RFID-ENABLED WAREHOUSE OPTIMIZATION: LESSONS FROM EARLY ADOPTERS IN THE 3PL INDUSTRY

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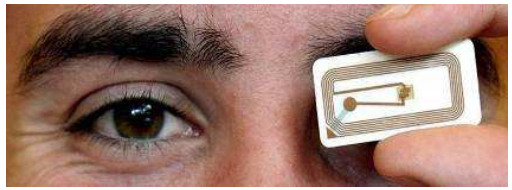
RFID PROJECTS: A CASE FOR HEALTHCARE

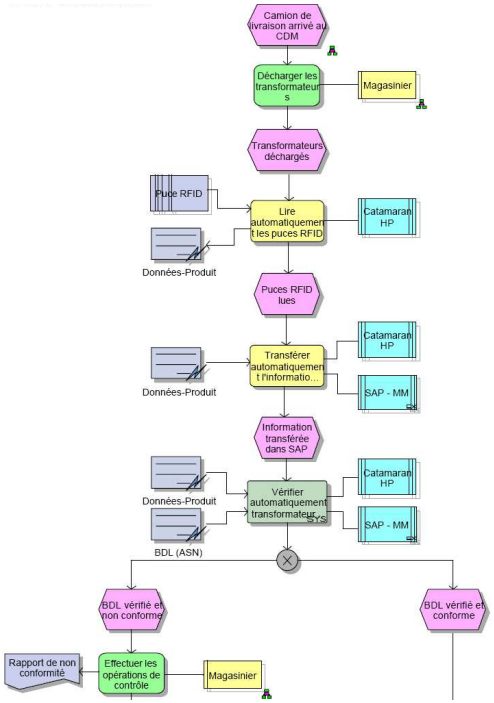
Presentation objectives

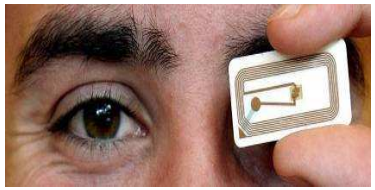
- Objective of the study
- Contextual issues
- Methodology
- Results and discussion



Objective of the study

- "RQ: How are business processes and work systems changed due to RFID at all points in the value chain?"





