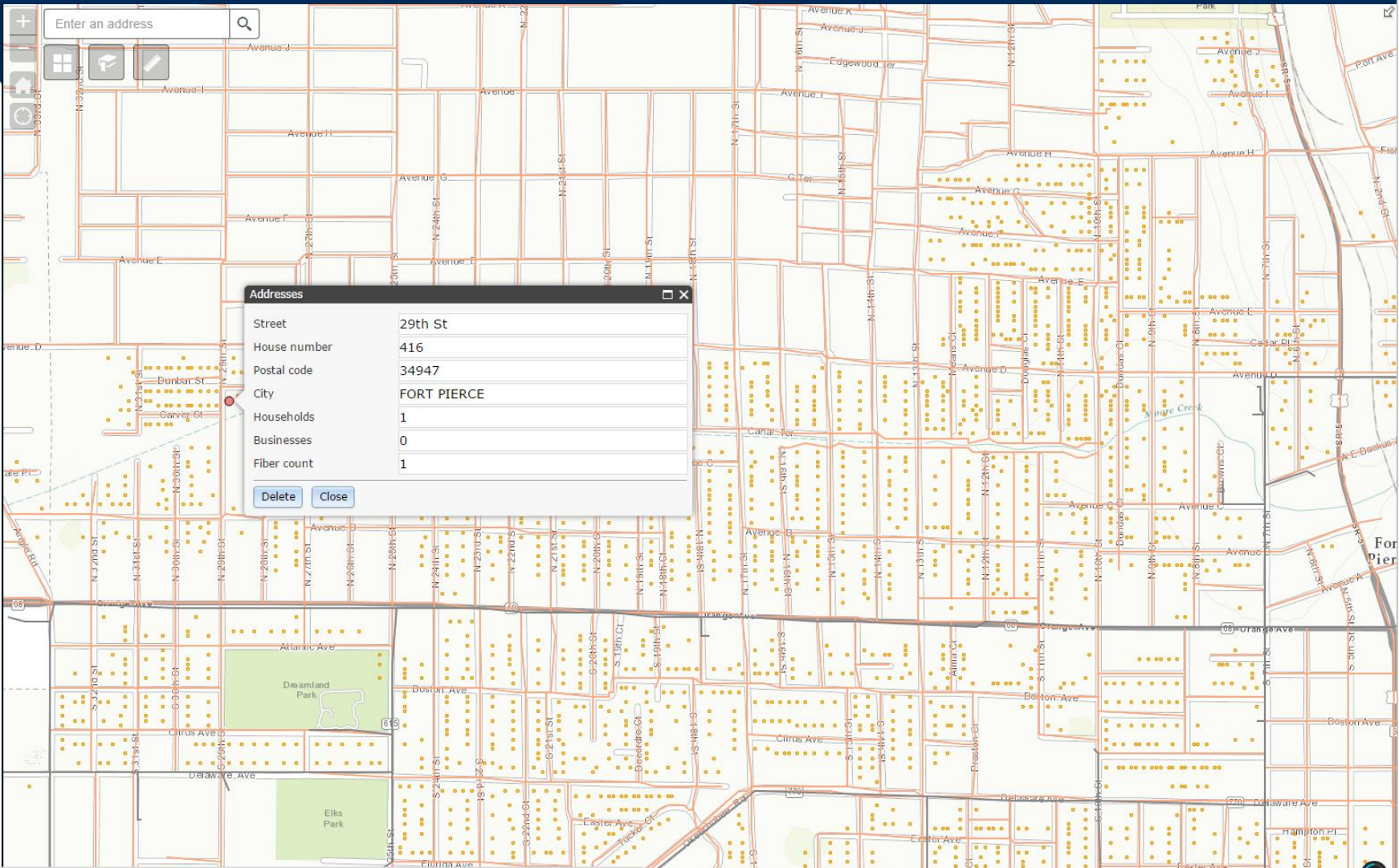
Empty tubes

- Empty tubes

Addresses

Street	29th St
House number	416
Postal code	34947
City	FORT PIERCE
Households	1
Businesses	0
Fiber count	1

