THE IMPACT OF A CONSOLIDATION HUB FOR BUILDING MATERIALS ON THE LOGISTICS TOWARDS CONSTRUCTION SITES

Excellence in network design

ALICE WEBINAR
MAKING CONSTRUCTION LOGISTICS IN URBAN AREAS MORE SUSTAINABLE
OCTOBER 27TH 2022

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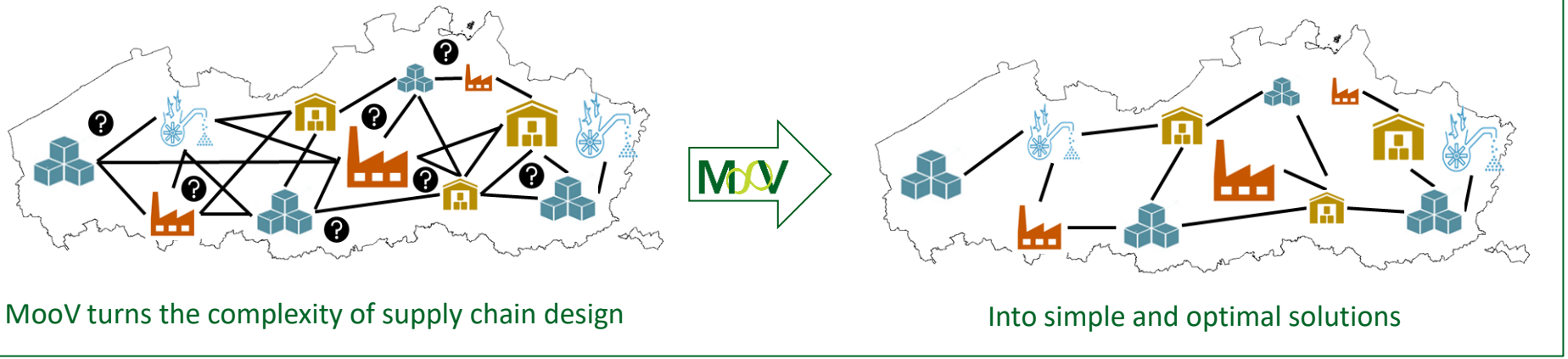
ABOUT MOOV

- Supply chain optimization service
  - MooV model (LP, GIS, OL)
  - MooV team (programmers, engineers, consultants)

- Find the optimal supply chain configuration (economic, environmental or social)
  - Customize for specific needs, goals and constraints of the client
  - Existing, changing, new supply chain (sustainable, circular strategies)

- Support decision making
  - Analyze alternative strategies/supply chain variations - and experiment with a virtual supply chain
  - Simulate the impact of potential changes and critical decisions in the supply chain and examine the robustness of the network by performing sensitivity analyses.

Optimized supply chain networks



MooV turns the complexity of supply chain design

Into simple and optimal solutions

KEY DECISION PARAMETERS

- **Cost-benefits** — trade-offs and sensitivities...
- **Storage and processing** — capacities, locations...
- **Quality aspects** — products specifications...
- **Time effects** — supply & demand variations...
- **Logistics & transport** — multi-modal, hubs...

WINS

Increase
- Economic performance
- Resource efficiency
- Flow rate/throughput

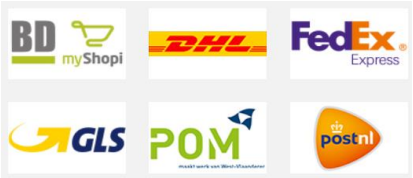
Reduce
- Investment risks
- Supply chain failure
- Environmental impact

FEATURES

- **Proprietary development**
- **No surplus functionalities**
- **Flexible integration of customer needs**
- **No software and training costs**
- **Insight in impact of strategic decisions**
- **Configurable dashboard analytics**

