



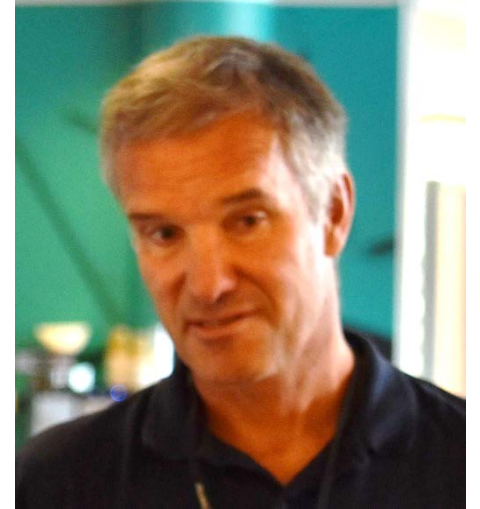
— 70 years —
1950-2020

BUSINESS CASE MODELLING FOR PRODUCT AND/OR TECHNOLOGY DEVELOPMENT

NCE Blue Legasea, webinar, 30.04.2020

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Why should I talk about this?



- Project director at SINTEF Manufacturing, Ålesund
 - Typically managing applied research projects within manufacturing and technology development
 - Strong interest in the business side of technology development
- Board experience from multiple companies
- Business consulting (MRB / SINTEF Bedriftsutvikling)
 - Manufacturing strategy, supply chain management, ...
- Leadership and organizational development programs (Nordvest Forum)
- Dr.ing./PhD, NTNU, Industrial Economics and Technology Management
- Siv.øk./MSc, NHH –Norwegian School of Economics

The topic, objectives and learnings

How to plan and evaluate validity of a business case in terms of investments, income, costs, volumes and profits ?

Better understand financial risks associated with launch of a new product and/or technology ?

How to strengthen business case for meeting investors (or other sources of funding) ?

Business case ...



Is this different from a traditional investment / cash-flow analysis?



Not really



Investments and subsequent net earnings are key

Business case simulation

- A business case has to be modelled sufficiently simple to enable easy what-if analyses / simulation ...
- ... and still be complex enough to provide reasonable validity.
- A "golden rule" of investment analysis:
Only include revenues and costs (changes) directly related to the investment.

Investment (CAPEX)

- Investments in machines and equipment
- Investments in buildings and infrastructure
- Other investments not included above
- Project costs such as own employees time, R&D support etc ...
- Public funding if applicable (IN, NRC, SkatteFUNN, ...)
- New capital from owners?
- New long-term loans if needed
- Timeline for the investment

New sales

- New gross revenues coming from the investment
- Markets, volumes, prices, Must be modelled in each case
- When does new sales start ?
- An what is expected ramp-up and growth ?
- x % growth per year is convenient for modelling, but only happens in long-term budget simulations ...

New operating costs (OPEX)

- Materials, cost of goods sold (product costs)
- Salary and payroll costs (FTE production + other)
- Distribution and transport costs
- Rent, housing
- Other operating costs (maintenance, rental/leasing, other ...)

- Working capital increase (inventory, receivables, payables) generate new finance costs

Buy or lease ?

