

CONTAI

Ground for the shared Last Mile

Since 2019, the CONTAI start-up team has focused on the last mile R&I
CONTAI is located in Finland

CONTAI Team



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Video introduction to the CONTAI concept

Last Mile is undergoing a major change and needs new means that have not been answered

The acute challenge of sustainable last mile logistics is similar to global freight before the sea container standards. The exploded demand has produced a wide range of logistics attempts. Unfortunately, they seem to be vertically isolated and horizontally unlinked - they do not aim at unified end-to-end supply chain, sorting and delivery automation, resource sharing, nor access to diverse services.

Vehicle-centric solutions ♦ The current offering is mainly based on electric vehicles with a fixed cargo space (cargo bike, scooter, van, mobile robot). This practice prevents goods from being automatically sorted, consolidated and packed into optimal size lots before shipments are imported in the dense metropolitan space.

Narrow range of use ♦ Current solutions mainly support only one type of freight, such as parcels. Similarly, resources should be able to transport waste, recycled and construction materials, machinery, sanitary and service facilities, cold food and groceries.

Fixed loading docks ♦ Unloading and loading of city containers from/onto vehicle require fixed docks. Unlike indoor logistics, destinations are not always reachable or lack necessary tools. Fixed structures also cause resource shortage and misplacement. The extension of services up to indoors is lacking too.

Lack of standards ♦ Resource sharing, pooling and resource optimization fail because common denominators are missing.

Deadlock in Autonomy ♦ Existing solutions cannot later be developed into autonomous ones, making current solutions short-sighted and cannot be combined with future gear.

Regulations

Diverse Cargo

Resource Pool

Consolidation

Diverse Vehicles

City Hubs

Routes

Curbside Bays

Reverse Logistics

City Space

Fluctuating Demand

Sharing of Resource

Legacy Resources

Operational Models

Autonomous Cargo

Co-operation

CONTAI reveals a city-proof system-level solution

CONTAI follows golden words by Associate Professor Milos Milenkovic: "Imagine a worldwide system for goods transport that worked like the internet: Goods are conveyed in standardised "packets" or containers. The network neither knows nor cares about the contents of each container. The network decides autonomously on the best route — carriers, vehicles, nodes and modes — and can modify the routing in response to changing circumstances. Switching between carriers, vehicles and modes would incur only trivial penalties in cost and time."

CONTAI has not only imagined this but built such a universal and future-proof interface for last mile where everything fits together. CONTAI aims to reduce costs, maximize productivity, improve safety and reduce carbon footprint – **the new shared last mile reality**.



Regulations

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Co-oper

CONTAI's key features distinguishes it from other approaches

Containerisation will play a key role in the fast and safe exchange of cargo between different types of transport equipment, storage and sorting centers — from the first to the last mile and everything in between.

The use of **plain Ground** unifies cargo handover resources. Ability to load roll containers on any city area spot allows proximate and flexible services.

The **Load Carrier** with common interfaces form the heart of the CONTAI ecosystem. A variety of freight and service applications can be carried always with optimal vehicles.

Autonomous operation is the corridor to future. The CONTAI Swapster auto-loader can be mounted on a wide range of vehicles and mobile robots.

The Least Common Denominator principle federates operators, manual and autonomous processes and technologies from different eras closest to your business.