PORTFOLIO

COMPANIES



umicore

CLUSTERS/COOP'S

University of Antwerp

EU PROJECTS

BirdWatch
HEU SPACE

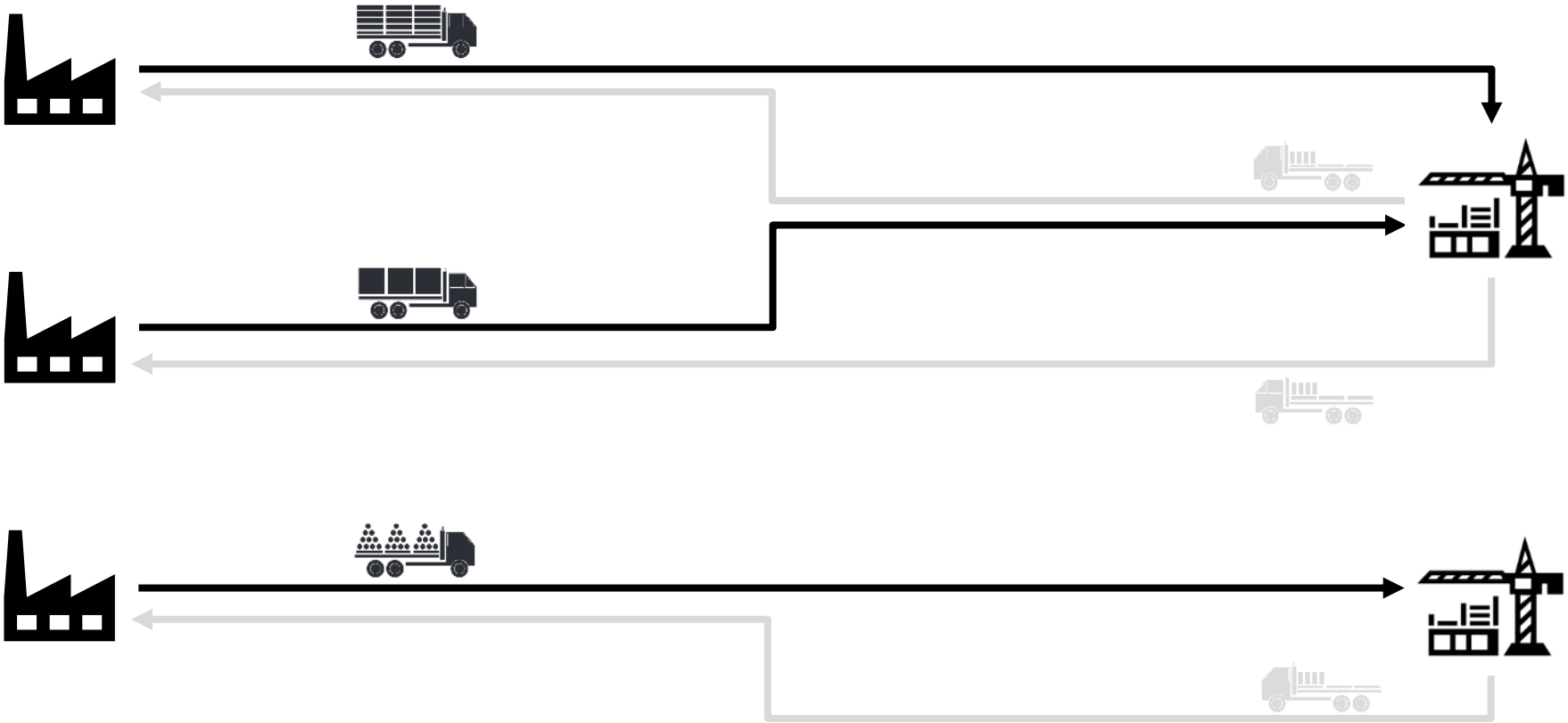
BioTransform
HEU CIRCBIO

ASSESS THE IMPACT OF A CONSOLIDATION HUB FOR BUILDING MATERIALS ON THE LOGISTICS TOWARDS CONSTRUCTION SITES

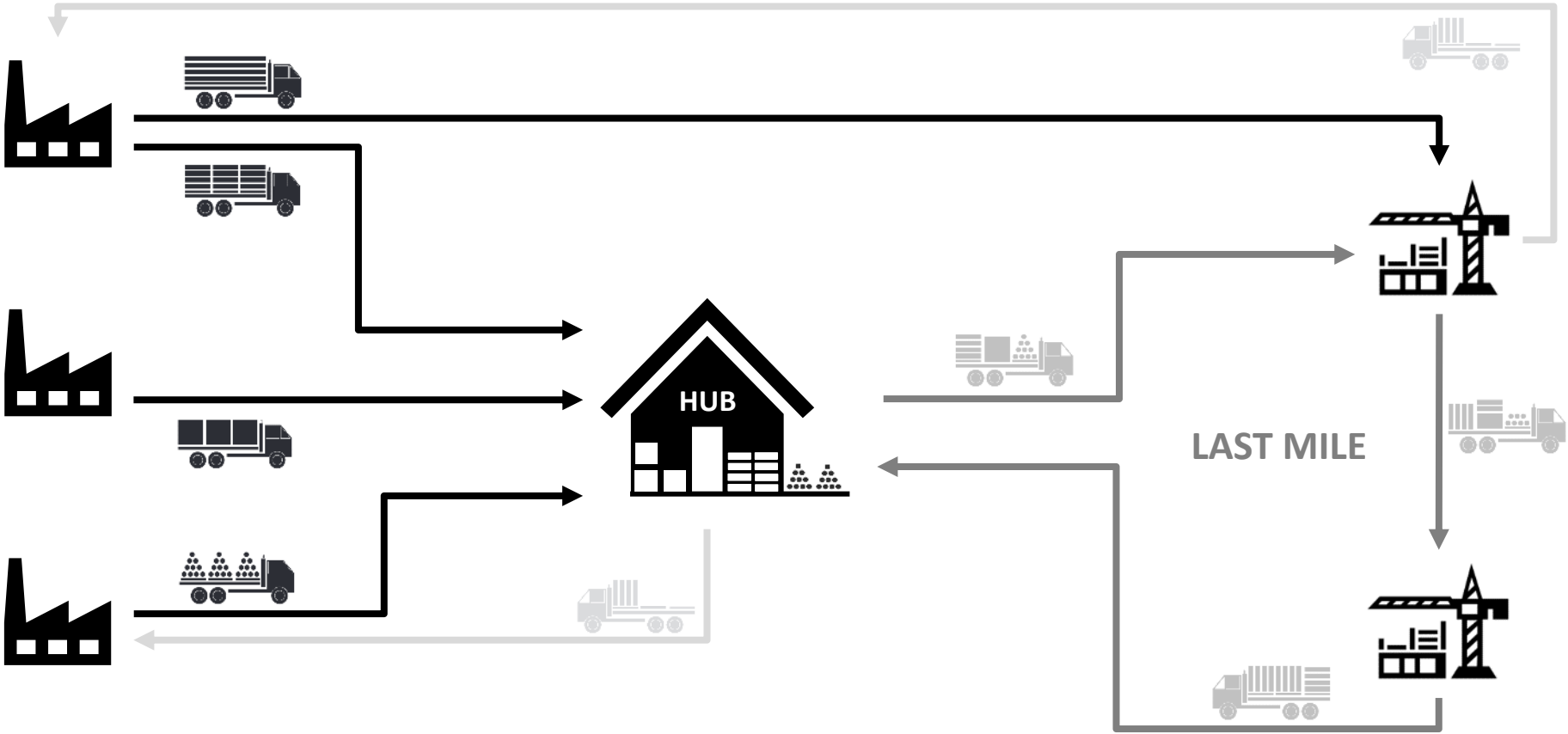
- Logistic efficiency
- Value added logistics

- Economic impact (cost reduction)
  Environmental impact (CO_2, mileage, LEZ)
- Social impact (vehicle movements, city traffic)

