

Applied Autonomy – Pitch Deck

Bringing Autonomous Processes to Life

Investor presentation
2023



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**AWARDED: Best Autonomous Vehicle
Implementation Services Firm 2023 - Global**



Cities need a new mobility solution



Vehicles occupy space from people, and consume energy we do not have

The green shift requires shared transport

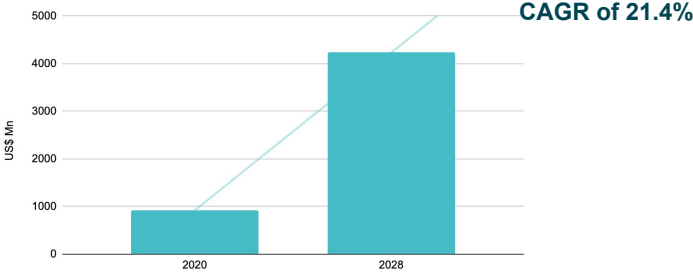
There are not enough bus drivers

Autonomous transport is going into production now

now

Cities and transport operators have investment plans
Legal framework for unmanned vehicles has existed since 2022

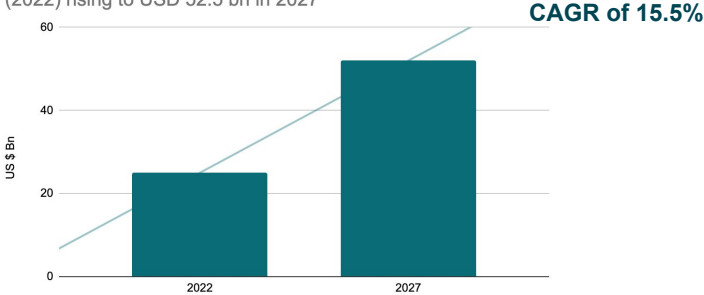
Autonomous buses pave the way for more sustainable urban transportation



The global autonomous bus market is expected to reach around US\$ 4,232 Mn by 2028 with at a considerable CAGR of 21.4% during the forecast period of 2021 to 2028. (ACUMEN,2022)

Source: ACUMEN, 2022

Fleet management systems have a market size of USD 25.5 bn (2022) rising to USD 52.5 bn in 2027



Fleet management systems have a market size of US\$ 25.5 bn (2022) rising to USD 52.5 bn in 2027 (CAGR 15.5%) MarketsandMarkets 2022)

Source: MarketsandMarkets, 2022

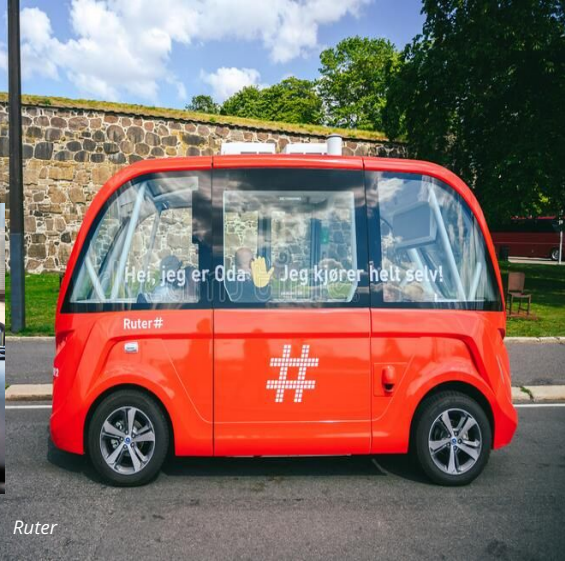
Abbreviation : CAGR = Compound Annual Growth Rate

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Problem: Operators do not have systems to operate autonomous vehicles



For the time being, transport operators cannot use expensive autonomous vehicles without a driver



Transport operators need a system integrator and a new software solution to remove the driver