Delete Close



+ Upload, Create, Edit, Check Input Data

Fast@Home International Dev Efficiency in the network

Enter an address

Edit
Select a template to create features

Calculation area
 Planning area
 inactive area
 Infrastructure area

Addresses
 Adressen
 Central offices
 Central offices (inactive)
 Streets
 Distribution point
 Distribution area border
 Empty tubes

Addresses
 Street: 29th St
 House number: 416
 Postal code: 34947
 City: FORT PIERCE
 Households: 1
 Businesses: 0
 Fiber count: 1
 Delete Close

Cable Types
 VzK: Speednet
 1.46 € Micro Cable 2 Fs.
 1.53 € Micro Cable 4 Fs.
 1.56 € Micro Cable 6 Fs.
 1.66 € Micro Cable 12 Fs.
 1.75 € Micro Cable 24 Fs.
 1.90 € Micro Cable 48 Fs.
 2.20 € Micro Cable 72 Fs.
 HK: Speednet
 1.78 € Mini Cable 12 Fs.
 2.20 € Mini Cable 24 Fs.
 2.72 € Mini Cable 48 Fs.
 2.78 € Mini Cable 72 Fs.
 2.84 € Mini Cable 96 Fs.
 2.95 € Mini Cable 120 Fs.
 3.10 € Mini Cable 144 Fs.
 3.50 € Mini Cable 192 Fs.
 4.00 € Mini Cable 288 Fs.

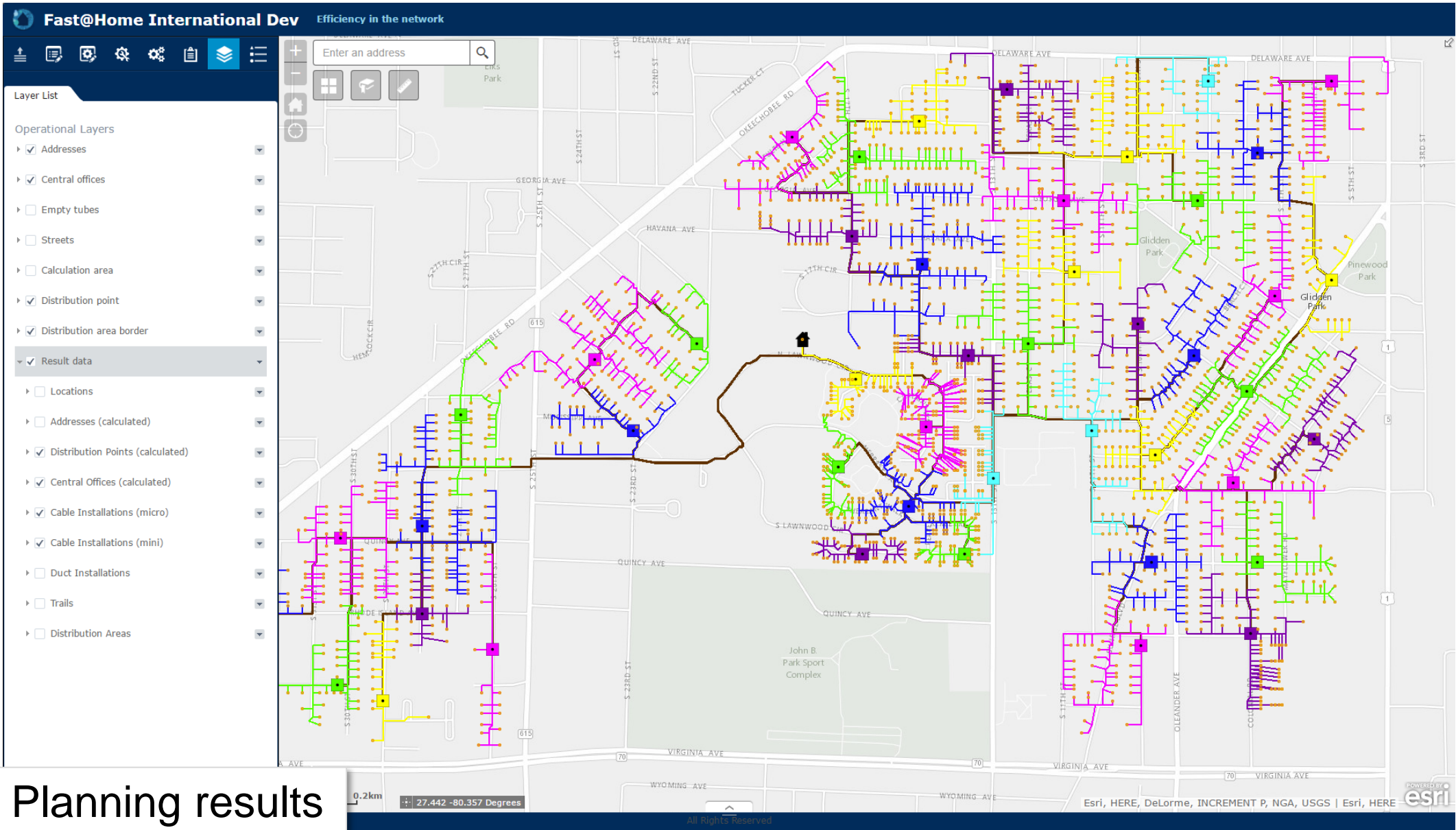
Pipe Types
 Connections
 1.80 € House connection line (€/m)
 2.25 € Distributor connection line (€/m) 1x10mm
 VzK: Speednet
 1.80 € Micro Pipe 1*6mm
 2.00 € Micro Pipe 2*6mm
 2.40 € Micro Pipe 4*6mm
 2.80 € Micro Pipe 6*6mm
 3.00 € Micro Pipe 7*6mm
 3.20 € Micro Pipe 8*6mm
 3.60 € Micro Pipe 10*6mm
 4.00 € Micro Pipe 12*6mm
 4.40 € Micro Pipe 14*6mm
 5.20 € Micro Pipe 18*6mm
 6.00 € Micro Pipe 22*6mm
 6.40 € Micro Pipe 24*6mm
 HK: Speednet
 2.25 € Micro Pipe 1*10mm

