



Tractonomy

Material handling. Anytime. Everytime.

Supported by



ranked #1 university-linked accelerator in Europe by UBI Global.

We know Autonomous Robots



Keshav
CEO and Lead
Clients, Solutions & Investors
PhD, Space Robotics

3 yrs R&D @ imec
12 yrs NASA ESA R&D
Space station robotics
Defense and security
robotics



Geert
Lead
Mechanical Engineering
>35 years deep expertise



Elias
Lead
Software Engineering
PhD, AI and Robotics

Geert
International Sales
> 25 years logistics market



Kurt
Fractional CFO
Financial Engineering
19 years Banking



Rishabh
SaaS Engineer



PART-TIME



What do these businesses share?

FedEx® amazon Alibaba Haier

colruyt⁺ bpost



XPO
Logistics

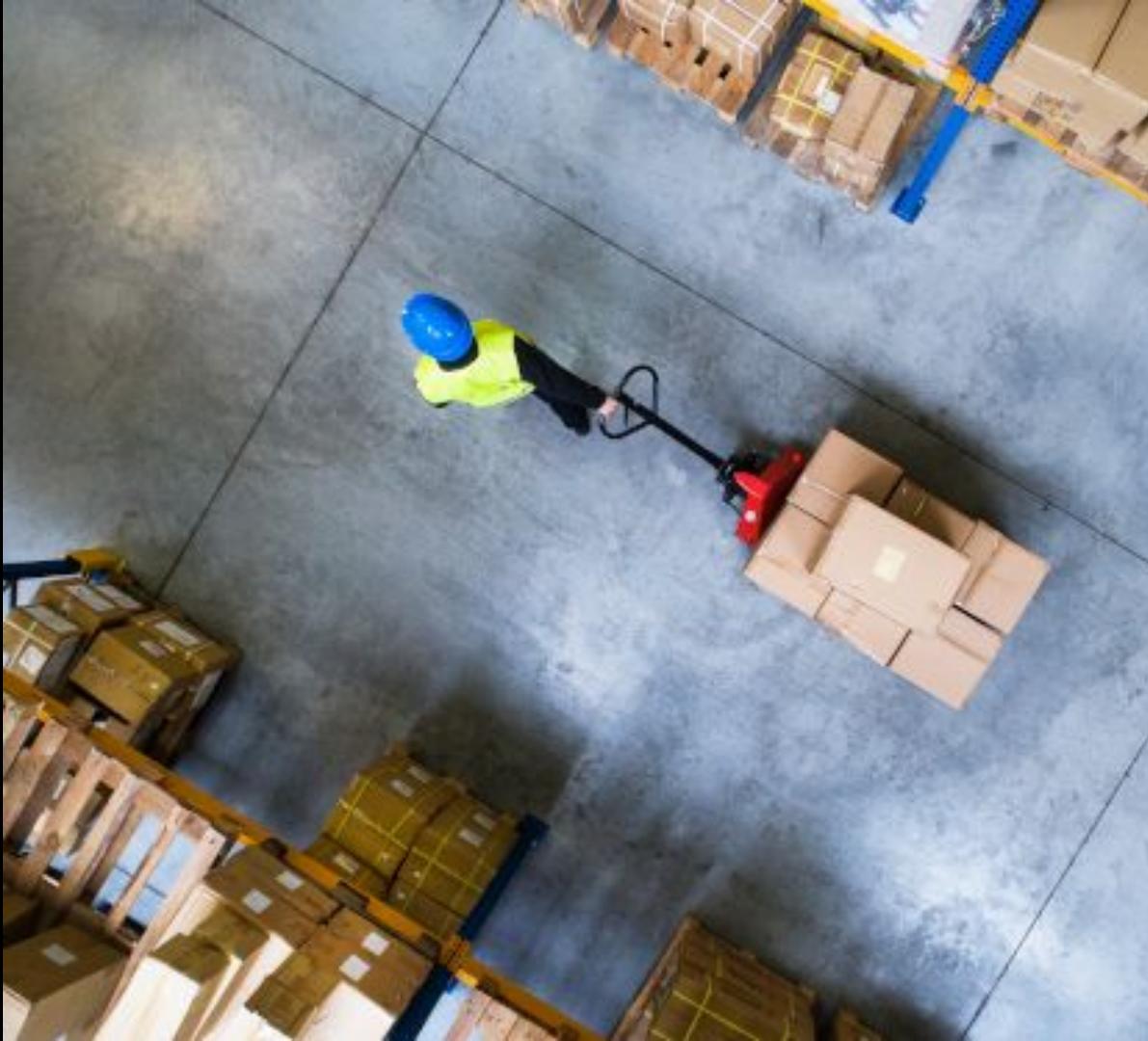
Johnson & Johnson



et al



A need to move goods efficiently



AUTONOMOUS MOBILE ROBOT (AMR) MARKET

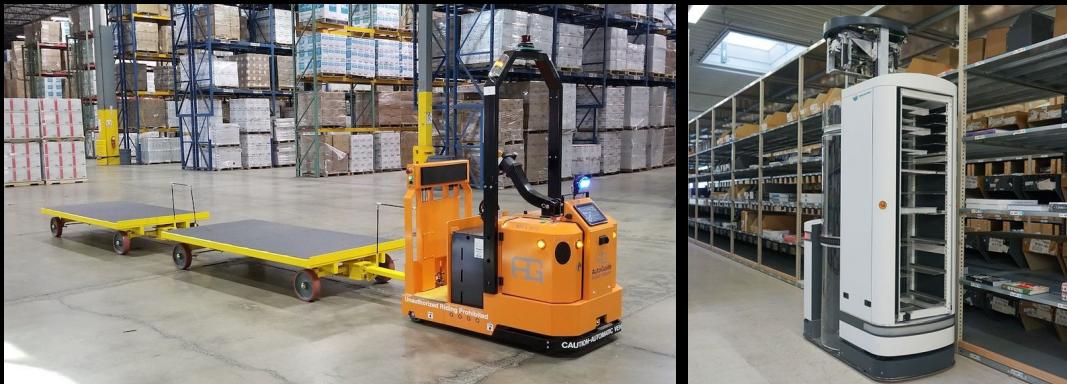
21% CAGR to 7B\$ by 2025



74% of supply chains will adopt robotics



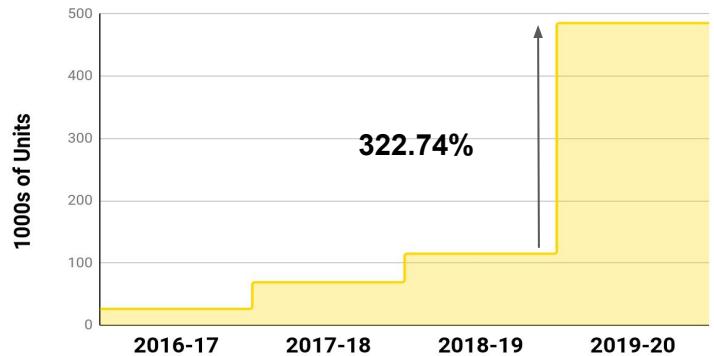
> 2 million robots will be in warehouses by 2025



