# MIMIC - CONSTRUCTION LOGISTICS

13/02/2019

Making Cities Work, JPI-Urban Europe kick-off meeting – Brussels

VUB mobi MOBILITY, LOGISTICS & AUTOMOTIVE TECHNOLOGY RESEARCH CENTRE

# IXELLES – RUE GOFFART

18/01/2019

# IXELLES – PLACE FERNAND COCQ

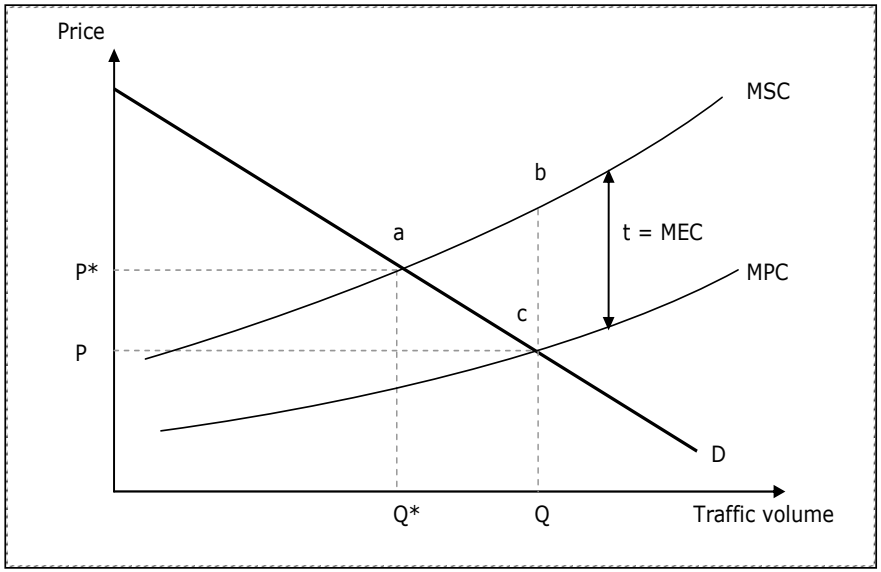
22/01/2019

# BRUSSELS – PLACE DE BROUCKÈRE

Live Webcam

22/01/2019

# TALKING ABOUT EXTERNAL COSTS…




*"An external cost arises, when the social or economic activities of one group of persons have an impact on another group and when that impact is not fully accounted, or compensated for, by the first group."*

Bickel and Friedrich (2005)

