



DUURZAME

HAVENSTAD

29 maart 2016

Input

Professors of Applied Science	9
Senior lecturers	12
Lecturers and researchers	15
Ph.D. students	3
Graduate students and internships	29
Staff	7

Professors of Applied Science	9
Senior lecturers	12
Lecturers and researchers	15
Ph.D. students	3

Output



Moving@Rotterdam




High Tech dry feet in the Rotterdam river delta




New business for Rotterdam, city and harbor



Green chemistry en materials



Upscaling NetZero housing renovation



Ship of the future

Research Agenda

Moving@Rotterdam



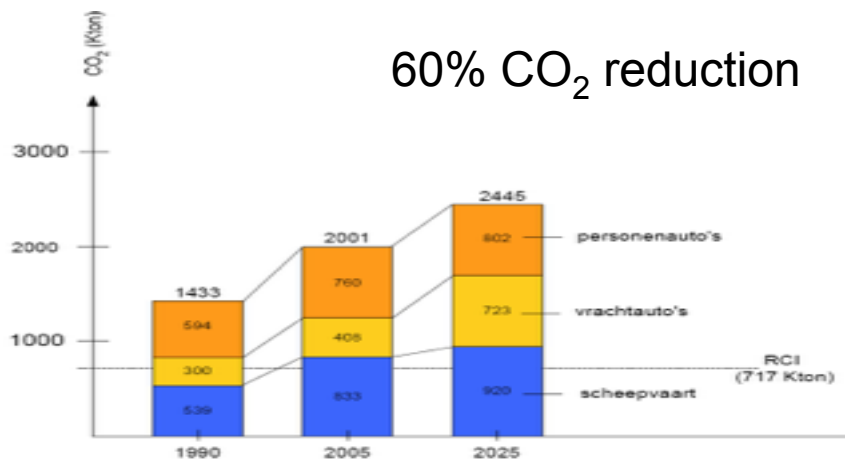
Automotive, the Future of Mobility

Frank Rieck
Professor Applied Science, Future Mobility, RDM Campus



Automotive, the Future of Mobility

- Based on the 'traditional' values of *individual freedom* and *maximum flexibility*
- Major positive disruptive technologies will consolidate the automobile to be the preferred choice for mobility of persons and goods



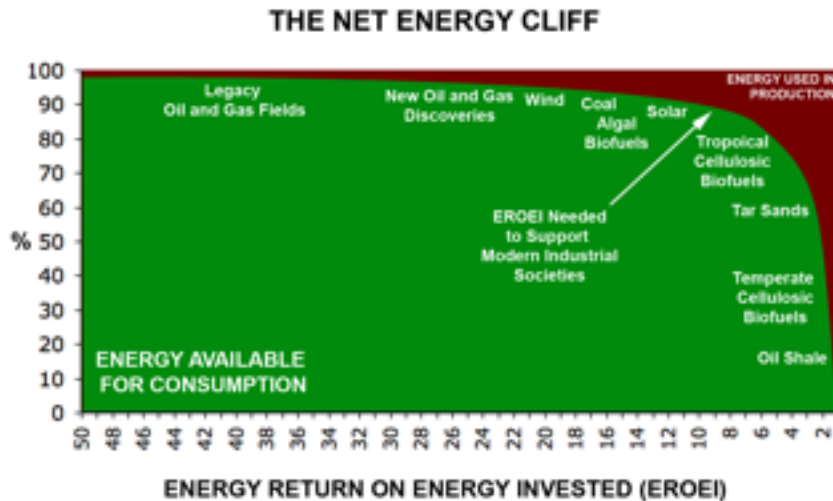
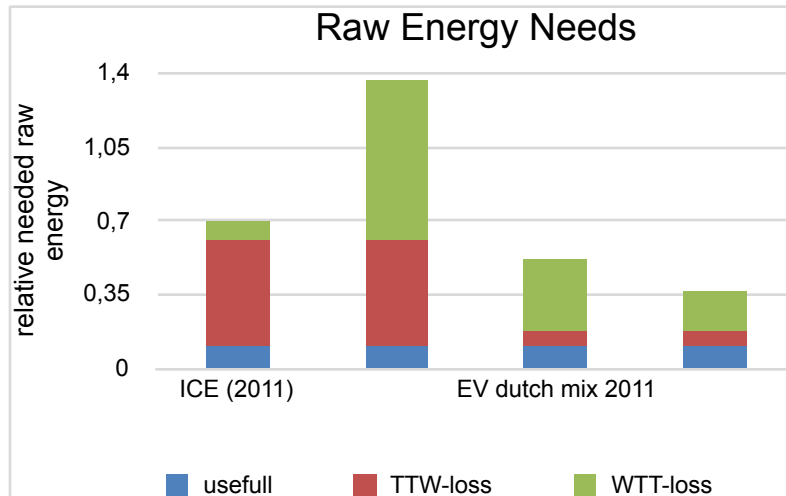