Distributors
 1000 € Network distributor 20
 1000 € Network distributor 24
 1600 € Network distributor 36
 2000 € Network distributor 40
 2000 € Network distributor 48
 2000 € Network distributor 60
 3000 € Network distributor 72
 3000 € Network distributor 80
 3800 € Network distributor 84
 4100 € Network distributor 96
 4000 € Network distributor 108
 5000 € Network distributor 120
 5000 € Network distributor 144
 6000 € Network distributor 180

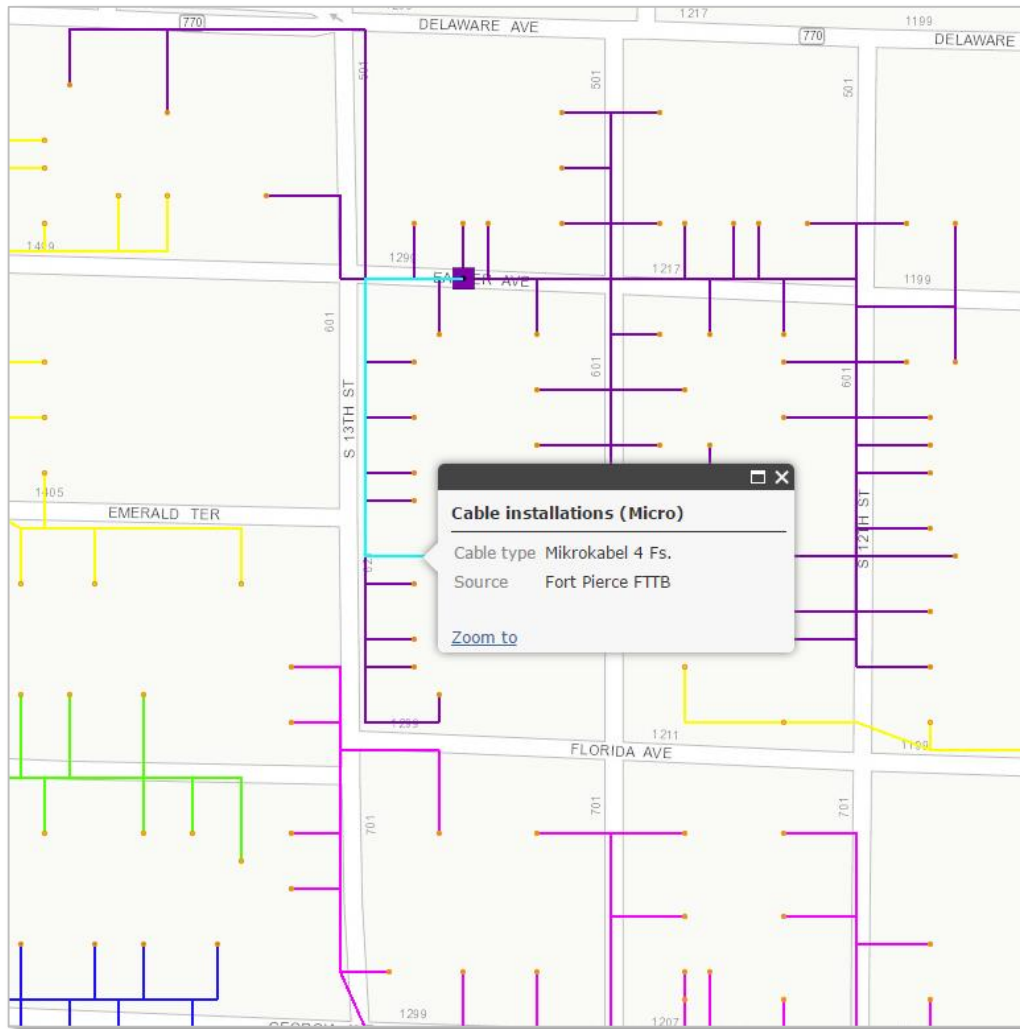
Parameters
 House connection line (€/m)
 Max. injection length (m)

