

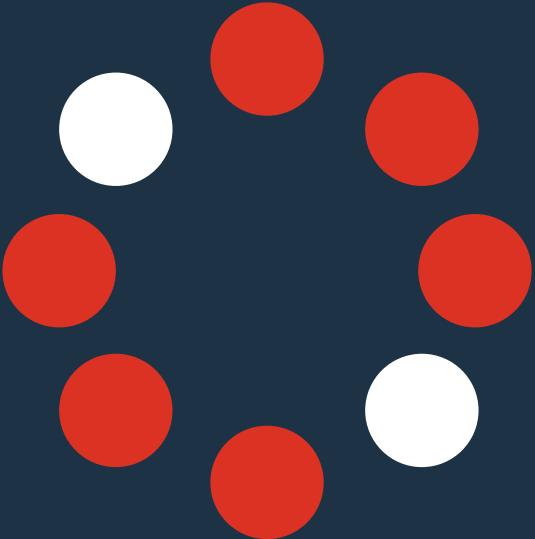


CO₂ reductie Alstom NL

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ALSTOM
• mobility by nature •



Agenda

1. Alstom in Nederland
2. CO₂ reductie: Managen én doen!
3. Gemakkelijk schalen naar nieuwe bedrijfsonderdelen

Alstom in Nederland

Alstom in The Netherlands is one of the major suppliers of transportation solutions. The company focuses on supplying innovative rolling stock solutions for urban transport such as tramways, metros, regional and high-speed trains. Alstom's state-of-the-art **signalling solutions** allow operators to ensure safe and seamless travel for urban and mainline transportation. A range of **services** using the latest digital technologies is offered for high fleet availability. Alstom has 4 sites in the country: **Ridderkerk** for Services, **Nieuwegein** depot for tram maintenance, 6 depots in the **Rotterdam** Port for locomotives maintenance, **Utrecht**, **Duivendrecht** and **Amsterdam** project offices for Signalling solutions.



KEY FIGURES

370

Employees

11

Locations

5

CO₂ level performance

700

trains in operation and under contract

49

Tramways of Utrecht in daily maintenance



: ACTIVITY 1 – RAIL SIGNALLING SYSTEMS

- Full-solution provider of urban and mainline signalling projects (design, delivery, installation and commissioning, maintenance)
- Leader in ERTMS (European Railway Traffic Management System) on-board and track systems on the Dutch railway ensuring network performance and reliability while being interoperable with all types of trains.
- Frontrunner on innovation Automatic Train Operation
- Maintenance of complete signalling systems



: ACTIVITY 2 - SERVICES

- A range of services guarantees the availability of systems: parts & repair, overhaul, modernization, renovation and support services using the latest technologies.
- Fleet support center with HealthHub predictive maintenance to optimize availability of fleets of vehicles, cost & passenger satisfaction
- Provision of daily availability of fleet with execution of preventive and corrective maintenance as well as overhaul and damage repair.



: ACTIVITY 3 – ROLLING STOCK

- Rolling stock solutions for urban transit, mainline travel, regional and high-speed transport and freight.

MAIN REFERENCES

A large presence in the public transport with over 200 vehicles with the latest signalling and services solutions

ROLLING STOCK

- 113 tramways Citadis in Rotterdam for RET
- 80 Flexity metros in Rotterdam for RET
- 176 VIRM trains and 131 Sprinter for NS
- 72 tram-trains Regio-Citadis in The Hague for HTM
- 28 metros Metropolis in Amsterdam for GVB

SIGNALLING

- ERTMS safety system on tracks on the Betuweroute (130 km freight route) and on the Hanzelijn (40km)
- ERTMS on-board equipment in freight locomotives
- Interlockings & train detection systems for ProRail
- Complete on-board and trackside CBTC (Communications-Based Train Control) signalling systems for the Amsterdam Metro network and vehicles (North South Line)
- Complete CBTC signalling system for the Rotterdam Metro



SERVICES

- Preventive, corrective maintenance on rolling stock for Dutch customers such as VolkerRail and NS (200 vehicles)
- Modernization program for the VIRM double deck train of NS with auxiliary IGBT power converters (176 vehicles)
- Maintenance of on-board/trackside ERTMS systems for operators

NEW SOLUTIONS

- Alstom has performed in 2018 Automatic Train Operation (ATO) tests in GOA2 on the Betuweroute with ProRail and RFF. New ATO tests in GOA4 (Automatic Shunting) are foreseen in 2022
- Alstom hydrogen train Coradia iLint was successfully tested in Groningen and Friesland in March 2020

PROJECTS ONGOING

Innovative solutions to provide a smart and sustainable mobility of tomorrow



- In 2016, Alstom signed a contract with NS for the delivery of 99 ICNG intercity trains to operate on the high speed line HSL-Zuid and on the main national rail network
- CBTC equipment for the Amsterdam metro vehicles and trackside
- Modernization of the Rotterdam Metro MG2-SG2 fleet, 81 vehicles, control platform, driver desk screen and auxiliary power supply
- Provision of daily availability of the Utrecht tram fleet (49), execution of preventive and corrective maintenance, overhaul and damage repair
- Digital services for the MsM6 metro fleet operating the Amsterdam North South line
- Integral maintenance on diesel and electric locomotives (160)
- Each year, maintenance, overhaul and damage repairs on more than 1000 wagons

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CO₂ reductie: Managen én doen!

1. Alstom worldwide doelstelling:

- ▶ 2020-2025 minimaal 10% CO₂ en energiegebruik reductie.
- ▶ Ecodesign. Het begint bij de ontwikkeling/ontwerp (wijzigingen) van onze producten en systemen.