Automotive, the Future of Mobility

- Based on the ‘traditional’ values of *individual freedom* and *maximum flexibility*
- Major positive disruptive technologies will consolidate the automobile to be the preferred choice for mobility of persons and goods
 1. Electrification: Zero Emission & Zero Energy

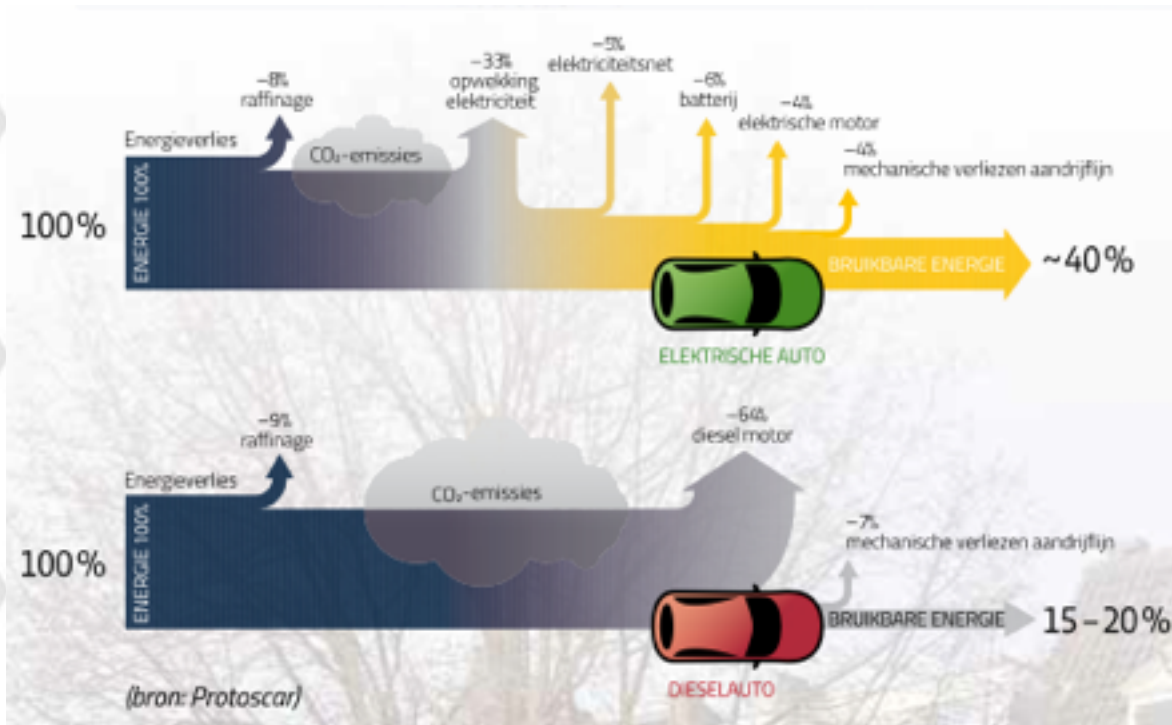
Automotive, the Future of Mobility

- Electrification of the road transport



Automotive, the Future of Mobility

- Electrification (including the use of hydrogen) is the only way to go forward





Automotive, the Future of Mobility

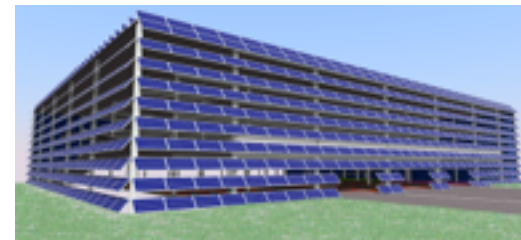
- Based on the ‘traditional’ values of *individual freedom* and *maximum flexibility*
- Major positive disruptive technologies will consolidate the automobile to be the preferred choice for mobility of persons and goods
 1. Electrification: Zero Emission & Zero Energy
 2. Automation: Autonomous Drive & Zero Accidents

