5G BLUEPRINT

Techno-economic analysis of 5G-enabled Teleoperated Transport

5gblueprint.eu

WHY WE NEED TECHNO-ECONOMIC ANALYSIS?

5G-enabled teleoperated transport has the potential to offer cost savings and efficiency improvements. However, **the technical and economic feasibility** of this approach **must be carefully evaluated.**

FOCUS OF THIS ANALYSIS

Evaluating the feasibility of using **5G technology** to provide **teleoperated transportation**, particularly in a cross-border setting.

5G CONNECTIVITY OPTIONS

5G network slice

A 5G end to end network slice is a logical end to end network customized to meet the TO requirements.

5G coverage on demand

It means adapting the radio access network to the customer's needs, but with the core network remaining the MNO's.

MAIN FINDINGS

Unveiling the challenge of identifying a single cost-effective network deployment approach

5G coverage on demand was the most cost-effective deployment option for providing teleoperated services in a limited port area. Yet, 5G network slicing with a separate slice for each service will be more cost-effective as long as a good network deployment strategy is adopted.

The Operational Expenditures (OPEX) is the dominant cost element of the Total Cost of Ownership (TCO)

OPEX, accounting for 63% of TCO, primarily includes site rentals for macro and small cells, energy cost, and hardware maintenance. This underscores the significance often missed in CAPEX-focused studies.

MAIN FINDINGS

Cost savings: establishing in-house TO center vs. Renting pre-equipped facilities

Setting up your own TO center is 25% more cost-effective than leasing pre-equipped TO rooms from external TO service providers.

The operator wage is the dominant cost element of the TO center OPEX

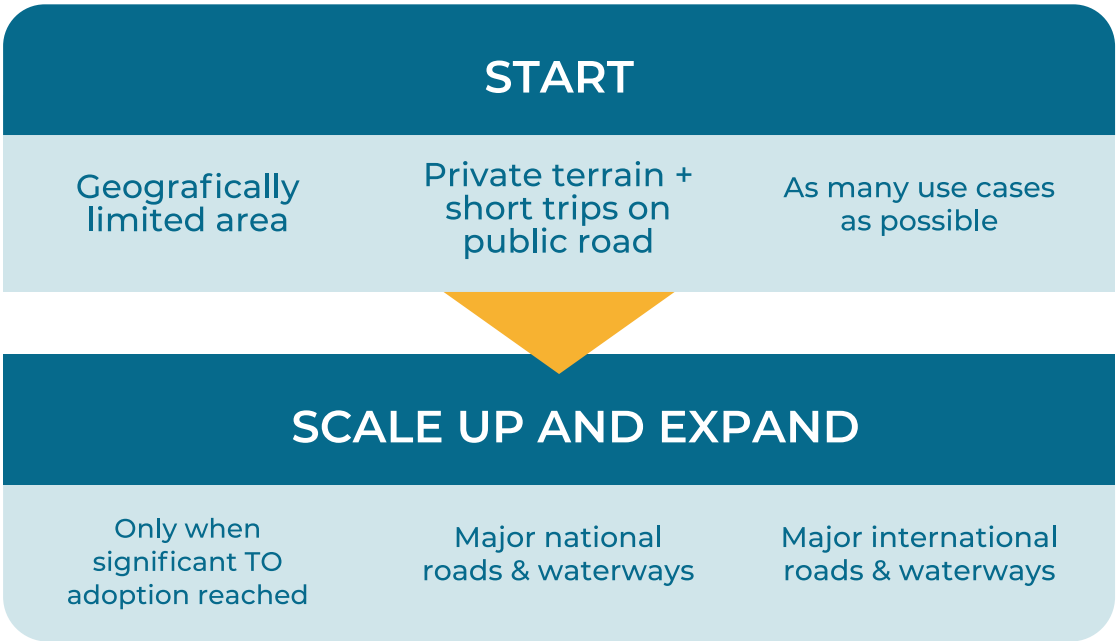
The operator wage is the dominant cost element which represents 93% of the total OPEX and the rest is distributed among office space renting, Internet subscription and energy cost.

The Break Even Point (BEP) is different according to the TO adoption

For the pessimistic TO adoption, the BEP is reached around year 5 for the two profit margin assumptions. Yet, the BEP is around 5 and 8 years in an optimistic scenario since more investment is needed, with profit margin values 30% and 15% respectively.

OUR RECOMMENDATIONS

Strategic deployment approach for cost-efficient TO services



OUR RECOMMENDATIONS

Select 5G connectivity option wisely

No silver bullet exists, as the preference between options like coverage on demand and network slicing depends on various factors such as TO adoption, deployment scale, UL capacity requirements, and more.

Reduce UL requirements for TO use cases

Reducing use case requirements for the uplink capacity can lead to a 26%-40% reduction in TCO compared to the worst-case scenario, in which the maximum requirements were considered.

Use small cells wisely

Adding small cells in addition to macro cells can be an effective strategy for enhancing uplink capacity, but it is not without limitations. Deploying many small cells can be more costly than adding one more macro cell.

MORE DETAILS ARE AVAILABLE IN DELIVERABLE D3.3 ---------->

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