Handling Surplus Soils and Aggregates

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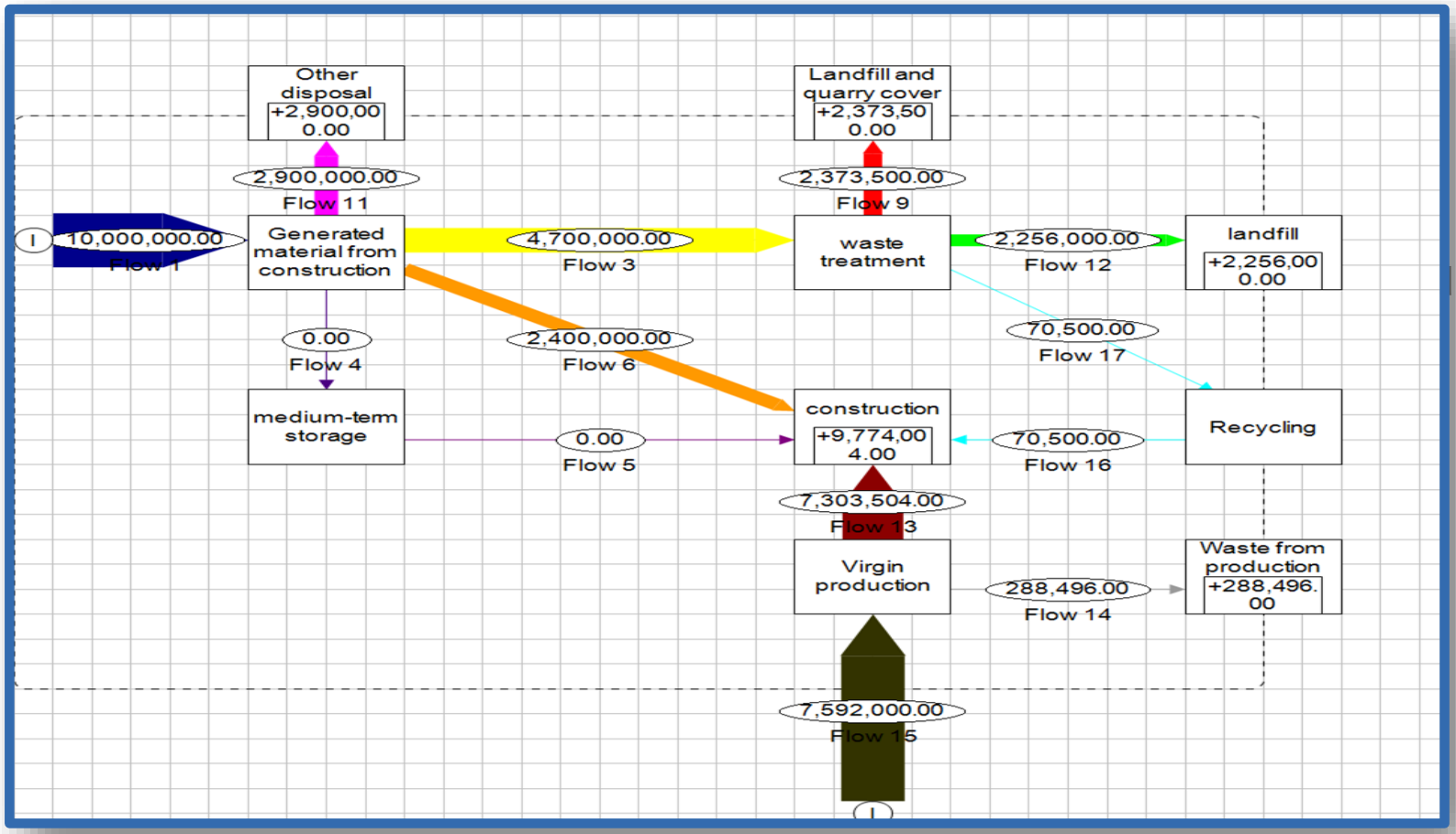
SIMM CENTER

Agenda

- Main findings
- Equipment and Technology for Handling Surplus Soils and Aggregates
- Assessment of ICT Tools for Management of Heavy Construction Materials
- Sum up

Main findings

- New business opportunities for technology and ICT suppliers
- Money saving and positive environmental impacts
- Challenge is to apply and sustain a new system for transport, technology and ICT.


