Financováno Evropskou unií
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MINISTERSTVO PRŮMYSLU A OBCHODU

Grant Thornton

Defining the investment gap for VHCN roll-out in the context of 5G

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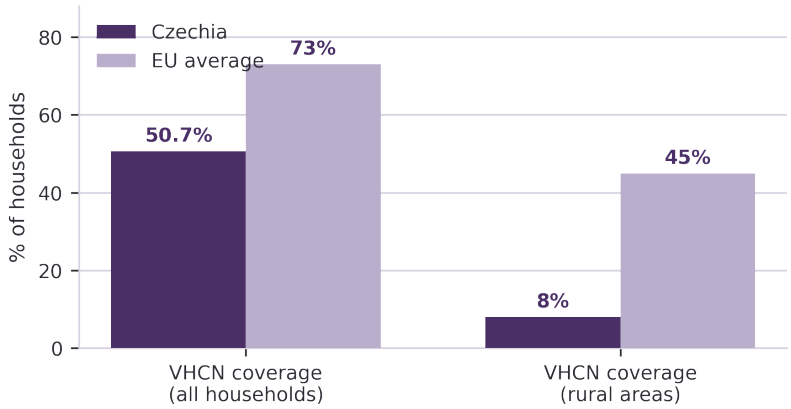
What the study covers

Very High Capacity Networks (VHCN) underpin a competitive digital economy. The study translates the EU and national coverage ambitions into euros and kilometres: it estimates the wholesale cost of connecting households (per dwelling/flat) and of building the backhaul hand-over points that feed them, then defines where public support is needed to correct market failure in areas operators will not reach commercially.

Why it matters

Connectivity is the Czech Republic's weakest dimension in the EU Digital Decade scoreboard — 19th of 27 member states. VHCN reaches just over half of Czech households, well below the EU average, and rural coverage lags dramatically. The national KPI is to give 95 % of households a gigabit-capable connection at the premises by 2030; reaching it requires a deliberate, well-targeted support framework rather than market forces alone.

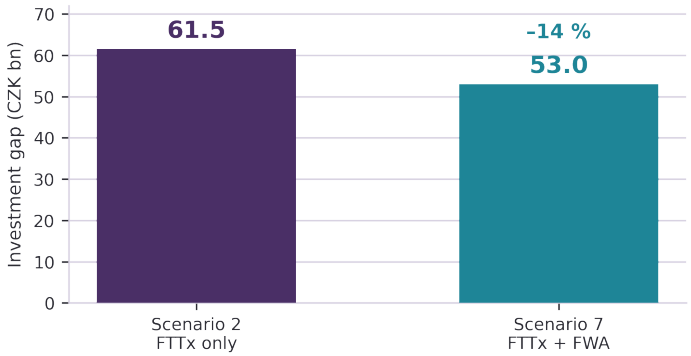


VHCN household coverage: Czechia vs. EU average (source: DESI / State of the Digital Decade).

Seven scenarios, two front-runners

The analysis builds seven connectivity scenarios (S1–S7) spanning a fully optical roll-out and progressively larger use of FWA in sparsely populated settlement units (ZSJ). Two extremes that both satisfy the Czech 95 % KPI were taken forward for detailed costing — a pure-fibre scenario and a fibre-plus-wireless scenario:

- **Scenario 2 —** 95 % coverage using FTTx optical technology only.
- **Scenario 7 —** 95 % coverage combining FTTx with FWA for the most remote settlements (up to 64 households per ZSJ).



Investment gap by scenario (CZK billion). Scenario 7 is roughly 14 % cheaper.

Comparing the two scenarios

Both scenarios connect virtually the same share of households, but they differ sharply in cost and roll-out dynamics. Fibre-only delivers the highest quality and future capacity; the fibre-plus-FWA mix cuts the gap by about 14 % and reaches low-density areas faster, where optical build-out would not be economically viable.

	Scenario 2 — FTTx only	Scenario 7 — FTTx + FWA
Coverage target	95 % of households	95 % of households
Investment gap	CZK 61.5 bn	CZK 53 bn (−14 %)
Avg. cost / household (2030)	≈ CZK 27,000	≈ CZK 23,200
Households served by 2030	≈ 4.9 m via FTTx	≈ 2.0 m FTTx + 0.25 m FWA
Profile	Highest quality, future-proof; slower in remote areas	Faster, cheaper rural reach; flexible roll-out

The backhaul gap

1,206 settlement units (ZSJ) — about **1.56 % of households (≈ 80,500 dwellings)** — still have no backhaul connection. Linking them all by fibre would require roughly **2,054 km of optical infrastructure at an estimated CZK 1.7 bn.**

International inspiration

The study benchmarks investment approaches across the EU. Two member states stand out as references for closing a rural coverage gap:

Denmark

EU front-runner with 97 % VHCN coverage. A market-led, technology-neutral strategy is paired with a National Broadband Fund that subsidises rural areas that are not commercially viable.

Romania

Around 95 % VHCN/FTTP coverage. The RO-NET project extended high-speed access to rural regions via 4,843 km of fibre, reaching ~200,000 households with EU regional-development co-funding.

Recommendations

To turn the cost model into delivery, the study points to four established EU investment models — direct public investment, concession, community-led, and operator-subsidy — to be matched to local economics. Its core recommendations:

- Adopt a blended FTTx + FWA strategy so remote settlements are reached without the cost of universal fibre.
- Target subsidies at the high-cost tail of the concentration curve, where commercial roll-out is impossible.
- Close the backhaul gap first to unlock access-network investment in unconnected ZSJ.
- Track progress against the Czech 95 % KPI and the EU Digital Decade gigabit-for-all 2030 goal.

KEY TAKEAWAY Combining fibre with fixed wireless access lets the Czech Republic hit its 95 % VHCN target for an investment gap of about CZK 53 bn — roughly 14 % less than fibre alone — while reaching rural households faster. The same blended, evidence-led approach is relevant to every EU member state working to close its own connectivity gap.