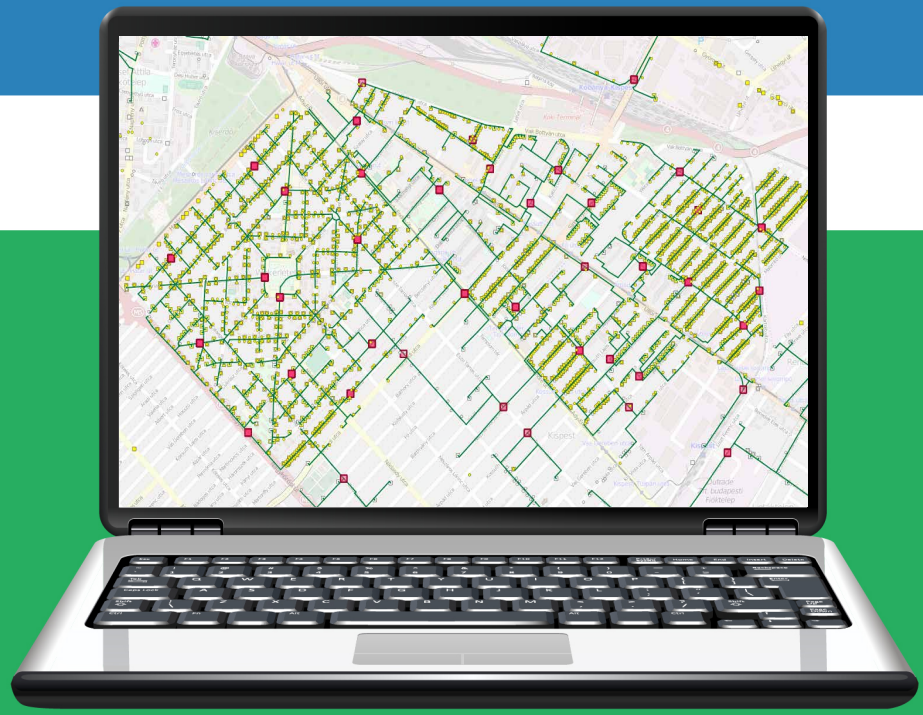
FTTx Strategic Network Planning and Cost Evaluation

Smart Strategic Planner

NETvisor



FTTX STRATEGIC NETWORK PLANNING AND COST EVALUATION TOOL

Smart Strategic Planner

FOR SERVICE PROVIDERS AND EQUIPMENT VENDORS

Smart Strategic Planner is a GIS-based FTTx Strategic Network Planning and Cost Evaluation Tool to Support Business Case Analysis & Techno-economic Decisions for Service Providers and Equipment Vendors.

NETvisor's Smart Strategic Planner (SSP) fills in a gap between FTTx roll out decisions and network planning. Up until now there existed no cost-conscious support solution for strategic decisions on FTTx deployment.

Smart Strategic Planner provides **automated FFTx topology design** functionality as a separate solution or as an extension module to your GIS framework. SSP is capable to **determine the optimal FTTx architecture for large scale scenarios**, allowing you to choose the most cost-effective solution from among various topological and technology alternatives.

SSP is **highly customizable** to comply with various network topology standards and regulations and to use sophisticated cost models. The built-in optimization engine currently supports Point-to-Point, GPON, AETH and VDSL access network technologies with high efficiency and accuracy. The provided API can be utilized to extend support for different systems, i.e. for external optimization engines.

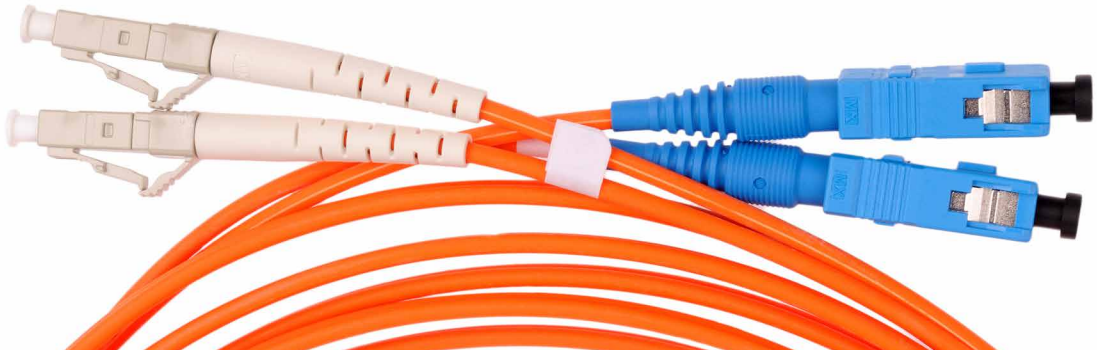
The framework gathers the necessary information from the available GIS data for its optimization engine and visualizes the suggested network design. Along with each design alternative, **detailed deployment costs are immediately available,** i.e. to the level of trenching, equipment placement and cabling, which can be used for techno-economic decisions.

The results can be simply converted to the appropriate GIS database objects automatically, saving an enormous amount of time for the designers in detailed engineering and **creating the network inventory** itself. The strategic plan stores all the details to the level of cabling, including cable splicing configurations.