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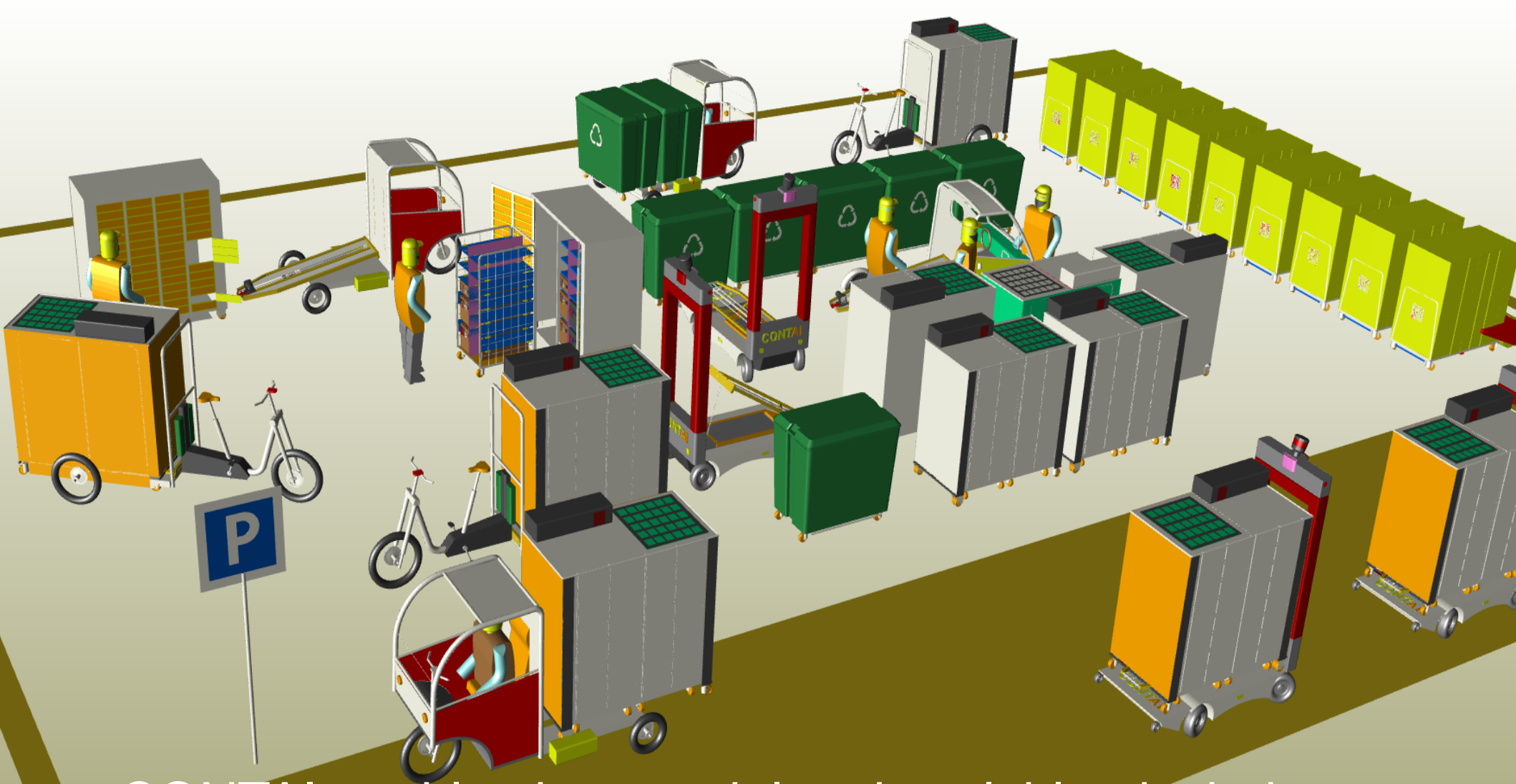
Operational Models

