



Future
Mobility
Network



Smart Logistics

Slimme logistieke oplossingen

Arjen Rodenburg

Slimme logistieke oplossingen



Ontwikkelingen in logistiek

Internet of Things (IoT)

- adds value across the entire supply chain including warehousing, last-mile delivery, and freight transportation
 - provides full transparency
 - asset tracking (location, delivery status, etc.)
 - environment sensing (e.g. freshness monitoring)
 - fleet management
- watch out for: CARGOSENSE

Machine-Learning

- needs very little human intervention
 - becomes more efficient automatically
 - optimizes algorithms for shippers to select carriers, route and do quality control
 - use of natural language processing (NLP) to speed up data entries
 - optimization of storage, order picking, order validation and waste reduction in the warehouse
- watch out for: SENTENAI

Anticipatory Logistics

- improves efficiency through reduced delivery times
 - better utilization of transport capacity and network
 - implemented via software solutions (big data predictive algorithms)
 - network optimization and demand forecasts
- watch out for: Transmetrics

Automated Guided Vehicles

- improves warehouse efficiency
 - optimizes order fulfillment
 - AGVs improve warehousing automation by pick-and-place operations
 - used for last-mile delivery and line-haul transportation
- watch out for: Scallog

Logistics

40.000+ emerging startups analyzed
2025: digital transformation accounts for €1.42 trillion in investments that are to be allocated

Last-Mile Delivery

- vital to logistic companies with the rise of e-commerce
 - a key differentiator in terms of customer satisfaction
 - affordable on-demand logistics
 - allows for on-demand shopping, picking and dropping off orders
 - multi-modal delivery by car, scooter, or bike
 - enables real-time order tracking
- watch out for: Quiquip

Robotics & Automation

- aids performance and improves sensing capabilities
 - nearly substitutes manual handling
 - collaborative robots easing human-machine interfaces and assisting manual operations
 - advanced vision technologies solving the challenges of speed, picking from random, part quality vision and color contrast
- watch out for: smartrobotics

AR & Wearables

- enables smoother communication, a safer work environment, and contributes to better training and onboarding of new employees
 - smart glasses empower workers to complete their tasks hands-free
 - wearables enable pick-by-vision, scanning and real-time tracking
 - gamification of the warehouse workplace
 - AR-enhanced advanced on-the-job training solutions
- watch out for: oculavis

Drones

- contributes to the automation of the warehouse processes
 - alternative to conventional express delivery
 - in warehouses: used for inventory management like the scanning of goods & material handling
- watch out for: Utopic

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INNOVATION



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Innovaties dicht tegen de markt aan

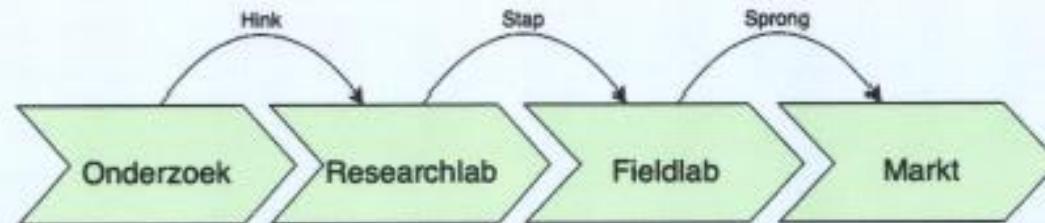
- Drones
 - Bezorg robots
 - Zelfrijdende busjes
 - AGV's
 - Slimme kluisjeswanden
 - En meer...
-
-



Hink stap sprong

Middels de hink-stap-sprong gedachte deze innovaties verder ontwikkelen, van onderzoek via labs naar de markt.

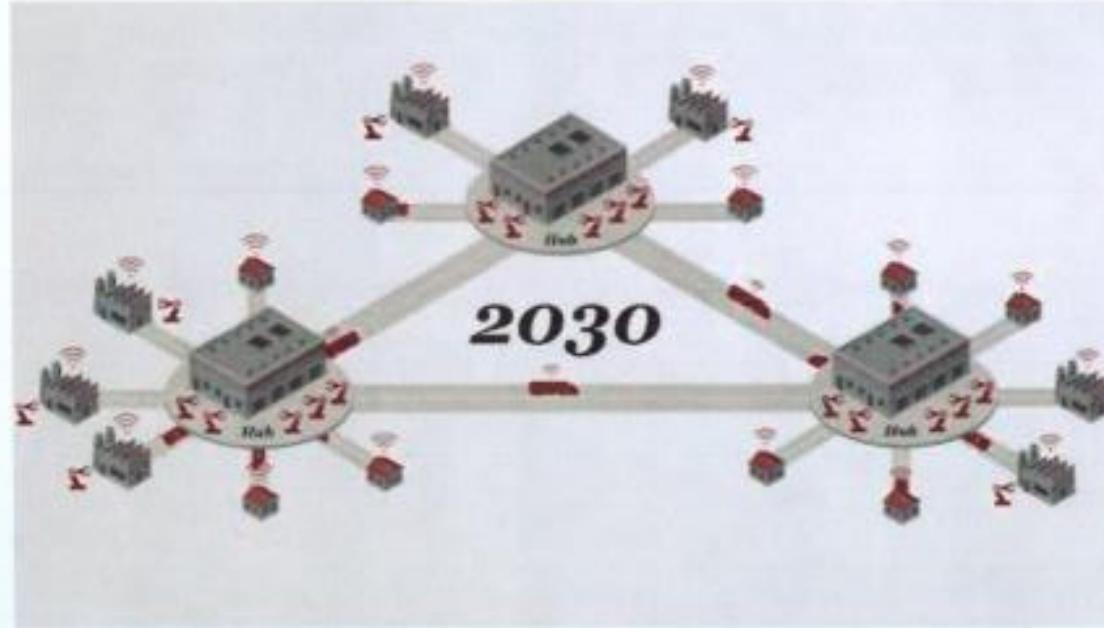
= Kans voor ZKD





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Voorbeeld van slimme pakketjes in een systeem



[Filmpje pwc](#)



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Logistiek 4.0

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