+ Check / Edit Parametrisation

+ Start Calculation

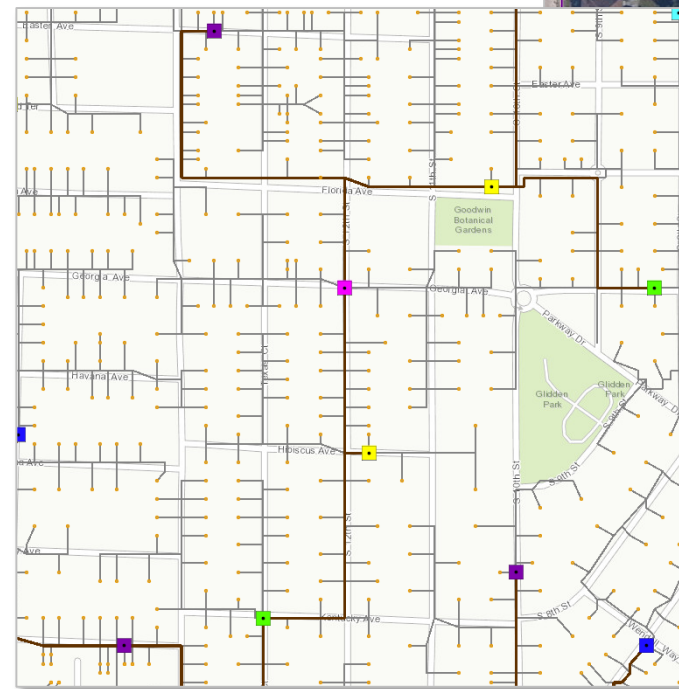
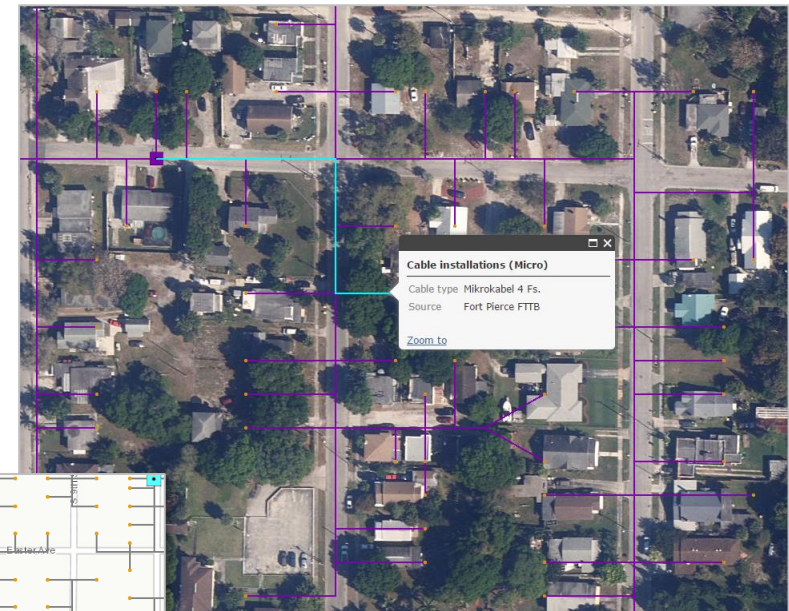


+ Planning results



+ Planning results in detail

- + Detailed pipe and cable plan
- + Automated POP allocation



- + Attribute query for all features
- + Manual or automated generation of distribution areas

Fast@Home International Dev Efficiency in the network

Enter an address

Parameters

Cable Types

Vzk: Speednet

- 1.46 € Micro Cable 2 Fs.
- 1.53 € Micro Cable 4 Fs.
- 1.56 € Micro Cable 6 Fs.
- 1.66 € Micro Cable 12 Fs.
- 1.75 € Micro Cable 24 Fs.
- 1.90 € Micro Cable 48 Fs.
- 2.20 € Micro Cable 72 Fs.

HK: Speednet

- 1.78 € Mini Cable 12 Fs.
- 2.20 € Mini Cable 24 Fs.
- 2.72 € Mini Cable 48 Fs.
- 2.78 € Mini Cable 72 Fs.
- 2.84 € Mini Cable 96 Fs.
- 2.95 € Mini Cable 120 Fs.
- 3.10 € Mini Cable 144 Fs.
- 3.50 € Mini Cable 192 Fs.
- 4.00 € Mini Cable 288 Fs.