Autonomous Cargo


Co-operation



CONTAI: Any cargo can be carried by any vehicle



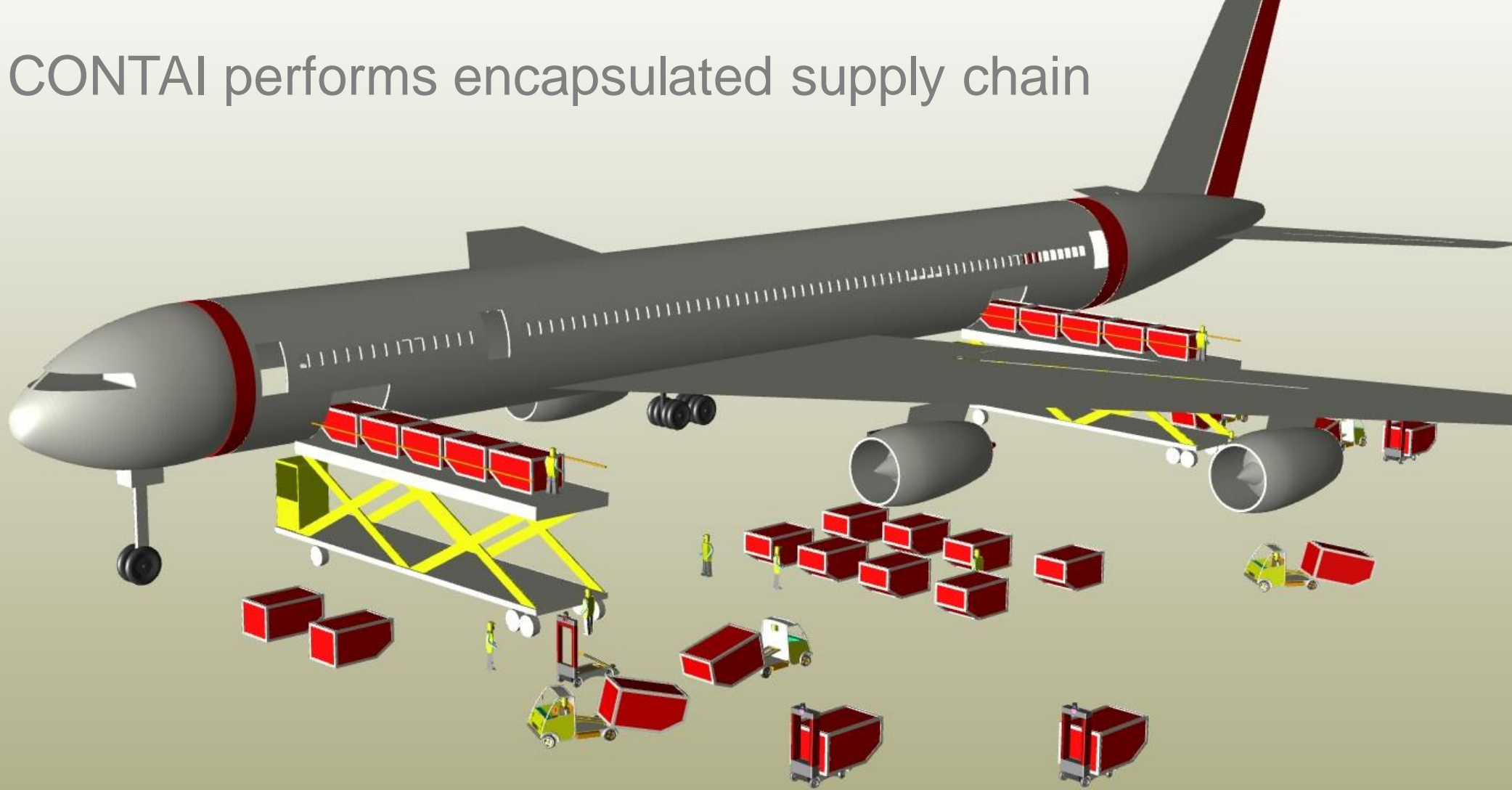
CONTAL enables immaterial and scalable city hubs



A diagram showing a yellow diamond-shaped frame (rhombus) resting on a brown rectangular base. The frame is tilted, and its shadow is cast onto the base. The text "n grou" is partially visible in the background.



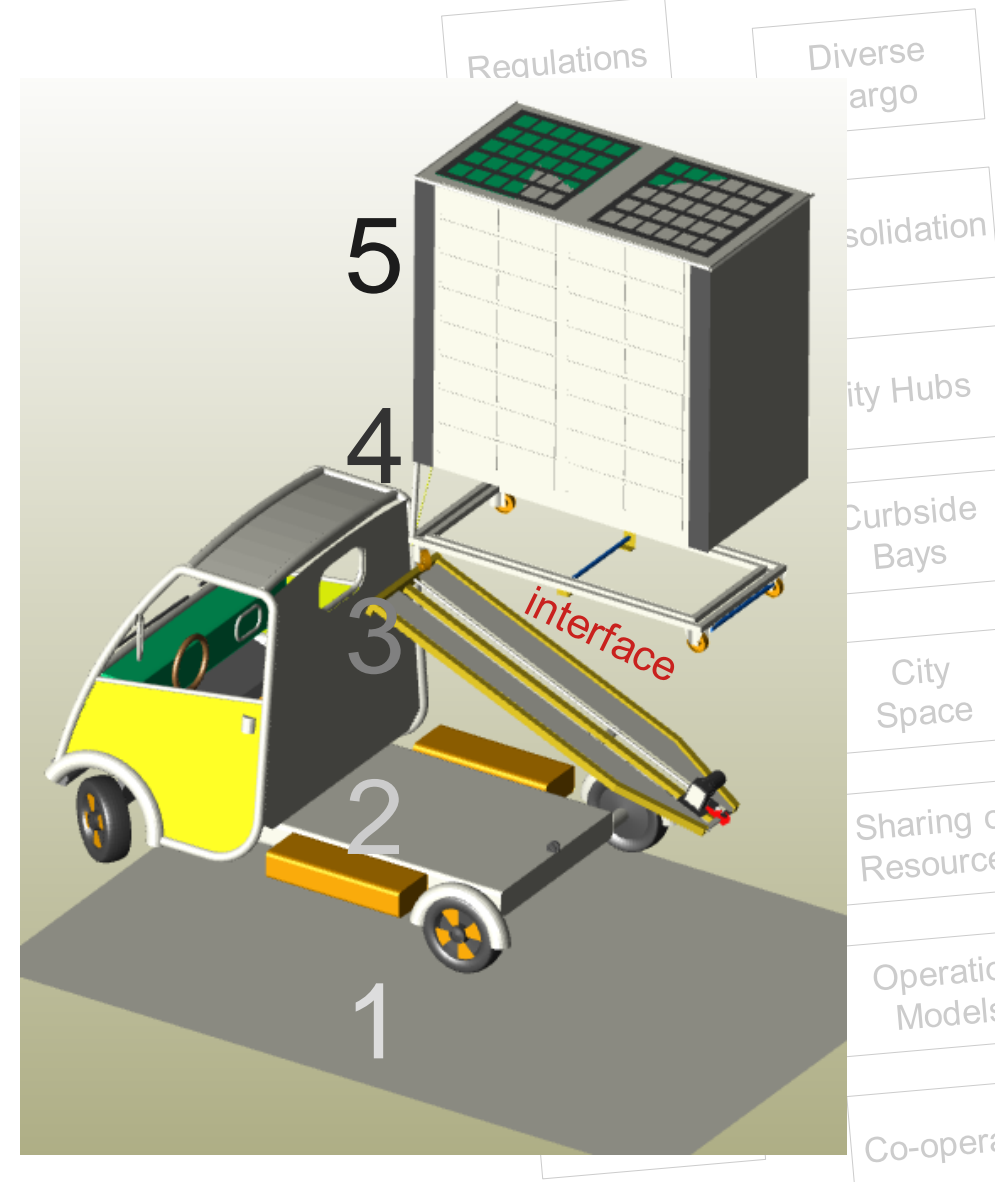
CONTAI performs encapsulated supply chain



