



**«Einfluss der Digitalisierung auf das Supply Chain Management , Praxisbeispiele aus der Welt eines Logistikdienstleisters»
DHL Supply Chain, Adrian Dietrich**

Logistics Trend Radar 2016



Social & Business Trends

Technology Trends



Use Cases of Digitalization in Warehouse Activities



**Collaborative
robots**



**EffiBOT –
ergonomic picking**



**Vision
Picking**

Collaborative robots for productivity

Capabilities & specifications

- One-armed robot weighing 19kg
- Intelligent motion control allows Sawyer to work precisely (+/- 0.1 mm accuracy)
- Operates safely next to employees
- Intuitive to use, easy to operate and “teach” – programming experience is not required
- Process library can be built so robot can be easily and flexibly deployed to various tasks



Overview / Benefits

- Resource efficient – 1 Sawyer robot can reduce 1–2 co-packing resources
- Cost savings of up to 25% in direct costs from packing operations
- Flexibility to use Sawyer across different processes
- Increased productivity over 24hr period. A 12 hour shift with Sawyer equates to ≈8 hour human employee shift.
- Operates 24/7

Status



Maturity

Research > Proof of Concept (PoC) > **Pilot** > Product



Country/Region

- UK
- Netherlands



Partners & vendors

EffiBOT for ergonomic, productive picking

Capabilities & specifications

- Both single- and multi-order picking are supported
- Integration to WMS not necessary
- EffiBOTS integrated with a WMS can drive autonomously through a warehouse



Overview / Benefits

- Improved efficiency as physical effort and time are not spent on moving trolleys
- Increased productivity as users not limited by the weight of picking orders
- Shorter walking distances can be enabled by connecting multiple EffiBOTS for more/heavier loads
- autonomous driving EffiBOTS can save walking time back/forth picking areas

Status



Maturity

Research > Proof of Concept (PoC) > **Pilot** > Product



Country/Region

- Germany



Partners & vendors

- Effidence

Vision Picking

Capabilities & specifications

- Unit or case order picking into a trolley, cart or tote, using Head Mounted Displays (Smart Glasses – Vuzix and Google)
- Vision Picking Interfacing WMS Manhattan iSeries and JDA 2009/10; application Xpick; partnering with Ubimax
- Vision picking uses a graphical user interface for advanced smart glasses

Overview / Benefits

- Operational productivity improvement
- Reduction in onboarding and training time
- Reduction in error rates (improvement in quality)

Status



Maturity

Research > Proof of Concept (PoC) > Pilot > **Product**



Country/Region

- UK
- NorAm
- MLEMEA



Partners & vendors

- Ubimax



LESSON LEARNT?

Start local – go global

Fail fast – fail cheap

Trial & error

Change of mindset

The power of partnership

What's next ?

Trailer and container unloading robots



Robots which unload boxes from containers, deploy sorting and stacking to enable storage in warehouses.

Drones for inventory management



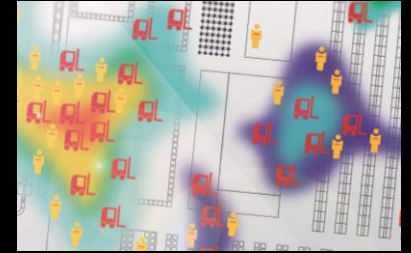
Drones can be used for more effective, productive and accurate inventory management in warehouses, eliminating a historically manual cycle counting process, and reduces safety risks for employees

Mobile piece picking robots



Mobile robots with an arm on top that can navigate around traditional warehouses shelves and pick items out of shelves into order totes.

Operations tracking for efficiency, safety



Operational processes within a warehouse can be tracked in real-time with existing WiFi infrastructure; data displayed visually enables sites to identify potential efficiency and safety improvements

Questions?

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