120,000

**Construction sites per year in Brussels**

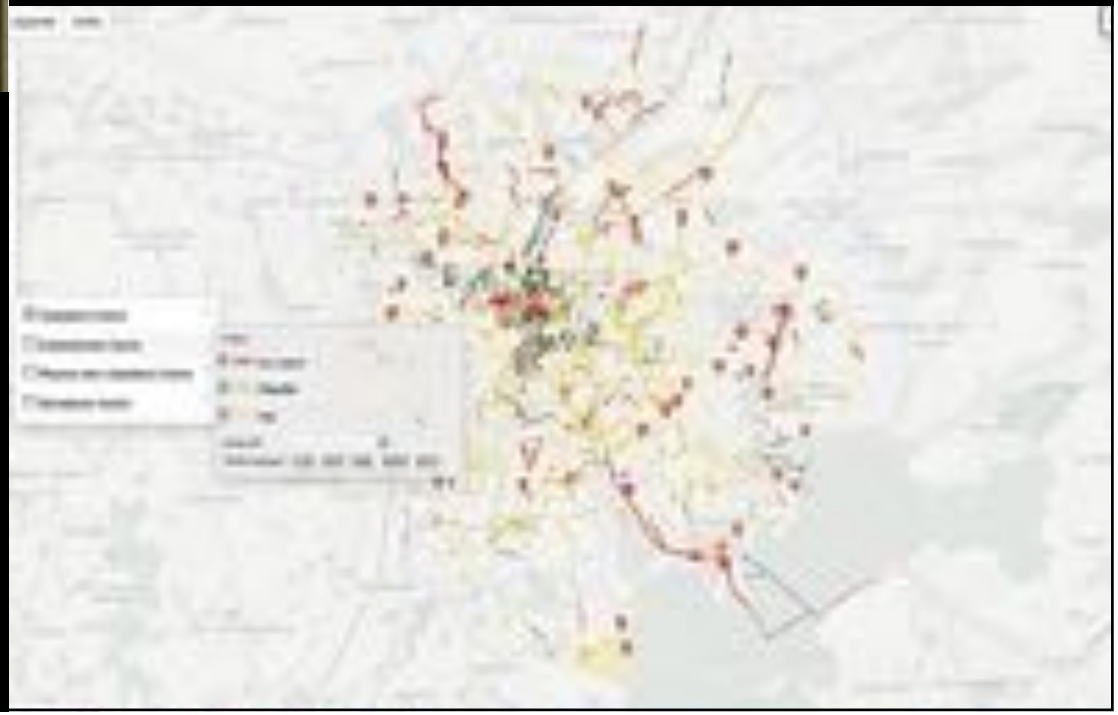
22%*

Share of total freight vehicles related to construction sites

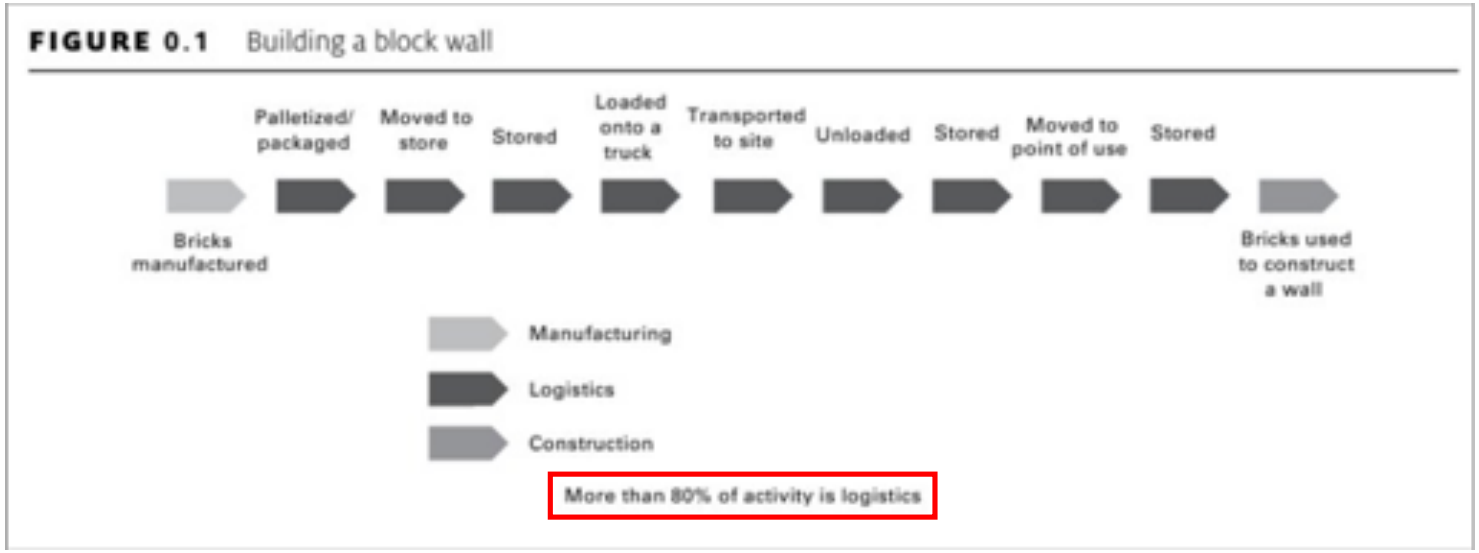
Transport for London, 2017

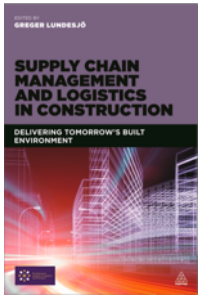
**17% to 20%** of all trucks driving in Brussels are construction vehicles (traffic counts in 2008 and 2016)

(Brussels Mobility)



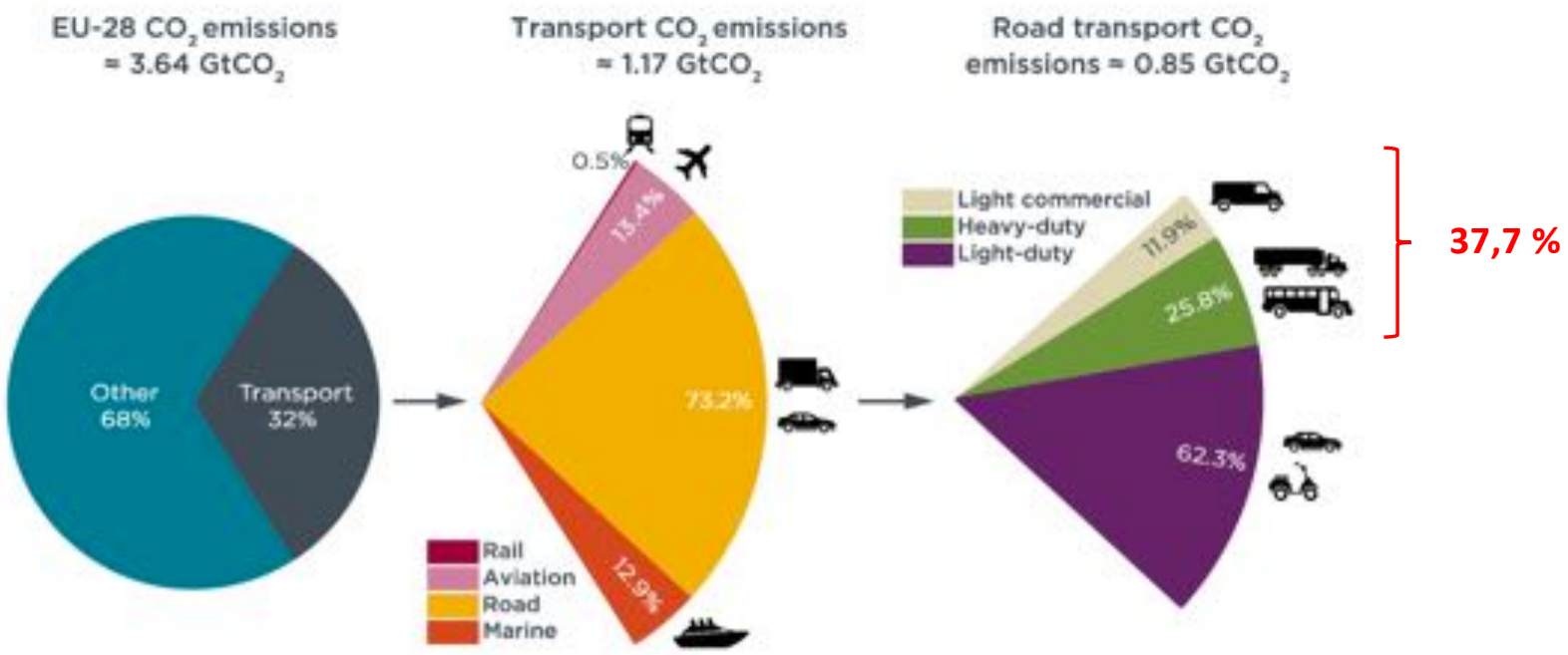
# BUILDING A BLOCK WALL...