CONTAI combines resources through interfaces





In order to make the last mile platform as adaptable and resilient as possible, the principle of “**The Least Common Denominator**” has been followed. For the first time legacy last mile technology and the autonomous future can federate through unified physical and digital interfaces making it possible to take advantage of investments already made and to adapt to local conditions. The interrelated resources:

1. The ground / street
2. Any vehicle / mobile robot
3. A CONTAI AutoLoader mounted on any vehicle
— Interface layer —
4. A demountable CONTAI LoadCarrier
5. Any cargo application on the LoadCarrier



CONTAI is simply unique

- hard to compare

	eBike + Fixed cargo space	<table><tr><td>SCALABLE CARGO SPACE</td><td>NO</td></tr><tr><td>ALTERNATIVE VEHICLES</td><td>NO</td></tr><tr><td>STREET LEVEL LOADING</td><td>NO</td></tr><tr><td>AUTONOMY-READY LOADING</td><td>NO</td></tr></table>	SCALABLE CARGO SPACE	NO	ALTERNATIVE VEHICLES	NO	STREET LEVEL LOADING	NO	AUTONOMY-READY LOADING	NO	CONTAI: YES
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AUTONOMY-READY LOADING	NO										
	Special eBike + One-size Roll container	<table><tr><td>SCALABLE CARGO SPACE</td><td>NO</td></tr><tr><td>ALTERNATIVE VEHICLES</td><td>NO</td></tr><tr><td>STREET LEVEL LOADING</td><td>YES</td></tr><tr><td>AUTONOMY-READY LOADING</td><td>NO</td></tr></table>	SCALABLE CARGO SPACE	NO	ALTERNATIVE VEHICLES	NO	STREET LEVEL LOADING	YES	AUTONOMY-READY LOADING	NO	CONTAI: YES
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	eBike + Roll Container + Docking station	<table><tr><td>SCALABLE CARGO SPACE</td><td>YES</td></tr><tr><td>ALTERNATIVE VEHICLES</td><td>NO</td></tr><tr><td>STREET LEVEL LOADING</td><td>NO</td></tr><tr><td>AUTONOMY-READY LOADING</td><td>NO</td></tr></table>	SCALABLE CARGO SPACE	YES	ALTERNATIVE VEHICLES	NO	STREET LEVEL LOADING	NO	AUTONOMY-READY LOADING	NO	CONTAI: YES
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	eVan + Fixed cargo space	<table><tr><td>SCALABLE CARGO SPACE</td><td>NO</td></tr><tr><td>ALTERNATIVE VEHICLES</td><td>NO</td></tr><tr><td>STREET LEVEL LOADING</td><td>NO</td></tr><tr><td>AUTONOMY-READY LOADING</td><td>NO</td></tr></table>	SCALABLE CARGO SPACE	NO	ALTERNATIVE VEHICLES	NO	STREET LEVEL LOADING	NO	AUTONOMY-READY LOADING	NO	CONTAI: YES
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Diverse Cargo

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Curbside Bays

City Space

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Operational Models

Co-operation

Cargo

CONTAI enables the cross-use of current and future equipment – a unique fleet management concept

