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## The Dutch Drive towards Greener Mobility

Freek van Eijk, Managing Director Acceleratio  
Okoinustria Budapest, November 10 2017



## OUR MOBILITY SYSTEM TODAY

*Traffic is seriously affecting our lives and the competitiveness of our cities*

- **Mobility** in cities
  - Accounts for **1/3** of a Cities GHG emissions
  - 50% of city space is related to mobility
  - Economic value is lost by congestion
  - As populations and living standards increase, so does the **need for mobility**
- The mobility system
  - Typical European cars are parked 92 % of their time
  - 85% of fuel never reach wheels
  - >95% of accidents are from human error



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## THE NETHERLANDS

### *A living lab for Greener Mobility*

Greening Mobility makes cities attractive, accessible and low carbon

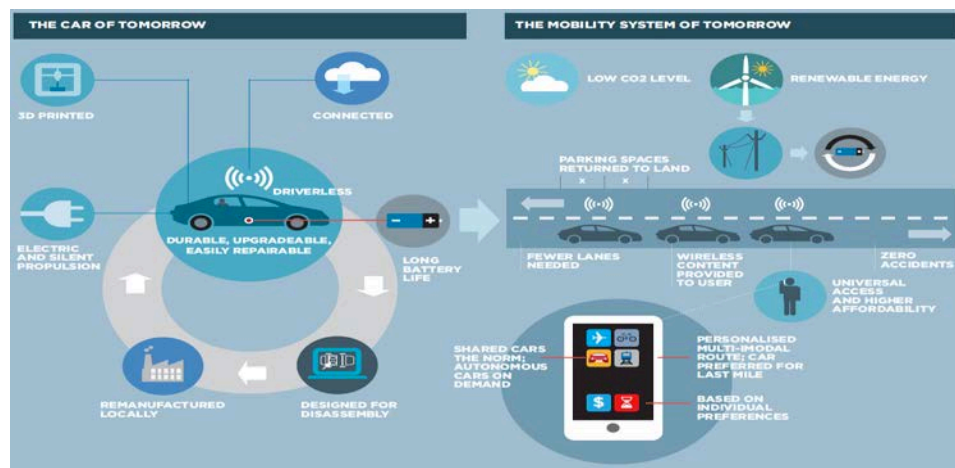
- We need smart and sustainable solutions
- Respond to climate change
- Reducing air pollution and give space back to the city

Dutch Strengths

- An **advanced** infrastructure
- **Highly mobile** society – densely populated
- **Living Laboratory** for smart solutions
- **Triple-helix** approach: Government, Industry and Academia



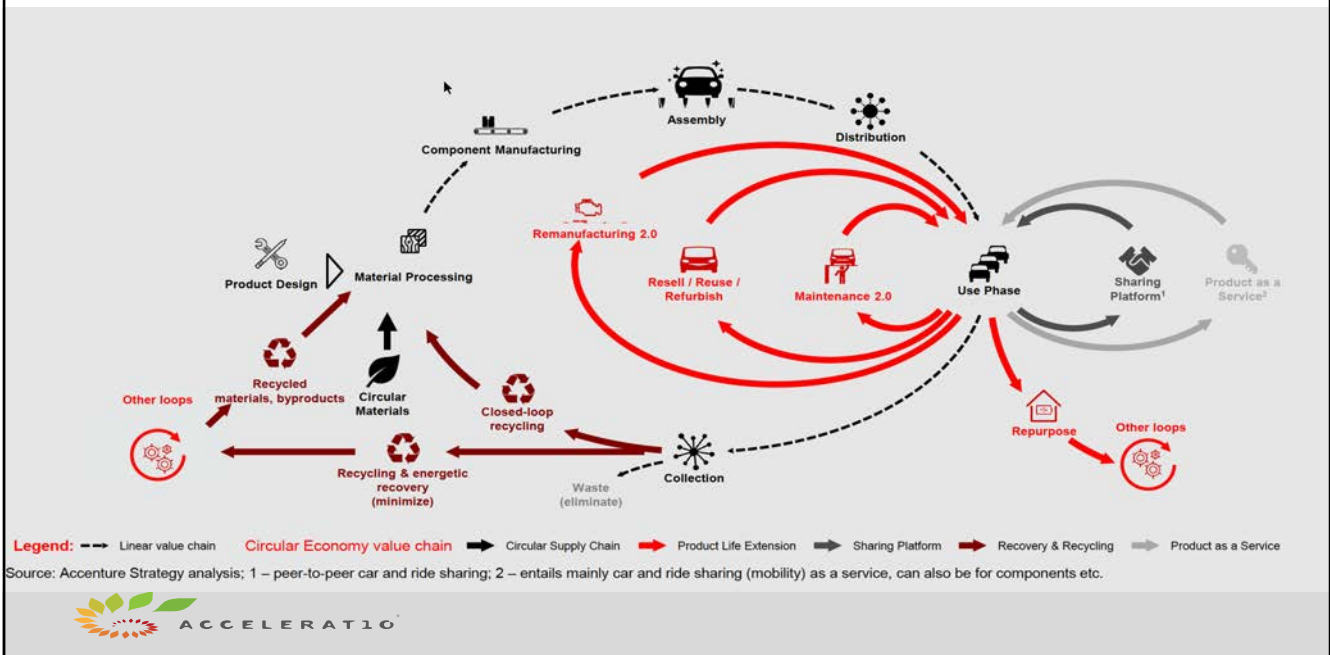
## A CIRCULAR MOBILITY SYSTEM FOR THE FUTURE