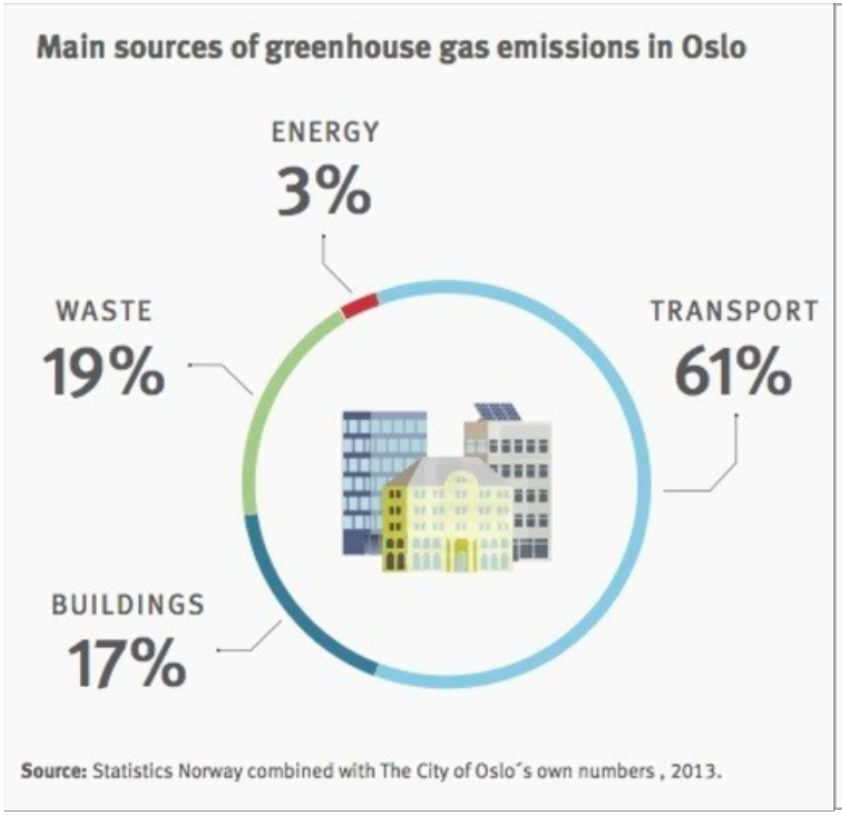

*Source: Supply Chain Management and Logistics in Construction: Delivering Tomorrow's Built Environment (Lundesjö, 2015)*

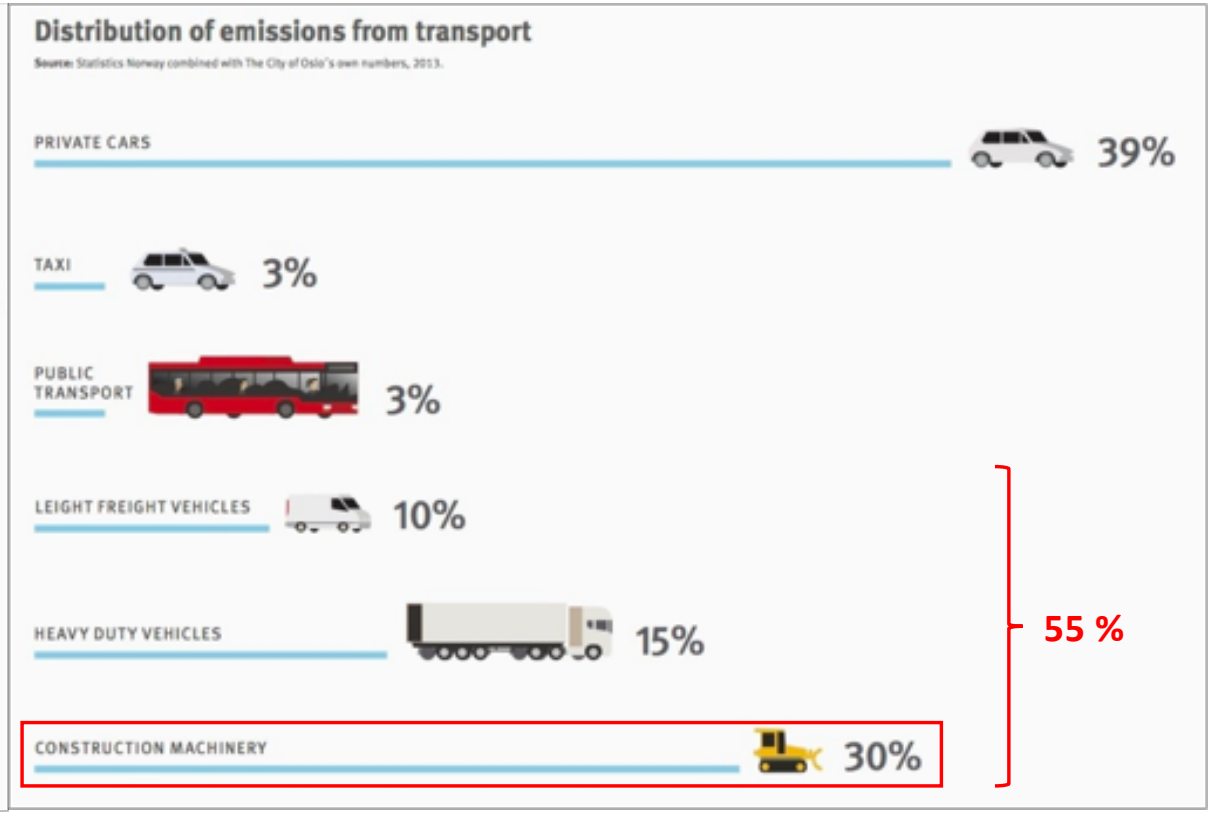
# DISTRIBUTION OF EMISSIONS FROM TRANSPORT (EU-28, $CO_2$)