Public transport - new solutions

xFlow - SaaS management system and integration platform

1 Market with strong future growth expectations

Cost efficient automated driving

Good passenger comfort

Procedures for secure, safe and sustainable operation

Independent on vehicle type



Photo: Vy/Applied Autonomy

Solution: Applied Autonomy, xFlow®

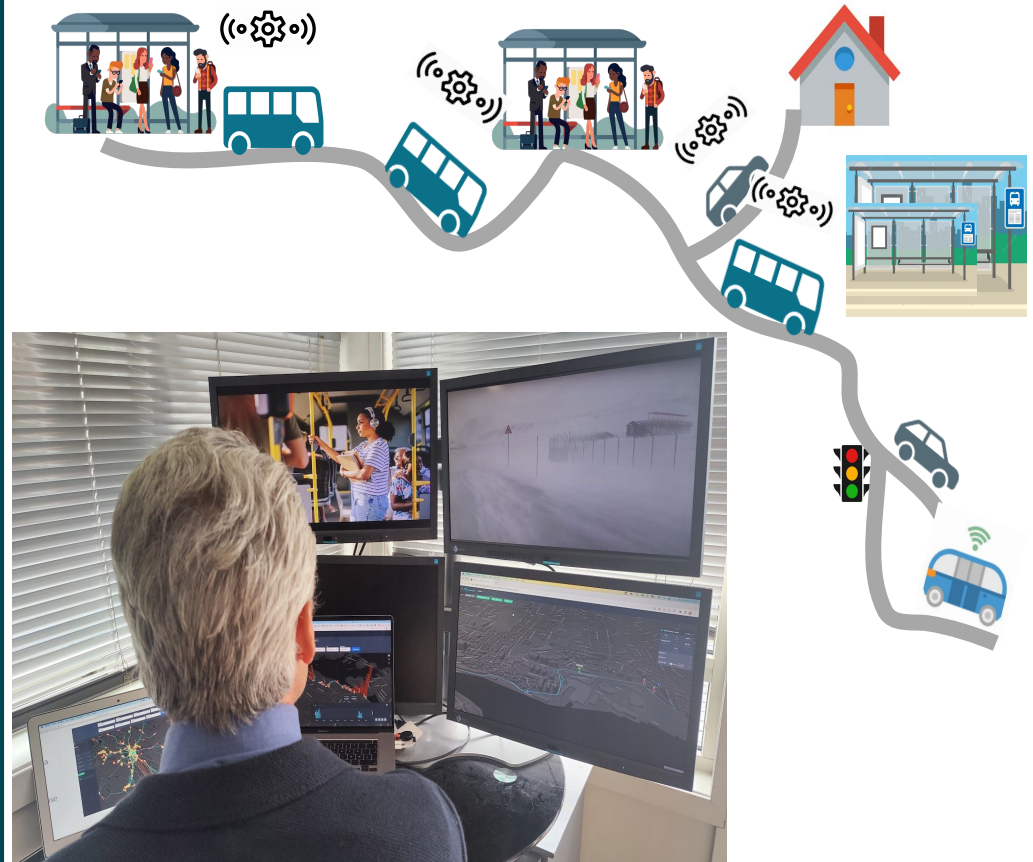
Bringing Autonomous Processes to Life

2 Tested solution with leading functionality for operations center software

Our SaaS xFlow® and automated vehicles reduce transportation cost by 35%-50%

xFlow® provides:

- Transportation tasks to autonomous vehicles
- Functionality to assist vehicles and passengers
- Functionality to improve driving behavior and vehicle optimization
- Functionality to detect needs for adjustments of services before problems occur
- Cyber security and data sharing



Abbreviation : SaaS = Software as a Service

Logistics needs a new transport solutions



1. Contribution to the **accelerated deployment of innovative connected and automated freight transport solutions in Europe**
2. Contribution to the **increase of the overall safety and efficiency of freight operations** of individual trucks or fleets in confined areas and in mixed traffic (hub to hub) **through innovative connected and automated driving systems**
3. Actions will show the **uptake of new business models**
4. Actions will seek to reach a **total cost reduction of operations and logistics and supply chain**, leading to improved competitiveness of the European transport and logistics industry

“Our focus is to develop, test and demonstrate connected and **automated** systems for **heavy commercial vehicles in real logistics operations.**”



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 101006817. The content of this presentation reflects only the author's view. Neither the European Commission nor the INEA is responsible for any use that may be made of the information it contains.

Global approach

Development of the ADS

Able to **handle adverse environmental conditions** such as heavy rain, snowfall, fog

Targeting compliance with **ISO 26262** and taking into consideration **SOTIF recommendations**

Integrating **multiple sensor modalities** and an **embedded teleoperation system** to address **24/7 availability**

Optimized fleet management & supervision system for logistics use cases

Integration into HDV

AIT



Manufactured by **PALFINGER**

KAMAG



TLD



TERBERG



Demonstrations

Industrial autonomous loading & unloading operations



Hub to hub autonomous logistics on public roads



Airport autonomous ground support equipment



Port Trailer autonomous transfer operations



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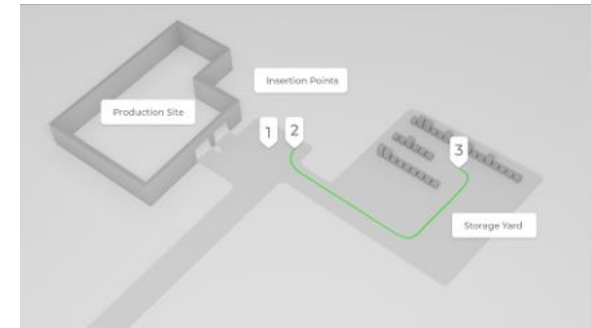
Use Case 1: Autonomous loading & unloading forklift operations

