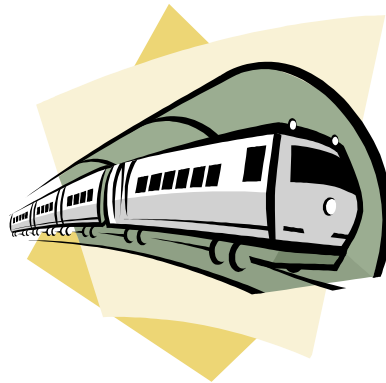


Economic aspects of improved environmental performance of Rolling stock

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UIC

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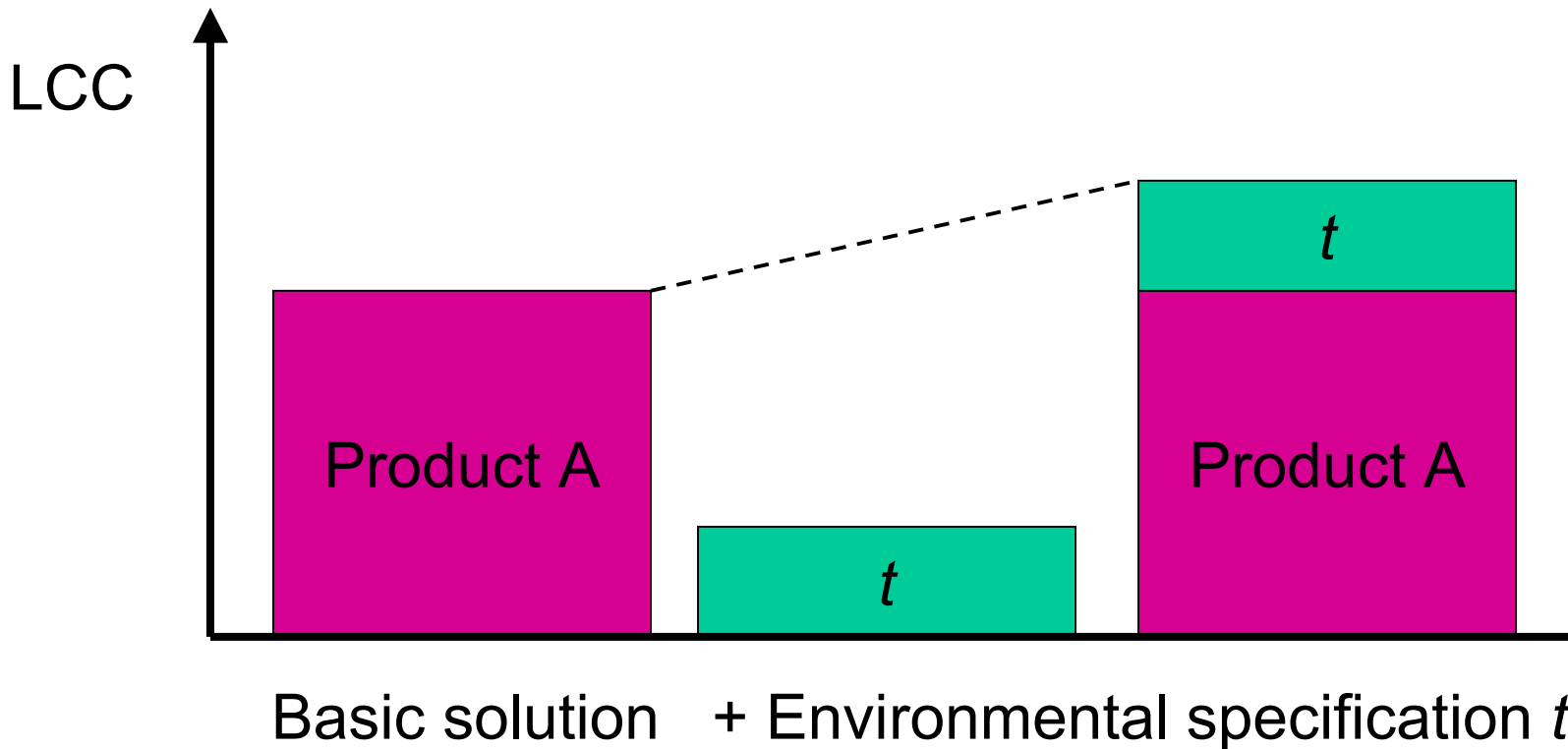


- ▶ Two perspectives on environmental specifications
- ▶ Strategic versus Project approach
- ▶ Cost of environmental information