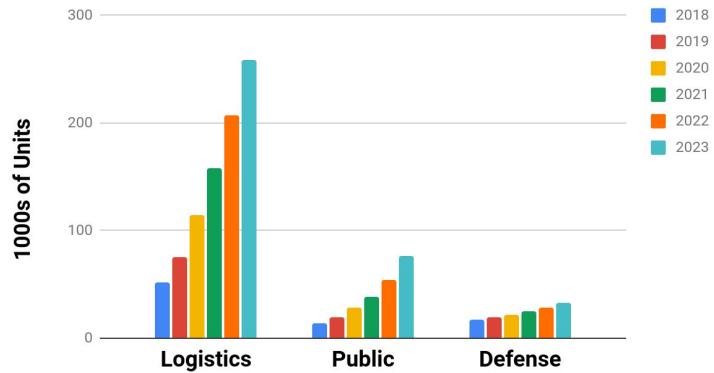
<https://www.robotics.org/service-robots/logistics-robots>

AMR Market Growth

Sales Trends - AMRs and AGVs



Unit Sales Service Robots - Top 3 Applications - Potential



DRIVERS



e-commerce ↑



uncertain labor ↑

flexibility ↑



sustainability ↑

stay at work ↑

2017 - 2020

Locus robotics - 1B\$ valuation

Shopify acquires Six River for 450M\$

AutoGuide - M&A, M\$165

MiR - M&A, M\$178

Not all AMRs solve all problems



Bulk Handling Runs on Carts



Thousands of existing carts

1 FTE & Vehicle = 60K-75K

2 ATRs = 100K ~ 130K*

2 ATRs = 2 FTE x 2 shifts

ROI < 2 years



Customer Value - Global 3PL

	Person	Robot
Minutes per cart	10	25

	Person	Robot
Annual Cost	55200	20400
1 Shift [230 days x 8 hours]		
Cart Moving Hours	321	1840
Cart Moving Cost	9616	20400
2 Shift [230 days x 16 hours]		
Cart Moving Hours	641	3680
Cart Moving Cost	19231	20400



Traction



POCs	3 years
1X	2-5
2X	4-8
2X	> 20
2X	> 10
2X	> 30
2X	> 25
2X	> 25

POC = Proof of Concept

POC VALUE
80K to 150K

POC REVENUE
6-9PoCs this year
~ 500K to (unsigned)

POST POC VALUE
~ 125 ATRs
7 to 8 million

JUST HERE!