SSP also has a **built-in reporting** module to summarize the optimized results in tabular format besides the detailed visualization. The reports can be used to evaluate the current optimization re¬sults and to compare it to other solutions. Since the format of these reports is common, decisions for different technologies and price comparisons on different vendors' equipment sets can be aided.

Benefits

- Smart Strategic Planner supports you in **speeding up the FTTx network planning and deployment** process.
- It **quickly and cost-effectively determines the accurate costs** of network deployment for a specific region.
- Smart Strategic Planner helps engineers in **finding the optimal FTTx network design strategy**.
- Detailed **GIS based plans and cost calculations are ready to** use for equipment and construction **procurements** and for the overall management of the deployment project.
- Due to its **flexible** architecture SSP can support future technologies, regional regulations and provider-specific requirements.



Description of the optimization process

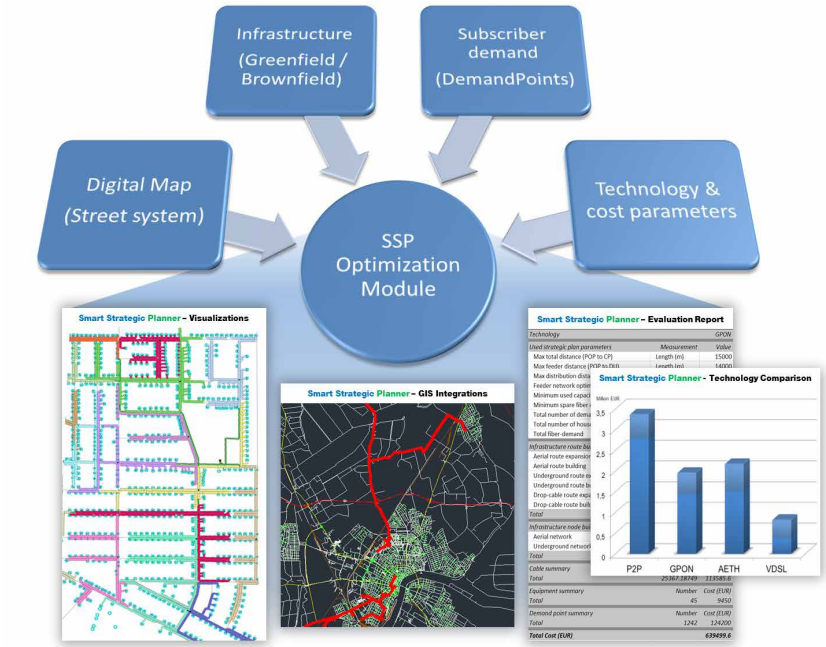
THE INPUT DATA FOR THE DESIGN CAN BE GROUPED INTO THE FOLLOWING CATEGORIES:

- Digital map
- Existing infrastructure
- Subscriber demand
- Technology and cost parameters

These inputs contain all the necessary information for the optimization process, allowing modifications later on to recreate results for different scenarios. Input data may originate from various information sources (GIS data, CSV, XLS files, AutoCAD, XML data). The SSP architecture is built to support new additions to the existing set of source data if specific needs arise.

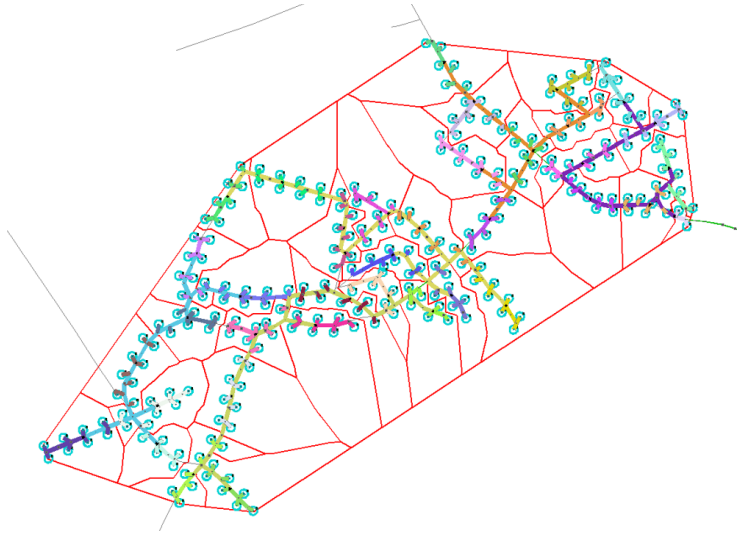
Automated design is done in several iterative steps (e.g. creating intermediary database from road-line information, connecting demand points, connecting the Central Office etc.). The steps usually offer tweaking possibilities for the user, but generally kept simple and automatic all along.

It is possible to generate different optimization results for different planning configurations (e.g. GPON with different splitter setups, P2P, AETH etc.). Accordingly technology decisions are based on the most accurate estimations possible.