Automotive, the Future of Mobility

- Stages from auto pilot to full autonomous driving



Level	Name	Narrative definition	Execution of steering and acceleration/deceleration	Monitoring of driving environment	Fallback performance of dynamic driving task	System capability (driving modes)	SAE level		NHTSA level
							Driver only	0	
Human driver monitors the driving environment									
0	No Automation	the full-time performance by the human driver of all aspects of the dynamic driving task, even when enhanced by warning or intervention systems.	Human driver	Human driver	Human driver	no	Driver only	0	
1	Driver Assistance	the driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task	Human driver and system	Human driver	Human driver	Some driving modes	Assisted	1	
2	Partial Automation	the driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task	System	Human driver	Human driver	Some driving modes	Partly automated	2	
Automated driving system ("system") monitors the driving environment									
3	Conditional Automation	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene	System	System	Human driver	Some driving modes	Highly automated	3	
4	High Automation	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene	System	System	System	Some driving modes	Partly automated	4	
5	Full Automation	the full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver	System	System	System	All driving modes	1	5	





Automotive, the Future of Mobility

- Based on the ‘traditional’ values of *individual freedom* and *maximum flexibility*
- Major positive disruptive technologies will consolidate the automobile to be the preferred choice for mobility of persons and goods
 1. Electrification: Zero Emission & Zero Energy
 2. Automation: Autonomous Drive & Zero Accidents
 3. Web based sharing: Lower Cost & Zero Congestion

Automotive, the Future of Mobility

- Use on demand versus of possession (status)

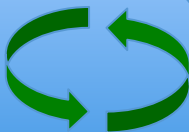


FEATURE	CAR2GO	TRADITIONAL CAR-SHARING
ECO-FRIENDLY	✓	✓
ONE-WAY TRIPS	✓	
BILLING TO PER-MINUTE RATES	✓	
FLEXIBLE, OPEN-ENDED RENTALS	✓	
DEDICATED PARKING SPACES	✓	✓
FLEXIBLE PARKING SOLUTIONS FOR CUSTOMERS	✓	
ON-DEMAND RENTALS	✓	
ROUND TRIPS ONLY		✓
ADVANCED RESERVATIONS	✓	✓
SCHEDULED RETURN TIMES		✓



Logistics

Economy



Infrastructure

Future Mobility

Automotive, the Future of Mobility

„Es schmerzt mich es zu sagen, aber **Tesla** hat bisher strategisch leider alles richtig gemacht. Wer einmal elektrisch gefahren ist, der ist für alle Zeiten für den Verbrenner verloren. Wir brauchen geile Autos – und eine nahtlose Infrastruktur!“

Dr. Stefan Niemand, Leiter Modellreihe Battery Electric Vehicles, **Audi** auf dem 18. Technischen Kongress des Verbandes der Automobilindustrie (VDA) in Ludwigsburg 2016



Automotive, the Future of Mobility



High Tech dry feet in the Rotterdam river delta



New business for Rotterdam, city and harbor



Green chemistry and materials



Upscaling NetZero housing renovation



Building Information Modeling (BIM)