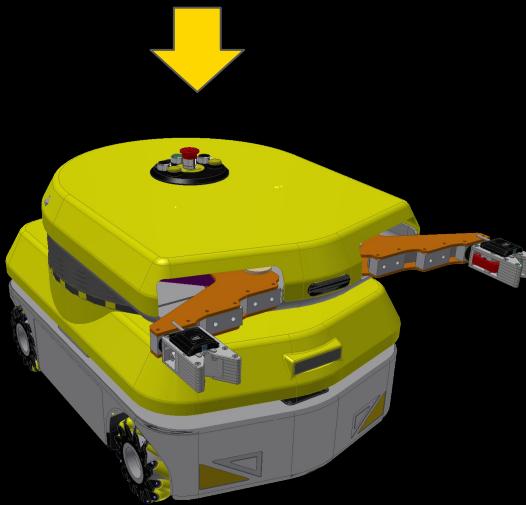


Specialized Cart Handling AMRs

Powered by a
Robotics-as-a-Service
Cloud

Ready to handle 800kg

SEAMLESS HANDLING

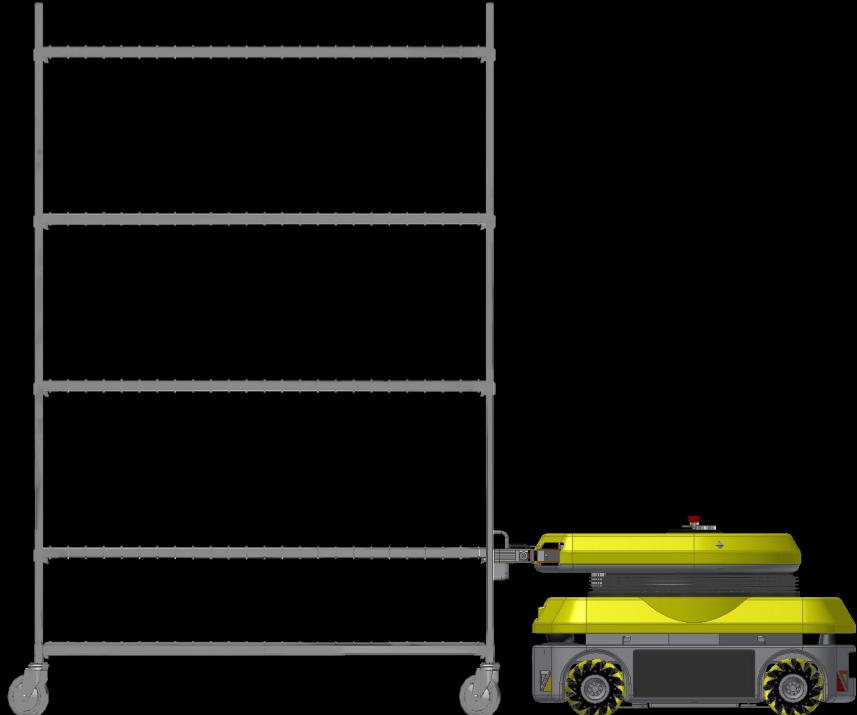


AND AUTONOMY

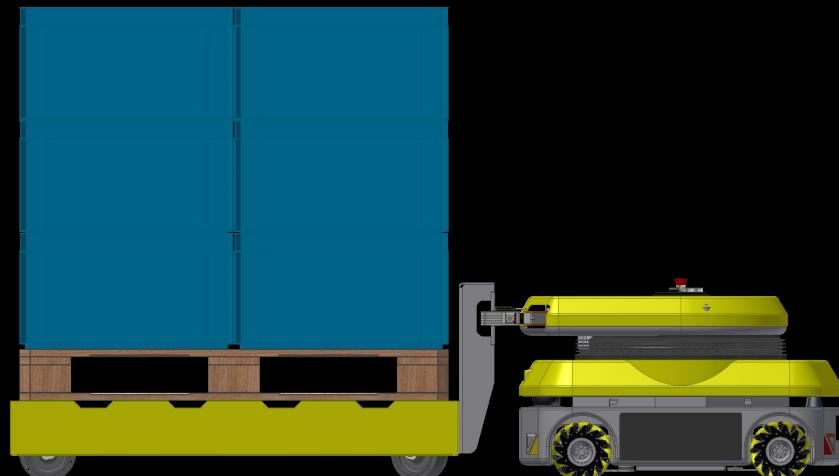
FOR 24/7
EFFICIENCY



Real Bulk Handling upto 800kg

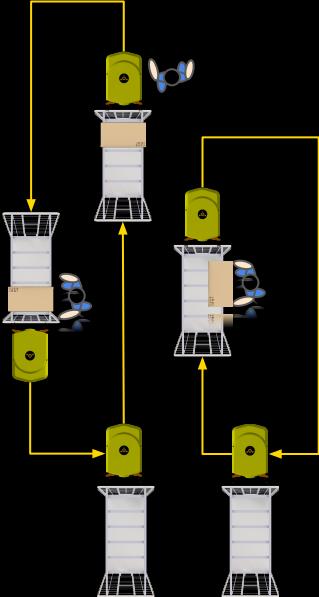
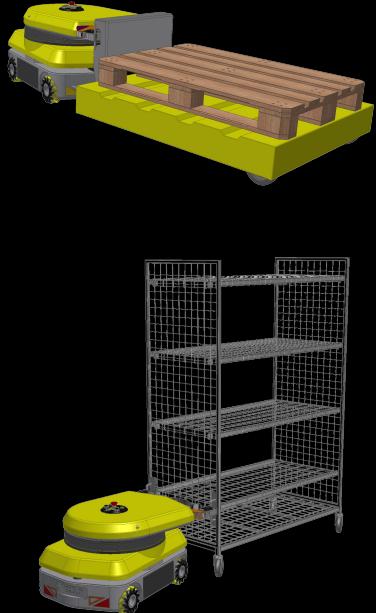


Carts, Roll Cages, Trolleys



Pallets, Heavy Cages

Four Value Offers



Reliable Autonomy



Remote Support



Site Support

CAPEX



Value



Pay-per-use

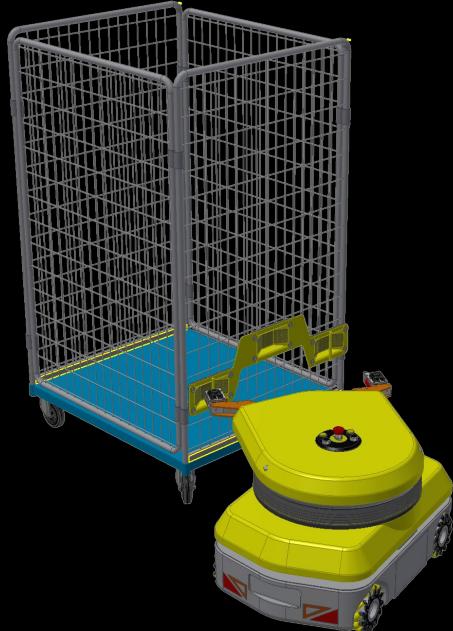
OPEX

Scalable Fleets

Quick Support

Easy Pricing

Designed for the Real World

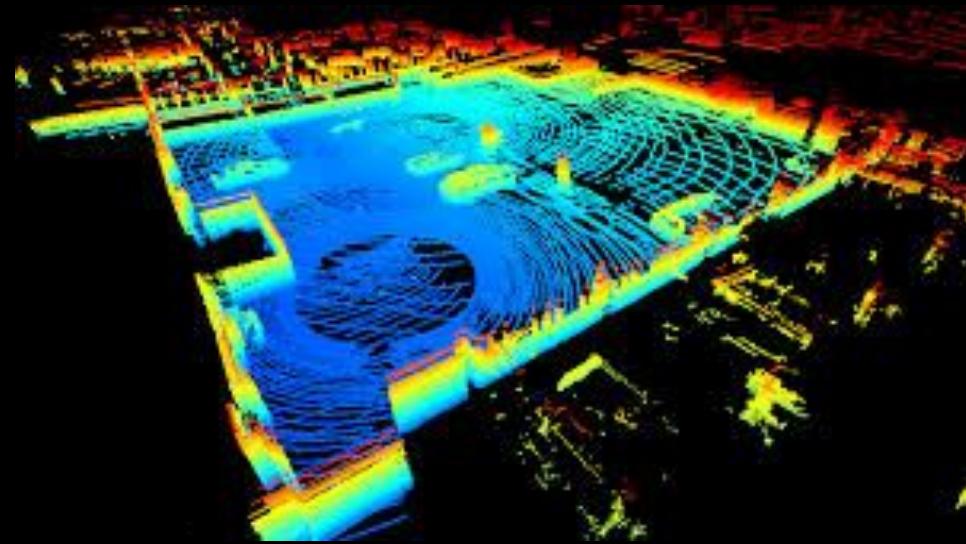
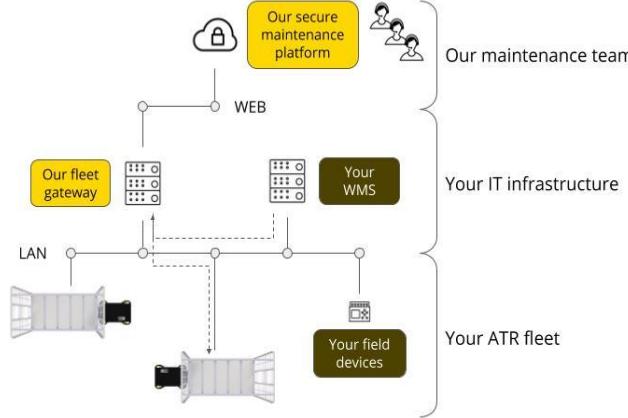