2. Maatregelen bepalen en in tijd uitzetten om doelstellingen te halen.

- ▶ Bepaal de grootste bijdragers aan de CO₂ uitstoot.
- ▶ Maatregelen om deze grootste bijdragers te reduceren.
- ▶ Eerst een globale planning en daarna meer in detail van de maatregelen.
- ▶ Werkgroep samenstellen met belanghebbenden voor het laten uitvoeren en de opvolging hiervan, zoals:
 - Werkgroep vergroenen bedrijfswagens.
 - Werkgroep verlagen gasverbruik => succesvol door bijdrage afdelingsmanager en medewerkers.
- ▶ Leidinggevenden hebben CO₂ reductiedoelstelling gekoppeld aan de bedrijfsdoelstelling.

3. Reviews om voortgang te bewaken:

- ▶ Werkgroep reviews: meten van de resultaten na invoering.
- ▶ Management. Resultaten tegen doelstellingen leggen.

4. Hands-on mentaliteit:

- ▶ Samenwerken met enthousiaste medewerkers
- ▶ Laaghangend fruit als eerste aanpakken om enthousiasme aan te wakkeren.
- ▶ Zichtbare resultaten (grafieken) en communiceren via email, presentaties etc.
- ▶ Neem zelf initiatief en wacht niet op anderen.
- ▶ Blijf volhouden, pak het momentum.

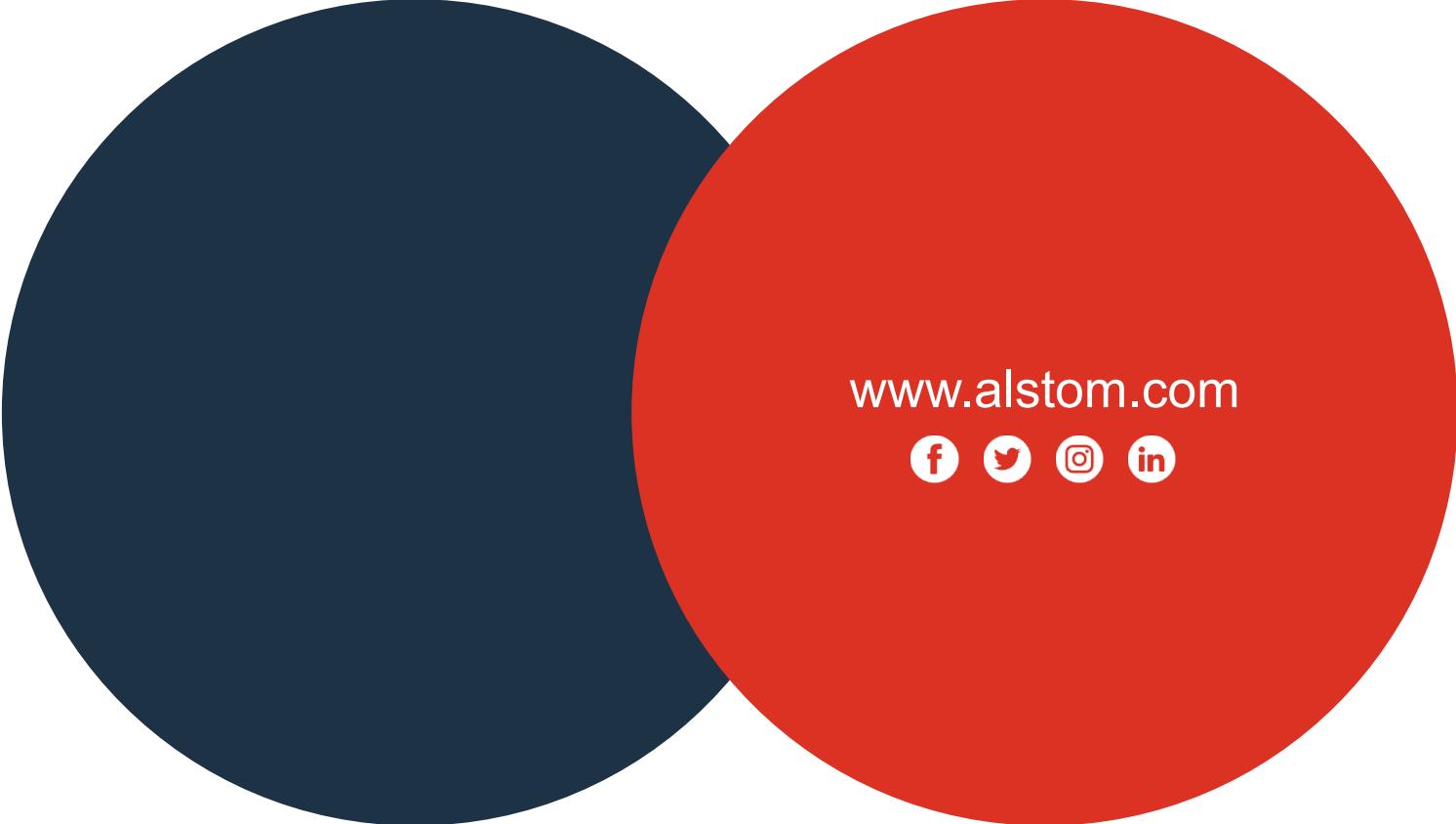
Gemakkelijk schalen naar nieuwe bedrijfsonderdelen

1. Alstom uitbreiding 2021:

- ▶ Bombardier Transport
- ▶ Shunter (NL onderhoudsorganisatie met 5 locaties).

2. Gemakkelijk schalen via SmartTrackers:

- ▶ Organisatie structuur gemakkelijk neer te zetten en te wijzigen.
- ▶ Meters snel aan te maken en maatregelen door te rekenen.
- ▶ Personen voor invoer gegevens snel toe te voegen.



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