Other disposal
+2,900,000.00
2,900,000.00
Flow 11
Landfill and quarry cover
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2,373,500.00
Flow 9
I
10,000,000.00
Flow 1
Generated material from construction
4,700,000.00
Flow 3
waste treatment
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Flow 12
landfill
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0.00
Flow 4
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Flow 6
70,500.00
Flow 17
medium-term storage
0.00
Flow 5
construction
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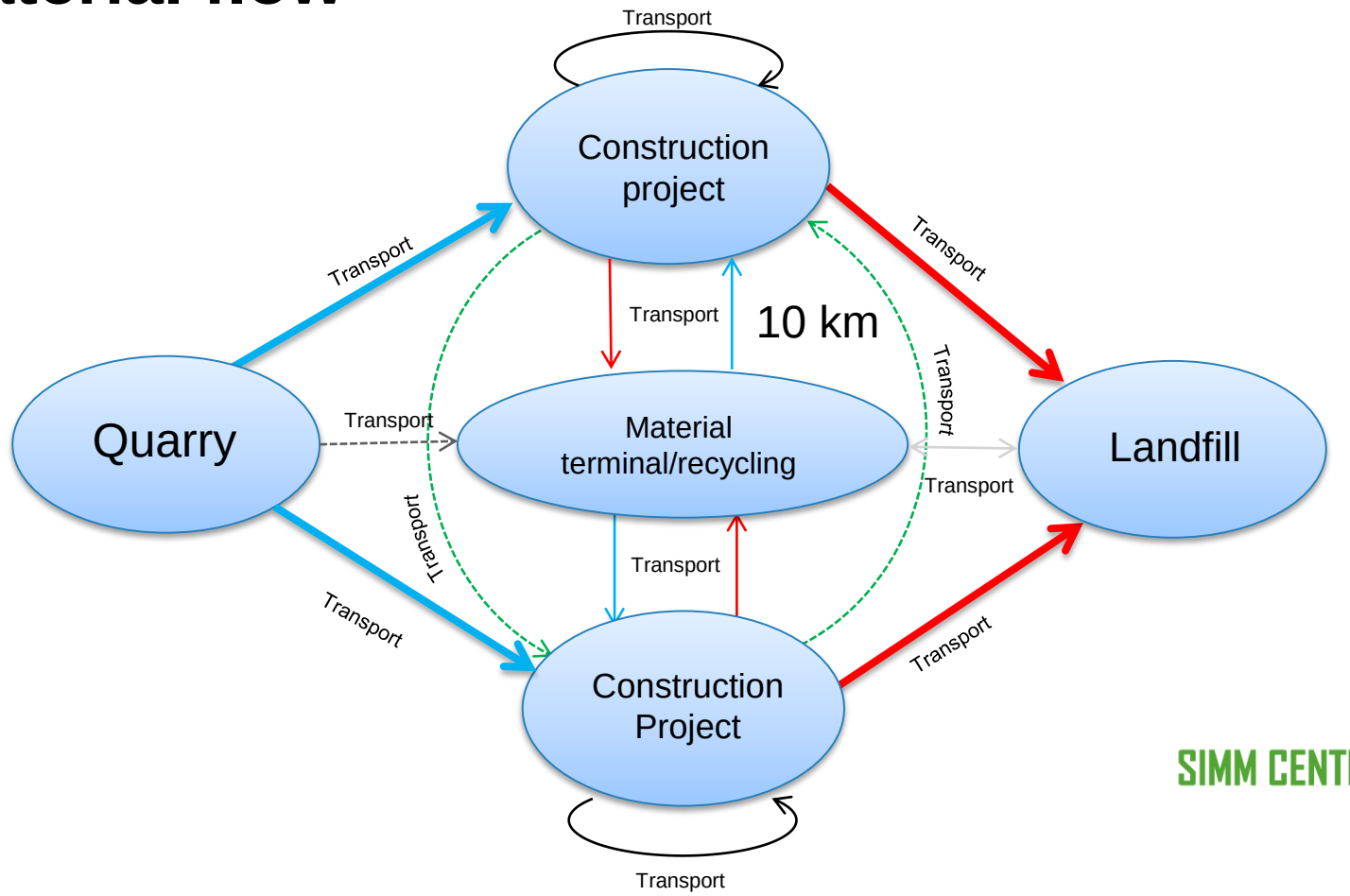
70,500.00
Flow 16
Recycling
7,303,504.00
Flow 13
Virgin production
288,496.00
Flow 14
Waste from production
+288,496.00
7,592,000.00
Flow 15
I