- Chaotic Environments
- Any wheeled equipment
- Real-world performance

Cart independent handling



Coordinated Fleet Algorithms



Cart-to-Person

Positive



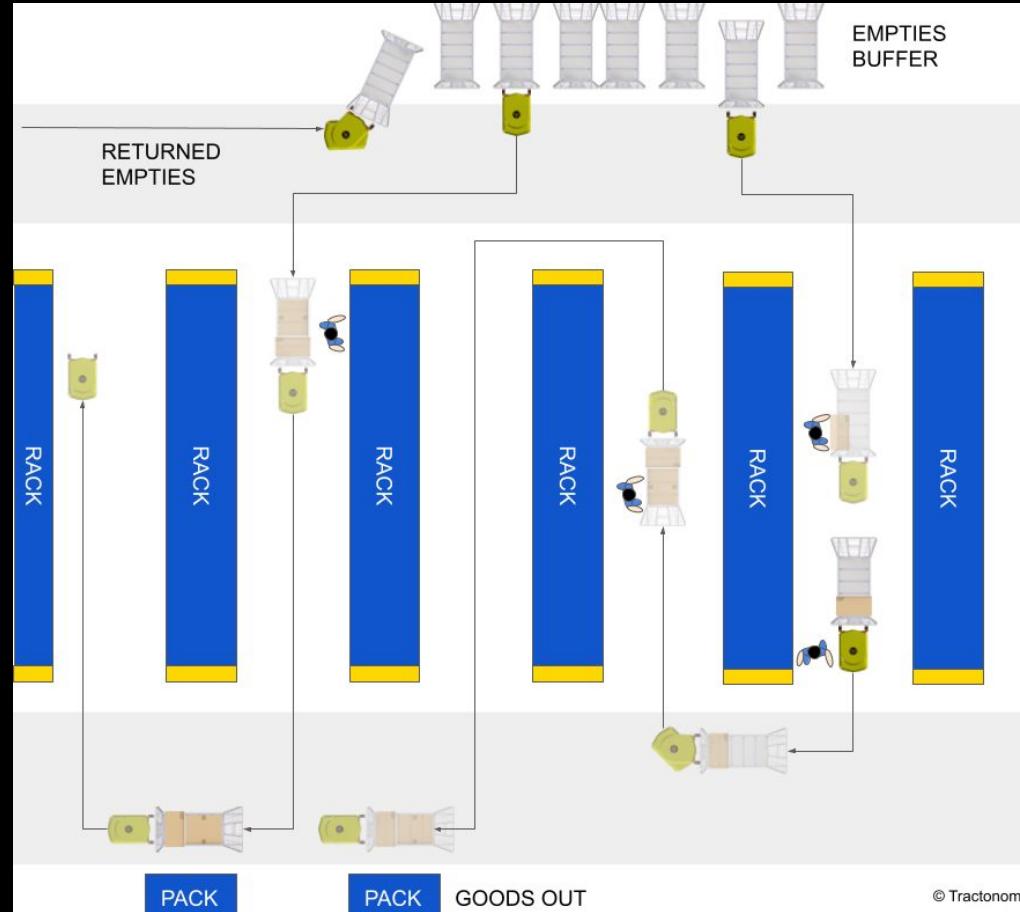
KUEHNE+NAGEL



Potential -
Retail



Potential -
3PL



© Tractonomy Robotics, 2020-



Production Logistics

Positive



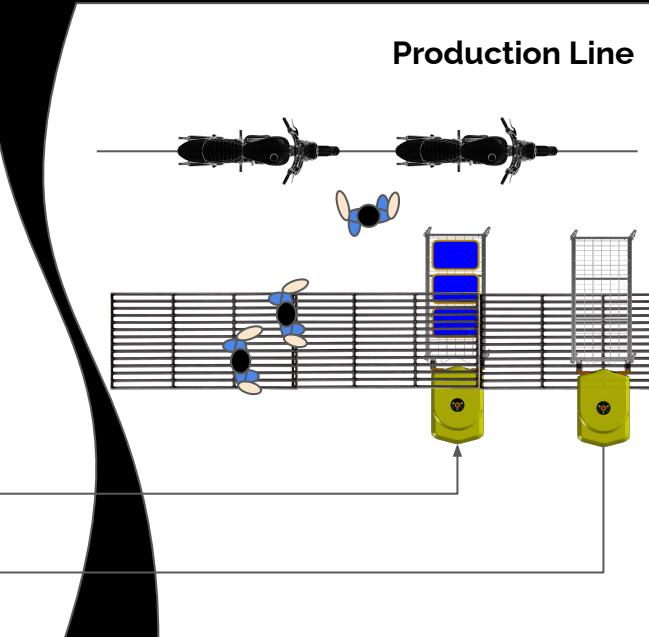
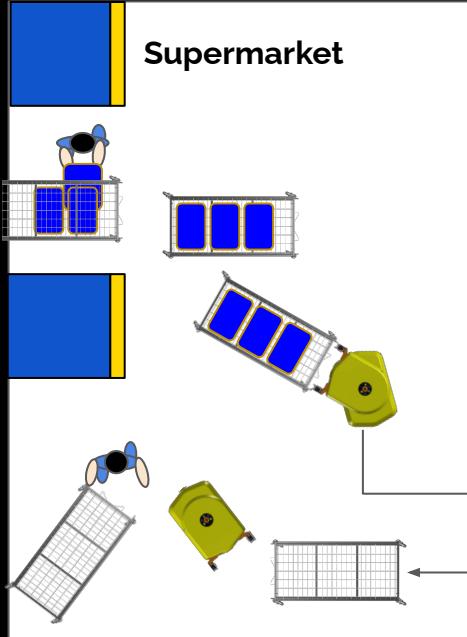
Haier