Swiss Autotrolley + Loading Dock



Autonomous Robot
+ Loading dock

SCALABLE CARGO SPACE	NO	CONTAI: YES
ALTERNATIVE VEHICLES	NO	
STREET LEVEL LOADING	NO	
AUTONOMY-READY LOADING	YES*	

* (Un)Loading Docks required



Autonomous Robot
Door-to-door,
Fixed cargo space

SCALABLE CARGO SPACE	NO	CONTAI: YES
ALTERNATIVE VEHICLES	NO	
STREET LEVEL LOADING	NO	
AUTONOMY-READY LOADING	NO	

Autonomous
Cargo

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Co-operate

CONTAI has repeatedly been judged a winning innovation

- 2020 ♦ Top10 Finalist of 263 start-ups in the Mexico City RETO CDMX Competition
- 2021 ♦ 1st Award in IPIC2021 International Physical Internet Conference
- 2021 ♦ Winner of the EU **ENTRANCE Open Competition** + a special monetary prize
- 2021 ♦ Winner of the Rail Baltica Pan-Baltic Hackathon
- 2022 ♦ Winner of of the Born Global Hackathon – Sustainability in Business

- 2022 ♦ An accepted TRA-2022 Conference Paper submission, entitled :
A system for pooling differentiated last mile logistics
- Experiments on the interoperability of diverse traditional and autonomous last mile resources applying 'The Least Common Denominator' principle



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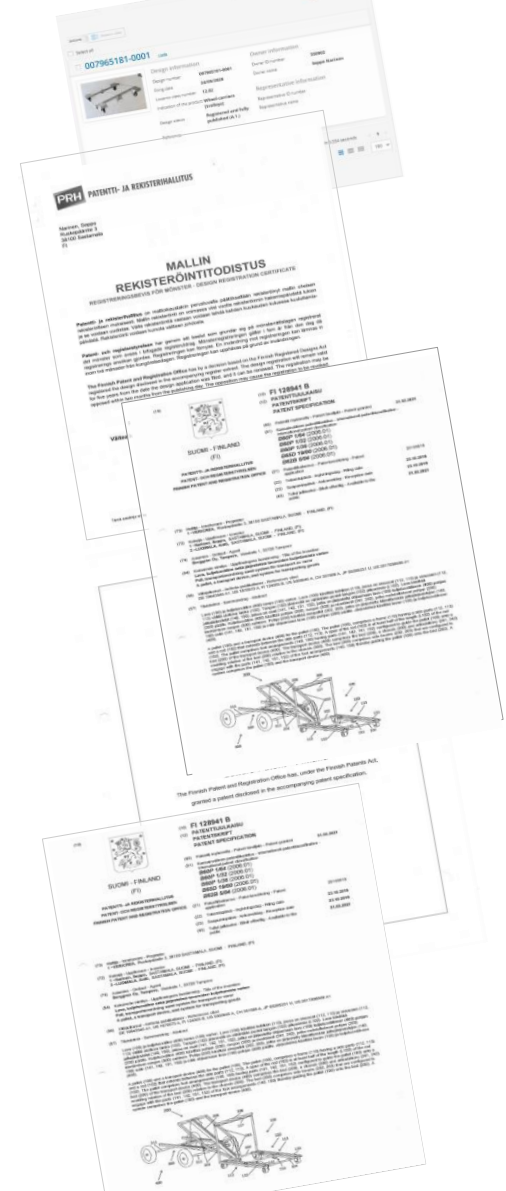
Autonomous Cargo

