



cellumation

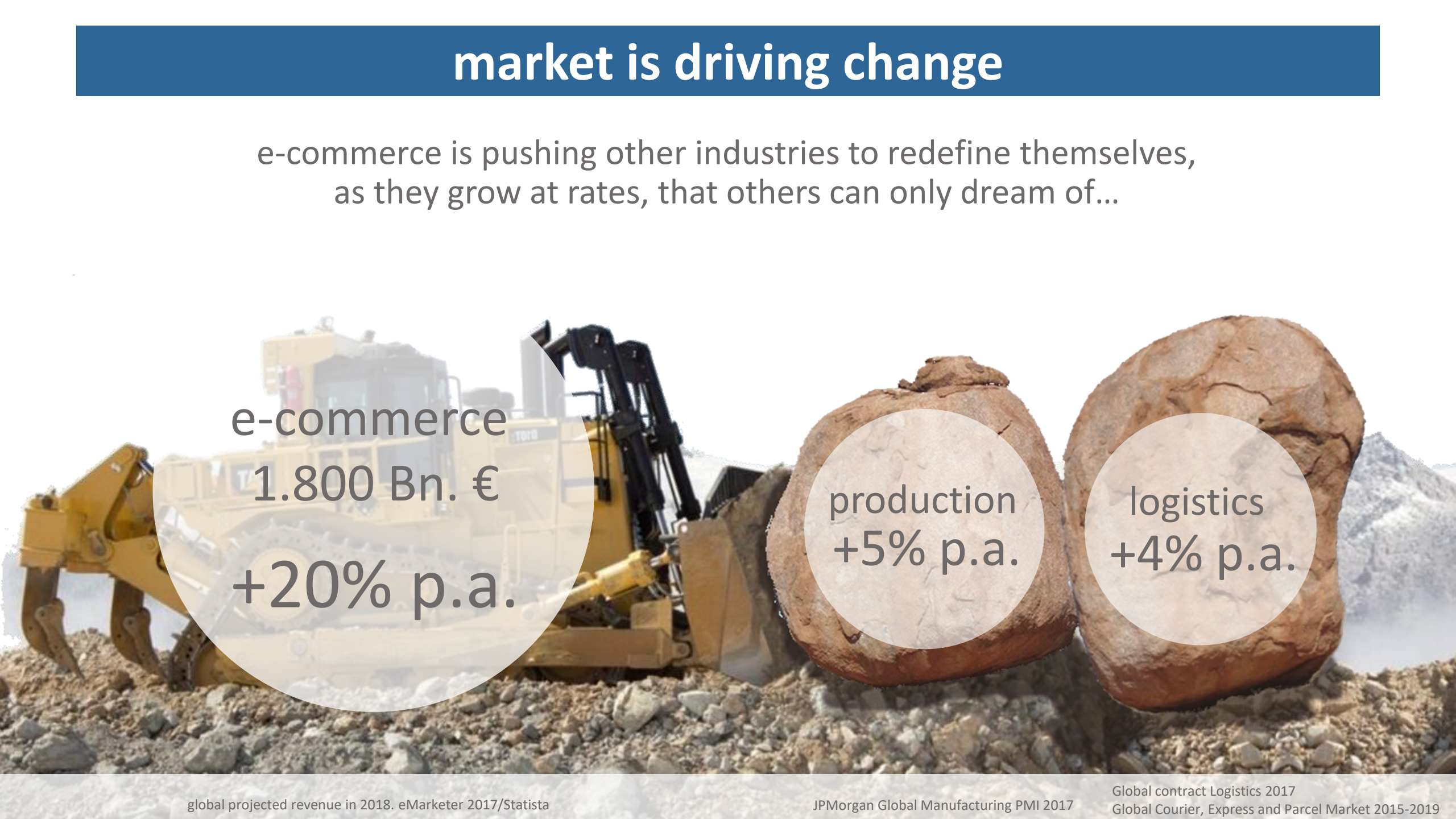
moving *smart* industries

a spin-off of the Bremen Institute of Production and Logistics (BIBA) at the University of Bremen



# market is driving change

e-commerce is pushing other industries to redefine themselves, as they grow at rates, that others can only dream of...



e-commerce  
1.800 Bn. €  
+20% p.a.

production  
+5% p.a.

logistics  
+4% p.a.