Pipe Types

Distributors

Parameters

Apply Parameters

FTHH: Quantities and Cost Report Sunland Gardens FTTB

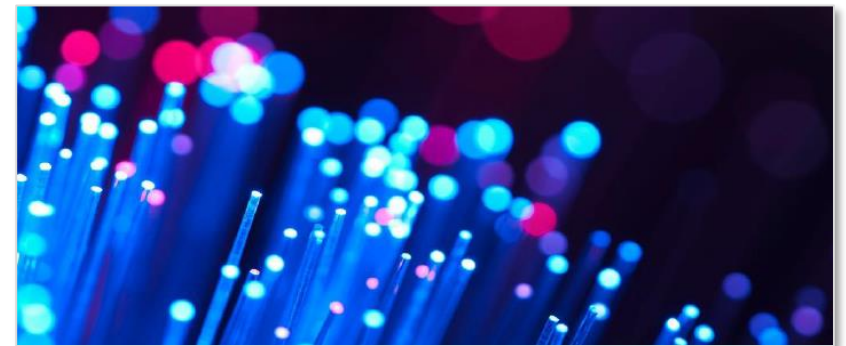
atesio	Count	Meter	Cost
Residents			
Connected residents	92		
Not connected residents	0		
Addresses			
Connected addresses	92		
Not connected addresses	0		
Fix cost			
House connection cost	92		9.200
PoP 1000 Fs.	1		35.000
PoP location	1		50000
Total			94200
Cabinets at distribution points			
Fiber distributor 48	4		8.800
Total	4		8.800
Cables			
Micro cable 4 Fs.	10.598		16.215
Mini cable 24 Fs.	435		956
Mini cable 48 Fs.	797		2.169
Total	11.830		19.340
Ducts			
House connection duct 1x6mm	2.255		4.059
Micro duct 3x10mm	753		2.071
Micro duct 8x6mm	2.082		6.662
Total	5.090		12.792
Trails			
Trails without trenching due to usage of existing infrastructure	0		0
Trenching house connection	2.255		82.097
Trenching non-house connection	1.832		111.781
Total	4.087		193.878
Usage of existing infrastructure			
Used duct meter	0		0
Total cost			329.010
Cost per resident			3.576
Cost per address			3.576

+ Export network planning results (Excel and Shapefiles)

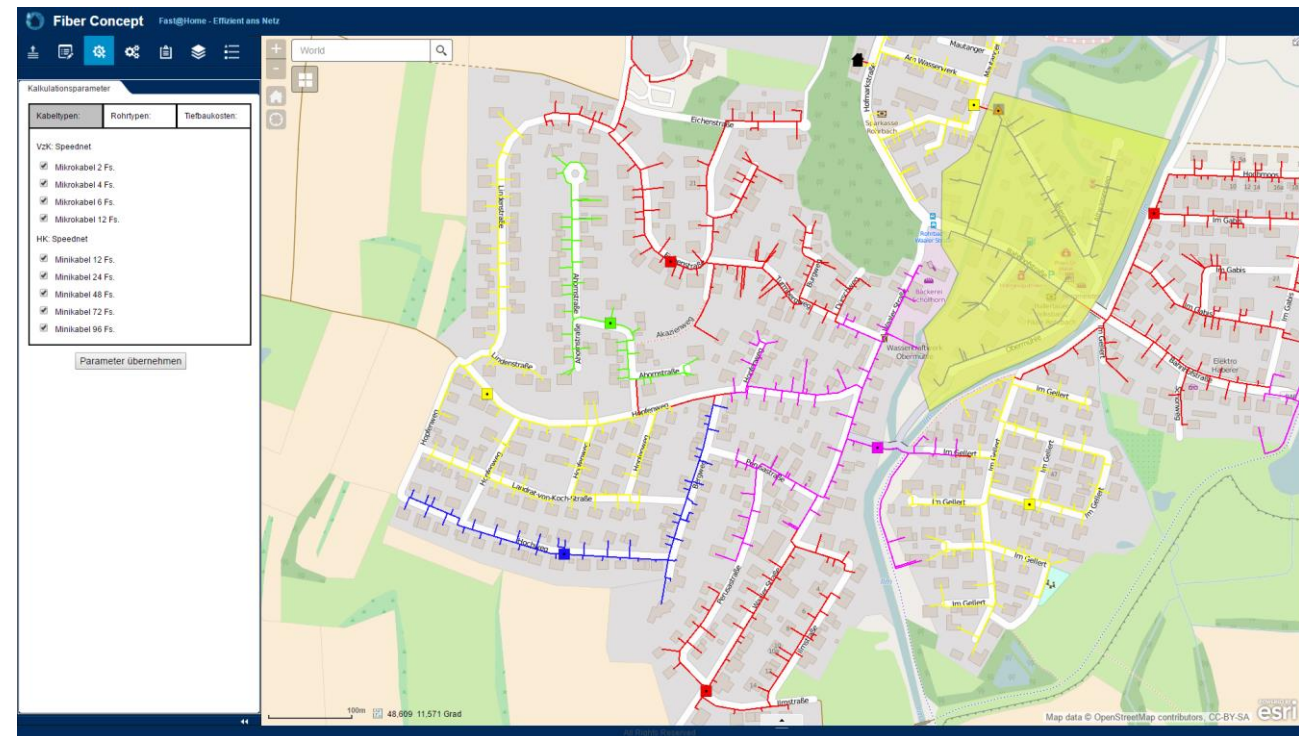
- + One of the world's largest professional service network. Focusing on telecommunication sector with more than 150 experts in Germany.
 - > Using **ArcGIS** for data collection and identification of broadband roll-out areas
 - > Planning of cost-optimized fiber network access for addresses in roll-out areas with **Fast@Home**
 - > Broadband planning based on **ArcGIS** and **Fast@Home** enables evaluation of roll-out economy (costs and revenue comparison)