AS-IS MODEL



TO-BE MODEL



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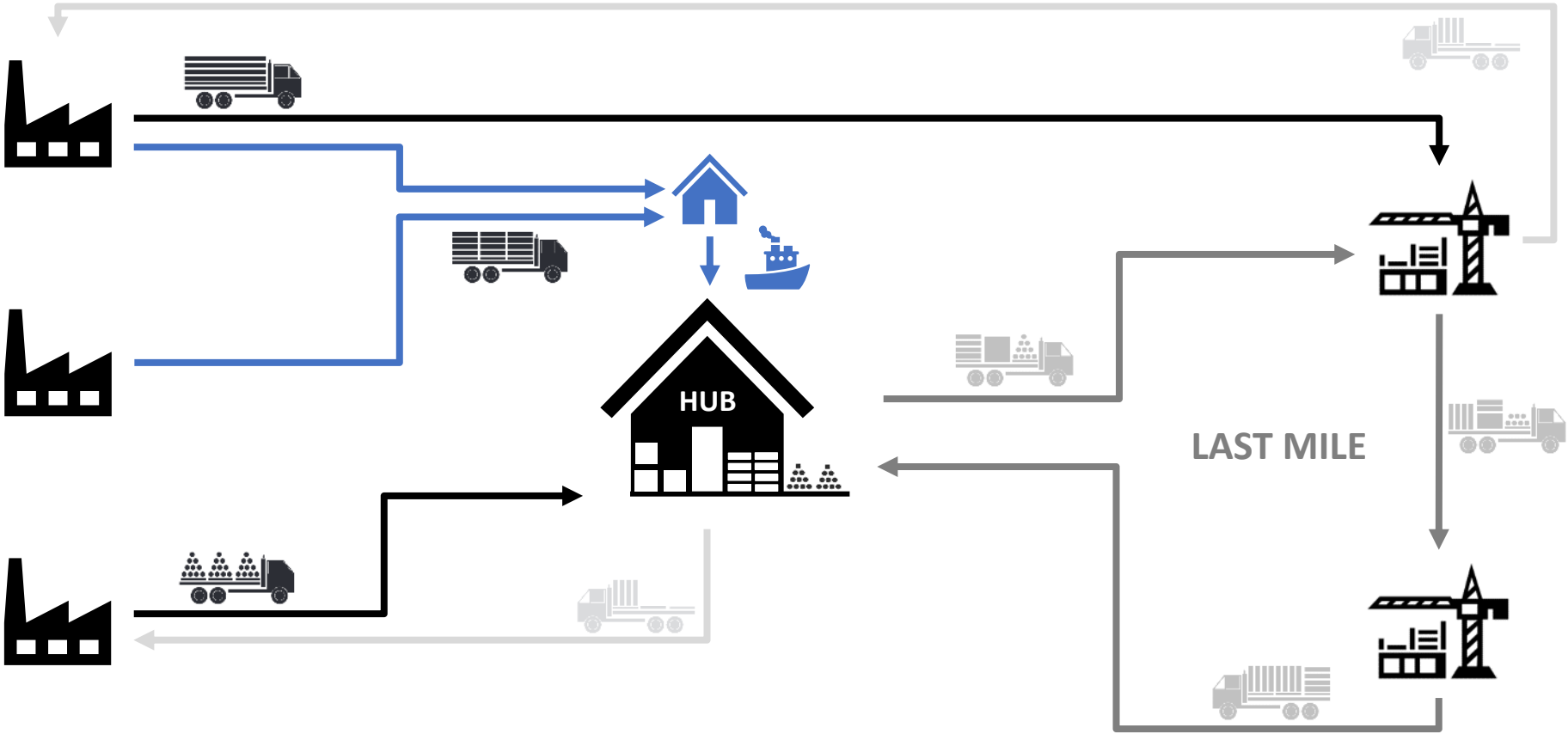
