



# Intro OTIV – Industrya

14/09/21

# OTIV aims to increase safety and efficiency of rail vehicles in complex environments by teaching the vehicles to drive autonomously

## Fact sheet OTIV

# OTIV



HQ  
Gent, België (EU)

Founding  
02/2020

Team  
9

Legal entity  
OTIV B.V.

### Mission

OTIV aims to increase the safety and efficiency of rail vehicles in complex environments by teaching the vehicles to drive autonomously.

### Customers, tests and pilots



**ProRail**



**LINEAS**  
YOUR FREIGHT FORCE



### Founders

Niels Van Damme (MSc. Automation Engineering, UGent): Co-founder and Tech lead  
Sam De Smet (MSc. Business Engineering, UGent) : Co-founder and Business lead

### Investors

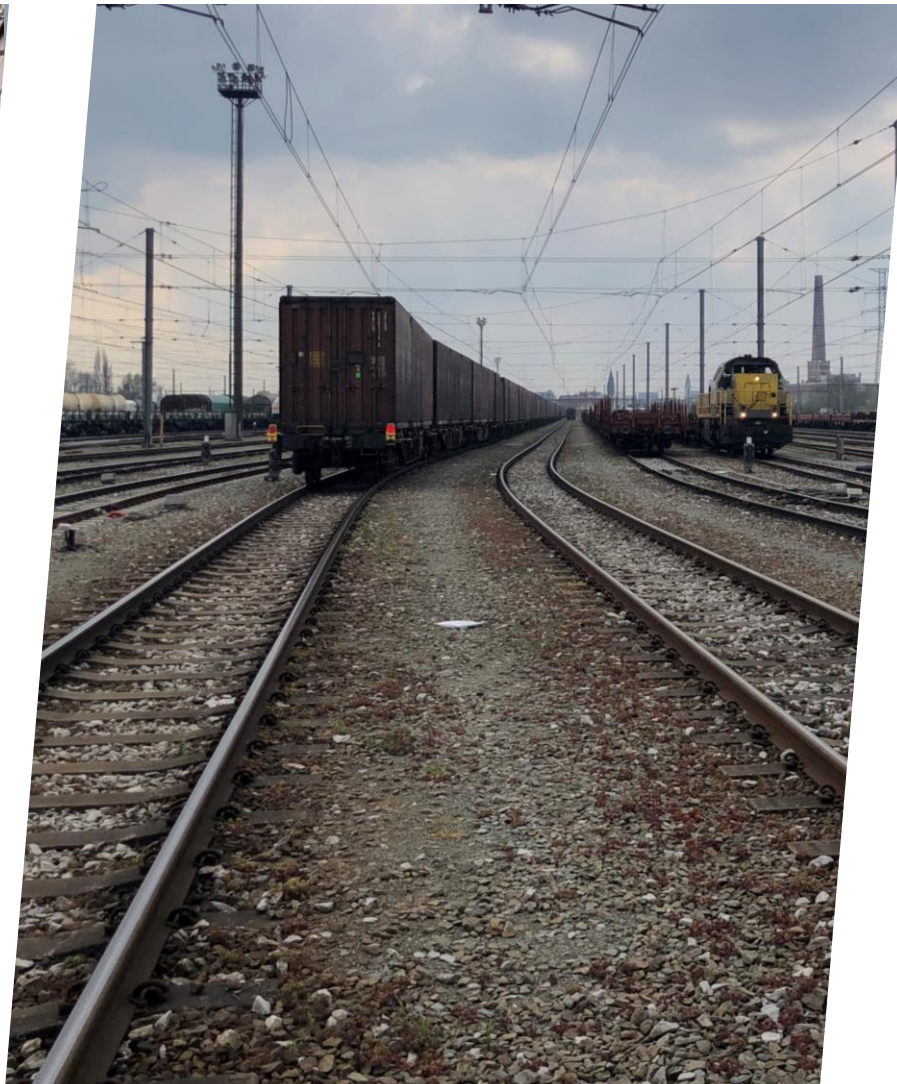


# OTIV



# We focus on railway vehicles in complex environments

Our focus

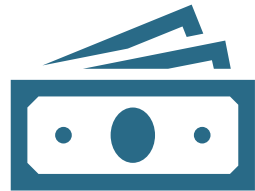


Railway vehicles in complex environments face challenges regarding safety, cost, driver shortage and reliability