# material handling is stuck in the past

Industrial robots revolutionized manufacturing ....



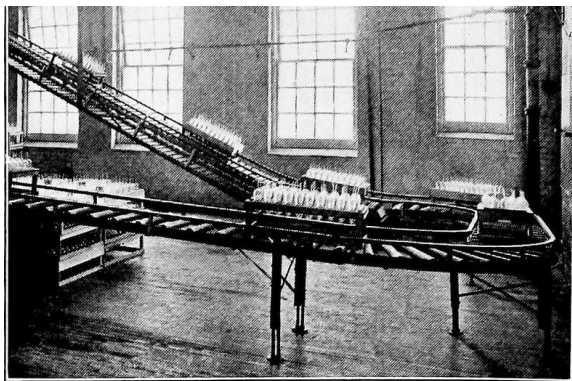
1920's



1970's



today



...meanwhile in material flow, very little has changed since then.

# the problem

These industries can't keep pace, because traditional material flow systems have flaws...



massive, complex and  
long delivery times

future proof?

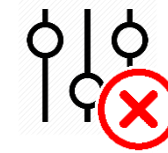
With poor adaptability  
to market changes,  
no chance!



dozens of different  
modules and hundreds  
of different spare parts

maintenance?

High effort, time consuming  
and expensive!



either for mass production  
OR for single customization

mass  
customization?

Today, unthinkable!

# the market is ready!

Customers are demanding flexibility...

“State-of-the-art conveyor technology must be modular, flexible and scalable” <sup>(1)</sup>

Ulrich Schlosser, managing director Witron Logistik + Informatik

“Our customers demand modular and scalable systems” <sup>(1)</sup>

Frank Apel, managing director Gebhardt Fördertechnik

„The accelerating rate of change in operational requirements is driving the need to implement conveyor systems that can be reconfigured“ <sup>(2)</sup>

Kenneth Ruehrdanz, manager of the distribution systems market, Dematic North America

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...and they are willing to pay more to get it!

**60%** <sup>(3)</sup>

willing to pay more for extra reliability

**53%** <sup>(3)</sup>

willing to pay more for extra design flexibility

**58%** <sup>(3)</sup>

willing to pay more for extra ease of repair and maintenance

+

**45%** <sup>(4)</sup>

plan to invest in robotics in the next 24 months

(1) Viel Speed in der Fördertechnik, Materialfluss Magazin 2018

(2) Conveyors and Sortation Keep up the Pace, Modern Material Handling, 2017

(3) Conveyor & Sortation Survey 2014, Modern Material Handling - Peerless Research Group

(4) Automation Study: The State of Automation 2017, Modern Material Handling - Peerless Research Group