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Contextual issues

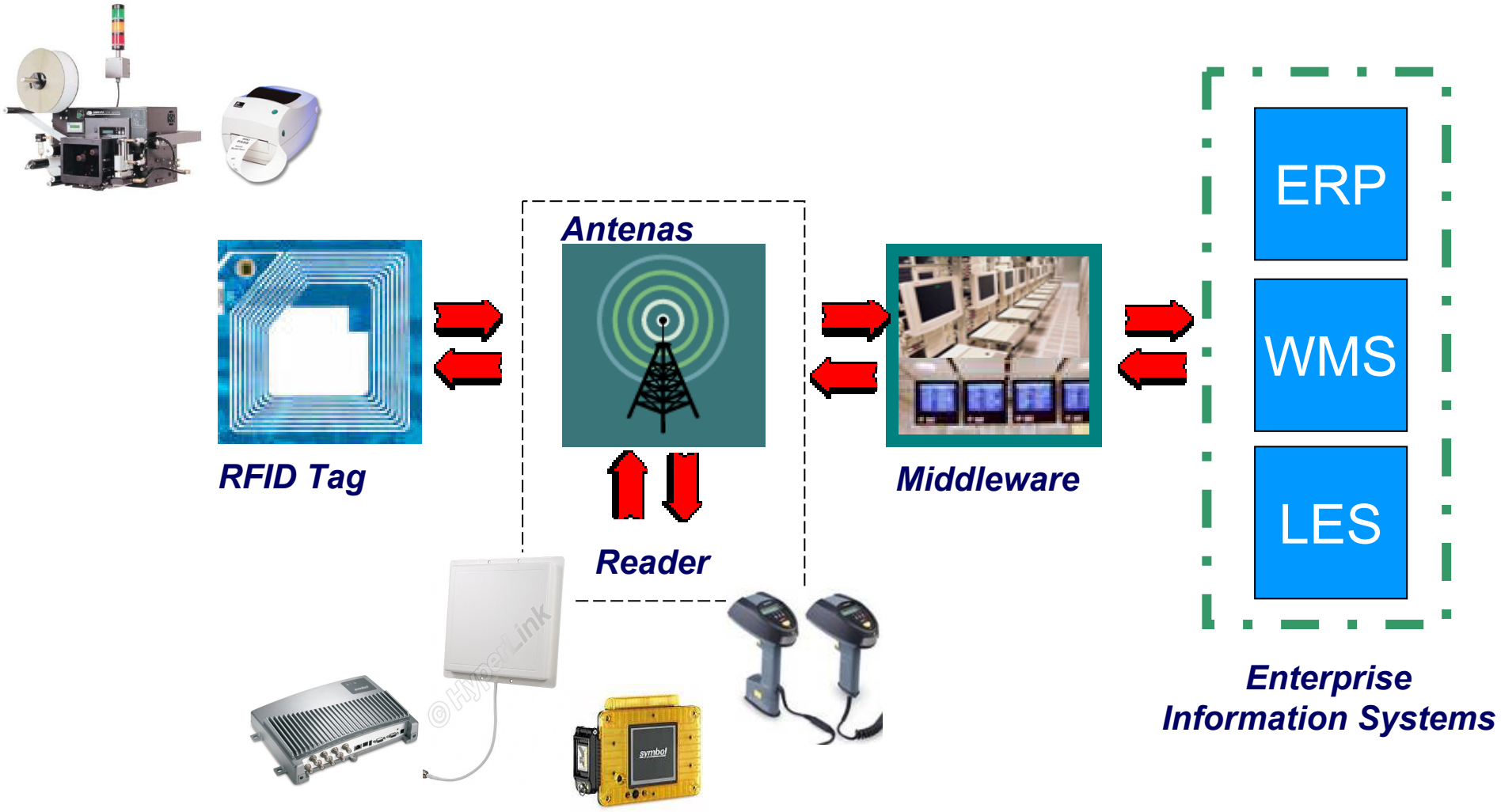
- "One of the most pervasive computing technologies in history" (Roberts, 2006 p. 18)
- Enabling the Mark Weiser vision of ubiquitous computing where technology is seamlessly incorporated into our daily lives (Weiser, 1991; Floerkemeier and Lampe, 2004)
- Improving substantially the supply chain (Turban et al., 2006)
- Defined as "a wireless automatic identification and Data capture (AIDC) technology" (Fosso Wamba et al., 2008 p. 615)

Contextual issues

- Adoption by major players: Wal-Mart and Metro Group, U.S. Department of Defense
- Need for additional studies to assess the real impact of RFID technology at the supply chain level (Curtin et al., 2007)
- "Need to test adoption and business value, specifically in the RFID context" (Whitaker et al., 2007 p. 3)
- RFID technology holds considerable potential (Bendavid et al., 2006; Fosso Wamba et al., 2006)

Need more studies on RFID technology in real-life settings

RFID technology, not only tags



RFID impacts in the supply chain: Empirical results from laboratory and pilots studies

- RFID technology linked to the EPC network can have a major impact on mobile B2B e-commerce (Fosso Wamba et al., 2008)
  - Business process
  - Operational process and IT infrastructure redesign
  - Information sharing and synchronization between all supply chain members
  - Human and physical resource utilization, optimization
  - Strategy redefinition
- Process optimization can be achieved when integrating RFID technology into an information systems application (Bendavid et al., 2006)
- Few companies are considering the adoption of RFID technology (Vijayaraman and Osyk, 2006)
  - Scepticism remains about the potential of the technology

RFID impacts in the supply chain: Empirical results from laboratory and pilots studies

- "Future stores" Metro group pilots in Germany with sales increase (23%) while "reducing out of stock (9-14%) store space (11%) (Loebbecke, 2005)

- "Wal-Mart RFID-enabled store"
  - 63% more effective in replenishment
  - Reduction of out of stocks by 16% (Hardgrave et al., 2005)

- RFID impacts
  - Time saving in moving products through supply chain
  - Lower labor cost
  - Higher data quality
  - New services (Loebbecke, 2007)