Data source: European Environment Agency (2017) "National Emissions Reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism." Directorate-General for Environment, United Nations Framework Convention on Climate Change.

# DISTRIBUTION OF EMISSIONS FROM TRANSPORT (OSLO, GHG)



# MIMIC - MINIMIZING IMPACT OF CONSTRUCTION MATERIAL FLOWS IN CITIES

MIMIC
Smart Construction Logistics

# CONSTRUCTION LOGISTICS – STATE OF PLAY

**Urbanisation**
Higher demand for construction & renovation works in cities.

**More attractive, sustainable and economically viable urban areas**
Contribution of construction projects once finished.

**Negative externalities**
Impacts on the surrounding community if not handled appropriately.

URBAN EUROPE

MiMiC
Smart Construction Logistics

**Minimizing Impact of construction Material flows In Cities: innovative co-creation**

MIMIC wants to demonstrate how smart governance concepts can be used as an aid in the construction and city planning processes to facilitate and support logistics to, from and on urban construction sites.

The aim is to improve mobility and reduce congestion within cities and thereby reduce the negative impacts of construction sites on the surrounding communities. The project will result in increased understanding among authorities of how different types of construction logistics affect the environment, urban traffic flows and mobility. Further, the implementation of smart governance concepts will enable a supportive platform for urban development decision processes, including analyses and optimization of construction traffic, and a sustainability impact assessment framework.

https://jpi-urbaneurope.eu/project/mimic/ https://www.mimic-project.eu/en/about-mimic