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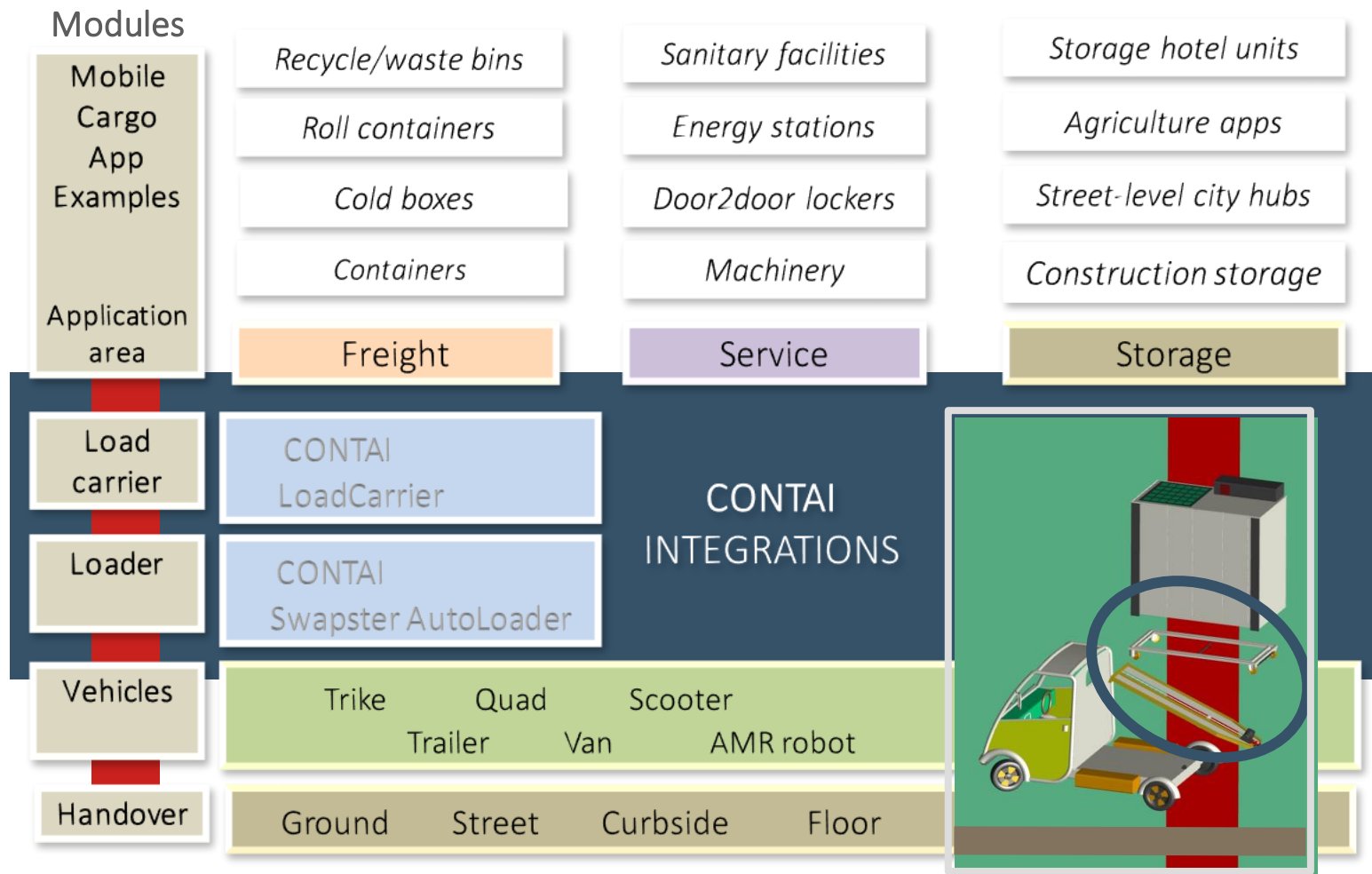
CONTAI's IPR

CONTAI's IPR asset is not intended to prevent the use of new technology for the benefit of mankind, but to coordinate the purity of CONTAI implementations in accordance with the Least Common Denominator principle and to make business fair.