Site

Large-scale Robotics Lab of AIT
Private site with public access

Objective

To demonstrate automated, flexible operation to load and unload trucks on unstructured environment under harsh weather conditions without pre-planned routes nor logistic infrastructure



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Use Case 2: Hub-to-hub shuttle service from warehouse/production site to logistics hubs

Site

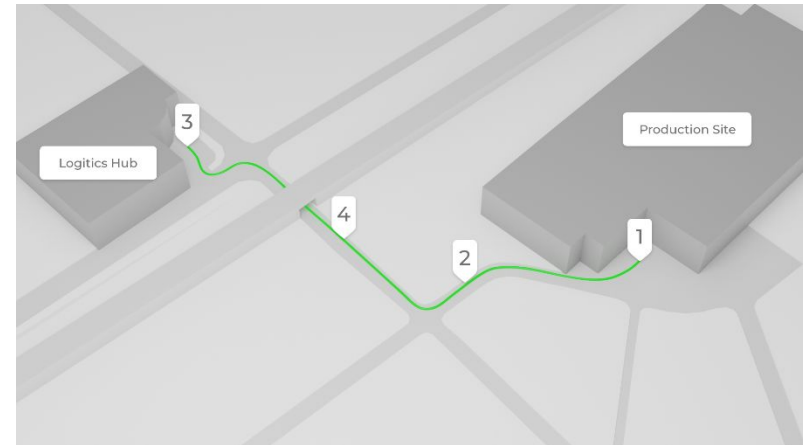
Engine Factory of BRP-Rotax

Logistic Hub of DB Schenker

Public & private site

Objective

To demonstrate highly automated, continuous, hub-to-hub freight transportation between both sites, which are connected via public side roads, public crossing areas and a public main road.



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Use Case 3: Automated baggage tractor on airside in Avinor OSL Gardermoen airport

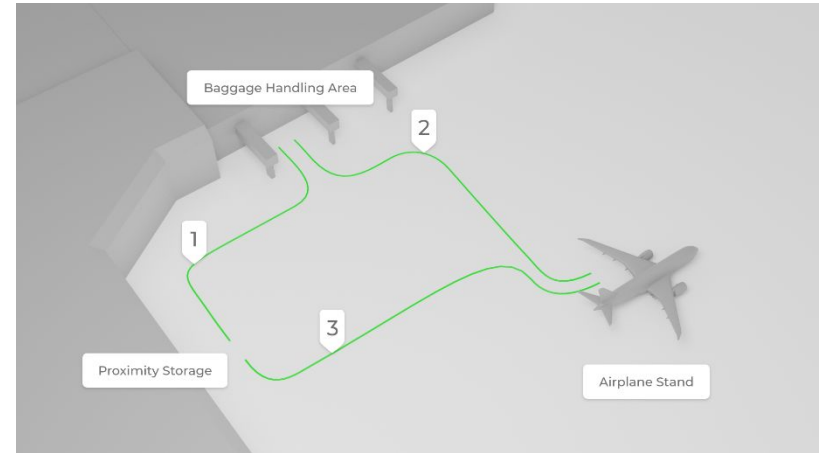
Site

OSL Gardermoen airport

Private site

Objective

To demonstrate automated baggage tractor transportation under harsh-weather conditions from proximity storage to the makeup area, and from the makeup area to the aircraft stand.



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Use Case 4: Trailer transfer operations and automated ship loading in Rotterdam Port

Site

Rotterdam port terminal

Restricted site

Objective

To demonstrate and validate AWARD technology on a busy Roll-in/Roll-off terminal in Rotterdam (NL). The objective is to integrate automated trailer transfer with DFDS terminal systems and operate in a live environment with other vehicles and people



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From multiple horizons

Norway

APPLIED AUTONOMY AVINOR

ITS Norway

Finland

VTT

Denmark

DFDS

United Kingdom

NAVTECH RADAR

Austria

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

Digitrans

LEM LINZ CENTER OF MECHATRONICS

ROTAX

FHO UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA

austriatech Mobility in motion

business upper Austria

DB SCHENKER

Germany

Continental The Future in Motion

KAMAG

The Netherlands

TERBERG BENSCHOP

France

EASY MILE

REPUBLIQUE FRANÇAISE

Cerema

FRANCE AVIATION CIVIL SERVICES

CASA

SAS

Belgium

RU

Switzerland

CERTX

Spain

enide

Israel

ADASKY FORESIGHT

ottopia