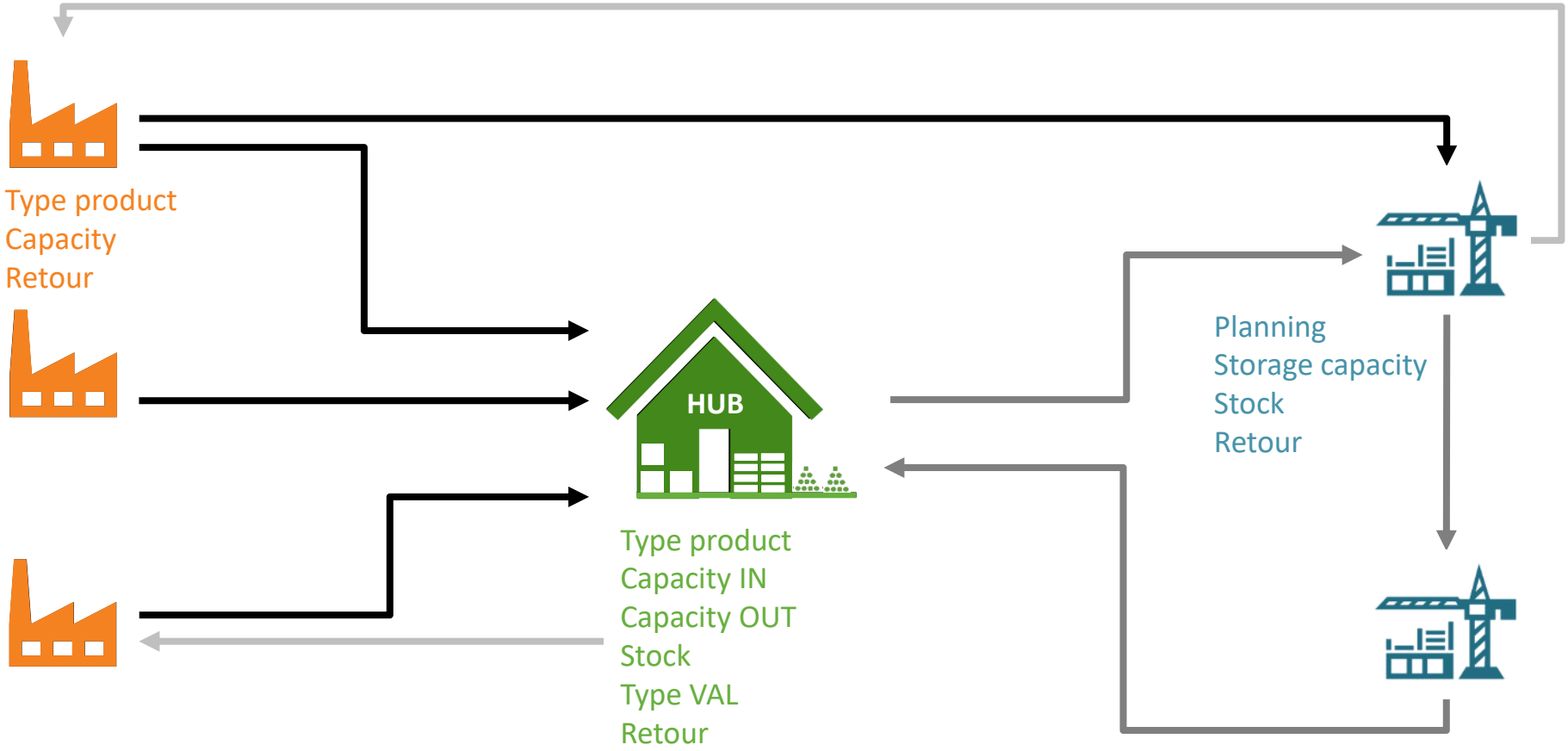
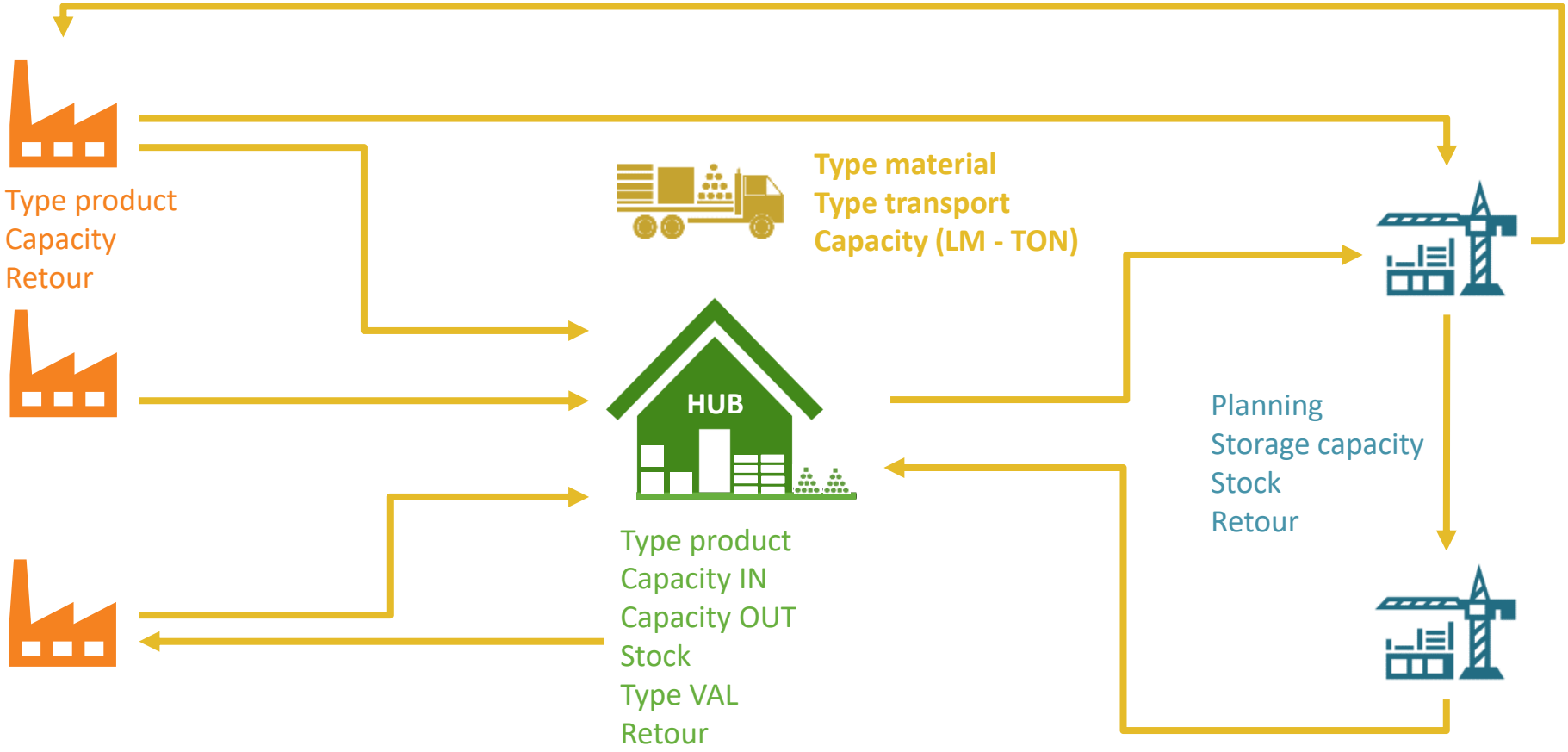