Challenges



Safety



Cost



Shortage



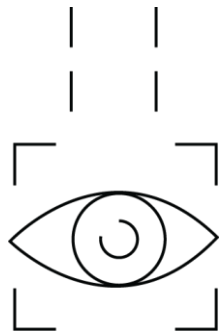
Reliability

# OTIV teaches vehicles on rails to drive autonomously

Offering: Solutions

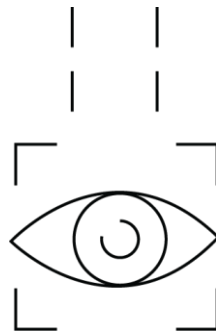
## Assisted driving

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Advanced Driver  
Assistance System  
(ADAS)

Improve safety of tram  
and shunting operations

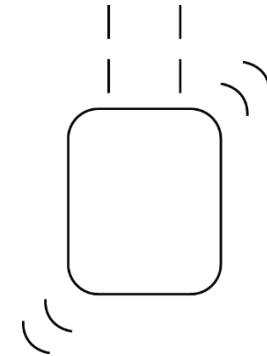


Remote Shunting  
Solution  
(RSS)

Improve safety of  
pushed shunting

## Autonomous driving

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Full Self-Driving  
(FSD)

Automate tram and  
shunting operations



# Assisted and autonomous railway vehicles in complex environments: a global market of EUR 1.1 bn

## Market segments



**Tram and LRV**  
(Public transport & OEM)  
Increase safety while navigating complex urban environments



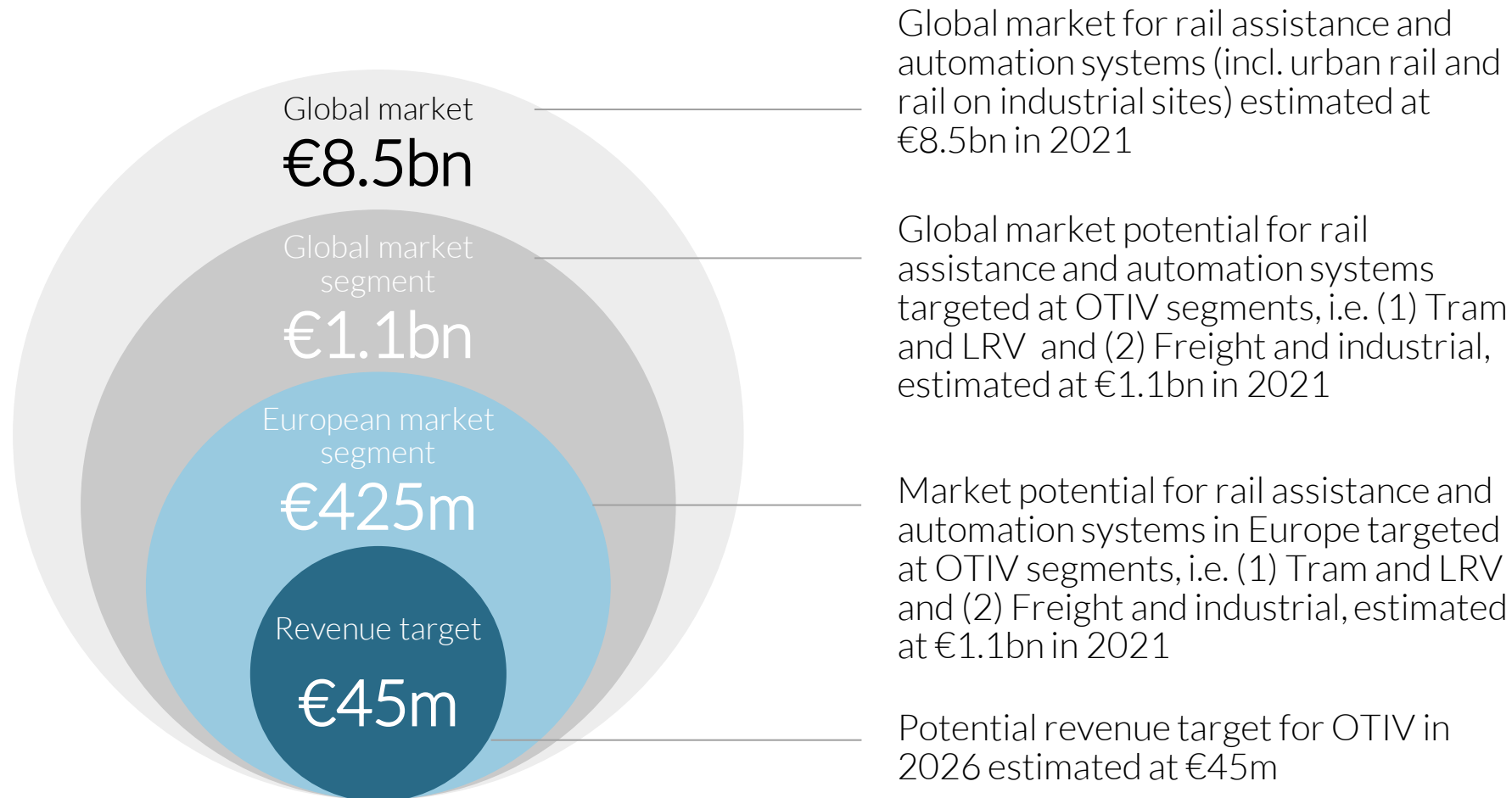
**Shunting yard**  
(Private operator & OEM)  
Increase safety and efficiency of mainline shunting operations



