

ORDER PICKING EFFICIENCY AT KOGA

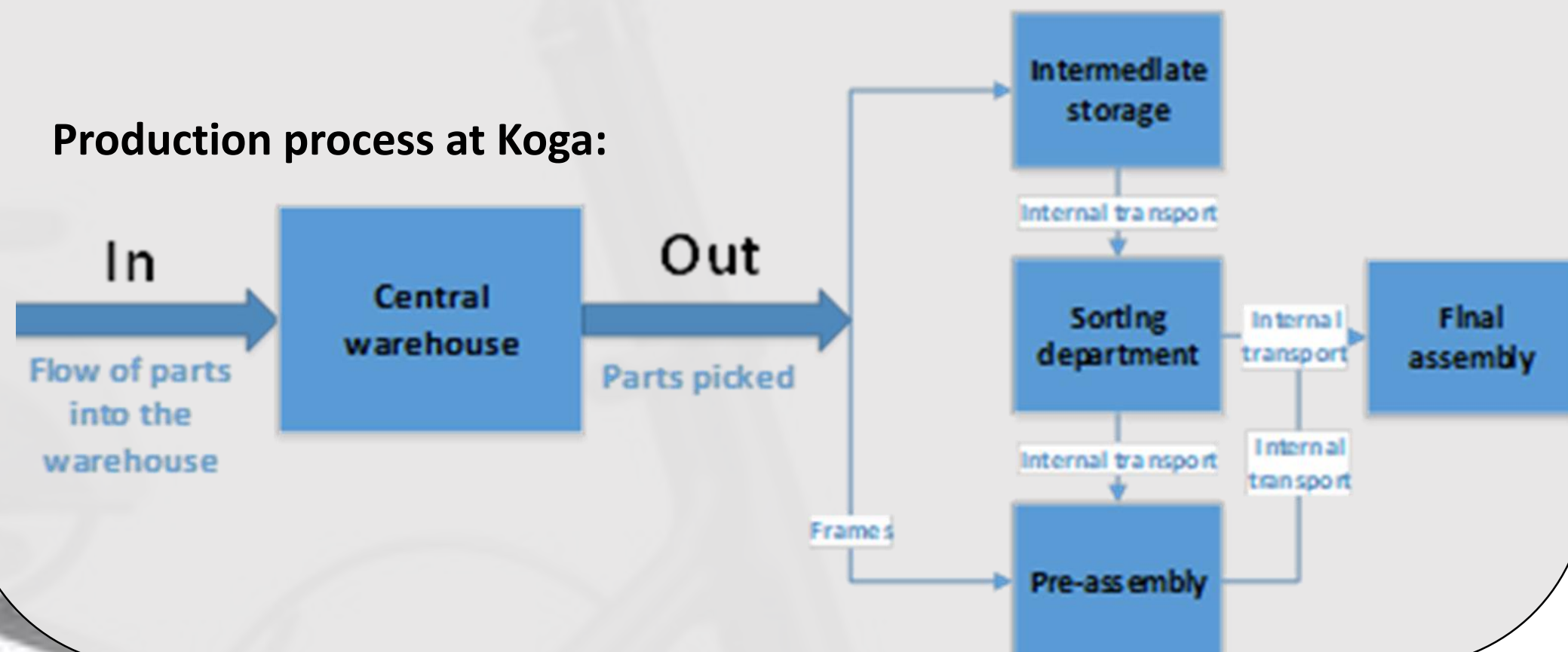
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1. Introduction

