

# Counting 160,000 items – the bachelor thesis on RFID

Upcoming episode

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An annual stock count that takes two to three months with two full-time equivalents. Can RFID cut it? This is my bachelor thesis from 2020 – the warehouse in numbers, what the pilot test actually showed, why tags on metal stopped answering, and what we could not answer.

## MAIN TOPICS

- The warehouse the thesis was about, in numbers
- Why an annual stock count takes two to three months
- What the 2019 pilot test actually showed
- Why the same tag gets read seven to ten times
- Metal, grounding and the chips that stopped answering
- Active or passive – the two scenarios
- What the thesis could not answer
- What the conclusion said, and what it did not

## QUESTIONS THIS EPISODE ANSWERS

- How long does an annual stock count take in a large warehouse?
- What did the pilot test of passive UHF RFID show?
- Why must an RFID counting system filter out duplicate reads?
- Why does an ordinary RFID tag stop working on metal?
- What is the practical difference between active and passive RFID?
- Why was active RFID ruled out?
- What is the problem with counting multipacks?
- What did the thesis conclude?

## KEY POINTS

- The warehouse held 12,000 material numbers and up to 160,000 articles, with a stock value of up to 500 million kroner.
- The annual count took two to three months with two full-time equivalents – not because the work was poor, but because the method was manual.
- Around 80 per cent of the warehouse was safety stock. Much of what was counted had not moved in years.
- The pilot read passive UHF tags at six to eight metres through the racking – on cardboard, wood and plastic.
- The same tag was read seven to ten times per count. The system had to filter those reads down to one item.

- Tags stuck straight onto metal were grounded and stopped answering. That was the pilot's only real problem.
- Active RFID was ruled out on cost and battery replacement, not on capability.
- Multipacks could not be solved. Nobody tags every single screw.
- The conclusion was that it could pay off, with reservations – not that it would.

#### SOURCES AND REFERENCES

- Jan Sindre Heltne and Stian Lunde – «Bruk av RFID-teknologi for effektivisering av varetellingen på lageret» (Using RFID technology to make warehouse stock counting more efficient). Bachelor thesis SCM600, BSc in Logistics and Supply Chain Management, Molde University College, 2 June 2020. Supervisor Bjørn Jæger. In Norwegian.

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