A Cost Burden Perspective



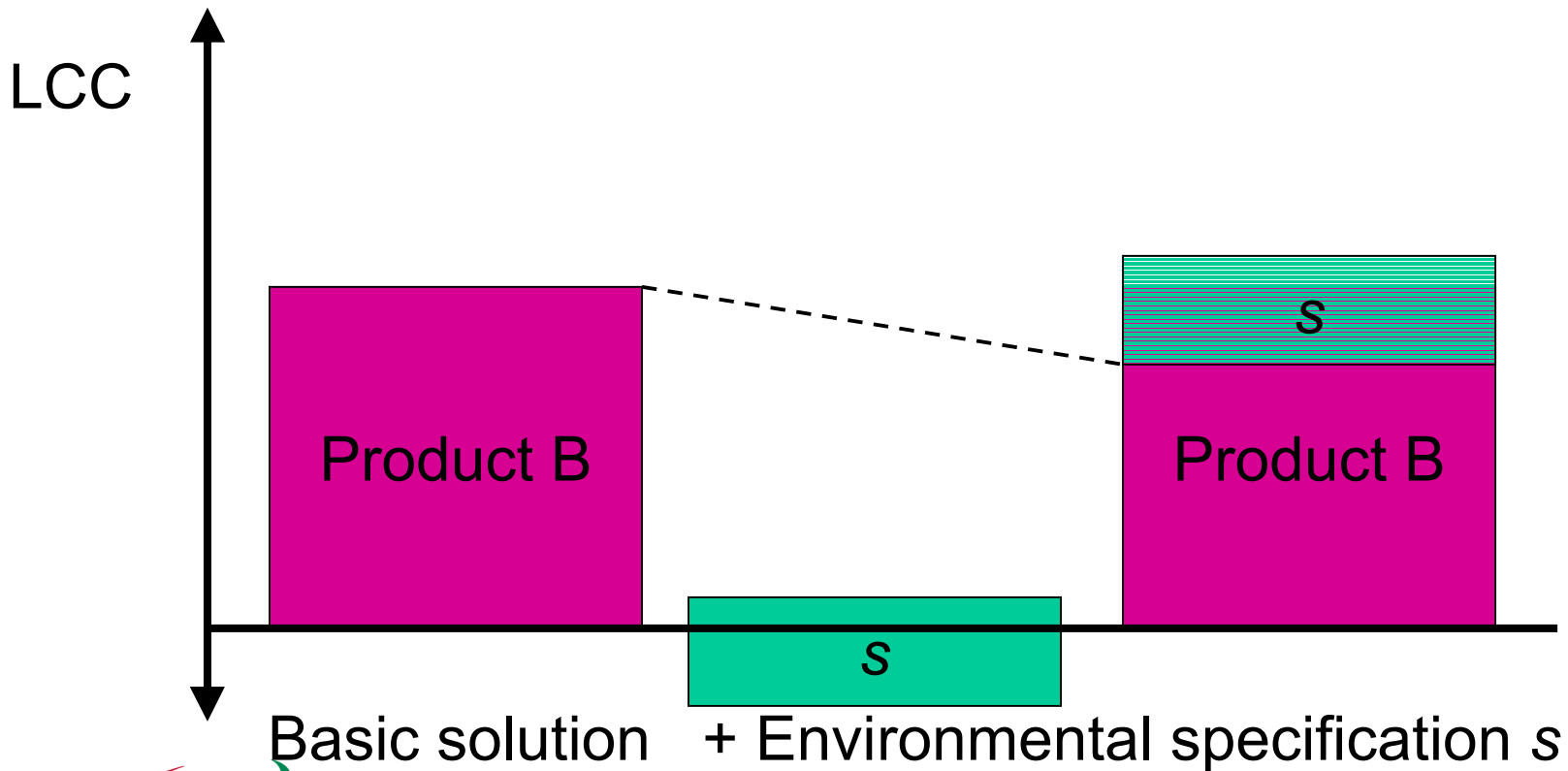
- Product A is $X\%$ more expensive due to an environmental specification t which is added as an independent measure in the specification
- Environment becomes an additional cost only
- No investigation is made of potential benefits



An Added Value Perspective



- Product B is Y% less expensive due to integration of environmental specification s from the beginning of the product development
- Environment is seen as cost cutter and a value driver
- Systematic investigations are made to find potential benefits





- ✦ Improving competitiveness: Long-term aspects of integrating environmental specifications