Validated Need



PICANOL



Kit Carts

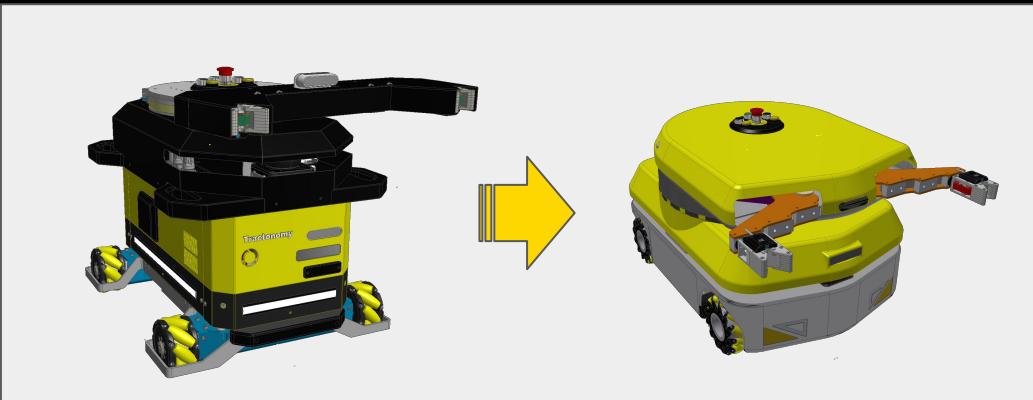


Today

Industry-grade
ATR Demonstrator



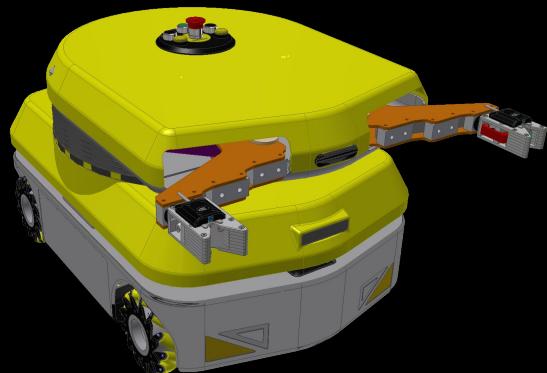
- 3+ potential PoCs
- ~100K consulting
- 262K Invested
- EPO Patent
- A paid CE Dossier (50K€)



**Short Industrialization phase
5-6 months**

Designs are ready

Beyond State-of-Art



- Level 4 Autonomy
- 360° Safety
- Patented Laser Docking
- Wireless charging
- Quick Fault Recovery