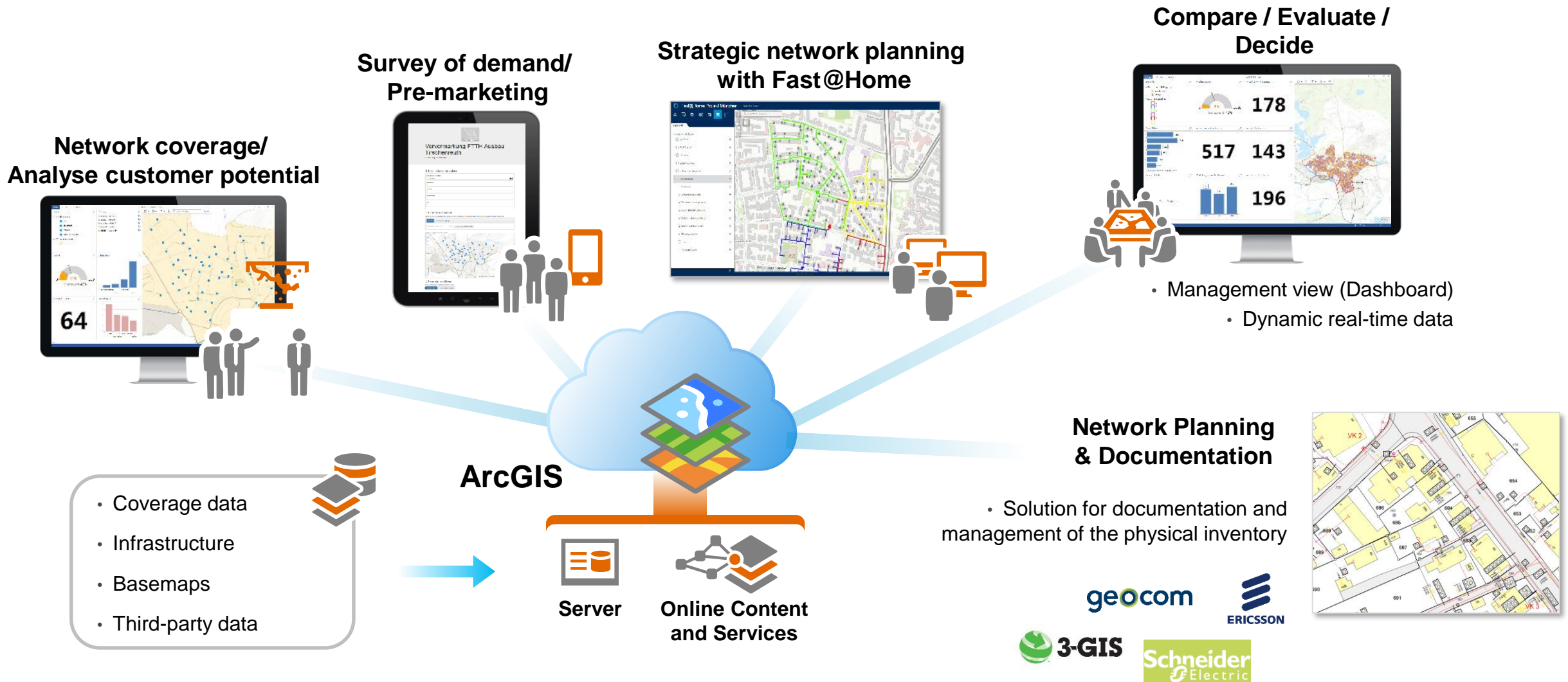
Fast@Home



- + Engineering firm working for parishes, association of communes, utility companies and planning offices
- + using Fast@Home for strategic network planning and to simplify communication with customers
 - > How much does it cost? - Short-team enquiries for various planning scenarios can be answered very quickly
 - > BoM and geographical planning results are used for presentation on an online map – for meetings with decision makers



Broadband-Management processes supported by ArcGIS



ArcGIS Marketplace - Fast@Home



+ For more information:



ArcGIS Marketplace [Become a Provider](#) [Get Help](#) [Sign In](#)

Fast@Home

Fast@Home ☆☆☆☆☆ (0)
by Esri Deutschland - Services & Marketplace

[BUY](#)

Pricing: Annual subscription fee based on the number of buildings to be connected. Contact us for a quote.

[Overview](#) [Reviews \(0\)](#) [Provider](#)

Fast@Home automatically plans optimized fiber networks. Stakeholders taking part in broadband expansion can quickly and easily determine the costs for various planning iterations. Using the most modern mathematical algorithms, Fast@Home optimizes fiber networks and keeps the necessary costs for construction and material to a minimum. Fast@Home delivers the basis for strategic roll-out studies and the following investment decisions.

Key Features:


- Automated and cost-optimized planning of fiber Networks
- Customer-specific parametrization (pipe types, cable types, distribution points, blow length,