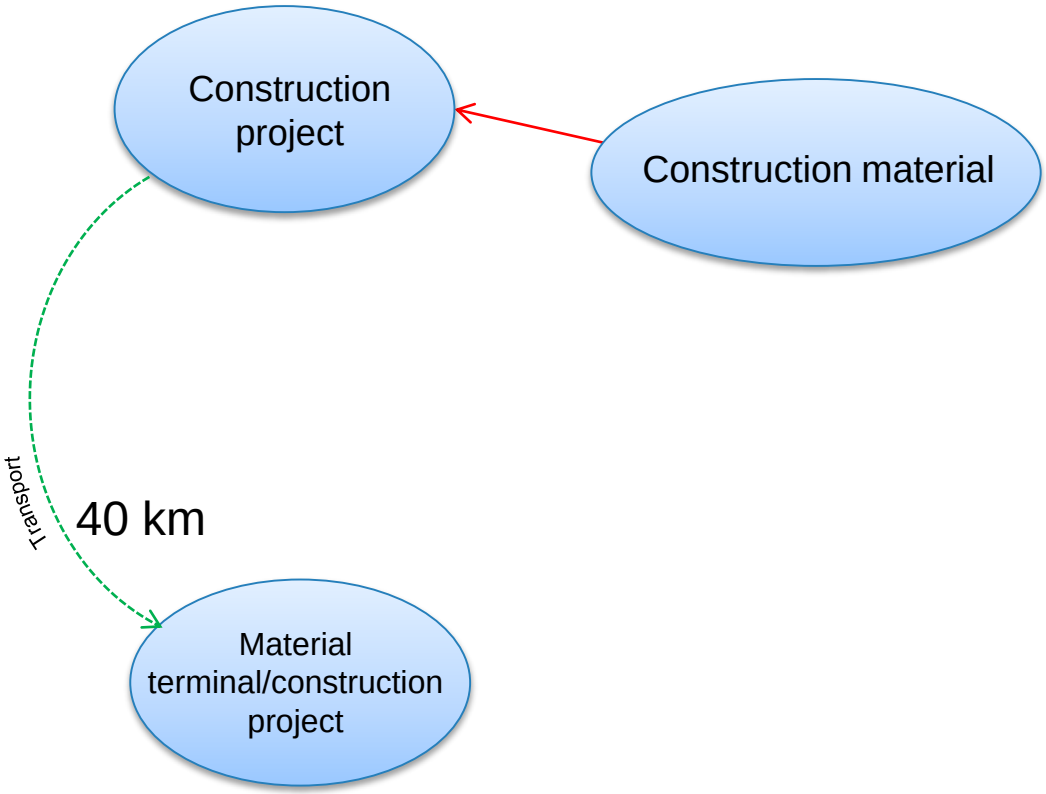
Equipment and Technology for Handling Surplus Soils and Aggregates

- Investigate the chain of aggregate transports and which types of technology that are used in it
- Examine the alternative uses and the different technologies for handling surplus material
- Reduce the use of virgin material and decrease the rate of recycled or reused aggregates