MiMiC
Smart Construction Logistics

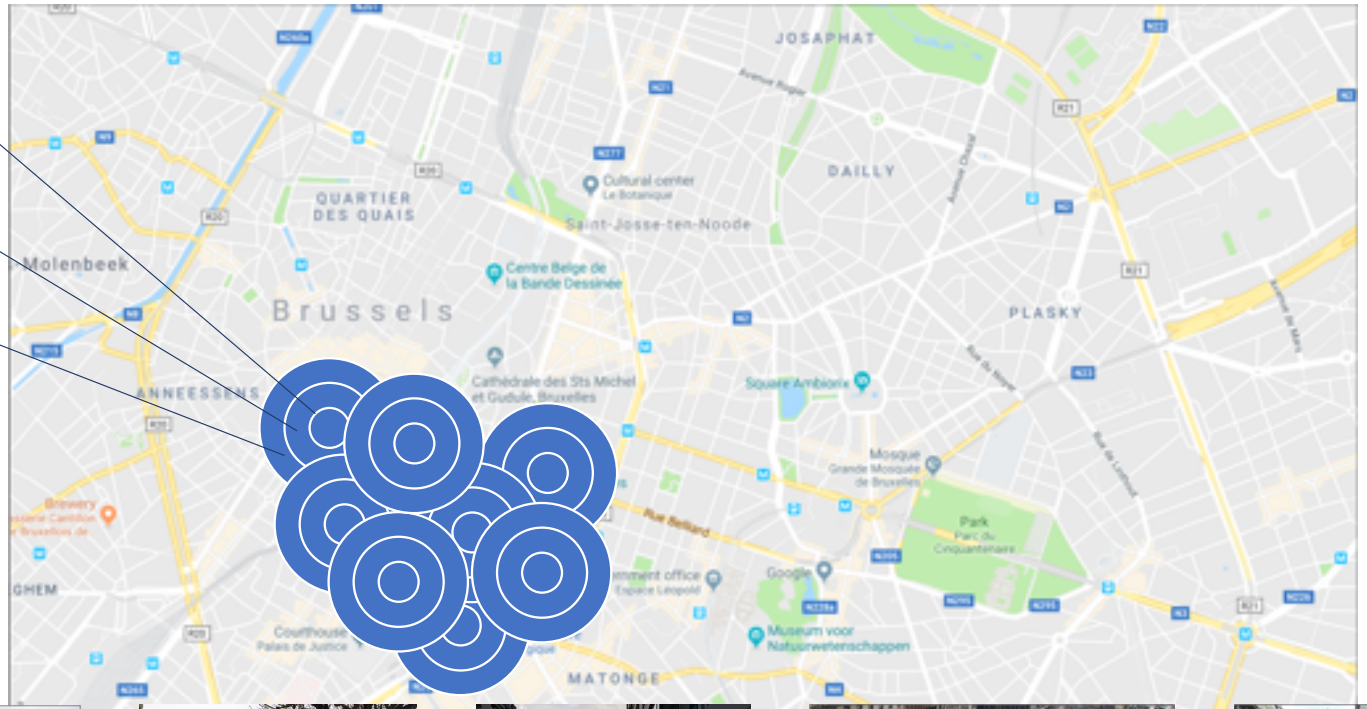
VUB mobi MOBILITY, LOGISTICS & AUTOMOTIVE TECHNOLOGY RESEARCH CENTRE

# CONSTRUCTION LOGISTICS SOLUTIONS

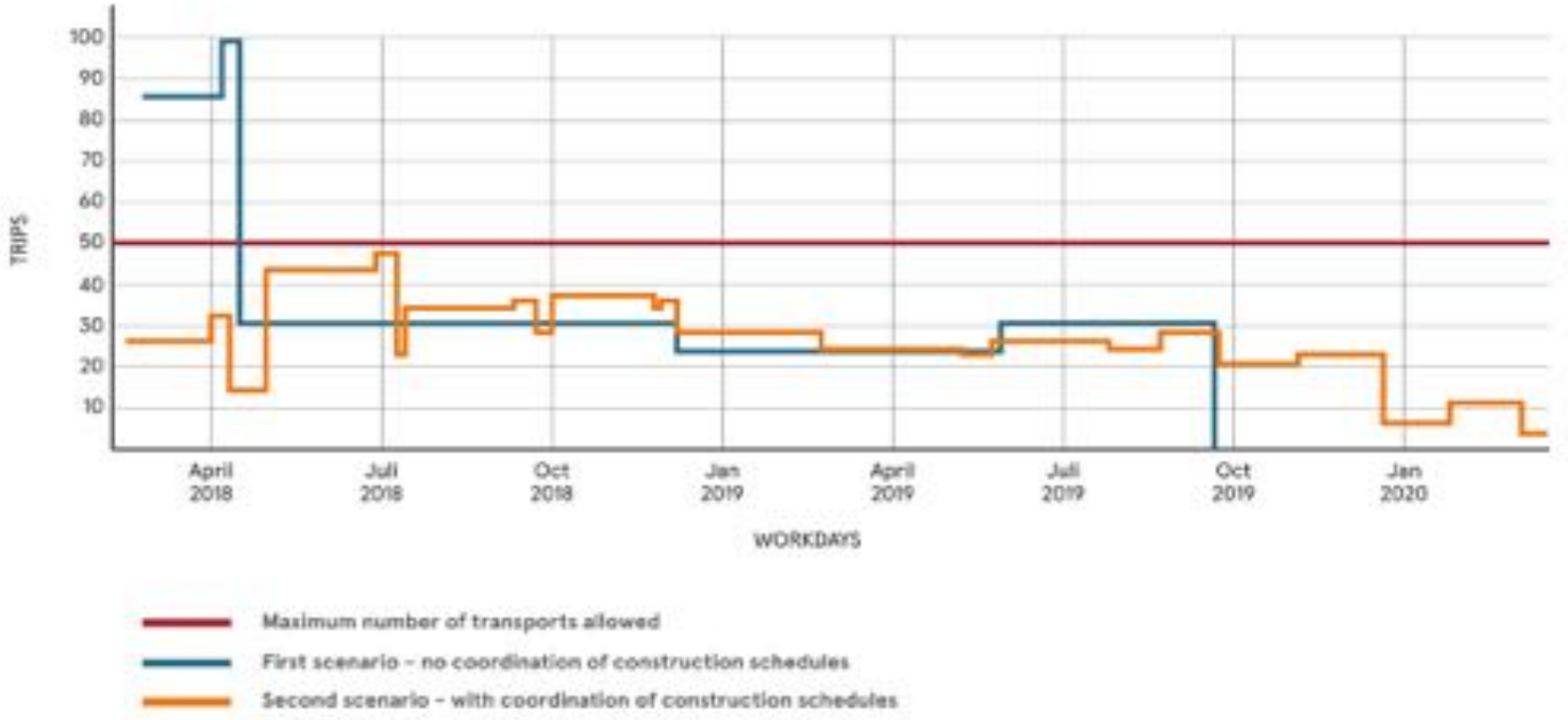
Zone 1: single construction site

Zone 2: construction area and vicinity

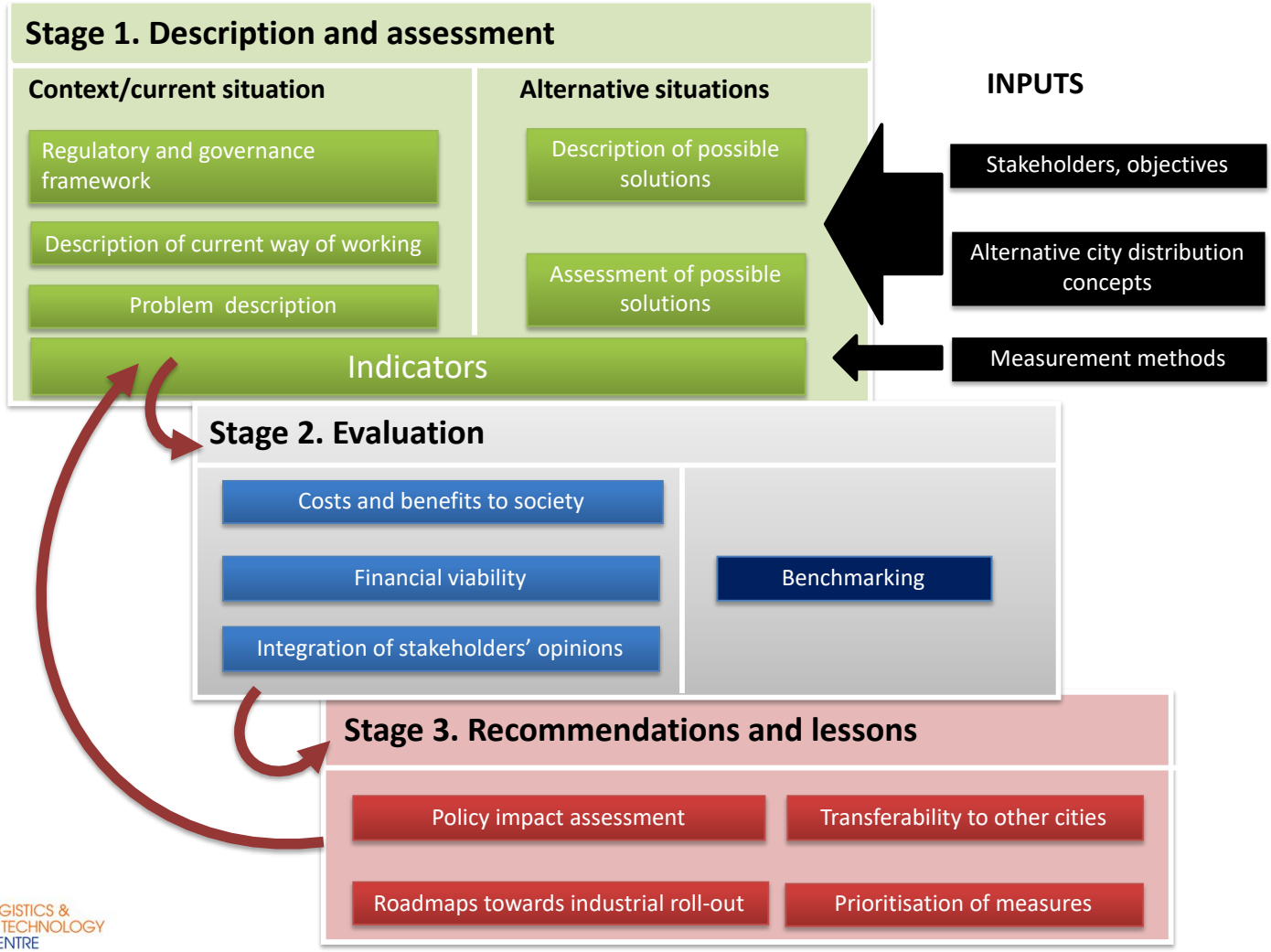