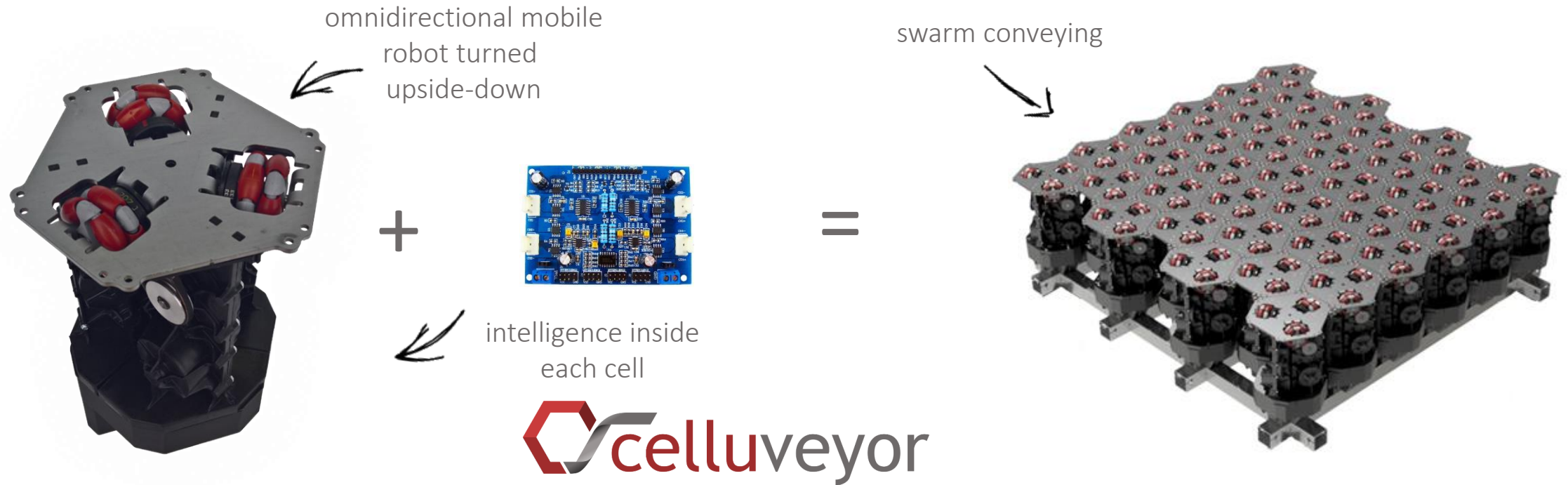
## the solution

mobile robotics  
artificial intelligence  
swarm control

(turned upside down!)

# our solution

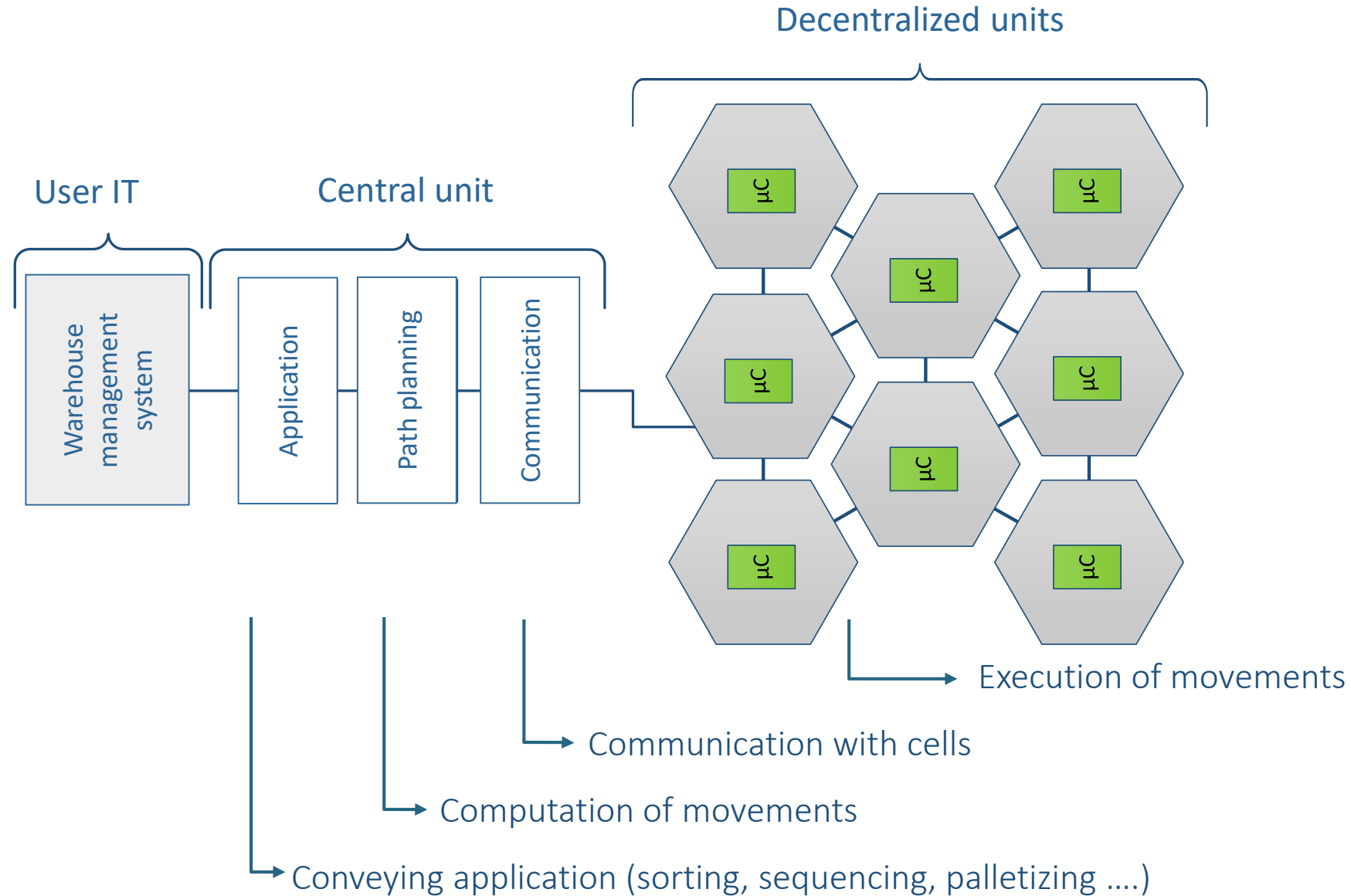
We've developed a universal material flow technology that can freely move any number of objects in any direction and thus replace almost any existing conveying system