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  - TPL industry
  - Research sites
  - Data collection and scenario
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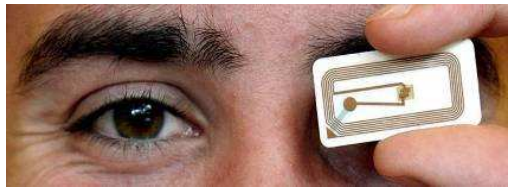
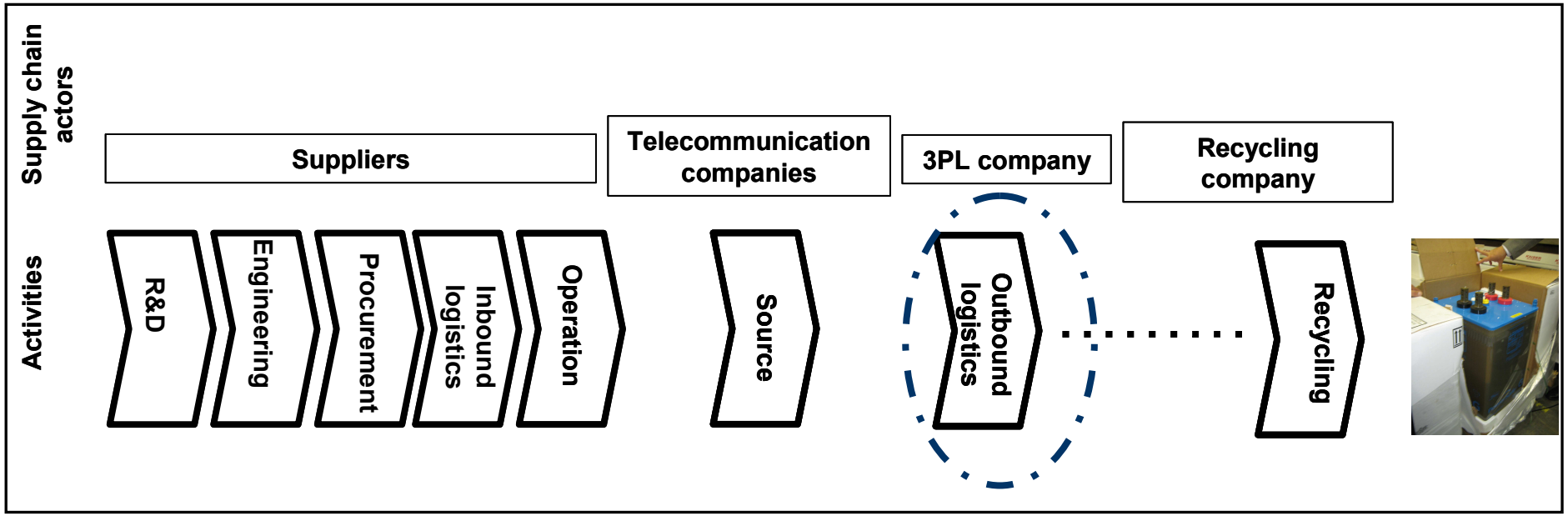


Context of the study : TPL industry

- Third Party Logistics (3PL) as consequence of globalization of the business environment and the increasing use of outsourcing
- “A relationship between a shipper and a third party which, compared with the basic services, has more customized offerings, encompasses a broad number of service functions and is characterized by a long-term, more mutually beneficial relationship” (Murphy and Poist, 1998 p. 35)
- 82% of the respondents were using TPL services (Langley et al., 2005)
- Early adopter of new technology (van Hoek, 2000)
- RFID adoption in the industry as logical next step (Gartner, 2008)