Models

ATR-400 — 400kg handling

ATR-800 — 800kg handling

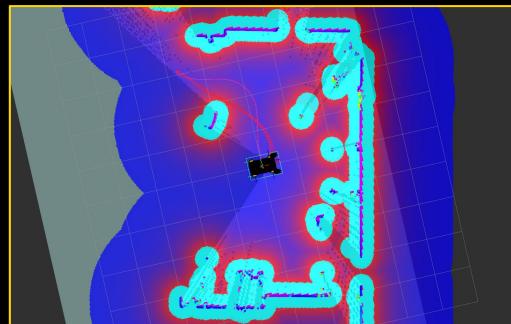
Multiple Applications



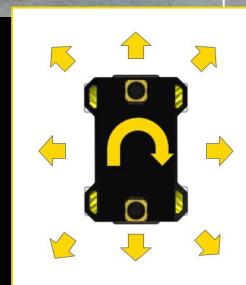
ATR-Proto



AI-supported Navigation

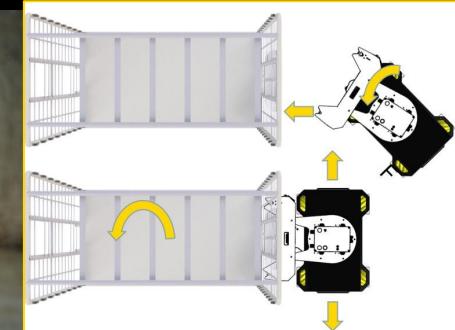


Level 4 Autonomy



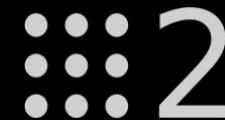
Omni-directional
Flexibility

Quick dock system



- 400kg towing*
- Compact 50x70cm
- Wireless charging
- Secure APIs

Fleet Scalability
with ROS2
architecture



Scalable Cloud Services



Real-time data insights



Designed for industrial wireless



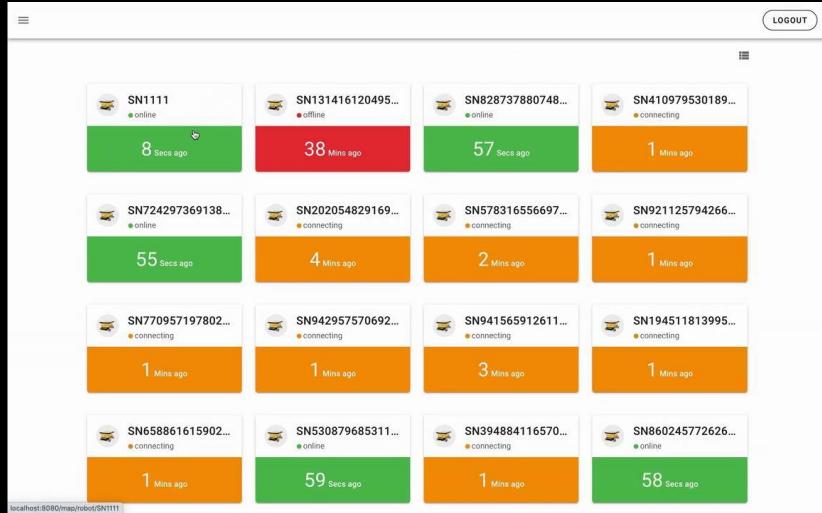
Scalability- and security-by-design



Remote support teams



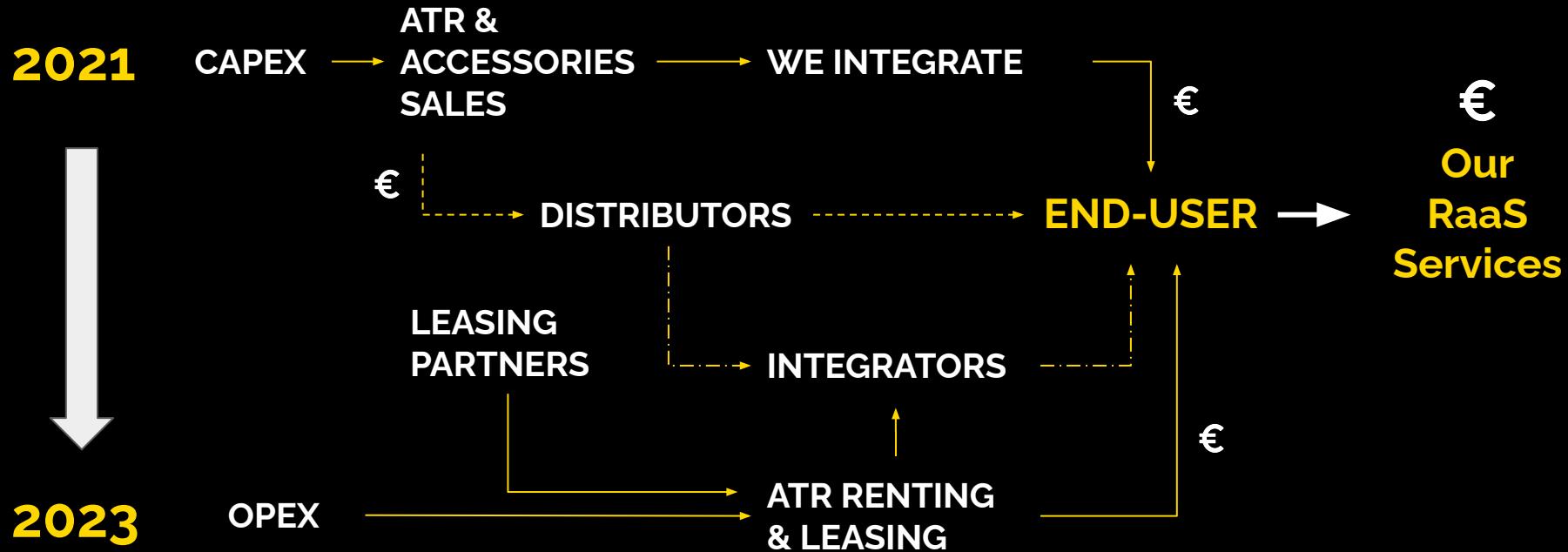
Fast SLAs for downtime support



Fleet Scalability
with ROS2
architecture



Business Models



Flexible Purchasing and Pay-per-Use Options



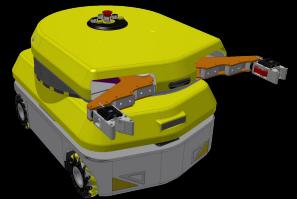
Products Sold



ATR-400
45K€ LIST PRICE



Hitches
50~100€/Unit



ATR-800
55K€ LIST PRICE



Wireless Chargers
On Request



Battery Systems
On Request



Extended with
Formant

SN1111	8 Secs ago	SN131416120495...	38 mins ago	SN282737880748...	57 mins ago	SN410879530189...	1 min ago
SN724297369138...	55 mins ago	SN202054829169...	4 mins ago	SN578316556697...	2 mins ago	SN921125794266...	1 mins ago
SN70957197802...	1 Min ago	SN942957570692...	1 Min ago	SN941565912611...	3 Min ago	SN194511813995...	1 Min ago
SN658861615902...	1 Min ago	SN530879685311...	59 secs ago	SN394884116570...	1 Min ago	SN860245772626...	58 secs ago

Robotics-as-a-Service Packs
Hourly Rates

Purchase or Pay-per-Use

	Robot	€ 45,000			
Purchase	RaaS		€ 3,000	€ 3,000	€ 3,000
	Service		€ 2,400	€ 2,400	€ 2,400
	Total	€ 45,000	€ 5,400	€ 5,400	€ 5,400
	DCF	€ 45,000	€ 4,696	€ 4,083	€ 3,551
	Total	€ 57,329			
Pay-per-Use	Set-up Fee	€ 10,000			
	PPU		€ 18,000	€ 18,000	€ 18,000
	Residual				€ 9,000
	Total	€ 10,000	€ 18,000	€ 18,000	€ 27,000
	DCF	€ 10,000	€ 15,652	€ 13,611	€ 17,753
	Total	€ 57,016			