MODEL CONSTRAINT



MODEL CONSTRAINTS



ASSESSMENT KPI'S

KPI 1 TOTAL COST

KPI 2 Total CO_2 emission

KPI 3 Total mileage

KPI 4 Total vehicle movements (city)

KPI 5 Loading rate

TOTAL COST = LOGISTIC COST + HUB COST + SITE COST

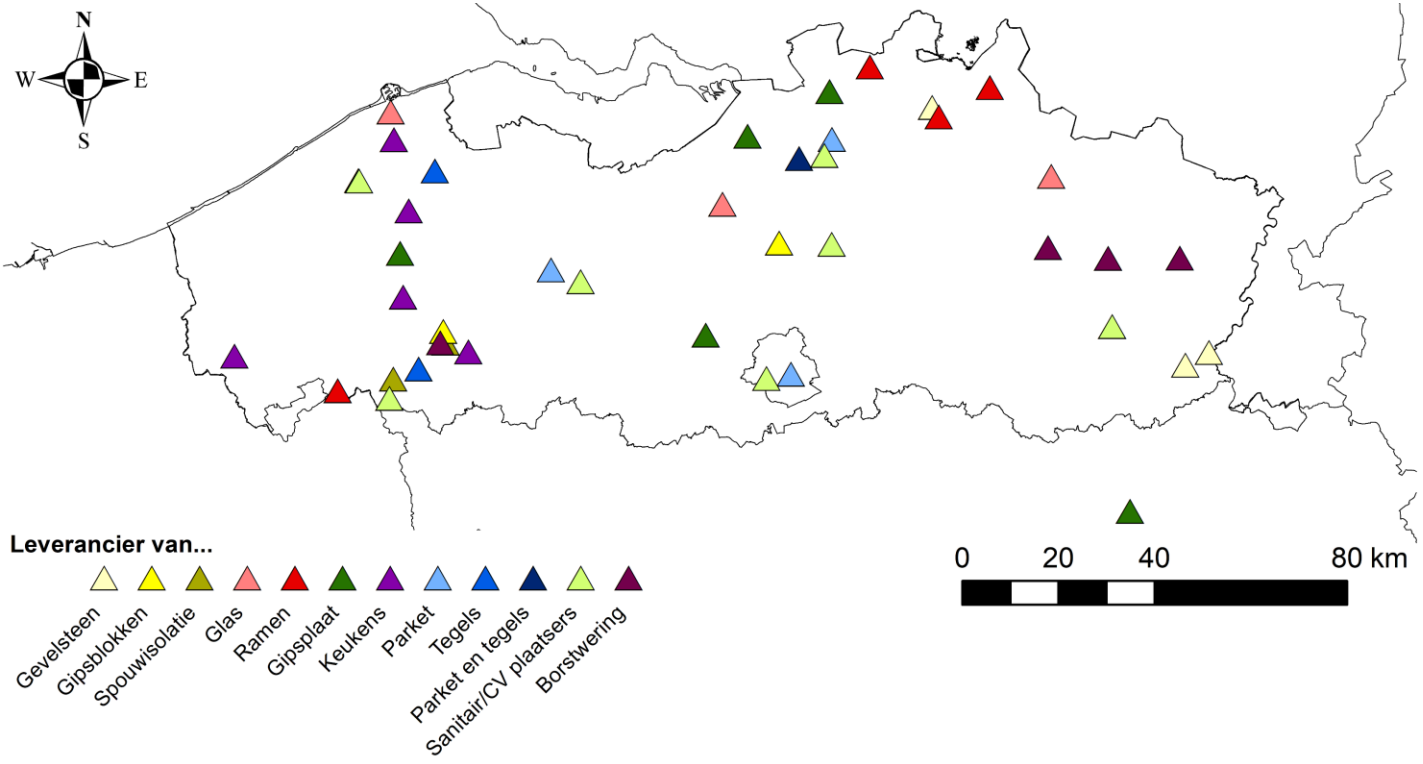
with:

LOGISTIC COST = Mileage cost + Time cost ← Differentiated; Peak, mid and low traffic

HUB COST = Exploitation cost + (Un)load cost + Storage cost + VAL COST

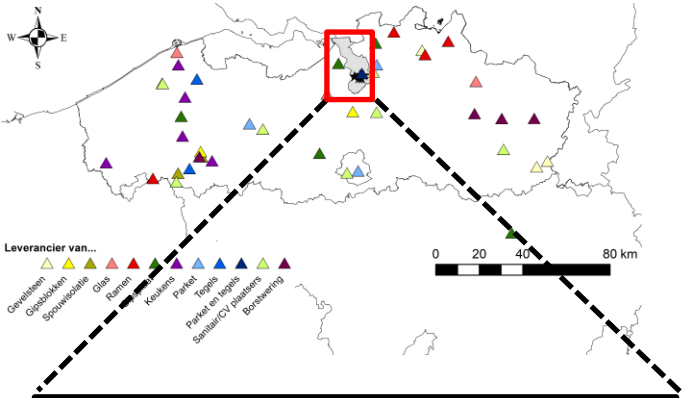
SITE COST = (Un)load cost + Storage cost + Last Meter cost + Waiting cost + Damage cost + Wrong product + Failure cost

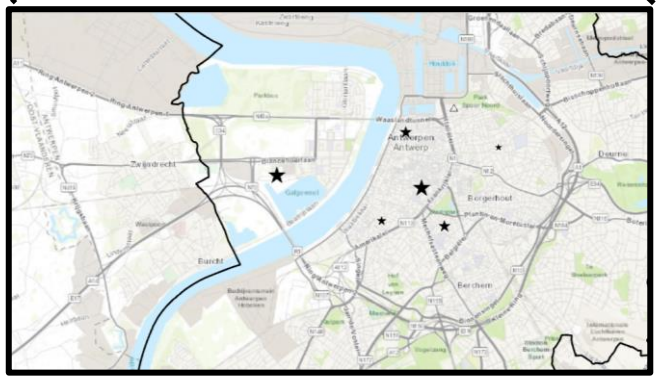
SUPPLIERS



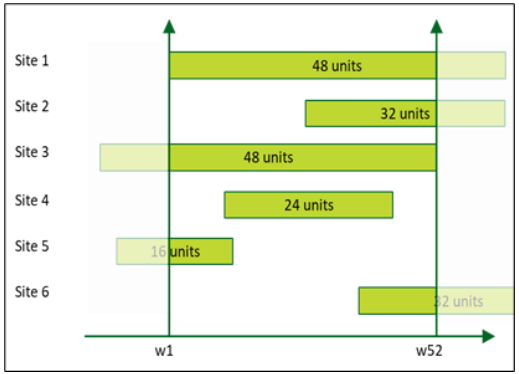
49 suppliers
12 construction materials

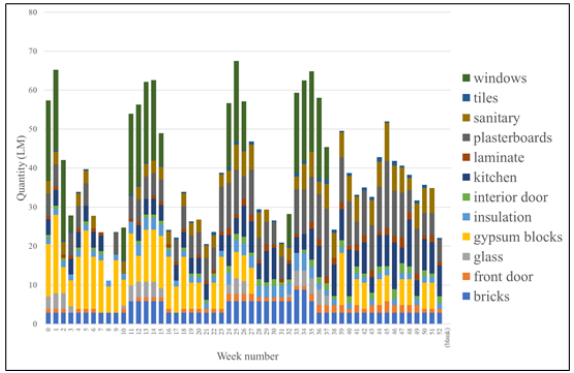
CONSTRUCTION SITES



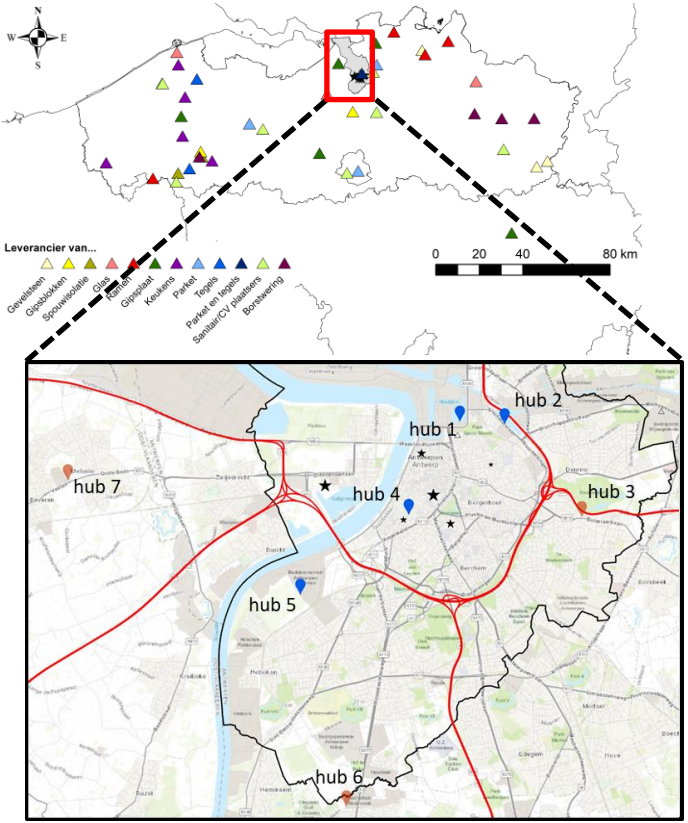


49 suppliers
12 material types
6 construction sites

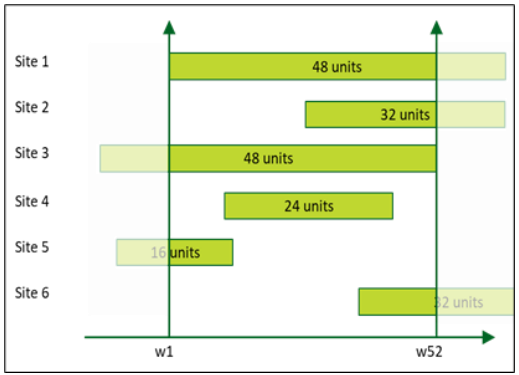


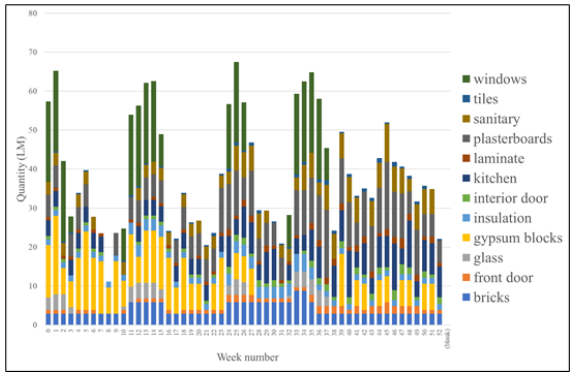


HUB LOCATION

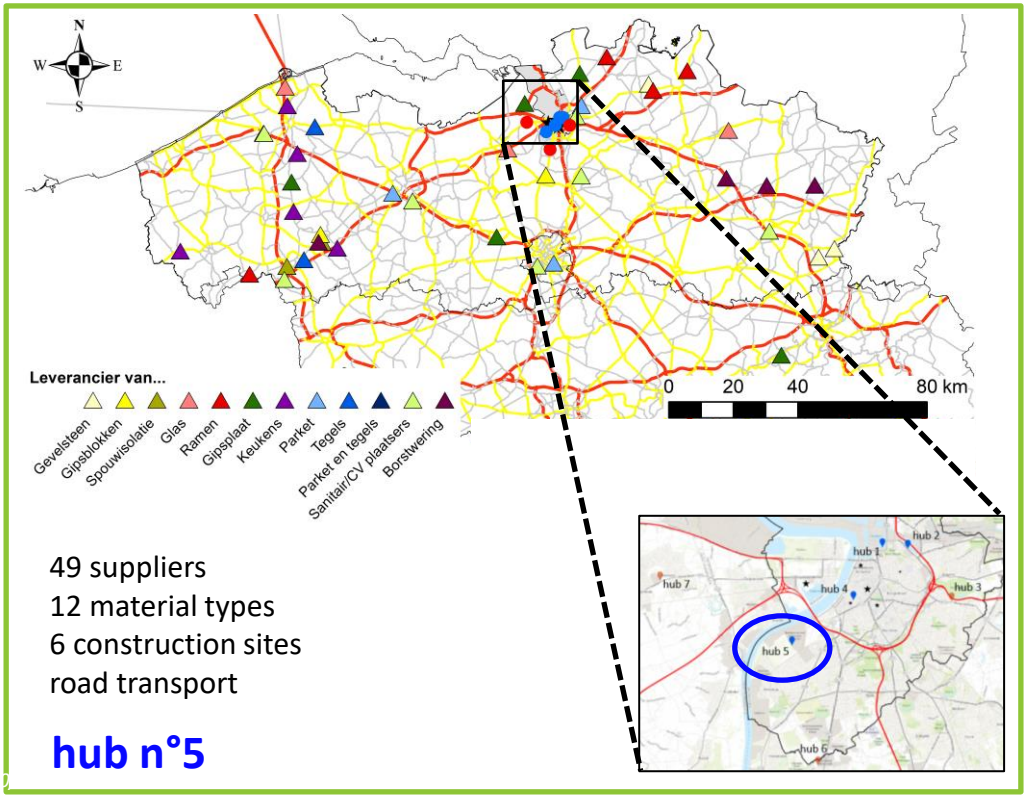


49 suppliers
12 material types
6 construction sites
7 hub locations
road transport





HUB RELEVANCE?



