# Mieloo & Alexander - Msc thesis

Assignment in cooperation with **Mieloo & Alexander (M&A)** and **Euro Pool Systems (EPS)**

**About Mieloo & Alexander**
Mieloo & Alexander Business Integrators is specialised in delivering "technology enabled supply chain improvement". M&A successfully design, plan and implement technology solutions and transform organisations to achieve operational excellence and sustainable competitive advantage.
As AutoID integrators (with a focus on UHF RFID technology), M&A designs, build and implement custom solutions to realise the benefits of (AutoID) technology and to improve and innovate the (internal) business processes of our clients. M&A also offer branded, modular/integrated solutions for Horticulture (ScanGreen) and Returnable Asset Tracking (RTEye), and provide maintenance and support of the solutions we deliver with a dedicated support team.

**About Euro Pool Systems**
Euro Pool Systems provides a sustainable crate solution for retailers, food processors, traders and producers in 27 countries. About 700 to 800 million crates go through the system every year, which is still increasing. The crates are cleaned, checked, repaired, replaced and shipped to clients. EPS has about 50 depots in different countries through Europe. See also:
https://www.youtube.com/watch?v=XV0-qfIb48I

**Assignment description**
Crates (of different sizes) arrive at EPS depots on pallets to be washed, stored and re-issued. Each crate has a deposit value of several Euros, which is paid by EPS to their clients upon receipt off crates at the depot. Because a large amount of crates are handled at depots, accurate crate counting is required, and the count results must be linked unambiguously to the client that sent the crates back, so the amounts returned can be trusted.

Therefore vision portals are deployed in several EPS depots, that can calculate the exact type and quantity of crates on a pallet (or other load carrier), and link this count data to the pallet ID and pictures of the pallet. This is used by EPS as evidence to clients that they received the equivalent value of the crates returned.

Because of the relatively high cost of these portals, EPS envisages an "inline counting solution" similar to the one deployed at the EPS depot in Zellik, which was realised by Mieloo & Alexander. (http://mielooandalexander.com/rfidandautoid-projects/3/euro-pool-system-eps-.html). This solution, must be versatile in the sense that it can be deployed in any depot, regardless of the level of automation: in some depots, all steps are automated: infeed of load carriers, separation of load carriers from crate stacks, destacking, unfolding. Other depots, typically in low cost countries, automate only the washing and folding processes, but any levels of automation inbetween these extremes can be found.

The assignment starts with assessing the installed bases of all (+/- 50) depots across Europe, to identify typologies based on automation levels. Then, a generic solution concept for the inline counting system (which might not be an inline system for those depots with lesser automation) must be designed, including all hardware and software components including the required

integration/interfaces with conveyor and superordinate systems. Finally, a prototype for one depot must be realised. The assignment will be carried out under supervision and in close cooperation with a project team of experts of EPS and M&A, who report to the Operations Director of the EPS Crate division.

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