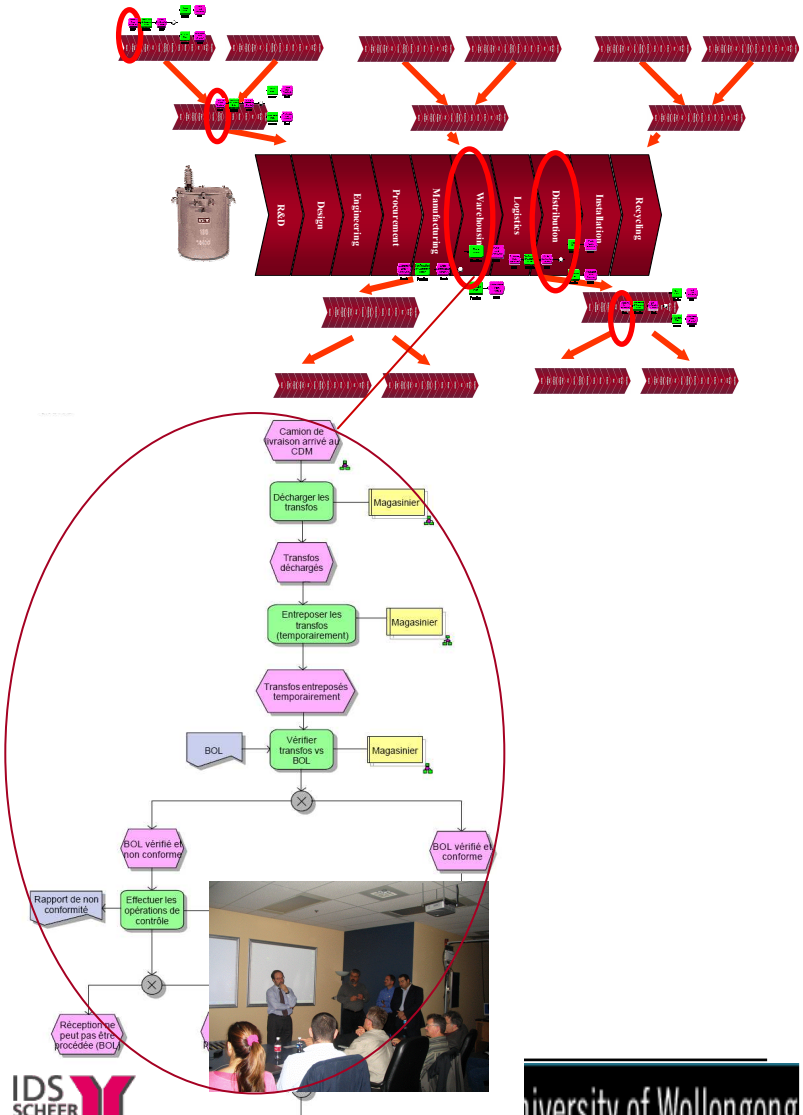
Research sites



- One 3PL provider site with a focus on activities involved in the management of telecommunications stationary batteries

Data collection

- RFID – Why?
- RFID - For Which critical activities and Why?
- RFID - With Whom in the network?
- Mapping of («As is») intra- and inter-business processes (How?)
  - (i) on-site observations,
  - (ii) interviews
  - (iii) joint working session with industrial partners in laboratory settings