**Industrial site**  
(Private operator & OEM)  
Increase safety and efficiency in ports and on industrial production sites

# OTIV plays in a niche segment of an €8.5bn rail automation market

## Market potential



TAM

SAM

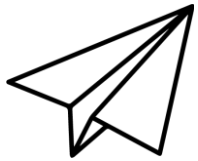
SOM

# Pilot projects on short term, recurring model on longer term

## Revenue model

### Short term: Pilot project model

Timing: 2021 for RSS & ADAS, until 2024 for FSD



#### Pilot projects

- Fixed budget incl. cost of leasing of hardware and software, cost of labor (installation, customization), other expenses

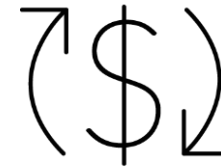
### Medium to long term: Hybrid revenue model (implementation + recurring)

Timing: As from 2022 for RSS & ADAS



#### Implementation fee

- Cost of hardware
- Cost of implementation and training



#### Recurring fee

- Software licence
- Maintenance
- Spare parts



# 2-phased approach: Start with assistance, develop towards autonomy

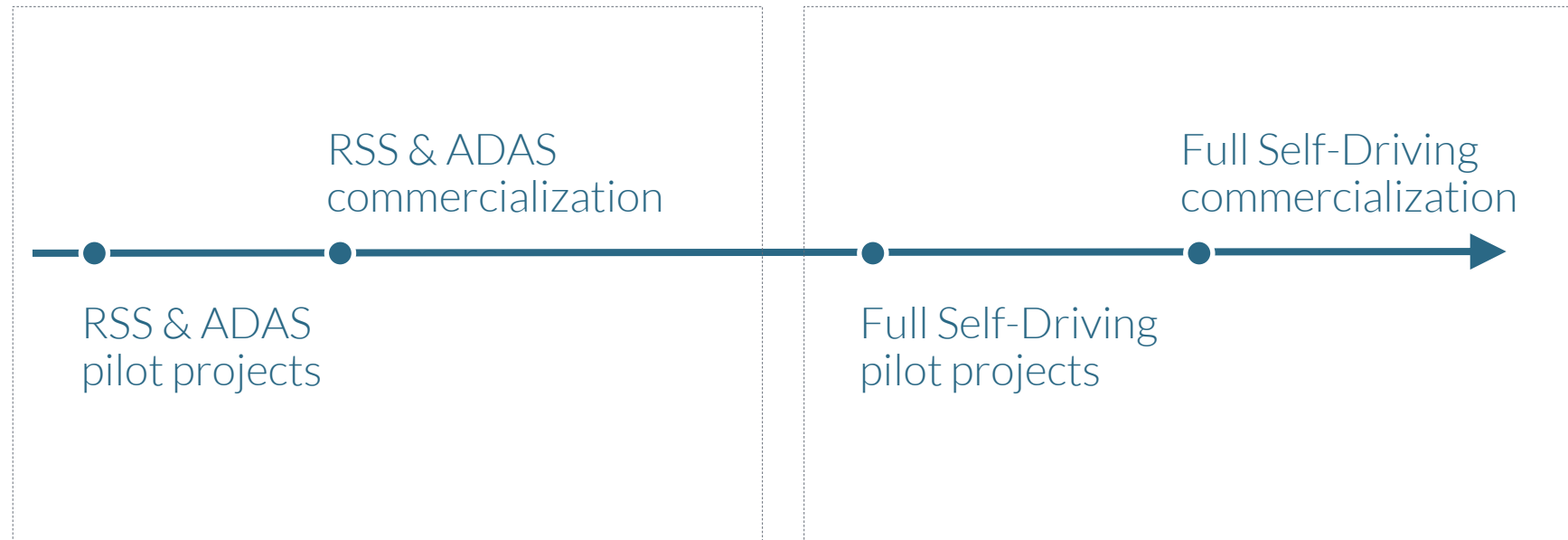