Material flow

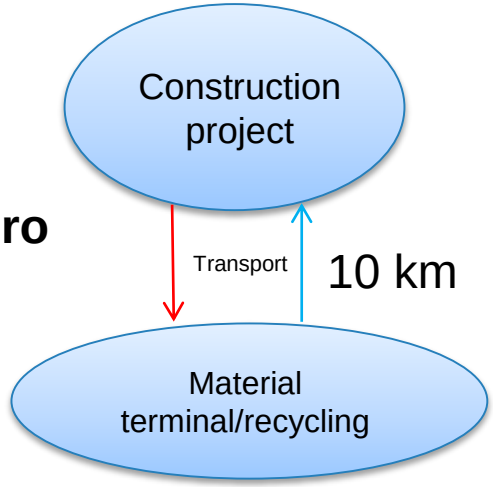


Material flow



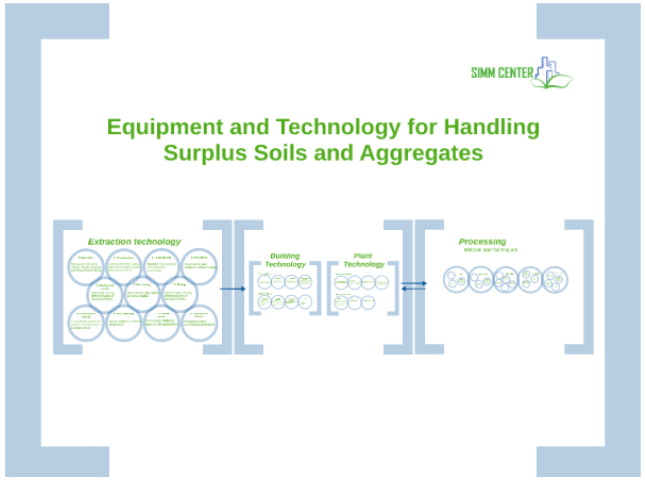
Material flow

Savings of 28 – 80 million euro



Mapping equipment and technology

- Chain from quarry to recycling, reusing or landfill
- Equipment and technology that are used traditionally in construction projects, can also be used in handling surplus soils and aggregates



Assessment of ICT Tools for Management of Heavy Construction Materials

- To evaluate the potential for implementing ICT tools in order to support a smarter management of secondary construction material such as aggregates and soils.
  - Identifying current and potential ICT solution
  - Create alternatives and present to industry stakeholders
  - Quantify the amount of secondary material available for upgrading and identify the flow of aggregates
  - Calculate the impact from the construction and infrastructure industry and the potential reduction from such ICT tools.

Problem

- Large quantities of disposed construction material
- Excessive transportation of construction material
- Collecting data for waste statistic

ICT solution + Medium Term Storage

ICT – Information and Communication Technology

Current:

EIS – Tocycle

Byggmötet

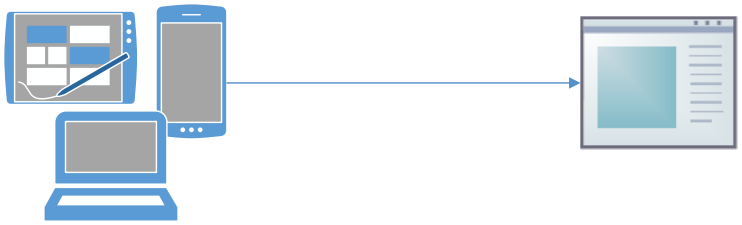
RMMS – Ramböll

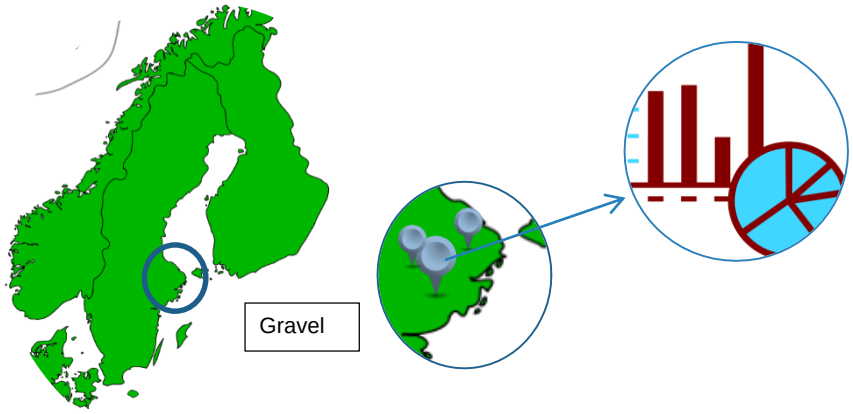
Massbalans

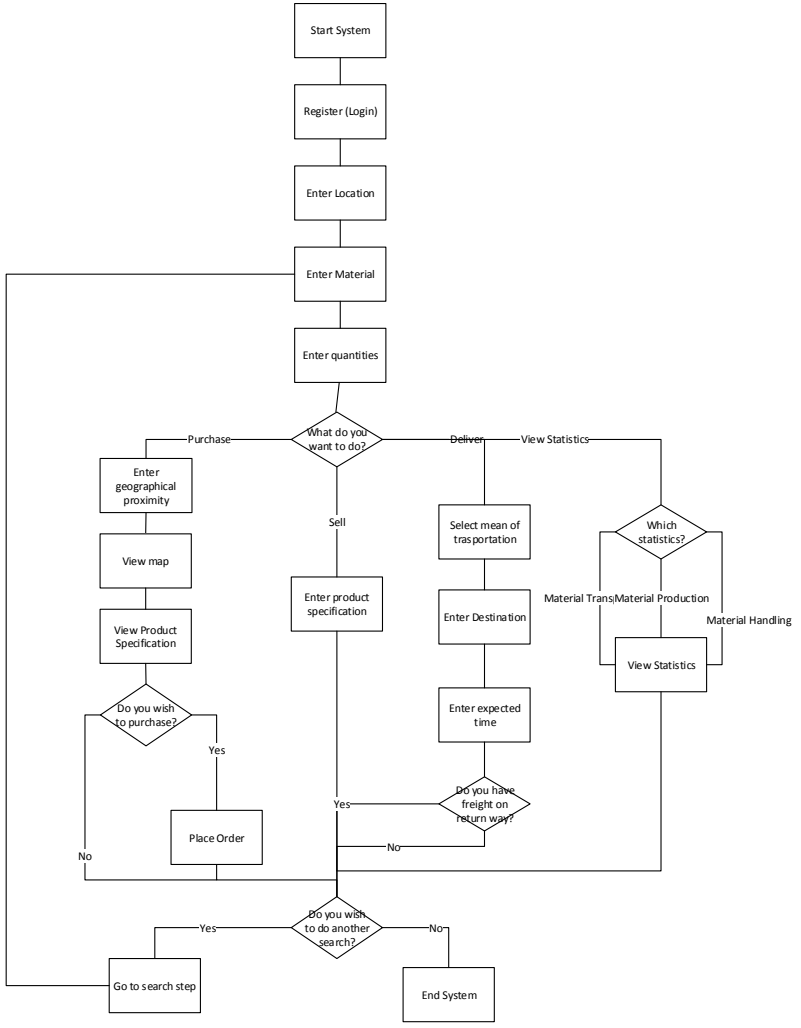
Construction Material Exchange and Zero Waste Scotland