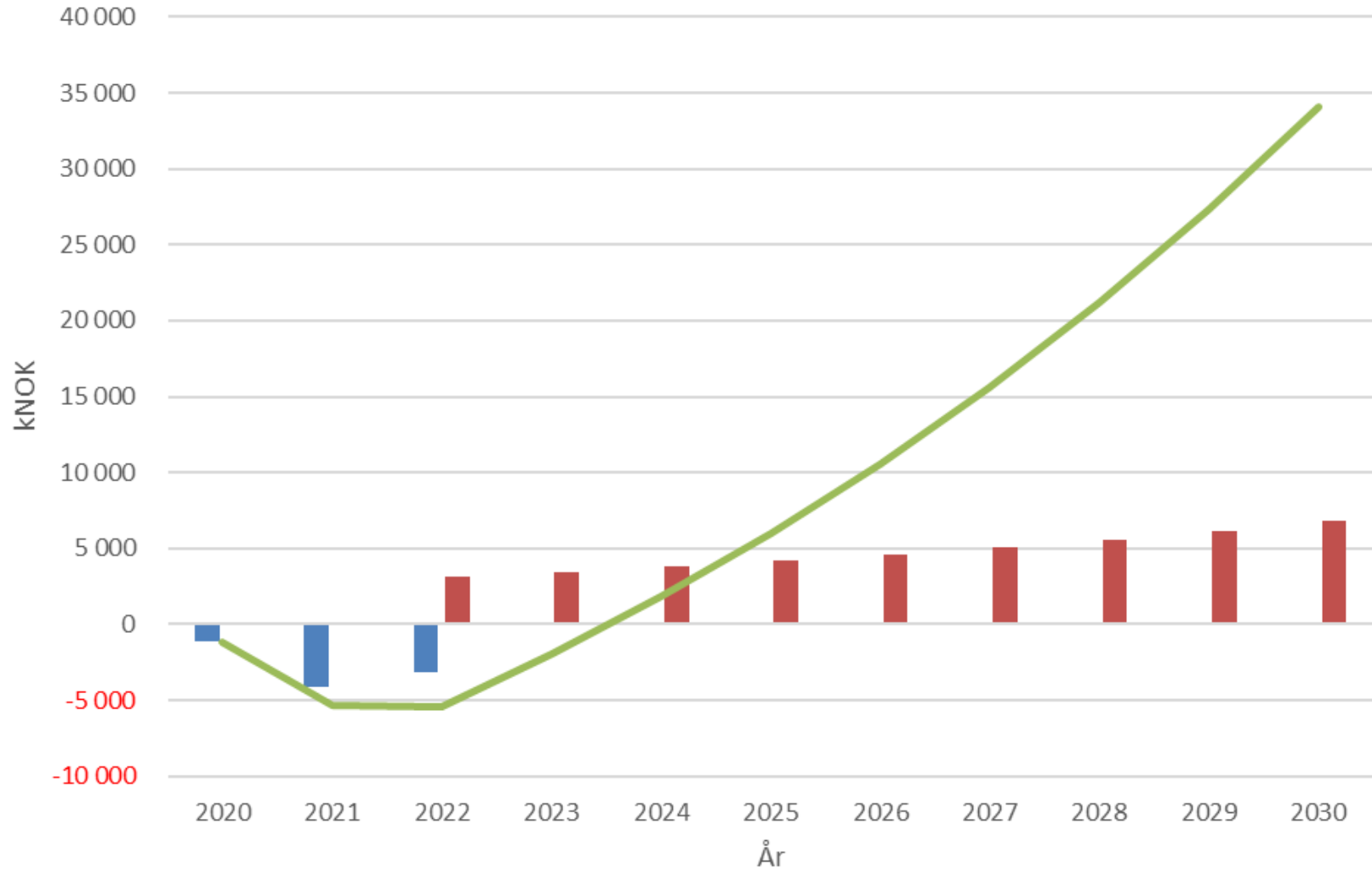
- If I rent/lease most of the machines, buildings and infrastructure, I don't have to invest (that much)?
- Yes, but costs just move from up-front investments (capex) to running rental/leasing costs (opex).
- Risk, liquidity, access to capital, terms of rental/leasing will decide what is best in your case.



The business analyst looks for ...