Approach: Go-to-market



Phase 1: Foot in the door

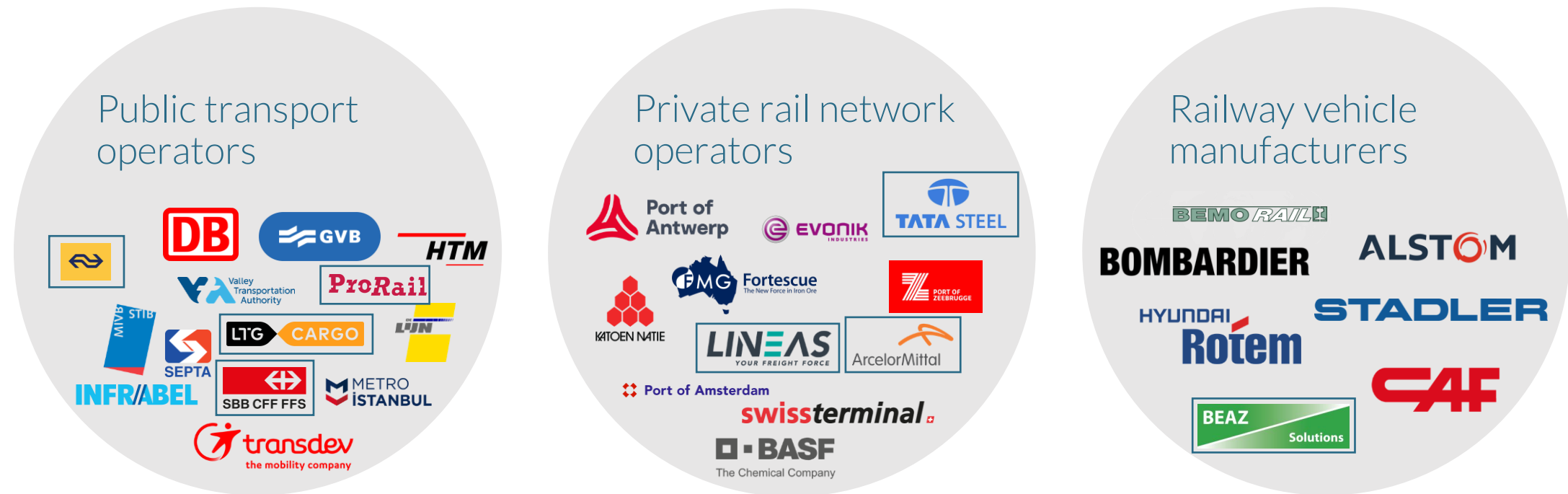


Phase 2: Building the dream



# Important current projects and strong pipeline with public transport operators, private operators and rail OEMs

Selection of OTIV projects in pipeline



Need for prioritization in (custom) development and implementation in H2 2021

 Current projects



OTIV has a proven track record of codevelopment with the Dutch Railways (NS) and ProRail



Reference contact: Floris Nilting (Program manager ATO at NS)





# The collaboration with NS & ProRail was very successful: Goals were realized and even exceeded

NS & ProRail codevelopment project: Client feedback



- “ OTIV delivers solutions that are years ahead of the large railway OEMs such as Siemens and CAF
- “ OTIV team shows magnificent agility and technical expertise
- “ Overall goals of the collaboration were more than met, even exceeded at some points (e.g. introduction of Lidar system)