Jordbörs

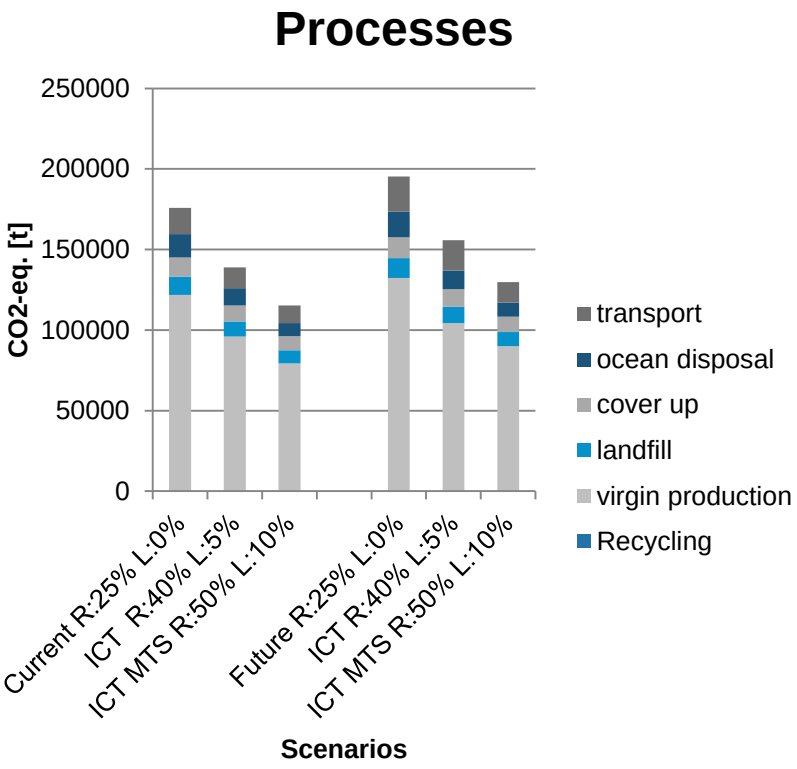
Suggestion

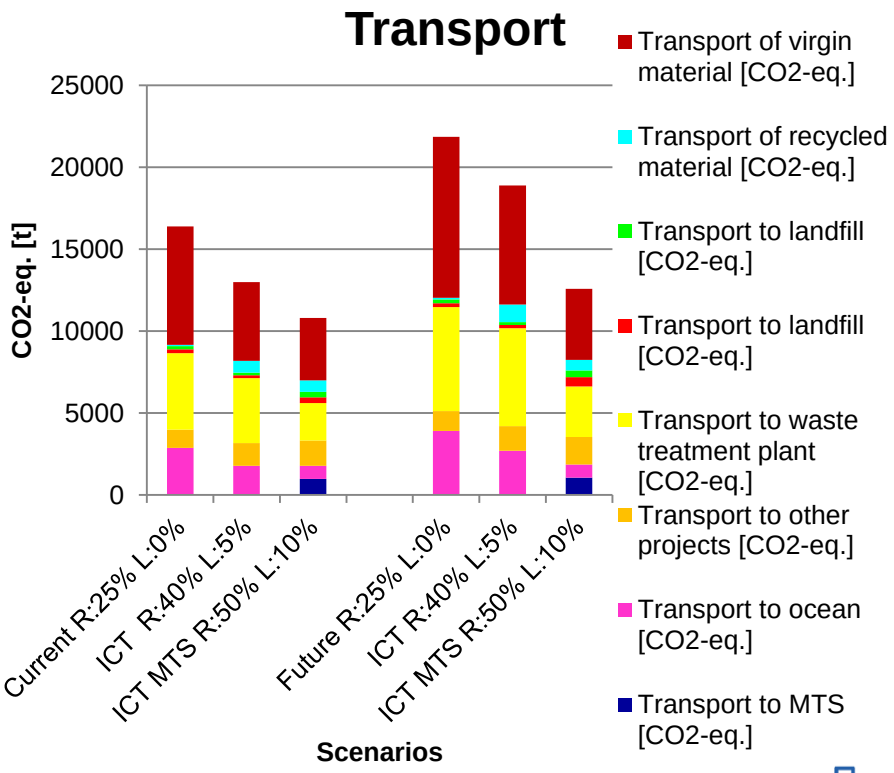



Gravel

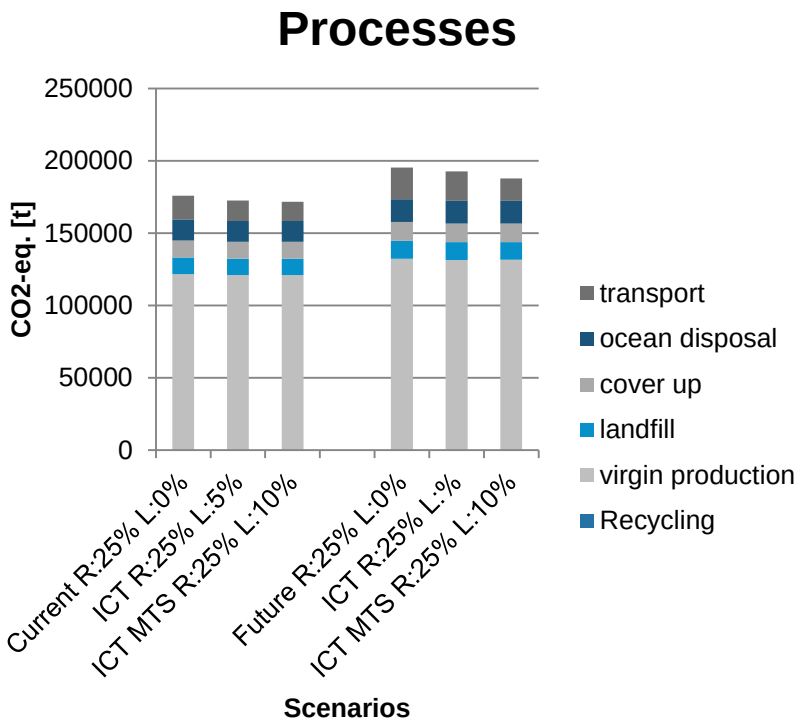

Start System
Register (Login)
Enter Location
Enter Material
Enter quantities
What do you want to do?
Purchase
Sell
Deliver
View Statistics
Enter geographical proximity
View map
View Product Specification
Do you wish to purchase?
Yes
No
Place Order
Enter product specification
Select mean of trasportation
Enter Destination
Enter expected time
Do you have freight on return way?
Yes
No
Which statistics?
Material Trans
Material Production
Material Handling
View Statistics
Do you wish to do another search?
Yes
No
Go to search step
End System