- Net accumulated cash flow
- Payback time
- NPV – Net Present Value (based on a discount rate)
- IRR – Internal Rate of Return

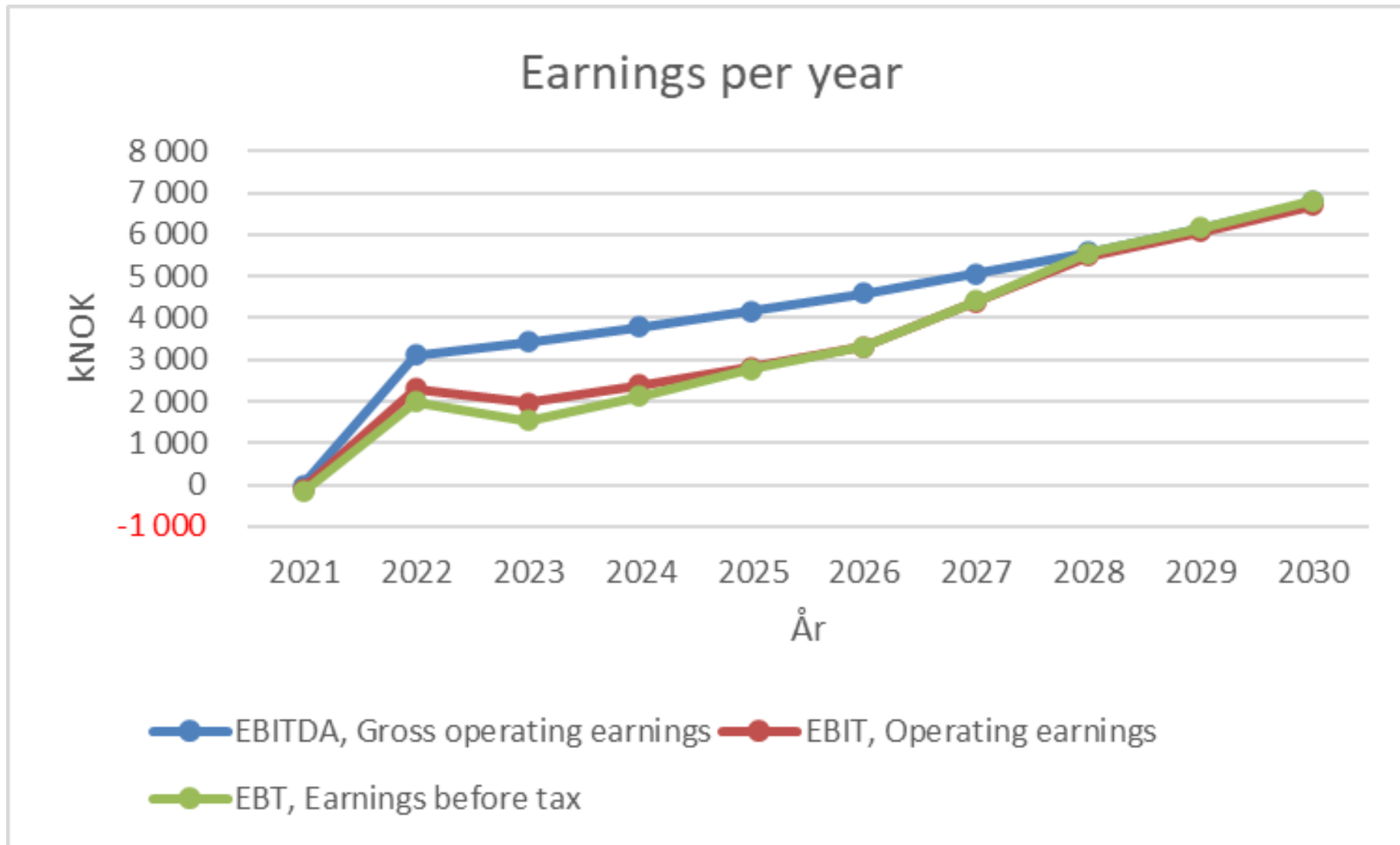
Cash flow analysis



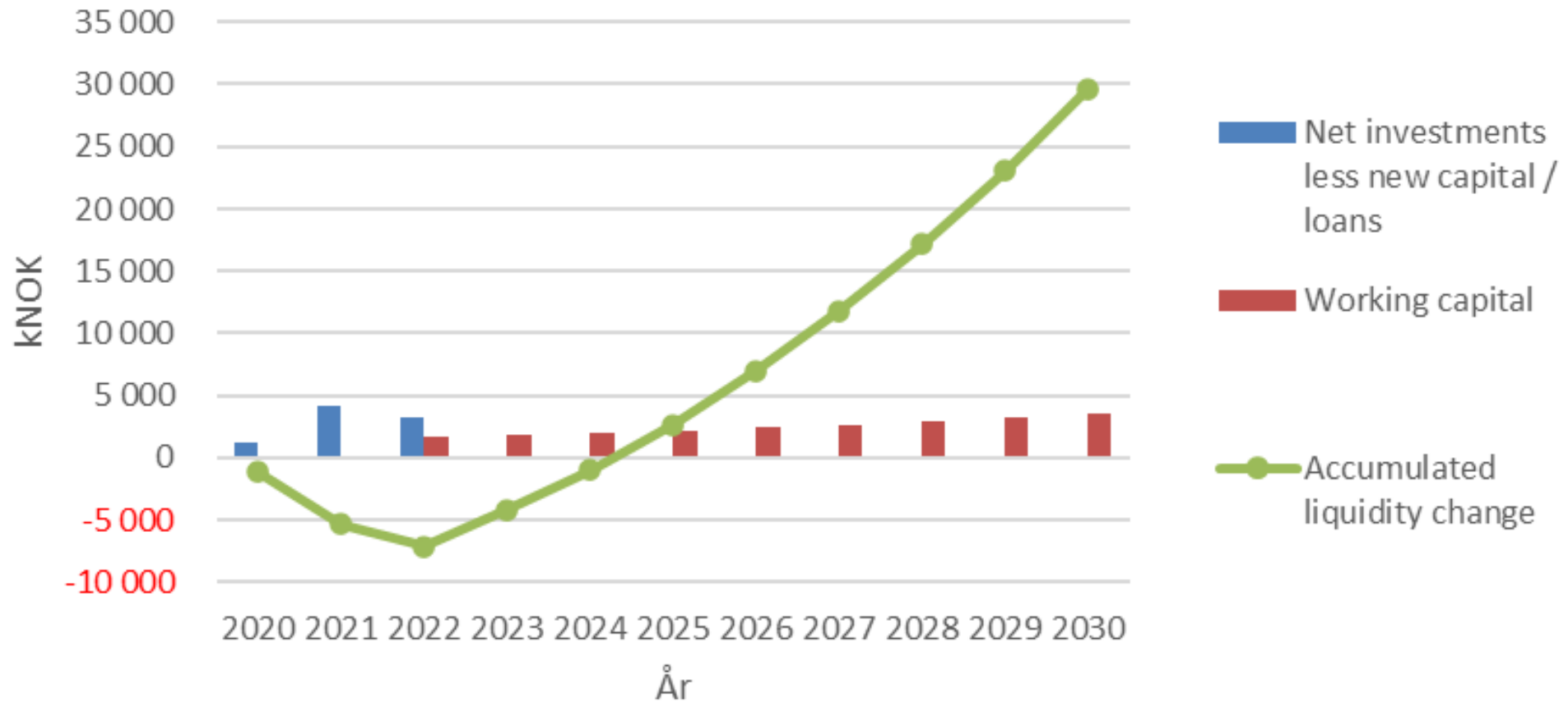
Investments Cash flow from operations (EBITDA) Net accumulated cash flow

The funding providers (banks, IN etc.) will look for ...

- Not only cash flow from operations (EBITDA), but also depreciation, net financial items, and tax
- Liquidity (cash position): Sufficient funding to carry out investments before revenues appear?



Funding and cash position



Looks promising, but what if ...

???

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Teknologi for et bedre samfunn