# OTIV is piloting Remote Shunting Solution on Lineas' T77

**LINEAS**  
YOUR FREIGHT FORCE



Reference contact: John Cool (Head of Innovation Program at Lineas)

**OTIV**



Contract negotiations ongoing on roll-out of RSS solution at ArcelorMittal Gent (phase 1) and Europe (phase 2)



Reference contacts: Jeroen Vercauteren (Project Engineer at ArcelorMittal Gent) & Peter D'haese (Chief Digital Officer at ArcelorMittal Europe)





# OTIV starts piloting RSS at Tata Steel IJmuiden in September



Reference contact: Wilko Keulemans (Manager Rail at TSE)

**BEAZ**

Solutions

OTIV has  
partnered with  
BEAZ Solutions to  
integrate Full Self-  
Driving into  
electric shunting  
vehicle



Reference contact: Jack Zuurbier (Director at BEAZ Solutions)



# The partnership on full autonomy with BEAZ Solutions is a first for the industry

BEAZ partnership: Partner feedback



“ The OTIV FSD system integrated on electric locomotives is an absolute first in the market – We think this will cause quite some reactions

“ We start planning demos with prospects early 2022

“ A perfect use case for autonomous electric autonomous locomotives is the transport of liquid steel at ArcelorMittal or Tata IJmuiden





# OTIV projects get regular attention from the press



De Tijd (April 2021)



Trends (July 2020)

## Zelfrijdende trams en treinen op industrieterreinen? De Vlaamse start-up OTIV fixt het met AI

Verhaal Dinsdag, 16 maart 2021

Wanneer iedereen van zelfrijdende auto's droomt, kiest een jong Vlaams duo voor een meer niche optie: de zelfrijdende tram en trein. Met artificiële intelligentie zet start-up OTIV uit Gent de eerste stappen naar veiliger en efficiënter spoorvervoer.



Vlaio (March 2021)

Gents ondernemersduo ziet in zelfrijdende trams een veilige en efficiënte oplossing voor het stedelijk mobiliteitsprobleem



Bloovi (November 2019)

“Een tram zonder chauffeur?”  
Gentse start-up wil technologie om auto's autonoom te laten rijden naar trams



Nieuwsblad (October 2019)

# Complementary team of founders



Niels Van Damme  
Computer vision

Tech lead

## Experience

- Science & Technology Counselor at Flanders Investment and Trade (San Francisco)
- Co-creator at Learnfromdata.ai

## Education

- UGent: Master in Industrial Engineering: Automation Technology
- UGent: Bachelor in Business Engineering



Sam De Smet  
Business strategy

Business Lead

## Experience

- Strategy consultant at Boston Consulting Group (Brussels, Munich, Africa)
- Strategy consultant at Roland Berger (Brussels, Paris, Amsterdam, Shanghai)
- M&A Intern at Deloitte (Brussels)

## Education

- UGent: Master in Business Engineering

# OTIV Board and Advisory Board consist of experts from industry, technology and entrepreneurship

BoD, advisors and academic collaborations

## Advisory Board

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Railway operator	<b>Floris Nilting</b> Head of Innovation Program NS
Financial management	<b>Joost Vanhecke</b> CFO Teamleader
Cybersecurity	<b>Guy Lucq</b> CIO/CISO EMEA Deloitte

## External advisors

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Rail industry	<b>Lieven Danneels</b> CEO Televic
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## Board of Directors

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Funding	<b>Sven De Cleyn</b> Program Director imec.istart
Entrepreneurship	<b>Boris Bogaert</b> Serial entrepreneur / CEO Netlog, Realo, Rydoo
Sales	<b>Wim Derkinderen</b> CCO Rydoo

## Academic collaborations

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Computer vision and autonomous technology	<b>Prof. Jan Swevers</b> KU Leuven
	<b>Prof. Pieter Simoens</b> UGent



What are our  
next steps?



Pilot projects



Follow-up  
funding

Looking forward to working together!



OTIV B.V.

Miriam Makebaplein 1  
9000 Gent, Belgium

Email: [hello@otiv.ai](mailto:hello@otiv.ai)  
Website: [www.otiv.ai](http://www.otiv.ai)