New materials-Electrification-Connected-Sharing-Mobility as a Service-Autonomous Driving



## NEW BUSINESS MODELS FOR A CIRCULAR AUTOMOTIVE SECTOR



## CONNECTED – AUTONOMOUS – SHARED - ELECTRIC



## ELECTRIFICATION

ING report 2017

- In the light of the tighter emissions regulation automakers must invest in electrification
  - But....the combustion engine will still be around for a while
- European Battery Electric Car
  - cost competitive in 2024
  - 100% of cars market in 2035
  - Major impact on supply chain of powertrain (4000 => 320 parts)

The real sustainable impact will depend of a countries energy mix



ING Research Department - July 2017

ING



## ELECTRIC TRANSPORTATION

### Status NL today

Electric cars are actively promoted

In many city-centres petrol-driven delivery vehicles are prohibited

- 8.2 Mio cars → 113,000 plug ins
- 5,000 busses → 150 electrical (+ 150 ordered)
- "Abundant charging infrastructure"
- Tesla Motors, has its **European HQ and assembly-plant** in the NLs





## NUON SOLAR'S NUNA 9

NUNA 9 WON THE 2017 WORLD SOLAR CHALLENGE CLAIMING THEIR 7-TH TITLE



## ABUNDANT PRIVATE INITIATIVES FOR CAR SHARING



RIDE SHARING

RIDESHARING  
UBER



P2P CAR SHARING

P2P  
CAR SHARING





## SHARED MOBILITY WILL EVOLVE IN MOBILITY AS A SERVICE



Today: no behaviour incentive



Future: Mobility as a Service: "the Spotify of Transport"



Real choice for alternatives



Combinations of events and offers?



Easy: Door2Door incl. planning, booking, Paying



Including all additional costs



Seamless transport & certainty



Environmental footprint



## DUTCH ACTION PLAN MOBILITY AS A SERVICE

Many initiatives ongoing

### WHIM

MaaS Global werkt aan een introductie van MaaS in Amsterdam in 2017.

### MOBILITY CONCEPT

Mobiliteitsbudgetten voor werknemers voor gebruik van alle vormen van mobiliteit.

### ROTTERDAM

Ontwikkelen MaaS voor luchthavenbereikbaarheid door Rotterdam-The Hague Airport.

### ABEL

Eerste taxibedrijf dat werkt met een ritdeelsysteem in Amsterdam.

### MAAS IN SLUIJSBUURT

Pilot omtrent ontwikkeling wijk Sluijsbuurt met verlaagde parkeernorm en aanbieden MaaS.

### DEVELOPMENT CENTER

Internationaal Ericsson MaaS development center in Rijn.