Zone 3: city




# TOOLS & CONCEPTS: LOGISTICS OPTIMISATION



# TOOLS & CONCEPTS: IMPACT-ASSESSMENT FRAMEWORK

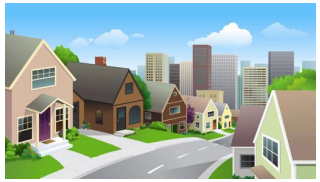


# CONSTRUCTION LOGISTICS – A GALLIMAUFRY OF STAKEHOLDERS…

Local authorities

Contractor / Client

LSPs



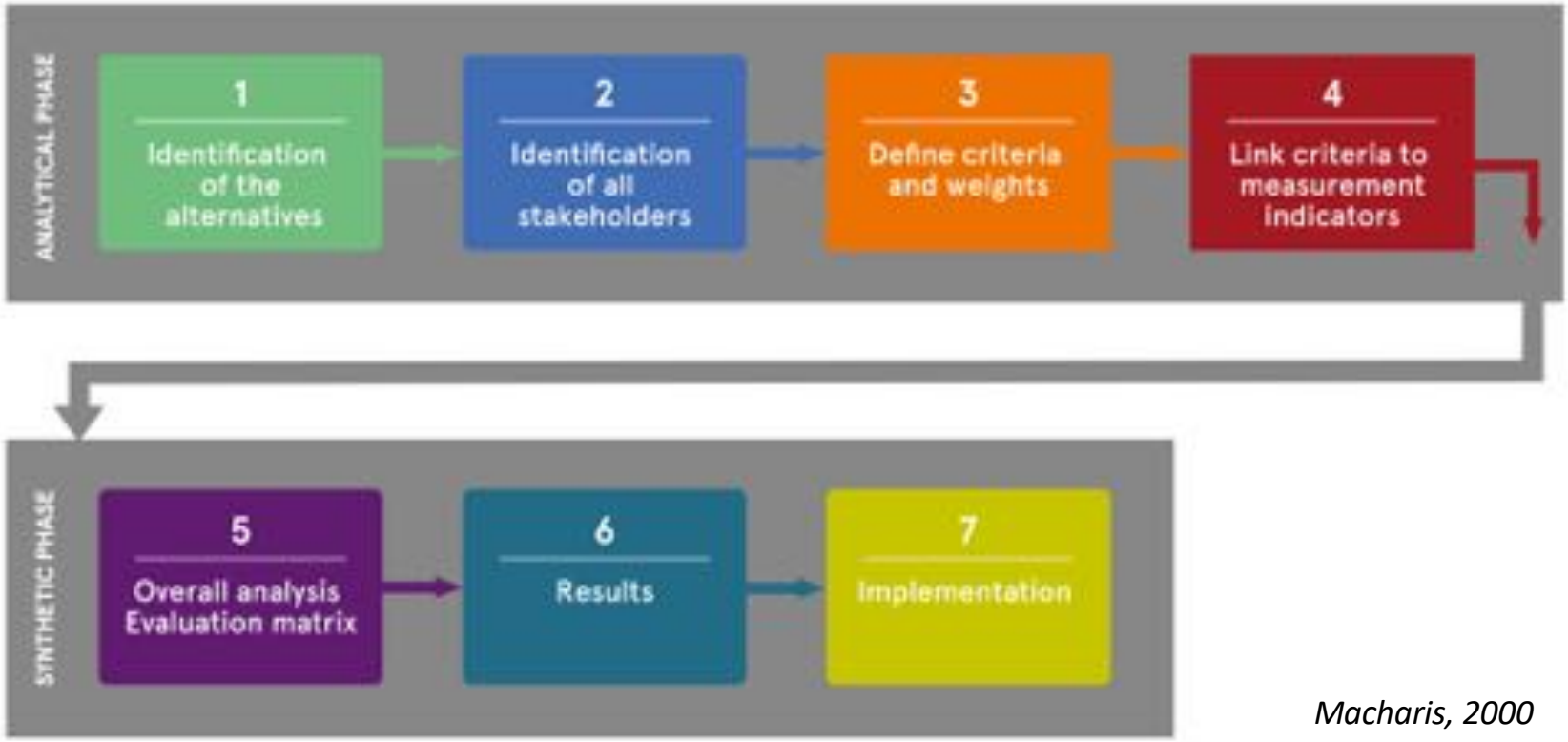
Citizens