TCO

61200

Monthly

1700

TCO

64000

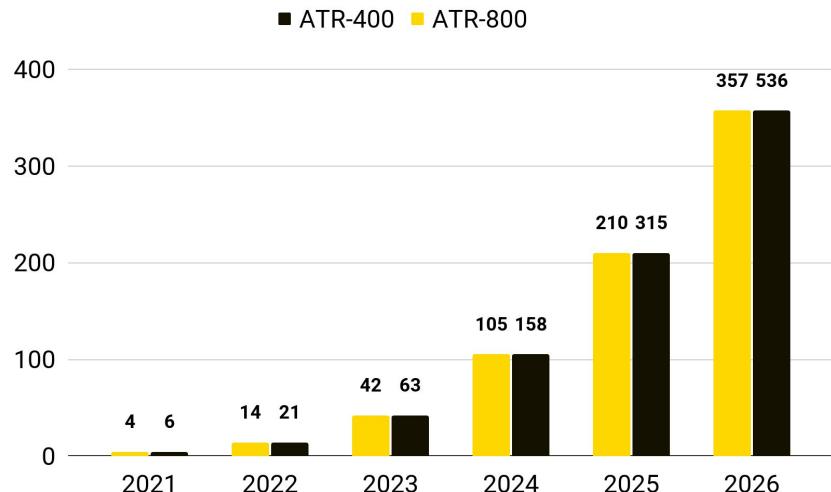
Monthly

1778

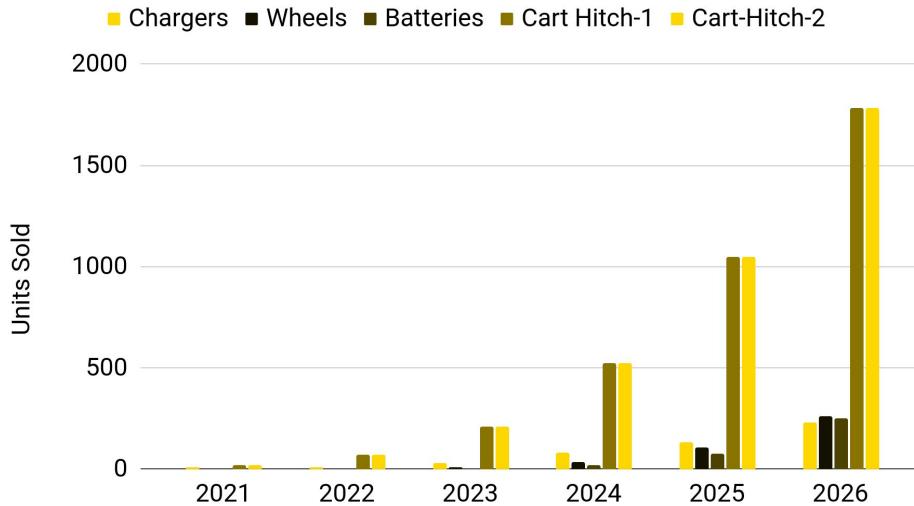


Projections

ATR Units Sold



Accessories



Robotics-as-a-Service

0.3€ to 1.5€ per robot hour

*Technician time excluded



Dashboard Pack

- Includes:**
- Real-time dashboards
 - Supervisor notifications
 - Daily summary reports



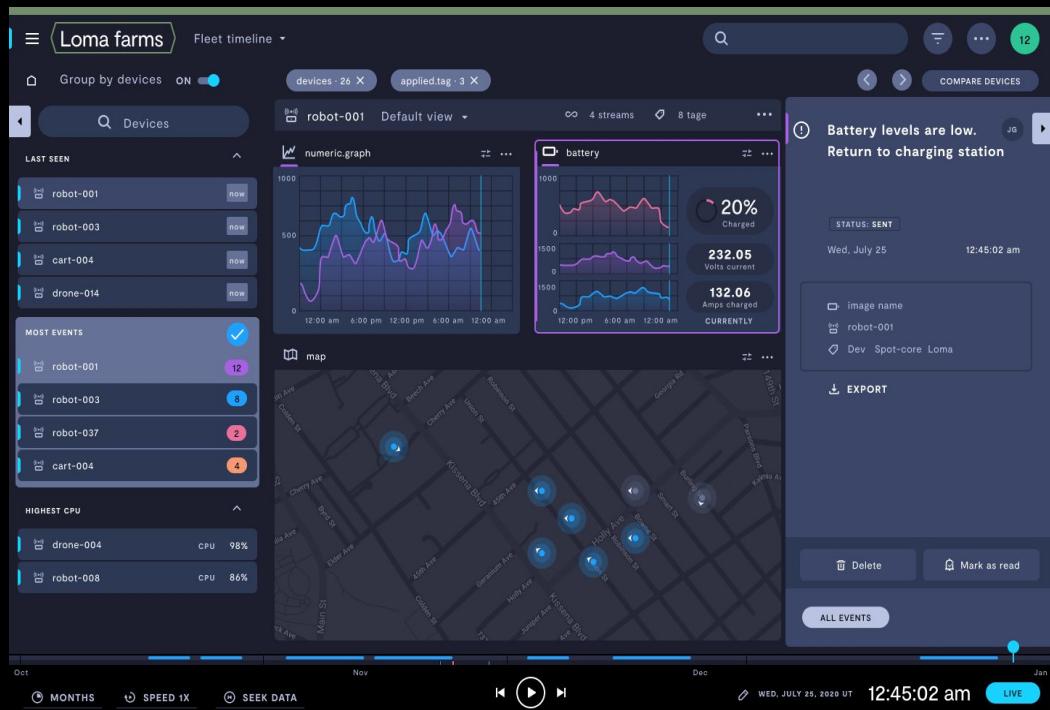
Live Support Pack

- Includes:**
- Managed Fleets
 - Remote troubleshooting
 - On-site service scheduling



Site Support Pack

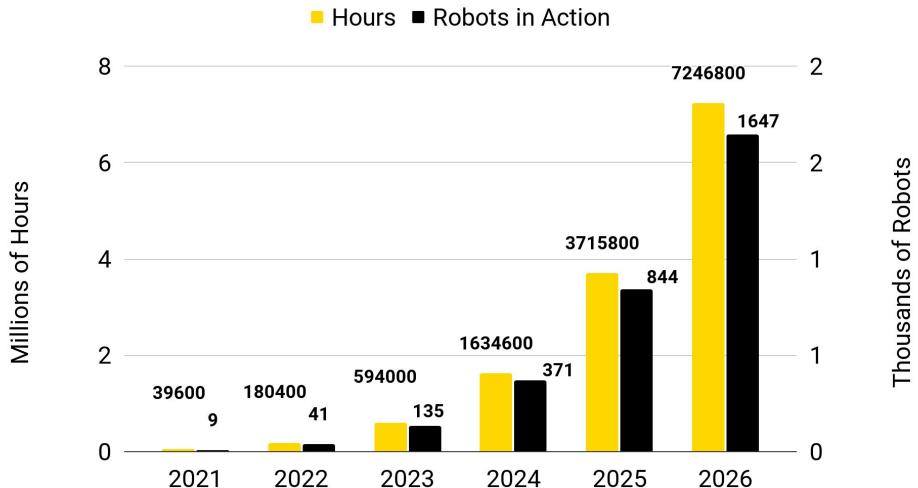
- Includes
live pack
and:**
- Proactive on-site support
 - 24hr response SLAs
 - Replacement robots