### - ARNHEM/NIJMEGEN -

Wetenschappelijk onderzoek en pilotprojecten rondom MaaS voor inzicht in de succesfactoren en barrières.

### BEAMRZ

Gemeenschappen delen auto's, ritten en fietsen in een multimodale realtime dienst; Beamrz.

### MAAS OP ZUIDAS

MaaS pilot met Toogethr en Zuidasdok/GVB voor bereikbaarheid Zuidas gedurende grootschalige werkzaamheden.

### TRIPKEY

De toegangskaart voor buitenlandse bezoekers: Experience the Netherlands your way.

### MAAS IN OV-CONCESSIES

Pilotruimte voor aanvullende MaaS diensten in concessies in heel Brabant.

### SHUTTEL

De nieuwe, flexibele alles-in-één-kaart die werknemers toegang geeft tot alle vervoer en feilloos alle transacties online bijhoudt.

### TURNN

MaaS integrator voor alle vormen van vervoer waarbij je via de TURNN app reizen kunt plannen, boeken en betalen.

### MOBILITYMOVEZ.NL

Stelt een gecontroleerd deel openbare weg in Noord-Brabant ter beschikking voor nieuwe technieken en diensten.

### AMBER MOBILITY

Amber Mobility dat een dienst aanbiedt met BMW i3's, als opstap naar dedicated urban e-vehicles.



## AUTONOMOUS DRIVING



## EXTENDED PILOT FOR “WEPODS” IN WAGENINGEN

**WEpods:** autonomous driverless vehicles

- Fully automated and are electrically powered

WEpods have a 6-person cabin and an automated door and platform lift for wheelchairs.

- Maximum speed is 40 km/h
- Range of approximately 100 km

Campus of Wageningen University + on public roads between the cities of Ede and Wageningen.

Dutch province of Gelderland: **experimental laboratory** for self-driving public transport through to 2020

- EU investment





## SOLA ROAD

*Electrification of the Infrastructure*



HOME TRENDING STORIES EXPERT TALK WORLD OPINION PRESS RELEASES ABOUT US

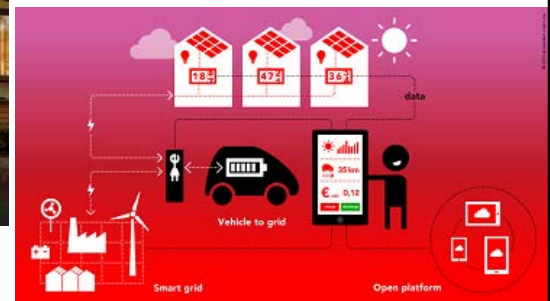
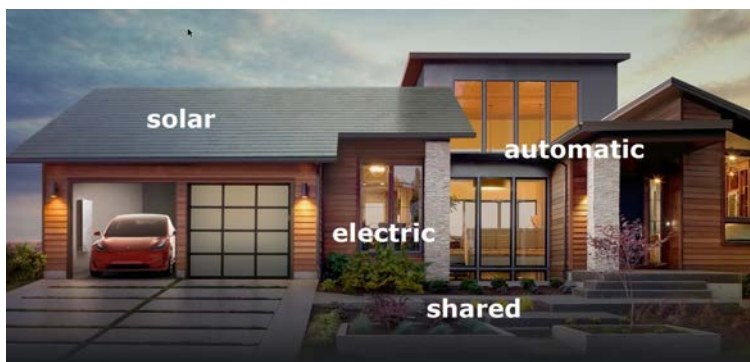
HOME > COVER STORY > SOLAR ROADWAYS WILL SOON DRIVE ENERGY PRODUCTION ON FOUR CONTINENTS

### Solar Roadways Will Soon Drive Energy Production On Four Continents

By Libby MacCarthy, Editorial Assistant at Sustainable Brands



## THE VISION OF ELON MUSK ....AND DUTCH INITIATIVES



Lombok (Utrecht) has EU's first V2G pilot (2015)  
Today Vehicle to grid pilots in several Dutch cities



## NEW FUELS



Biofuels (Bio methane, Bio LNG, Bio CNG)