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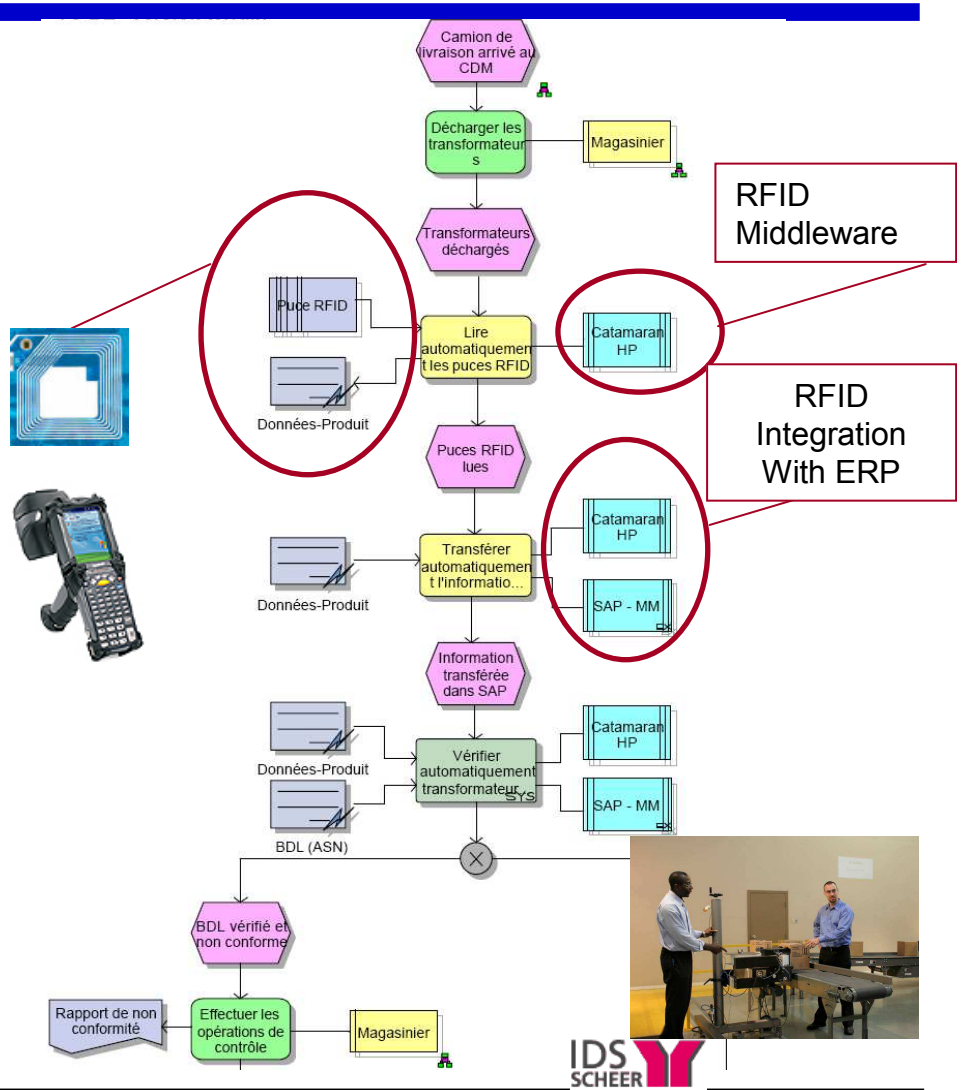