Thank you for your Attention

Contact

Esri Deutschland GmbH

Christoph Zonsius
c.zonsius@esri.de

 Twitter: @CZonsius

 LinkedIn: Christoph Zonsius



First Glance at Fast@Home: Visit ArcGIS Marketplace

Esri Deutschland, Esri Schweiz, Esri Rwanda, Esri Burundi



Esri Deutschland GmbH

Ringstraße 7
85402 Kranzberg
Telefon +49 89 207 005 1200
info@esri.de

Niederlassung Berlin

Karl-Liebknecht-Str. 5
10178 Berlin
Telefon +49 89 207 005 1560
info@berlin.esri.de

Niederlassung Bonn

Rheinallee 24
53173 Bonn
Telefon +49 89 207 005 1720
info@bonn.esri.de

Niederlassung Hannover

Schiffgraben 11
30159 Hannover
Telefon +49 89 207 005 1520
info@hannover.esri.de

Niederlassung Köln

Konrad-Adenauer-Ufer 41-45
50668 Köln
Telefon +49 89 207 005 1760
info@koeln.esri.de

Niederlassung Leipzig

Fechnerstraße 8
04155 Leipzig
Telefon +49 89 207 005 1420
info@leipzig.esri.de

Niederlassung Münster

Martin-Luther-King-Weg 24
48155 Münster
Telefon +49 89 207 005 1460
info@muenster.esri.de



Esri Schweiz AG Zürich

Josefstrasse 218
8005 Zürich
Telefon +41 58 267 18 00
info@esri.ch

Esri Suisse SA Nyon

Rte du Cordon 5 - 7
1260 Nyon
Telefon +41 58 267 18 60
info@nyon.esri.ch



Esri Rwanda Ltd. Kigali

P.O. Box 6867
Kigali, Rwanda
Lat. 1°56'50.12" S; Long. 30°4'36.24" E
Telefon +250 788 38 19 00
info@esri-rwanda.com



Esri Rwanda Ltd. Kigali

P.O. Box 6867
Kigali, Rwanda
Lat. 1°56'50.12" S; Long. 30°4'36.24" E
Telefon +250 788 38 19 00
info@esri-rwanda.com