- 8% of the energy of Dutch biogas is used as vehicular fuel which is amongst the highest in the world (IEA Bioenergy, 2015)
- Local green gas roundabouts

Hydrogen is seen as a potential fuel for the future

- Vision: hydrogen generated with renewables for use in Chemistry and mobility
  - Various fuelling stations and initiatives exists (Shell, AKZO-NOBEL, ENGIE, ...)
  - First windmill producing hydrogen operational in 2018 (Wieringermeer)
  - First train on Hydrogen in 2018 (pilot)



## MATERIALS EVOLUTION & CIRCULAR LOOPS

- Dutch company DSM
  - Lighter, greener and smarter materials for the automotive sector..
  - [www.dsm.com/corporate/markets-products/markets/automotive-transportation.html](http://www.dsm.com/corporate/markets-products/markets/automotive-transportation.html)
- ACTronics
  - Remanufacturing of Car electronics
  - [www.Actronics.nl](http://www.Actronics.nl)
- Black Bear Carbon recovers Carbon Black from waste tires
  - [www.blackbearcarbon.com](http://www.blackbearcarbon.com)
- Also Recycling will increase
  - ARN, the Dutch organisation responsible for carrying out End-of-Life Vehicle Producer Responsibility for Producers/Importers recovers 98,7% of a car
    - Recycling 88,9% Energy recovery 9,8%





## CONNECTED SYSTEMS

- Better fluidity of the traffic is good for the Economy. New traffic light software can improve traffic fluidity with 50% with a minimal of costs
- Directing drivers to empty Parking places decreases congestion and improves service level of the City.





## THE DUTCH CYCLING EMBASSY

*A public private network for sustainable bicycle inclusive mobility*

**Share expertise and technology** worldwide to facilitate cycling as a modern, efficient and sustainable mode of transport.

The **best** of Dutch Cycling: knowledge, experience, and experts provided by private companies, NGO's, research institutions, national and local governments.

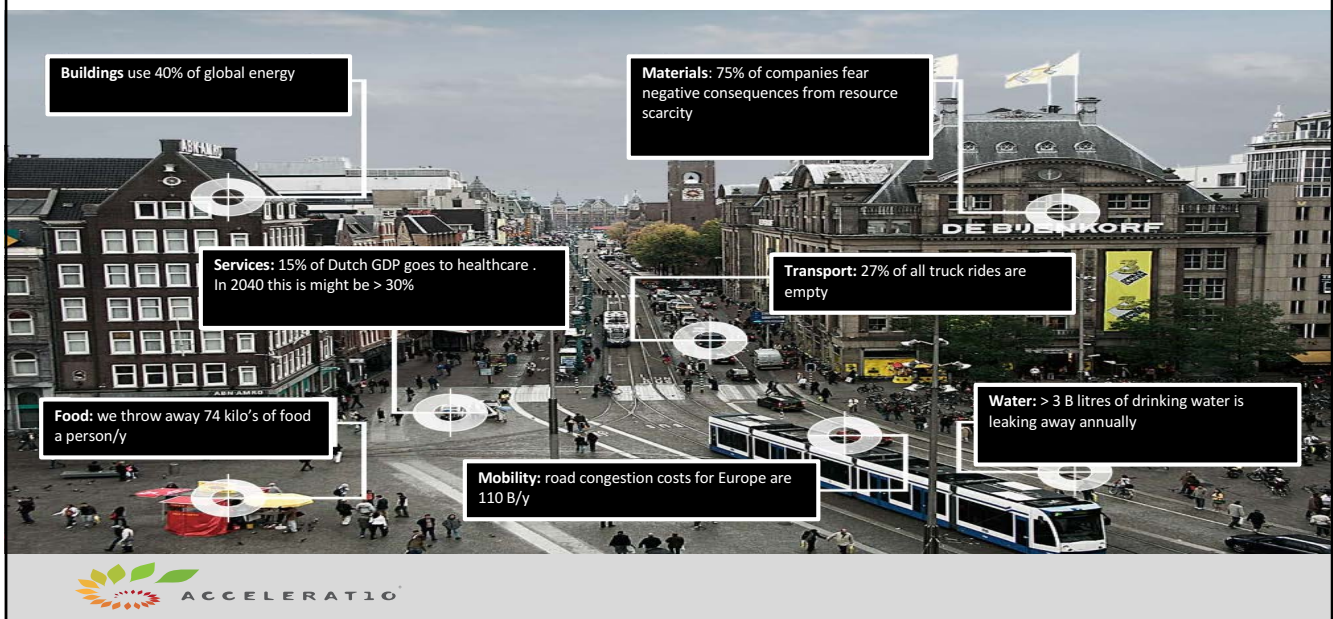
It **connects global parties** requiring Dutch cycling expertise with Dutch parties