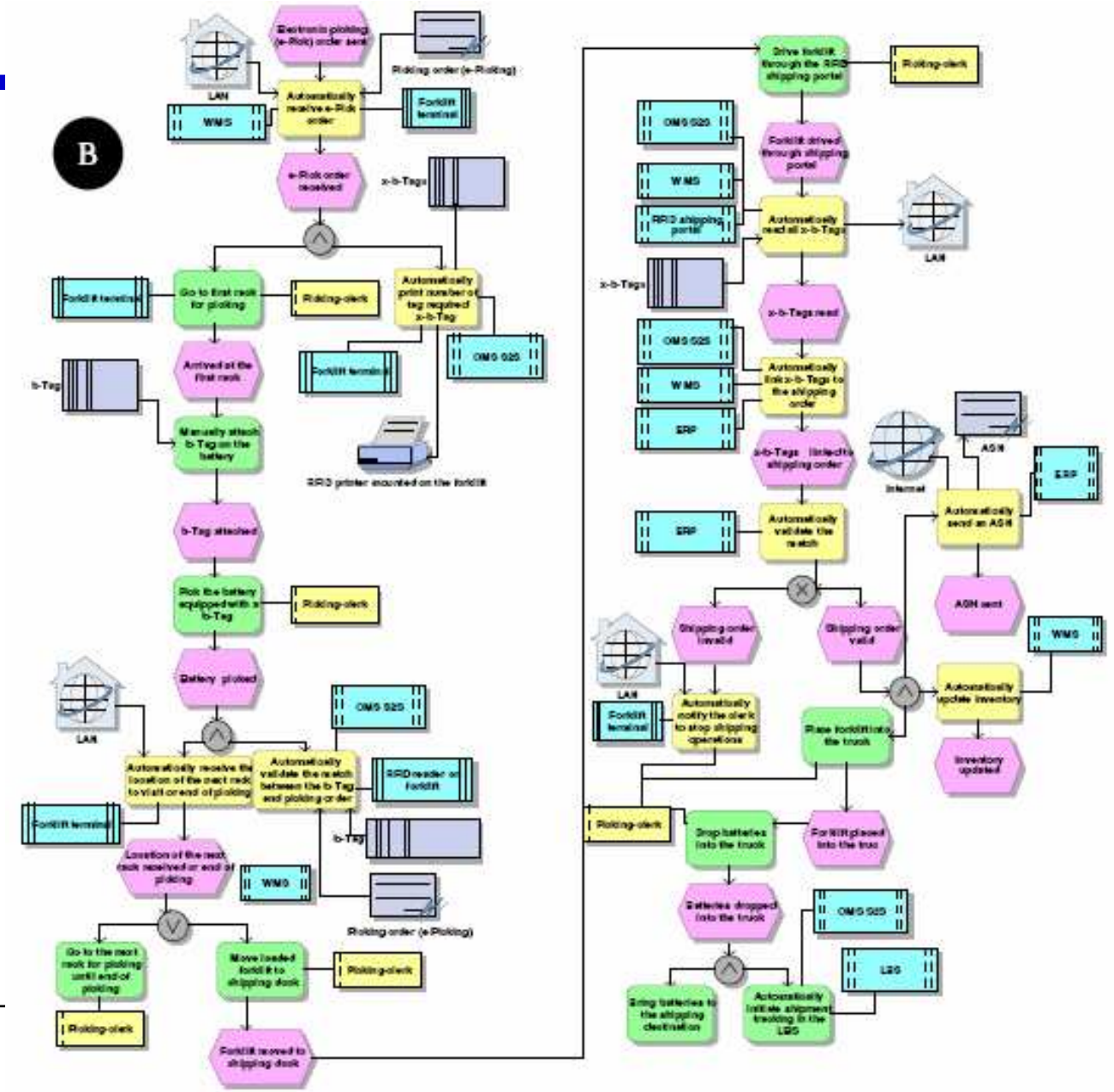
Scenario building