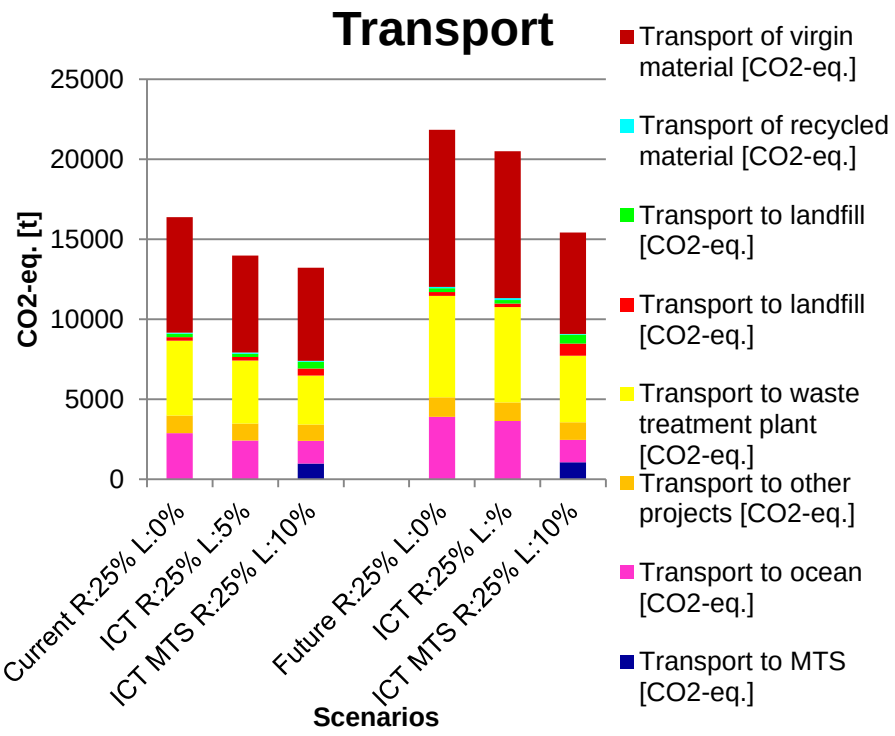
Environmental Impact from Aggregates





Sensitivity analysis (Transport reduction)





SWOT

Internal	Strengths	Weaknesses
	- Cost savings/earnings - Transport saving - Reduction of environmental impact	- Finding an owner for system - Sensitive to changes - Difficult to combine with current management system and work routines
External	Opportunities	Threats
	- Solving future resource demand - Generation of material flow statistics - Creation of new business relations	- Lack of support/use from/by companies - Challenges in sustaining system - Business outside system. Companies going directly to the source.

Sum up

- New business opportunities for technology and ICT suppliers
- Money saving and limits negative environmental impact
- Challenges: apply and sustain a new system for transport, technology and ICT

Important lessons

- The chain of aggregate transport is complex and often differs from case to case
- A more rationalized handling of aggregates means benefits in terms of money and environment
- A higher rate of re-using material would imply new business opportunities for technology and ICT suppliers

Future challenges

- Take charge of the business opportunities by coordinating the different techniques in projects and use them for recycling och reusing surplus material

- Coordinate the transport system and develop a system for aggregate exchange between construction projects

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- A need to reduce the use of new material, to limit the emergence of secondary materials and to handle the material that still emergences effectively
- Materials from building sites will be a more central resource

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- Sustainable Material Management
- Develop knowledge of equipment, technology and ICT that are used in the handling of heavy construction materials and surplus soils and aggregates
- Build a platform where SME’s can meet current and new customers and also develop their business and techniques