The output of the optimization process

- Detailed calculation on investment costs (including labor and material costs)
- Automatic grouping of access service endpoints into cells served by one distribution unit (e.g. splitter).
- Placing of serving structures, e.g. manholes and distribution units. Serving locations are associated with the appropriate cell objects.
- Designing feeder and distribution routes connecting the new serving structures to the existing network.
- Designing all cable and routing paths
- Calculating drop cabling needs and splicing plans.



Smart Strategic Planner - Evaluation Report

Plan Name		*Test area*
Technology		*GPON2*
Used strategic plan parameters	*Measurement*	*Value*
Max total distance (POP to CP)	Length (m)	40 000
Max feeder distance (POP to DU)	Length (m)	39 000
Max distribution distance (DU to CP)	Length (m)	1 000
Feeder network optimization preference	Minimize building costs	
Minimum used capacity for equipments	Percentage (%)	25
Minimum spare fiber capacity in cables	Percentage (%)	20
Total number of demand points	Number	6 332
Total number of households	Number	6 332
Total fiber-demand	Number	6 521
Infrastructure route building	*Length (m)*	*Cost (Euro)*
Aerial route expansion		
Aerial route building	457	307
Underground route expansion	215 561	107 780
Underground route building	182 338	1 523 734
Drop-cable route expansion		
Drop-cable route building	46 280	0
Total	*444 635*	*1 631 821*
Infrastructure node building	*Number*	*Cost (Euro)*
Aerial network	17	4250
Underground network	1 242	174 615
Total	*1 259*	*178 865*
Cable summary	*Length (m)*	*Cost (Euro)*
Total	*555 135*	*1 738 421*
Equipment summary	*Number*	*Cost (Euro)*
Total	*1 811*	*66 341*
Demand point summary	*Number*	*Cost (Euro)*
Total	*6 332*	*191 960*
Total Cost (Euro)		***3 807 409***

SMART STRATEGIC PLANNER

IN AN OPERATIONS SUPPORT SOLUTION

1 DESIGN

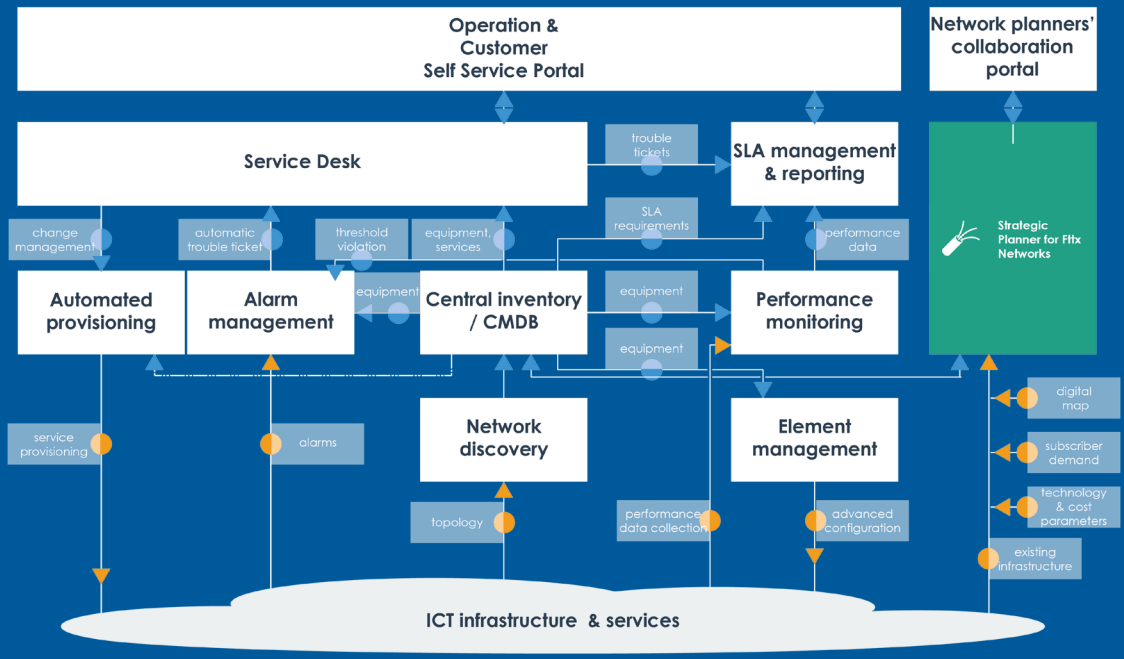
FTTX TOPOLOGY IN AN AUTOMATED WAY

2 DETERMINE

THE OPTIMAL **FTTX** ARCHITECTURE AND ACCURATE DEPLOYMENT COSTS OF A NETWORK FOR A SPECIFIC REGION SERVING TENS OF THOUSANDS OF USERS.

3 CHOOSE

THE MOST COST-EFFECTIVE SOLUTION FROM AMONG VARIOUS TOPOLOGICAL AND TECHNOLOGY ALTERNATIVES.



NETvisor

improving the quality & efficiency of ICT services

NETvisor Ltd.

Petzval Jozsef utca. 56. 1119 Budapest, Hungary

Telephone: (+36-1) 371 2700 Fax: (+36-1) 204 1664

E-mail: netvisor@netvisor.hu

www.netvisor.eu