- cellular concept – one cell fits all
- one hardware for any conveying application
- any thinkable machine layout
- simultaneous movement of any number of objects
- conveying application defined only through software
- endless scalable



# the control





# technical facts

Communication	Partly-decentralized cell to cell (Realtime)
Power supply	48V – Supply from cell to cell
Layout recognition	Automatic
Fault detection	Automatic
Customization	Yes, mechanical changes via software update
Transport speeds	Max: 2 m/s
Object weight	Max: 20 kg/wheel (i.e. carton 20x30 cm approx. 100kg.)
Object size	Min: 150mm x 150mm Max: ∞
Frame	Optional

# your benefits

We enable **smart and flexible material flow** in factories and warehouses allowing end-users to increase efficiency, reduce costs and create new value

## High scalability

Machines built with LEGO principle that scale with the customer as they grow

## Easy customization

Fast layout and functionality change for quick reaction to market uncertainties

## Simplicity

Fool-proof hardware and intuitive operation against shortage of skilled labour

## Low maintenance and operation costs

Straightforward DIY maintenance and spare part reduction to one single item

## Fast delivery

Cellular concept for ultra fast machine planing, delivery and ramp up

## Extremely low footprint

Up to 95% floor-space saving compared to conventional technologies

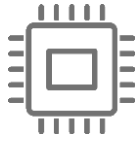
## Future-proof

Reusable and upgradable hardware for high investment security

## Enabling technology

Radically new material flow concepts for novel value-added processes

# our company



Development finished (2018)



EU patent granted (2016)  
13 countries

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Years of development: 6

Founded: 2017 (operational since 2018)

Employees: 14



1<sup>st</sup> prize DHL Innovation Award (2016)



DHL Global Innovation Partner (2016)



1<sup>st</sup> prize BVL Kongress – Startup Pitch (2018)



1<sup>st</sup> prize HANGAR – CargoFacts Pitch (2019)



1<sup>st</sup> prize MO1N Startup Camp (2019)







Videos: <https://www.youtube.com/channel/UCLiOJl41JuE1XMnUKP2geA>