Material & equipment suppliers

…

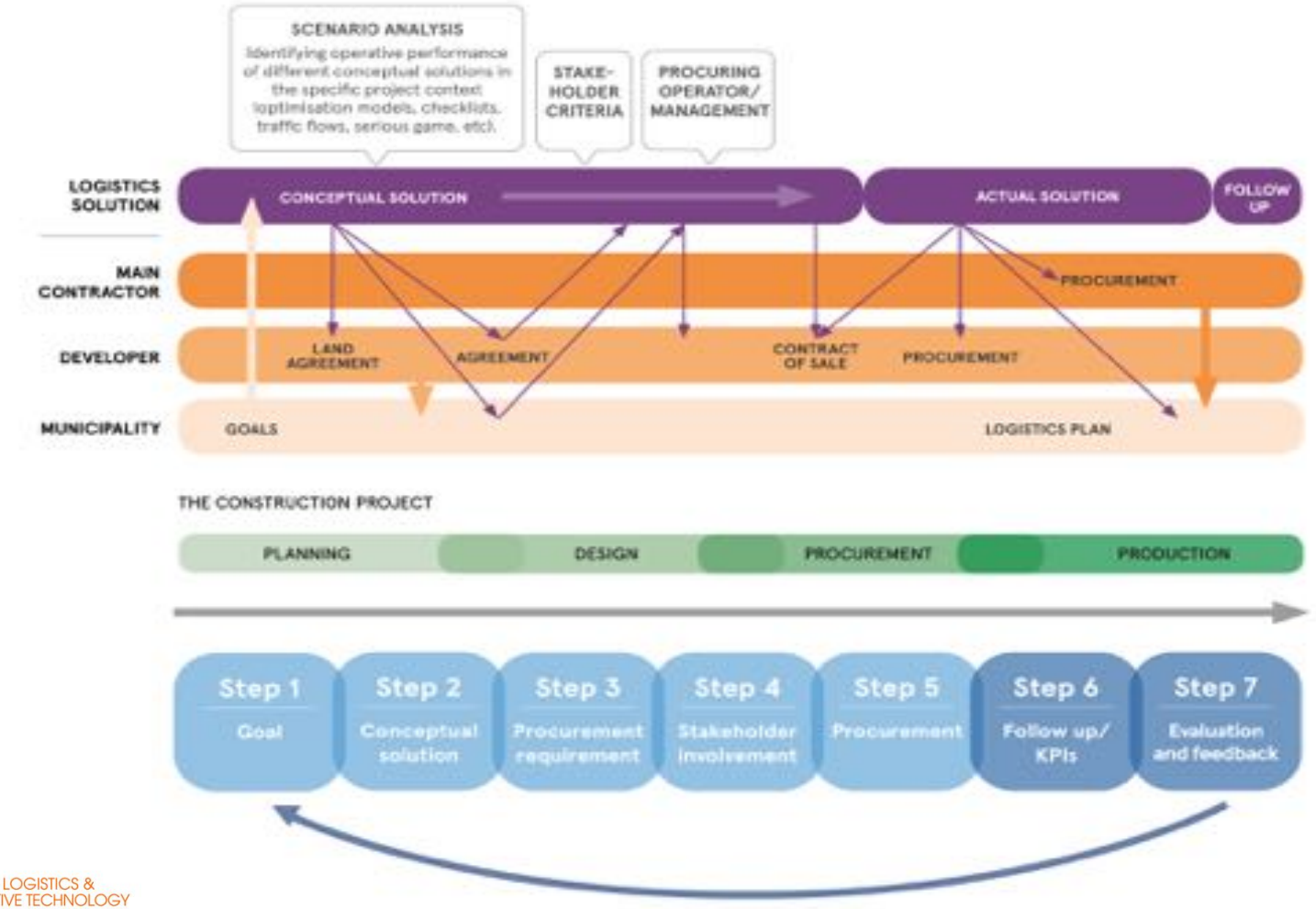
# TOOLS & CONCEPTS: MAMCA - STAKEHOLDER INVOLVEMENT

**MAMCA = Multi-Actor Multi-Criteria Analysis**




*Macharis, 2000*

# TOOLS & CONCEPTS: SMART GOVERNANCE CONCEPT… 2.0



# TOOLS & CONCEPTS: CONSTRUCTION LOGISTICS GAME

# EXPECTED RESULTS


+ its implementation!