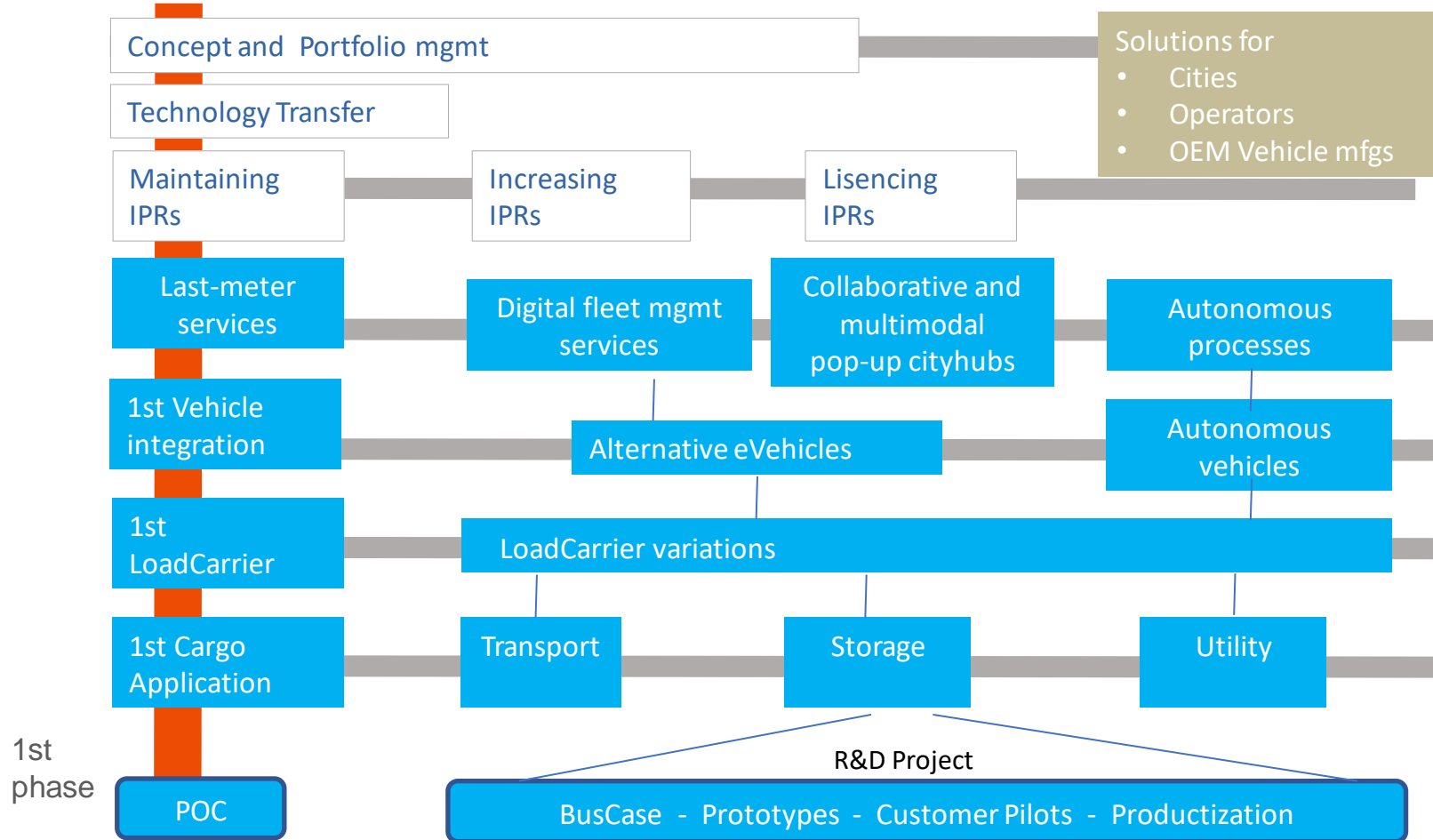
- ◆ Patent FI128941B A pallet, a transport device, and a system for transporting goods (Granted)
- ◆ PCT/FI2020/050685 (Granted), localisation ongoing in EU, US
- ◆ Load Carrier EUIPO Design CDR 007965181-0001 (Granted)
- ◆ Hybrid Locker PRH Design Registration FI 26385 (Granted)



CONTAI Module and Integration Architecture



CONTAI Technological Roadmap



1st phase Design and Production costs

a rough estimate

CONTAI	
CONTAI Module	Production Cost, €
OEM cargo bike	3.000
OEM van	12.000
CONTAI AutoLoader	3.000
LoadCarrier + Container	5.000
TOTAL	11-20.000

TRADITIONAL CARGO VEHICLE	
	Production Cost, €
OEM cargo bike	8.000
OEM van	17.000
TOTAL, €	8-17.000

SMALL-SCALE PRODUCTION SET-UP excl. digitalization & autonomy	
Activity	Cost, €
Design & Contai-vehicle integration	60.000
Production preparation	60.000
Pilot tests	120.000
IPR	100.000
TOTAL, €	340.000

The slightly higher costs of CONTAI are not significant, and can be recovered quickly. Savings in life cycle costs with higher fleet utilization, as well as the opportunity for new business, make the CONTAI solution highly profitable for last mile operators and enables the seamless shift to autonomous future.