Cycling contributes significantly to urban mobility, road safety, and emission reductions and has **positive impacts** on the economy, social inclusion and health.



## GREENING MOBILITY IS ESSENTIAL FOR CITIES

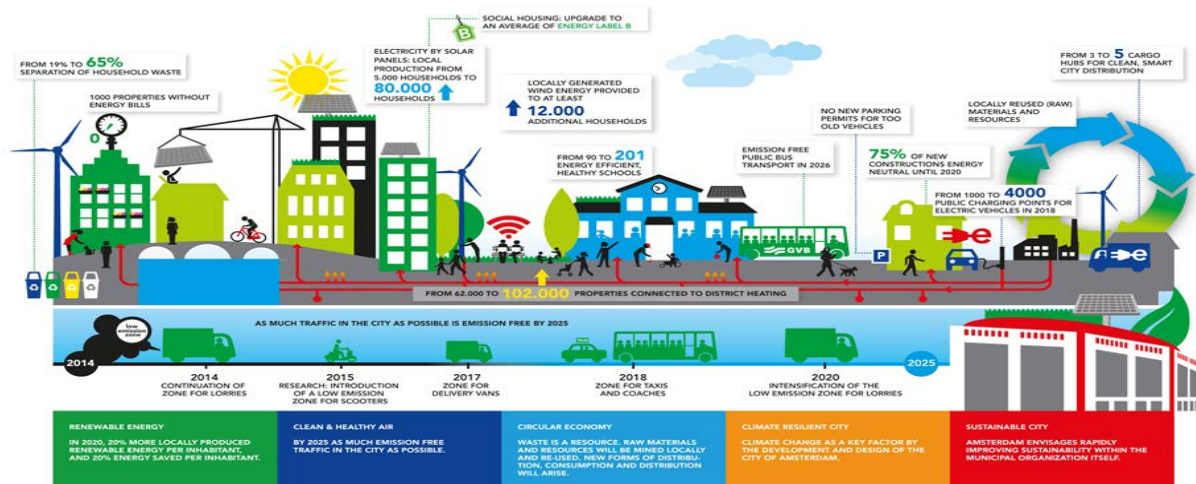
*But mobility should be seen in collaboration with other city challenges*





# A ROADMAP FOR CIRCULAR AND GREENER SOLUTIONS

## The Amsterdam Example



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## COOPERATION IS KEY

- International cooperation
- Smart partnerships
- New methods of investment and financing
- Smart use of technology



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## CONNEKT ITS NETHERLANDS

*An independent network for smart, sustainable and human mobility*

- Connekt **links** companies, knowledge institutions, intermediaries and governmental organisations
  - 400 organisations: knowledge, creativity and dynamism
- The centre **enables development** of a range of mobility solutions:
  - New mobility services / systems / data connections / information provision / work processes / regulation scenarios / traffic guidance / and in-car technologies.
- Connekt has a **Smart Mobility Embassy**
  - The Smart Mobility Embassy functions as an intermediary, bringing parties who need Dutch expertise and capabilities in the area of Smart Mobility together with Dutch parties who can offer these services.
  - <https://www.smartmobilityembassy.nl/about-the-embassy/>



## THE DUTCH DO MORE THAN JUST DREAMING ABOUT THE FUTURE

*The Hyperloop: the next new way of transport?*





<https://www.smartmobilityembassy.nl>  
**THE DUTCH GLADLY OFFER THEIR HELP!**

**Thank you for your attention!**  
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