49 suppliers
12 material types
6 construction sites
road transport

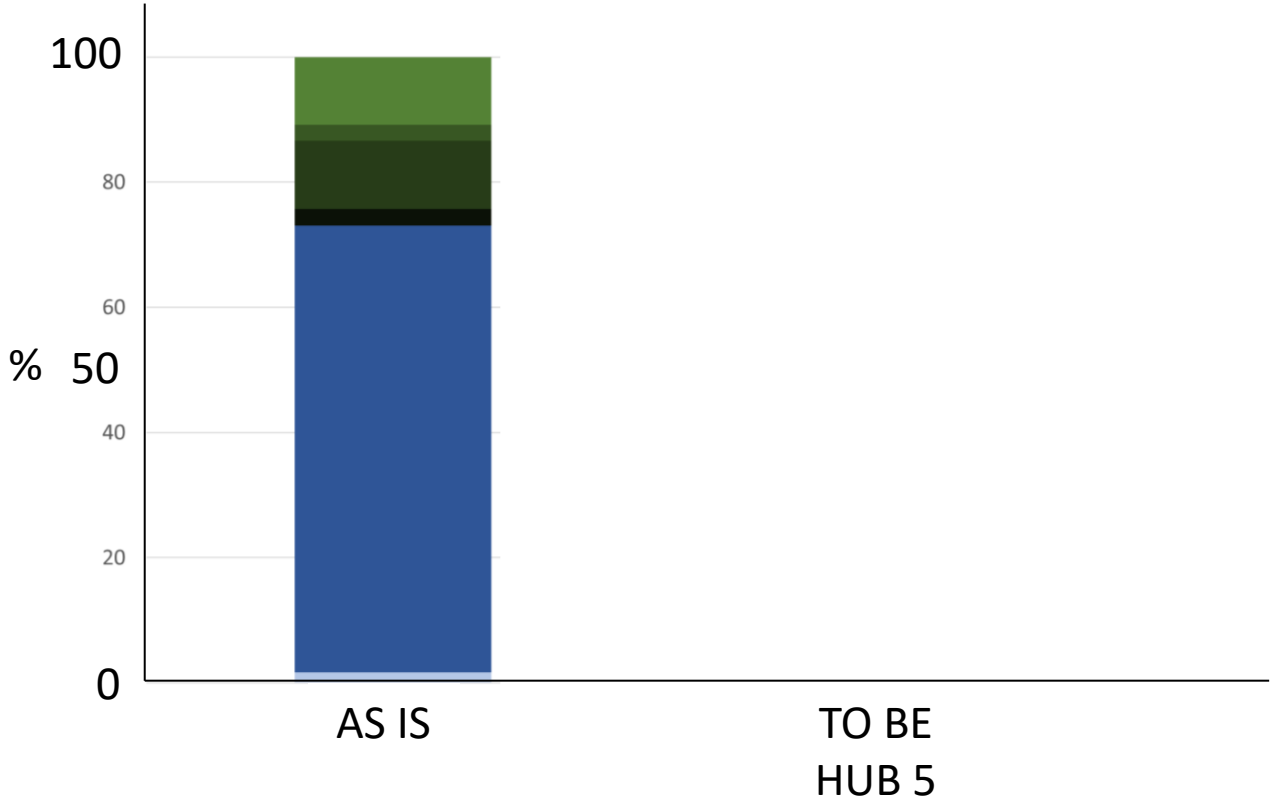
hub n°5

AS IS

TO BE

Impact on 5 KPI's

KPI 1: TOTAL COST



43 %

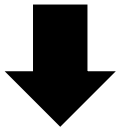
logistic

site

hub

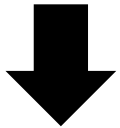
OTHER KPI'S

KPI 2 – TOTAL CO_2 EMISSION



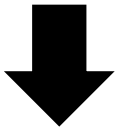
11 %

KPI 3 – TOTAL TRANSPORT DISTANCE



11 %

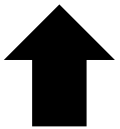
KPI 4 – TOTAL # CITY TRANSPORTS



40 %

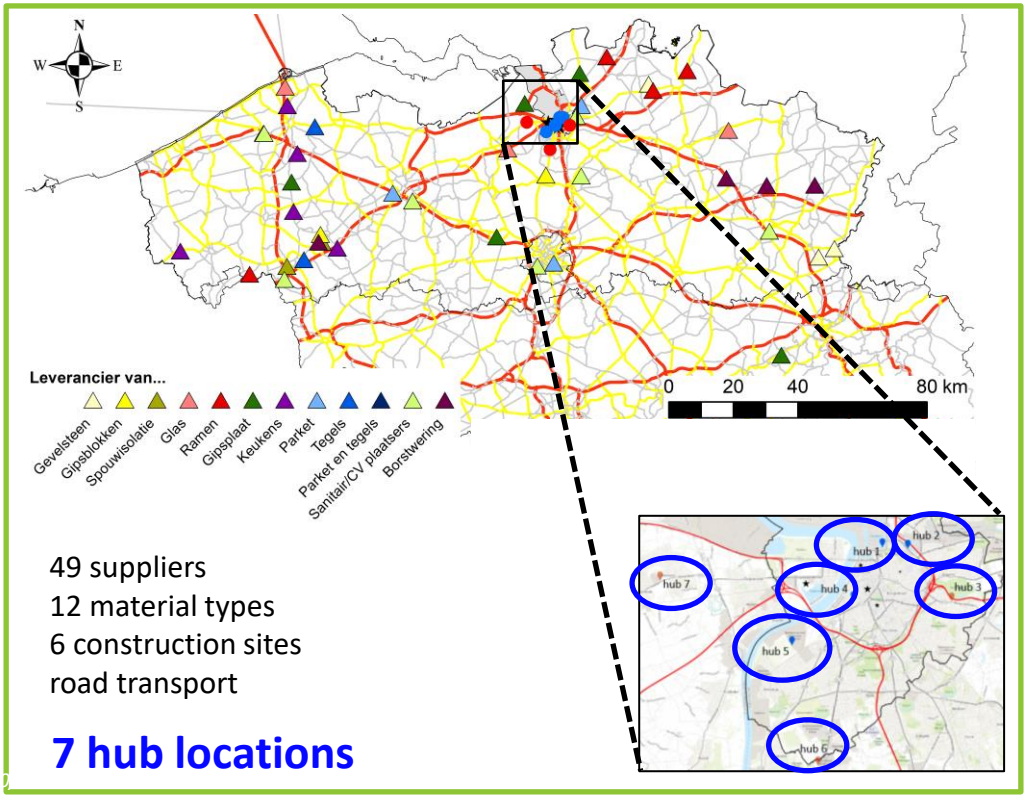
KPI 5 – AVERAGE LOAD FACTOR

(% FULL LOADS)



24 %

HUB LOCATION?