CONTAI is looking for a **Solution Owner**

CONTAI aims to spread
through the continental Hubs
led by the **Solution Owner**

HUB

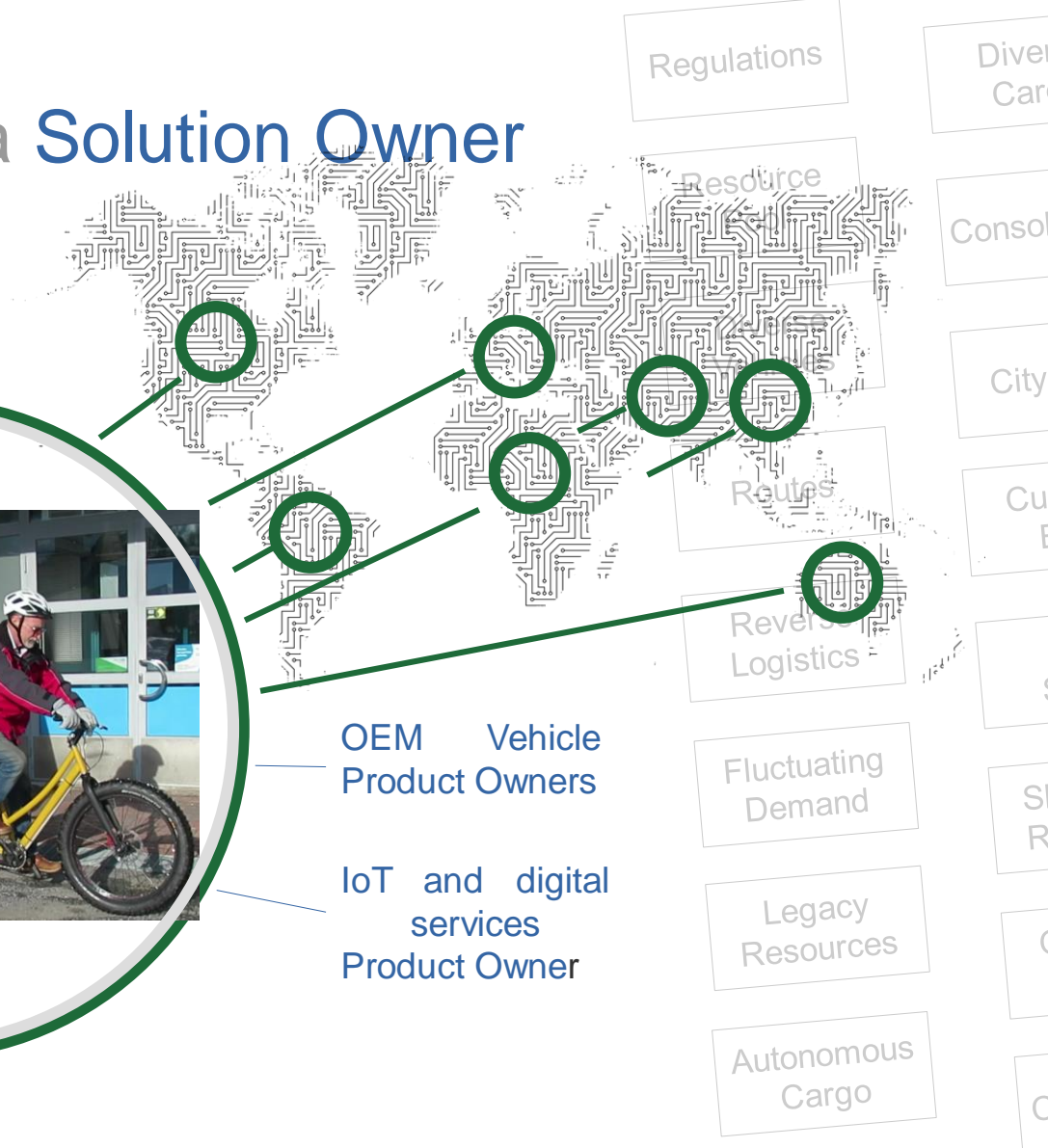
CONTAI LoadCarrier
and AutoLoader
Product Owner

OEM Application
Product Owners



OEM Vehicle
Product Owners

IoT and digital
services
Product Owner



CONTAL as an investment enables access to a fast growing global business

The global last mile delivery market size in terms of revenue was worth of 93.000.000 Eur in 2020 and is expected to reach 173.000.000 Eur in 2027 (Source: PRNewswire 2021).

It is estimated that the cost of last mile is 50% of the total cost of the entire supply chain.

The CONTAL solution is suitable for covering the whole world; resourcing of urban, suburb and rural logistics, which means: any cargo, any space, any mile, by any vehicle and by any operator, even autonomously.

It is clear, therefore, that the CONTAL last mile **AnyResource** platform, together with a fair solution sharing policy and with the Partner network has an almost limitless market potential well into the future!

Solution Owner

- ❖ Leads the R&I process
- ❖ Owns the business
- ❖ Owns the product
- ❖ Seeks the integrations for existing technologies
- ❖ Reaps the gains for future growth



CONTAL intellectual property

CONTAL team

- ❖ Brings IP asset
- ❖ Co-operates in implementation and innovation
- ❖ Shares in-depth experience from multi-year technical development



CONTAI Team invites You
to become the
Solution Owner!

UP NEXT:

Unlocking the growth
potential of CONTAI
AnyResource interface

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