External - adding corporate value

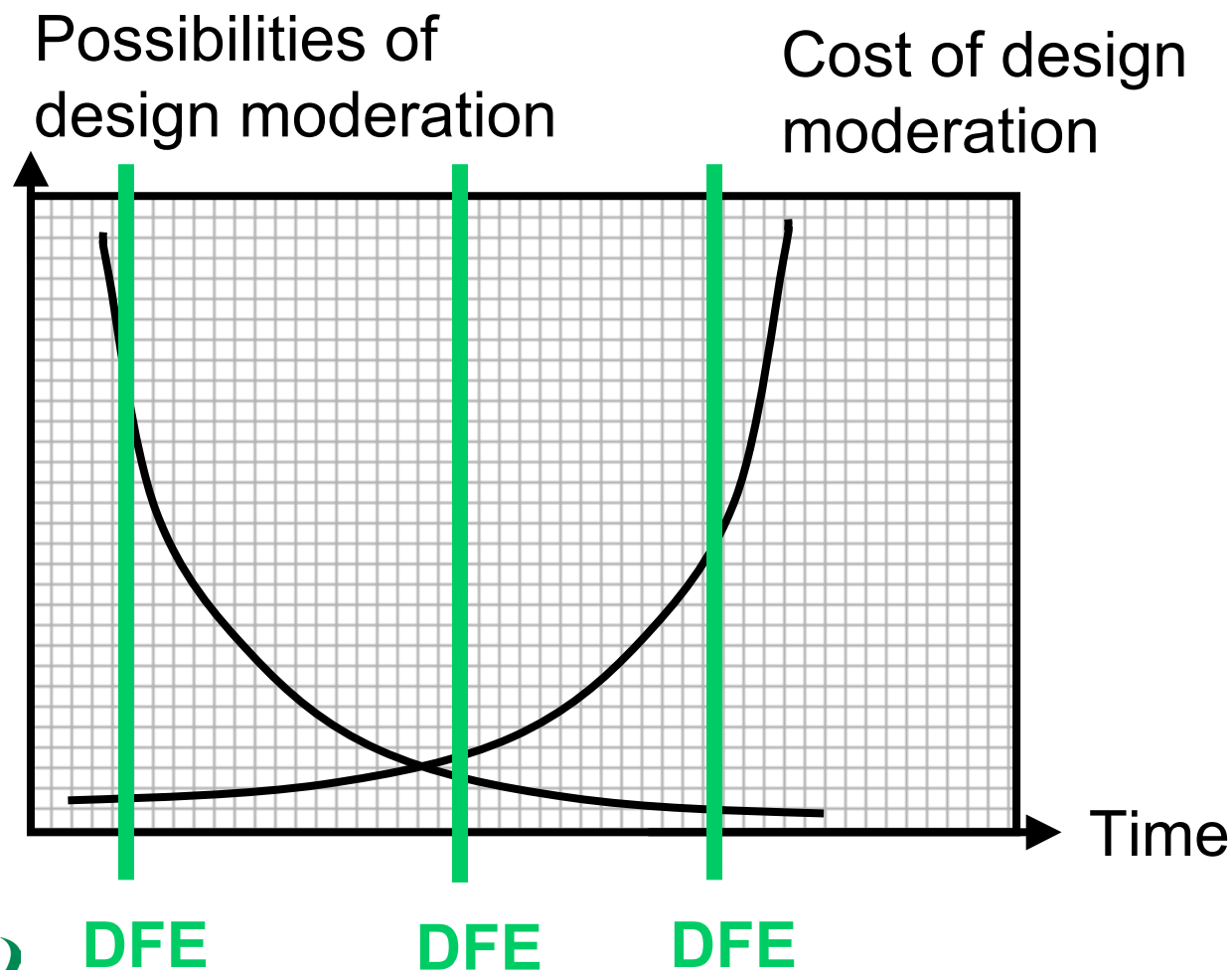
- Customer
 - Value of environmental policy
 - Customer satisfaction
 - Reputation, customer pressure
- Market position
- Legislation

Internal - reducing project cost

- Design to Cost ~ Design for Environment
- Reduced costs in the project phases
- Optimising assembly and other processes



Project Planning in the supply chain- when is DFE applied?





Noise Reduction

- Legislative driven
- Heavily R&D dependent
- High investment costs
- Complex benefits

An example: brake blocks

K-blocks versus cast iron

- Investment: 3x more expensive
- Life span: 2x longer life
- LCC: First indications are positive

Energy efficiency

- Driven by cost reduction
- Investment higher
- LCC gain

An example: LCC implications

- Energy Costs are 10-15% of LCC
- Difference in Energy efficiency / Costs in tenders could be ~30%
- Up till 5% saving on LCC

www.railway-energy.org



Materials

- Design to maintenance ~ DFE
- Modular design
- End of Life, avoidance of costs for scrapping/recycling

Environmental Liability

- Risk reduction, especially for End of Life

Potential of reducing cost

- ▶ **Harmonised specifications**
- ▶ **Economics of scale**

Costs of environmental information



- Environmental Performance Indicators
- DFE Tools
- Data formats
- Updated Environmental databases

Status Quo:

Stand alone systems

Common Environmental Language:

Harmonised systems

Stand alone systems

- High initial costs
- High maintenance costs
- Low credibility

Harmonised systems

- Low initial costs
- Low maintenance costs
- High credibility



Economic aspects of using REPID



Basic “REPID Package” is for free:

- REPID Methodology
- EPI's
- Material lists
- Data formats
- Software Tool version 1.0

Additional costs:

- Implementation to each user (e.g. CAD/PDM environment)
- Updated later versions of the software





Environmental Performance of new rolling stock

PROSPER

Environmental
Procurement
Guideline

NETWORK

Members
Board
Web-site

REPID / PROSPER

Economic
Evaluation of
environmental
aspects

REPID

Methodology
Indicators
IT-Tool

ENVIRONMENTAL AND TECHNICAL EXPERT INFORMATION