



## **MASTER THESIS PRESENTATION**

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# **Mining the last mile**

# OUR JOURNEY WITH LAST MILE TRACKING DATA



Since 2003 we are collecting track and trace data from our carriers but did not really leverage insights



In 2017 we started a standardisation exercise and drive reporting insights.



We realised soon we were scratching the surface. Need to identify the root causes and not symptoms

# AIM

- Goal: a high last mile service level, fitting Hilti's identity
- Challenge: Limited visibility and opportunities to improve a mainly external process

## Situation



- Opportunity: Availability of data (called event logs) detailing the last mile process
- Potential: may provide insight into the process and enable last mile delivery improvements

## Trigger



- ***How can carrier event log data be used to improve an external last mile delivery process?***

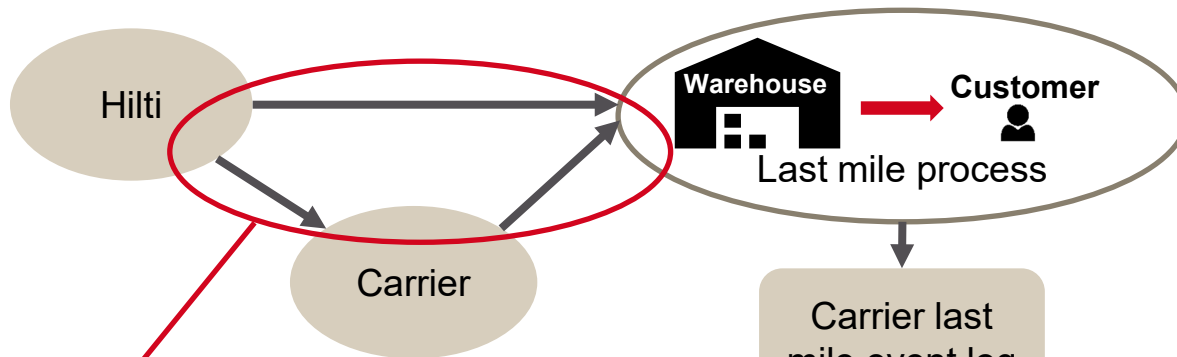
## Question



# APPROACH

*How can carrier event log data be used to improve an external last mile delivery process?*

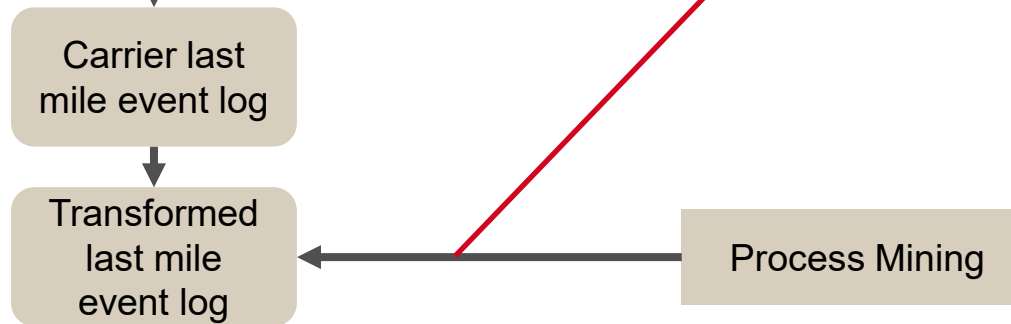
## Qualitative perspective



**How can Hilti impact the external process? → Interview**

## Quantitative perspective

**How can this impact be realised using data? → Data experiments**



# FINDINGS

## Interview findings: 6 opportunities

### Opportunities for Hilti

Opportunity 1: Improve data quality

Opportunity 2: Create a (live) overview

Opportunity 3: Notify customers of late deliveries

Opportunity 4: Optimized parcel loading

### Collaborative opportunities (Hilti + Carrier)

Opportunity 5: Increase transparency of carrier  
last mile process

Opportunity 6: Determine and solve bottlenecks

## Data experiments: Practical insights

### Data reliability

- Improve data quality (opportunity 1)
- Identification of crucial data points

### Customer satisfaction

- Simplifying the analysis
- Identification of areas with high delivery risk
- Having an overview (opportunity 2)

### Relationship with carrier

- Increased transparency (opportunity 5)
- Verify if parcels arrived on time

# CONCLUSION & RECOMMENDATIONS

## Main question

*How can carrier event log data be used to improve an external last mile delivery process?*

## Conclusion

Process mining can be used to:

- Improve execution of current last mile task
- Create new ways to improve the last mile by:
  - Optimising parcel loading
  - Finding bottlenecks in the carrier network

## Recommendations

- Mitigate the impact of using external datasets by:
  - Using raw data and transform it in-house
  - Collaborating with the carrier to understand the external process
  - Start by understanding and improving the data quality using Process Mining tools
- Ensure a high quality of datapoints describing physical events, enabling advanced process Mining

# KEY TAKEAWAYS

**Process Mining creates needed transparency in the last mile**

**Collection of selective and raw data enables Process Mining's potential**

# QUESTIONS AND DISCUSSION