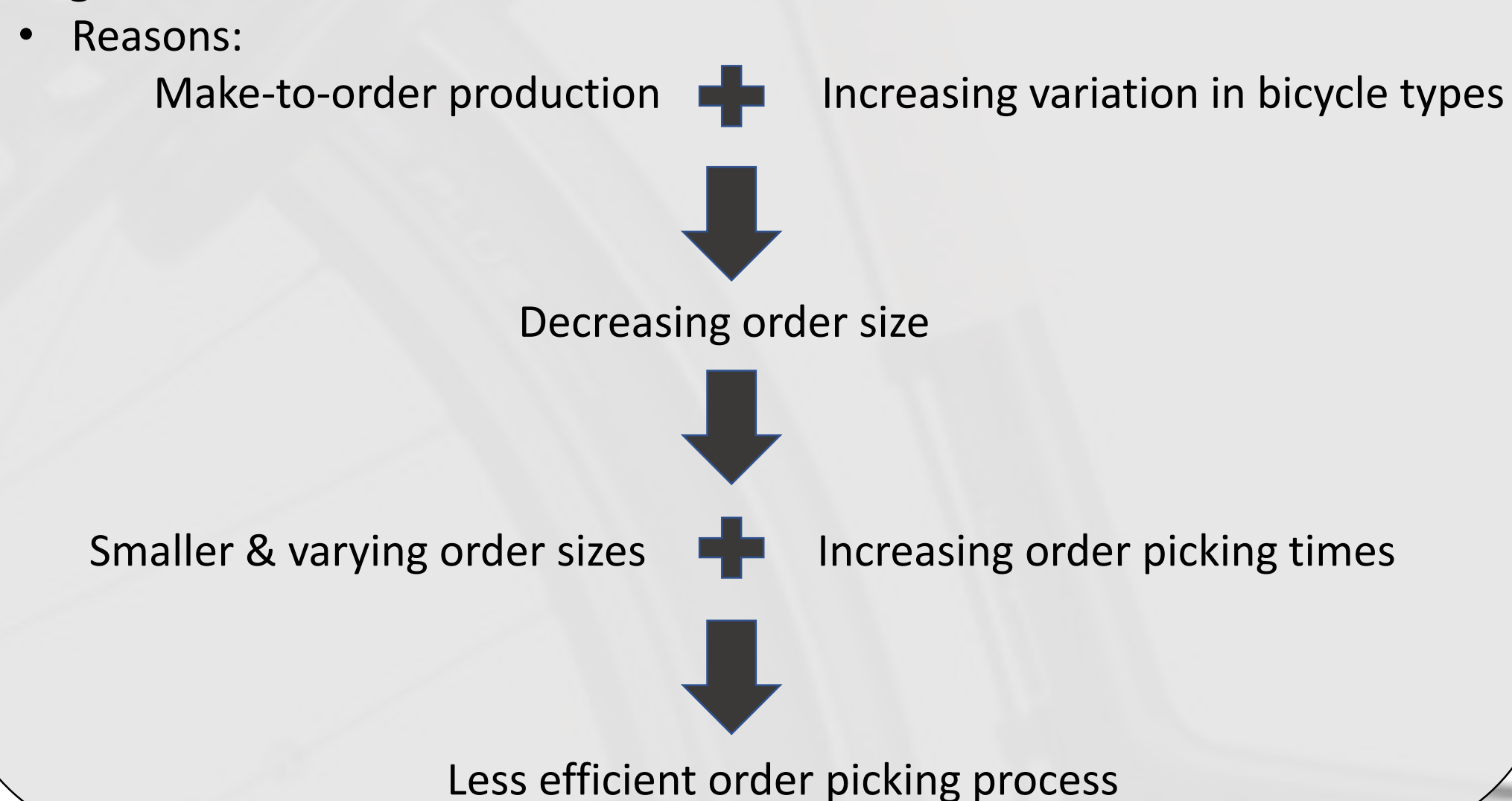
- Koga → Dutch bicycle brand and manufacturer in Heerenveen
- Premium brand and focus on highest segment of bicycles
- E-bikes: 60% of total demand
- Part of Dutch holding company Accel Nederland B.V.

Production process at Koga:

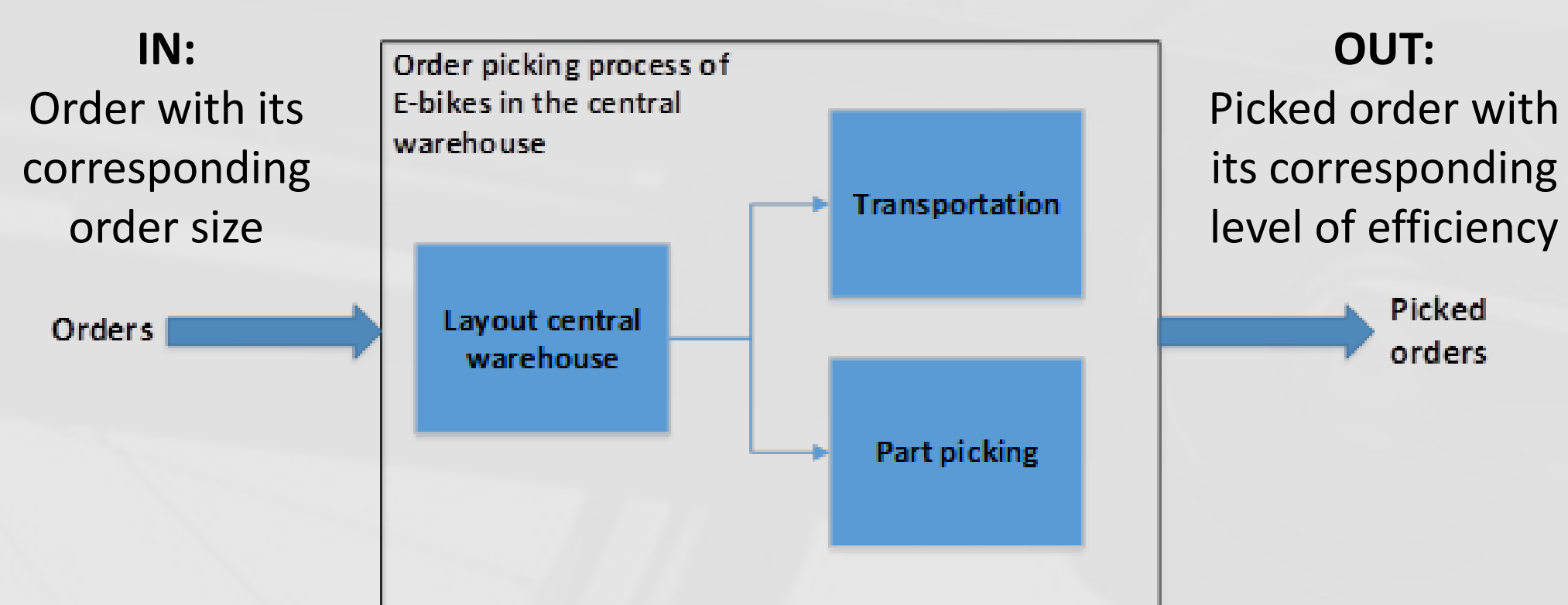


2. Problem Description

Less efficient order picking process of E-bikes in the central warehouse of Koga



3. System Description



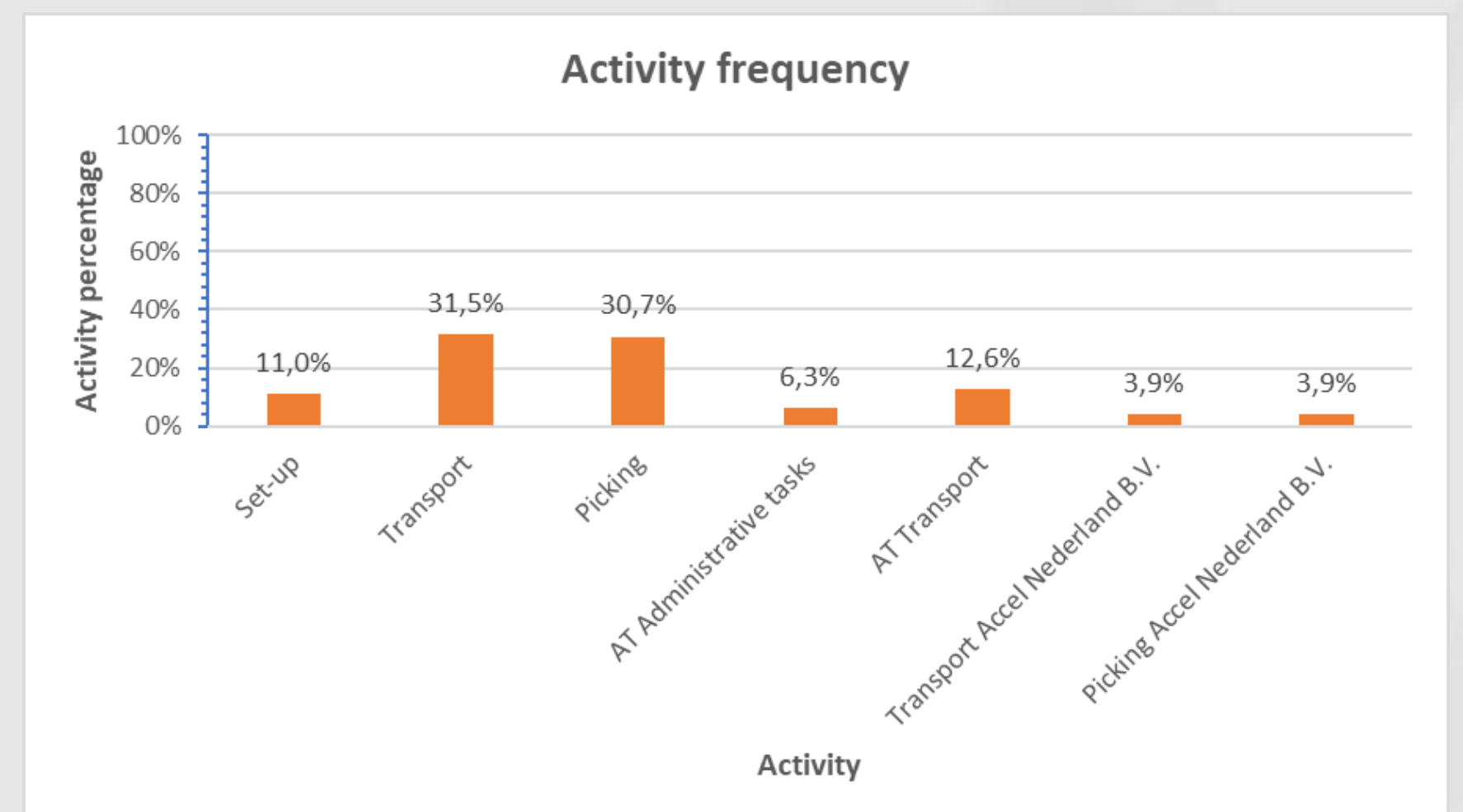
Current order picking process:

- Layout:** corresponds to the production departments; fixed location of items by taking into account product requirements
 - Pick-o-Mat (vertical lift module) → for storing small items
- Transport:** pick location and level of an item
 - Low level items: hand pallet truck
 - High level item: electric high level order picker truck / electric reach truck
- Part picking:** manual picker-to-part system using a scanner
 - Scanner indicates location of item (route) and required quantity
 - Part of the orders is delivered by the warehouse of Accel Nederland and these items are temporary stored at the front of the central warehouse

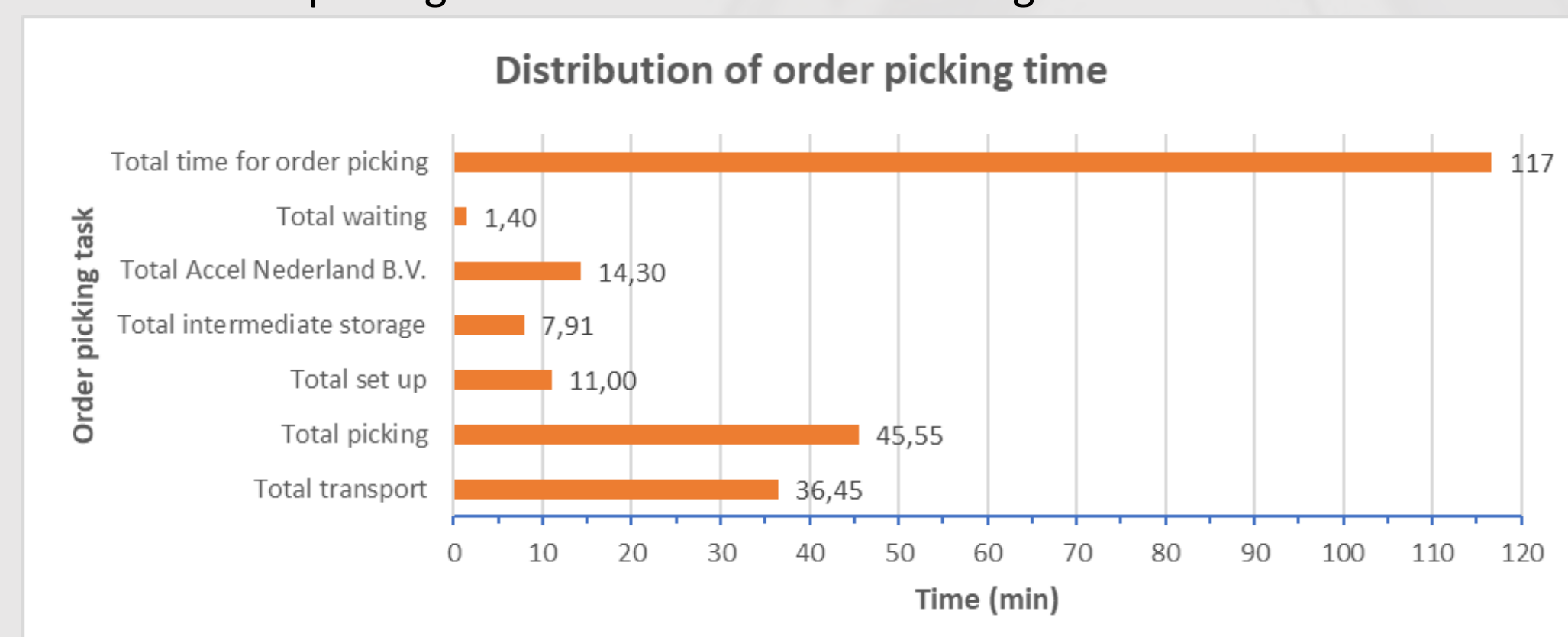
After order picking: order is stored in the intermediate storage

4. Measurements

- Frequency of order picking activities
Result: transport task → most common



- Time for order picking activities
Result: picking task → most time consuming



To improve order picking process: focus on improving transportation & part picking → reduce transport time, travel distance and picking time

5. Recommendations to Koga

The Pareto chart visualizes possible options to improve the order picking process which are assessed on performance objectives. A distinction is made in the results on efficiency in the short term & long term.

Both in short & long term:

- Update routes indicated by scanner for every new location of an item
- Transport immediately items of warehouse Accel Nederland to the intermediate storage

In long term:

- Batching
- Eliminating the intermediate storage using Just In Time production