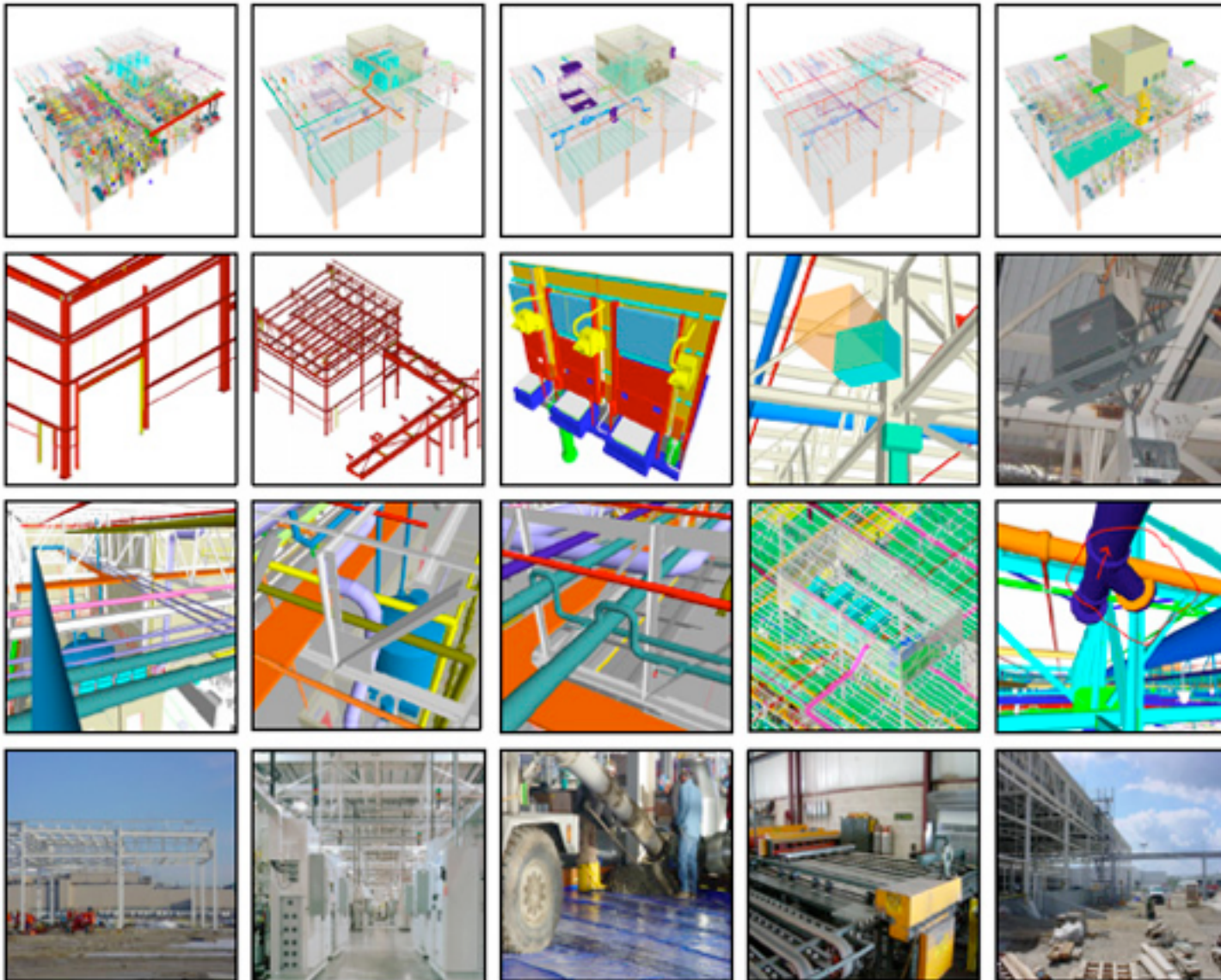


Design Authoring Tools (Red)

Analysis Tools (Green)



History of research in BIM



OPENINGS RONDE HET INPATIE AGENDA

0610

Graduation Circle BIM 2010-2015



Kashif Matsari BK
Kenneth van Herk BK

Yeshano Hasselbaink BK
Yunez Hasnaoui BK

5:30 Slotronde

Present



BIM and sustainability

- Connection of BIM to life cycle costing, energy service contracting and budget for long term maintenance budget (MJOP);
- Connection in BIM with environmental effects (NO_x , CO_2 , PM_{10}) with building site traffic and logistical optimization;
- Connection in BIM with project information management PIM;
- Connection of BIM with procurement and contracting;
- Use of BIM testlab with BIM-server on RDM-campus for companies and studenten Rotterdam UAS.



Variabele BIM maturity

1. use of BIM in the organization;
2. working according to a BIM-agreement;
3. working according to BIM-roles;
4. working according to a BIM-protocol;
5. use of BIM in the primary process;
6. agreement on the information-exchange;
7. share of information on BIM;
8. use of open files (IFC) exchange;
9. inform projectmembers on BIM-successes.

Variabele proficiëntie in BIM





Continuing research in sustainable BIM

1. correlations between indicators proficiency and maturity
2. differences in BIM roles in chain of building industry
3. translation of proficiency in terms of knowledge, skills and competences
4. valorization to applications inside organizations in the chain of building industry
5. feed back and feed forward to rules and laws
6. feed back and feed forward to BIM development community



Ship of the future