49 suppliers
12 material types
6 construction sites
road transport

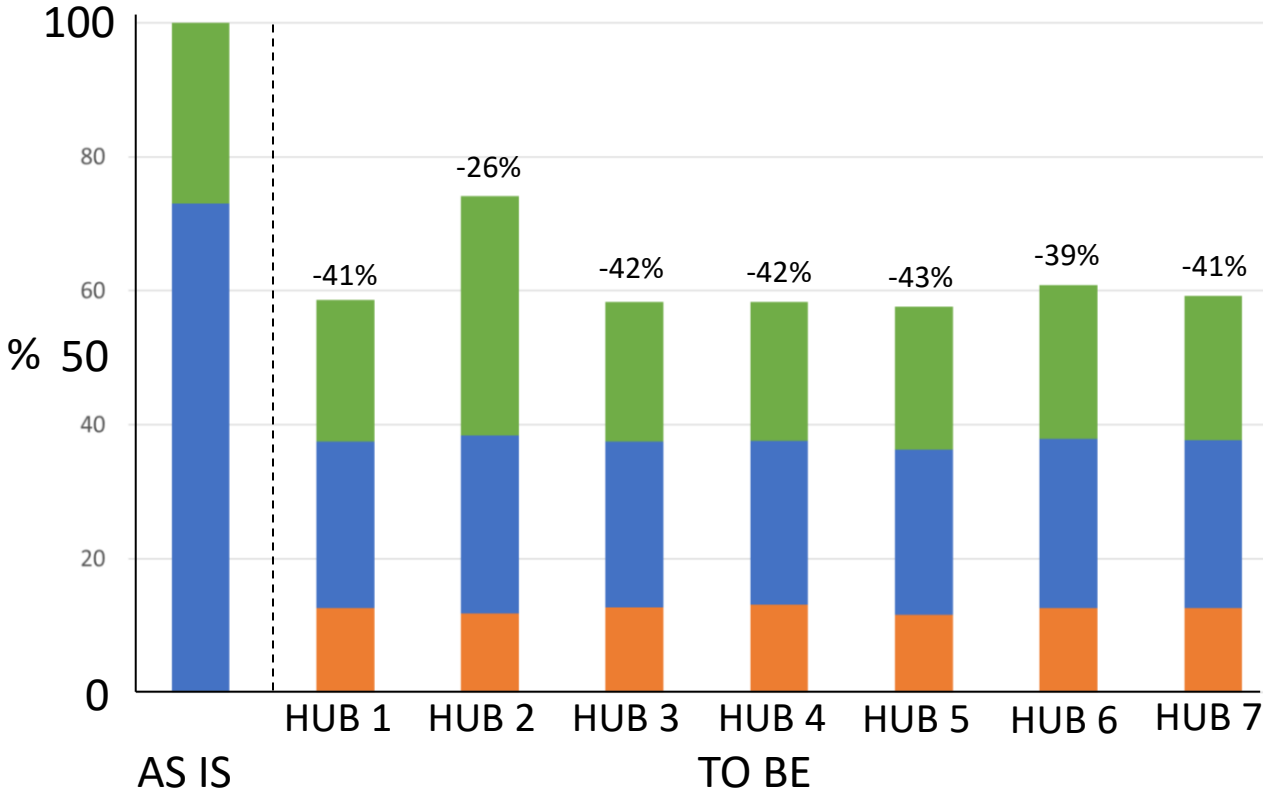
7 hub locations

AS IS

TO BE

Impact on 2 KPI's

KPI 1: TOTAL COST



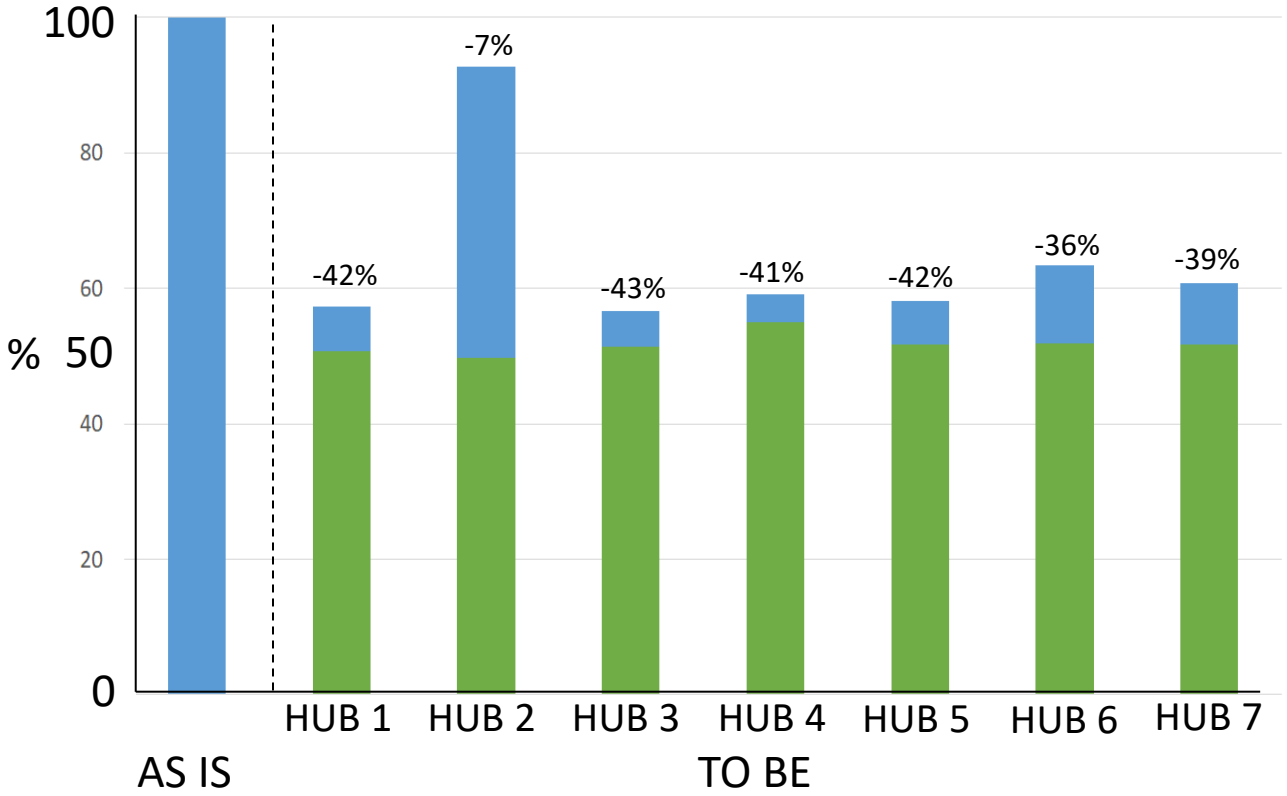
- 39 % AVG
[26 % - 42 %]

logistic

site

hub

KPI 4: TOTAL # TRANSPORTS IN CITY CENTER



- 36 %
[7 % - 43 %]

Direct to site

Via hub

ASSESS THE IMPACT OF A CONSOLIDATION HUB FOR BUILDING MATERIALS ON THE LOGISTICS TOWARDS CONSTRUCTION SITES

- Logistic efficiency YES
- Value added logistics YES

- Economic impact (cost reduction) YES
  Environmental impact (CO_2, mileage, LEZ) YES
- Social impact (vehicle movements, city traffic) YES

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