# DEMONSTRATION CASES

**Brussels, Belgium**

**Vienna, Austria**

**Oslo, Norway**

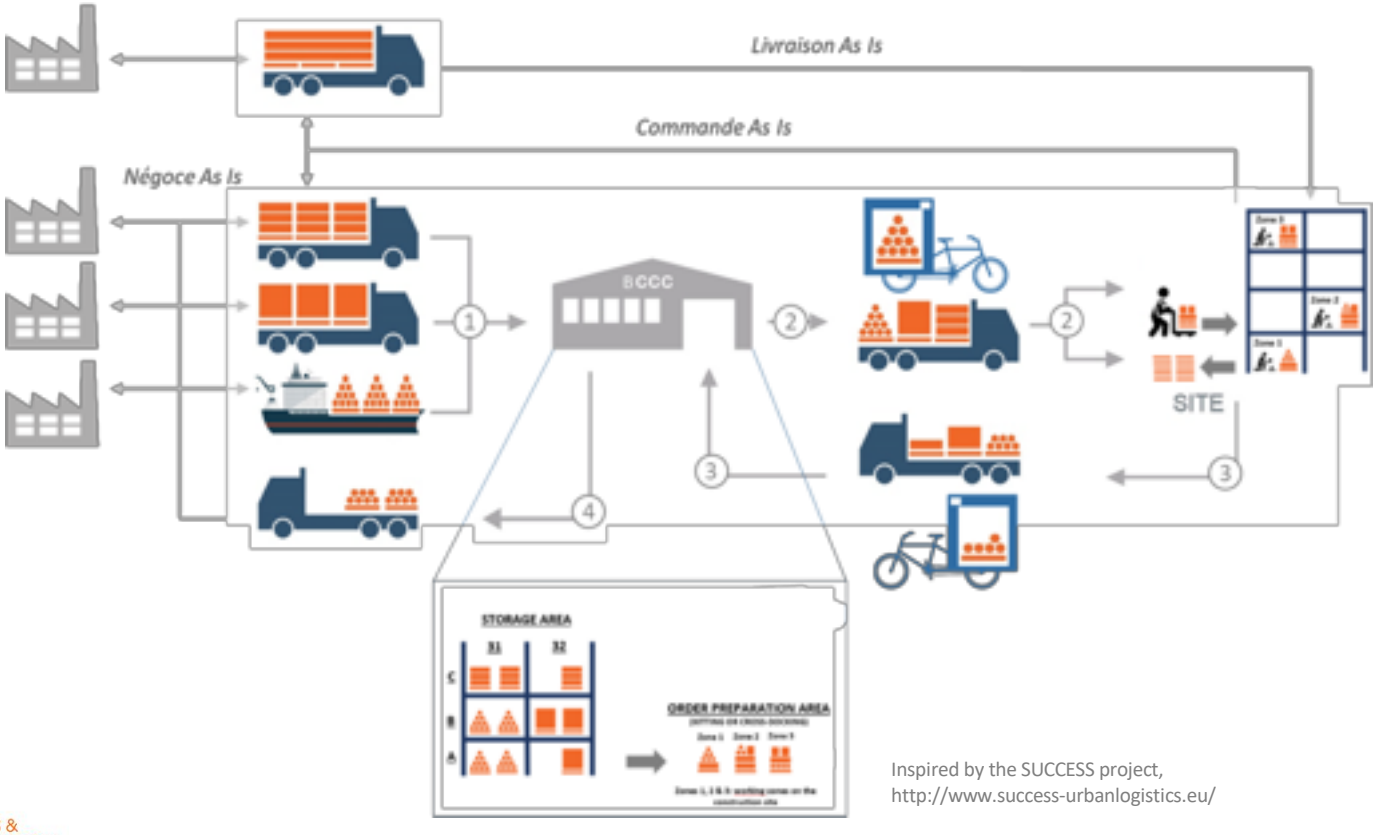
**Sweden**

# BRUSSELS CONSTRUCTION CONSOLIDATION CENTRE

innoviris.brussels
empowering research

With support of: hub.brussels, port.brussels, BRUXELLES MOBILITÉ SERVICE PUBLIC RÉGIONAL DE BRUXELLES, bruxelles environnement .brussels

**BCCC provides several services at various logistical levels**




Inspired by the SUCCESS project,
http://www.success-urbanlogistics.eu/

# HANDBOOK CIVIC PROJECT

Smart construction logistics


https://www.civic-project.eu/en/news/civic-final-report-now-available

# MIMIC CONSORTIUM PARTNERS

URBAN EUROPE

mobi

LINKÖPING UNIVERSITY

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY TOMORROW TODAY

SINTEF

CLOSER

CHALMERS

BRUXELLES MOBILITÉ
BRUSSEL MOBILITEIT
SERVICE PUBLIC RÉGIONAL DE BRUXELLES
GEWESTELIJKE OVERHEIDSDIENST BRUSSEL

BELLONA

BERNARD INGÉNIEURE

# KEEP IN TOUCH


**Nicolas Brusselaers**
PhD Researcher - Sustainable Logistics
T: +32 497 32 73 22
M: Nicolas.Brusselaers@vub.be



**Koen Mommens**
Research Associate – Sustainable Logistics
T: +32 (0)2 614 83 26
M: Koen.Mommens@vub.be



**Prof. dr. Cathy Macharis**
Head of Research group MOBI - Mobility, Logistics and Automotive Technology Research Centre
T: +32 (0)2 614 83 03
M: Cathy.Macharis@vub.be


mobility, logistics and automotive technology

VUB mobi MOBILITY, LOGISTICS & AUTOMOTIVE TECHNOLOGY RESEARCH CENTRE

Twitter.com/MOBI_VUB

www.mobi.vub.ac.be

MIMIC Smart Construction Logistics