

S-38.3041 Operator Business

Each question is worth max 6 points. Answers must be short and concise. Note that you can take part in the exam only if you have already participated the obligatory mobile operator business game session.

- ✗ Explain the following techno-economic terms briefly (max 5 sentences per term).
 - a. To internalize a negative externality
 - ✗ Economic efficiencies: allocative, productive, and distributive *what, how, who*
 - c. Long-run incremental cost
 - ✗ Reed's Law 2^N
 - ✗ Switching cost
 - ✗ Consumer surplus

✗ Assume a market with positive network effects and N potential customers ($N=1000$) indexed by $i = 1 \dots N$. Willingness to pay of customer i is $u_i(n) = ni$ for a unit of good given that n other customers will be using it. Customers can always return the good and get refund if the price goes below utility. Assume price $p=600$ posted. Calculate the possible equilibrium points and define conditions for reaching them. Define the socially optimal point and conditions for reaching it.

✗ Assume a four-year network investment project with the following annual figures:

Year	✗	✗	✗	✗	✗
Revenues	0	4	6	7	8
Operating costs	0	-2	-2	-2	-2
Depreciation	0	✗	✗	✗	✗
Interests and taxes	0	0	-0.3	-0.6	-0.9
Investments	-12	0	0	0	0

Calculate the annual profit&loss statements of the project including EBITDA and EBIT. Make a cash flow analysis of the project including payback period, NPV (10% discount rate), and IRR. Build a techno-economic model (as a graph) for this project and explain how the uncertainty of input figures can be taken into account.

✗ Compare transit and peering contracts in Internet

5. Explain the set-up and rules of the IMT-2000 spectrum auction of November 2009 in Finland.

Transit

Peering