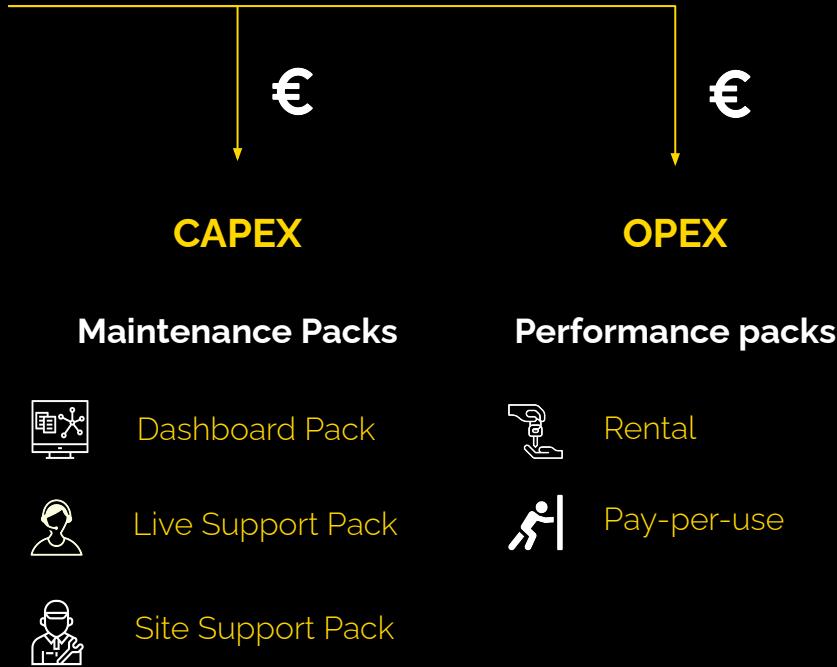
Robots are units of labor

RaaS - Monetizing Time

Hours worked by Robots Operated



275 days x
2 shifts x = 7.3 million hours
8 hours



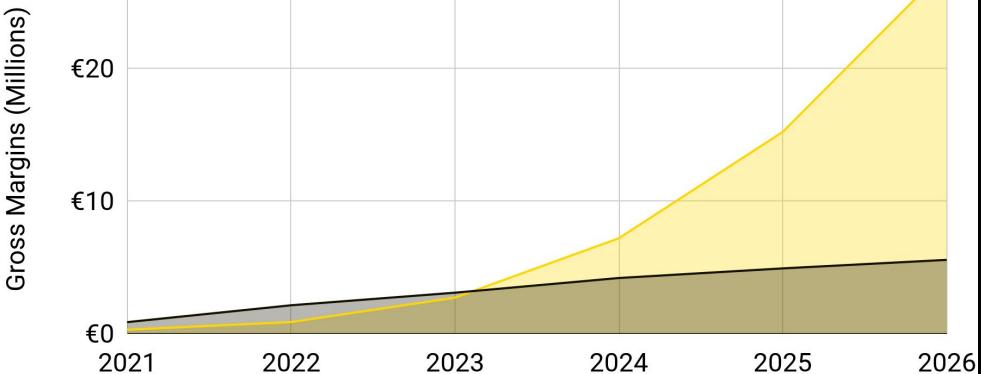
0.3€/hr to 1.5€/hr



Potential

Total Gross Margins vs Costs

Gross Profit ■ Total Costs



2021 - 2023 →

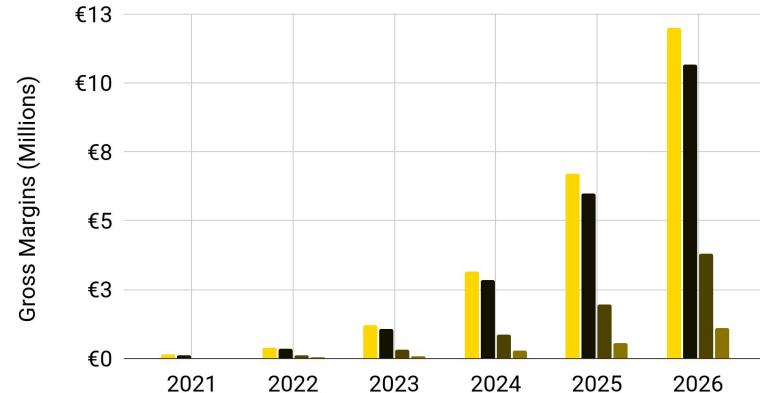
90:10 EU : USA

2023 - 2026 →

60:40 EU : USA

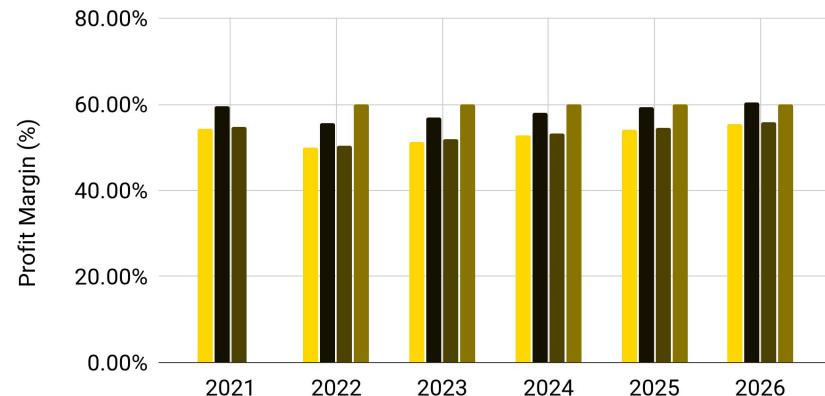
Gross Margins of Products Sold

■ ATR-400 ■ ATR-800 ■ RaaS ■ Accessories



Profit Margins of Products Sold

■ ATR-400 ■ ATR-800 ■ Chargers ■ RaaS



Funding Need

Path	Need (K€)	FTEs	2021 KPIs	Q3 2022 Need
<u>Lean</u>	525	4 (2 IN)	~3 POCs 250K Value	
<u>Mean</u>	950	8 (2 IN)	~ 8 POCs 600K Value	2.0MEUR

Pipeline	Investment (K€)	OK
PMV	200 ~ 250K	TBD
VLAIO	180 ~ 200K	✓
Venture	500-600K	-
Angels	100-150K	-

Mean Path Goals

- 8 -ATRs operated by leading brands in 2021
- To show proven traction for a Series-A of 2MEUR



For details contact
Keshav Chintamani
+32 471 827 669 or keshav@tractonomy.com



www.tractonomy.com

#tractonomy