- Evaluation of RFID opportunities
  - Level of granularity
- Evaluation of RFID potential applications
  - Scenario Building
- Validating RFID scenarios
  - Business processes
  - Technological solutions
- Simulating several scenarios
  - Final choice for implementation



Retained scenario



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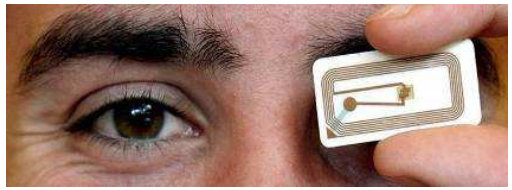
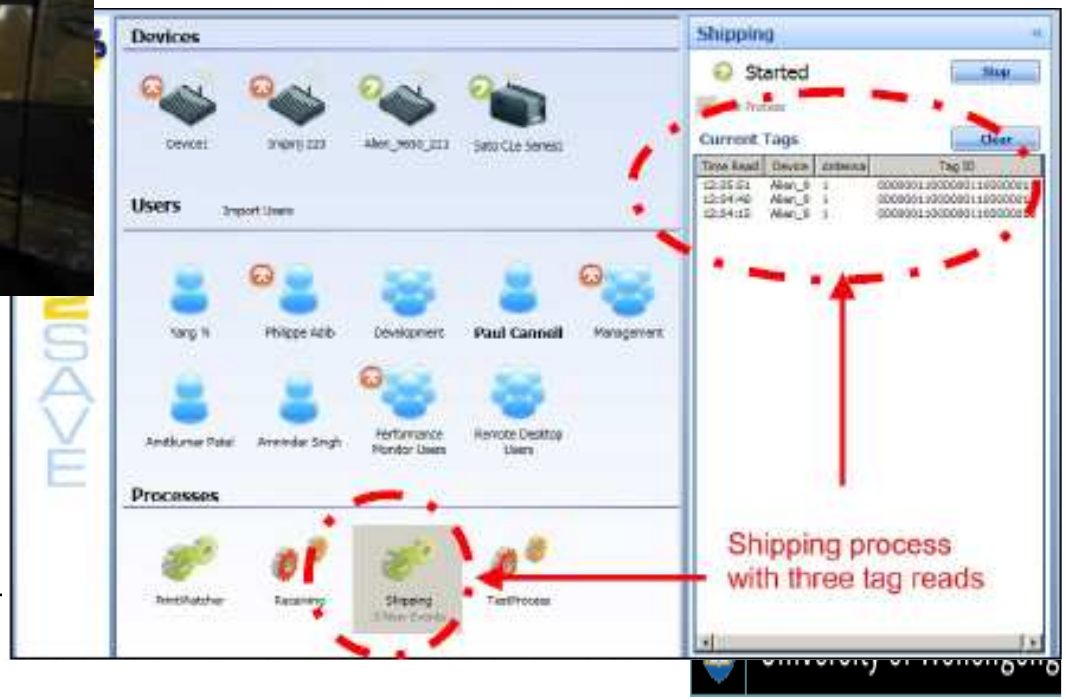
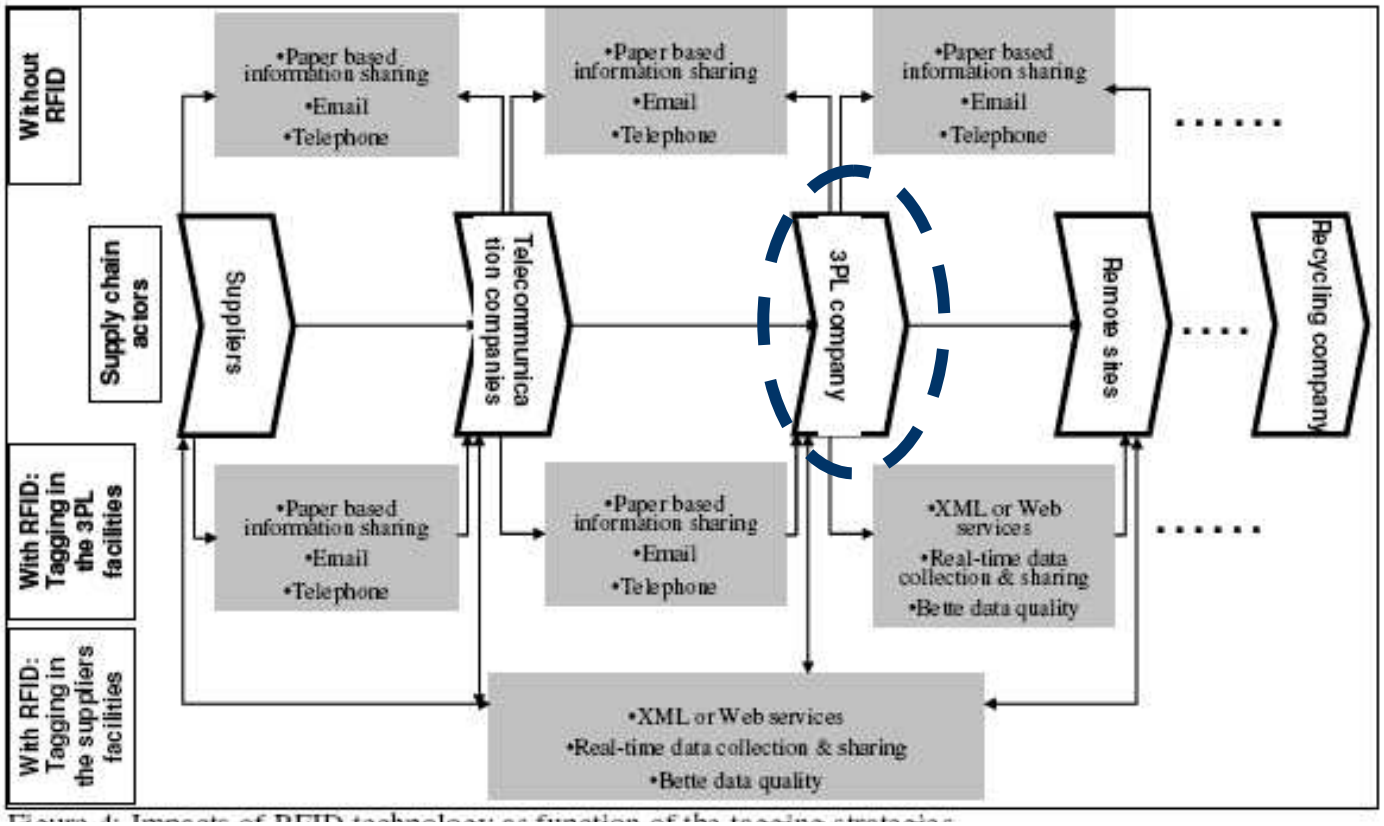


Results and discussion: steps related to the scenario



Results and discussion



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Results and discussion

- Act as an enabler of business process redesign
- Business value of RFID technology increase when the tagging process is conducted in the suppliers facilities
- Allows real-time data collection and synchronization (within and between firms)
- Better data quality, better information system integration (within and between firms)
- Real-time information sharing using collaborative technologies such as XML or Web services
- Need for collaborative involvement of all supply chain members
- Need for costs sharing and the performance management at the supply chain level
- Consideration for investment in complementary assets such as employees' further training