

Efficiency improvement for the pre-assembly process of Bosch E-bikes

1. Introduction

KOGA is a bike manufacturer located in Heerenveen and represents a premium reputation of the highest segment of bikes. The premium reputation of Koga's bikes is related to outstanding quality Koga delivers. This excellent quality can be realized, since quality is prioritized over the production efficiency.

The market of E-bikes increases significantly over the last ten years. The global E-bike sales are set to an increase of 54.7% over the next nine. Consequently, Koga must adapt and react to this trend and has to focus on manufacturing E-bikes. Currently, Koga's sales consist 60% of E-bikes and this percentage will probably increase further.

2. Problem Context

KOGA's manufacturing process consist of two stages: the pre-assembly and the final assembly. Actually, before the pre-assembly, an order-picking process is designed to supply the required parts for the pre- and final assembly.



The problem, as formulated by the problem owner Mr. A. Bregman, relates to the efficiency of the pre-assembly line of Koga. This Bachelor Integration project focusses on the pre-assembly process of Bosch E-bikes to eliminate non-value-added process activities to increase efficiency.

3. Methods and approach

These methods and approaches are applied to come up with the best proposal about the efficiency improvement of the Bosch pre-assembly process:

▪Facility layout

The facility layout includes the flow of materials and movement of operators. Improving efficiency is majorly related to eliminating or reducing these flow of materials and movements of operators.

▪Two-handed process chart

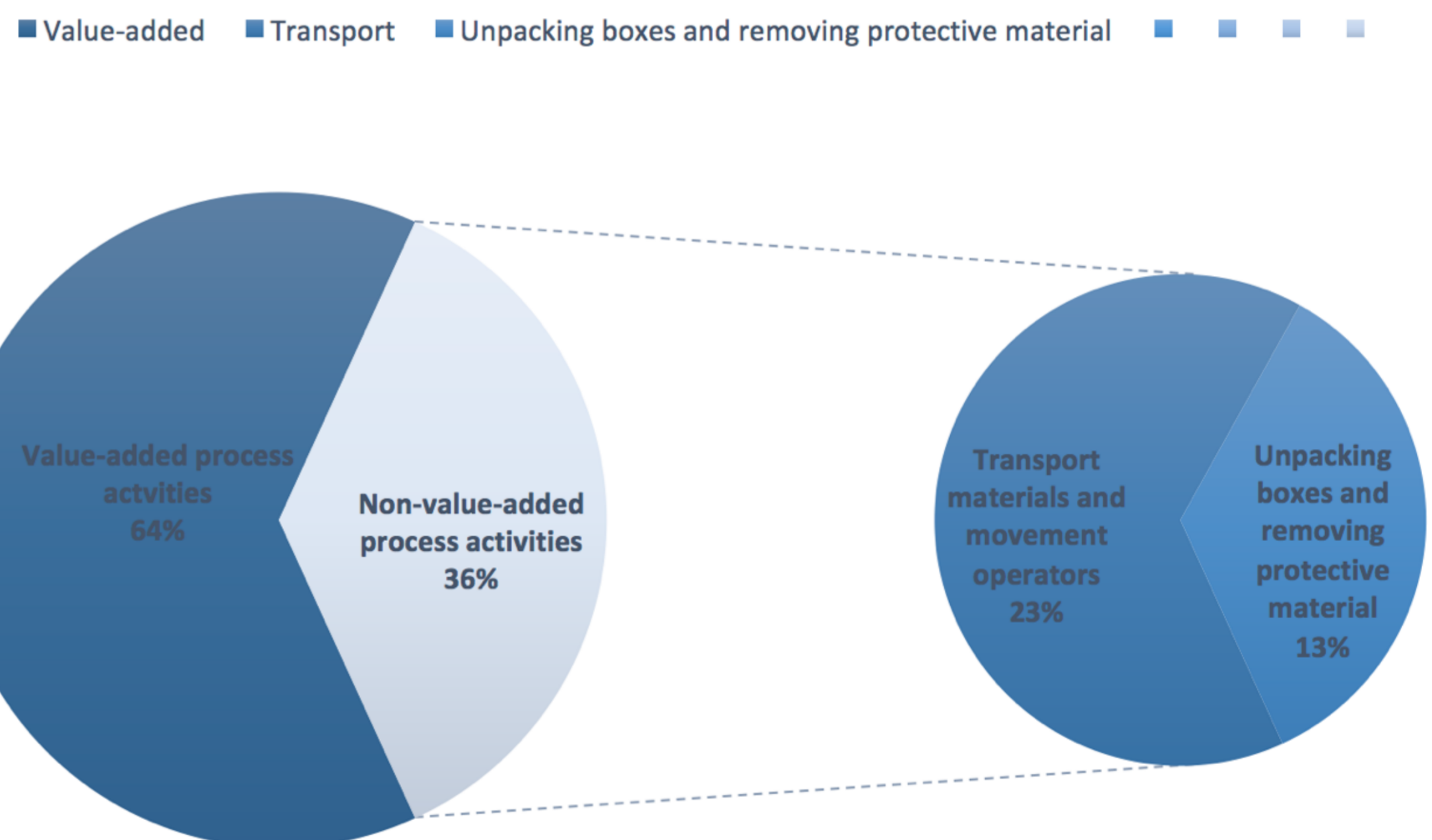
In this Bachelor Integration project, all activities are monitored by a process chart, the two-handed process chart. The two-handed process chart is a chart in which the process activities of both hands of an operator are recorded in their relationship to each other.

▪Cumulative timing method

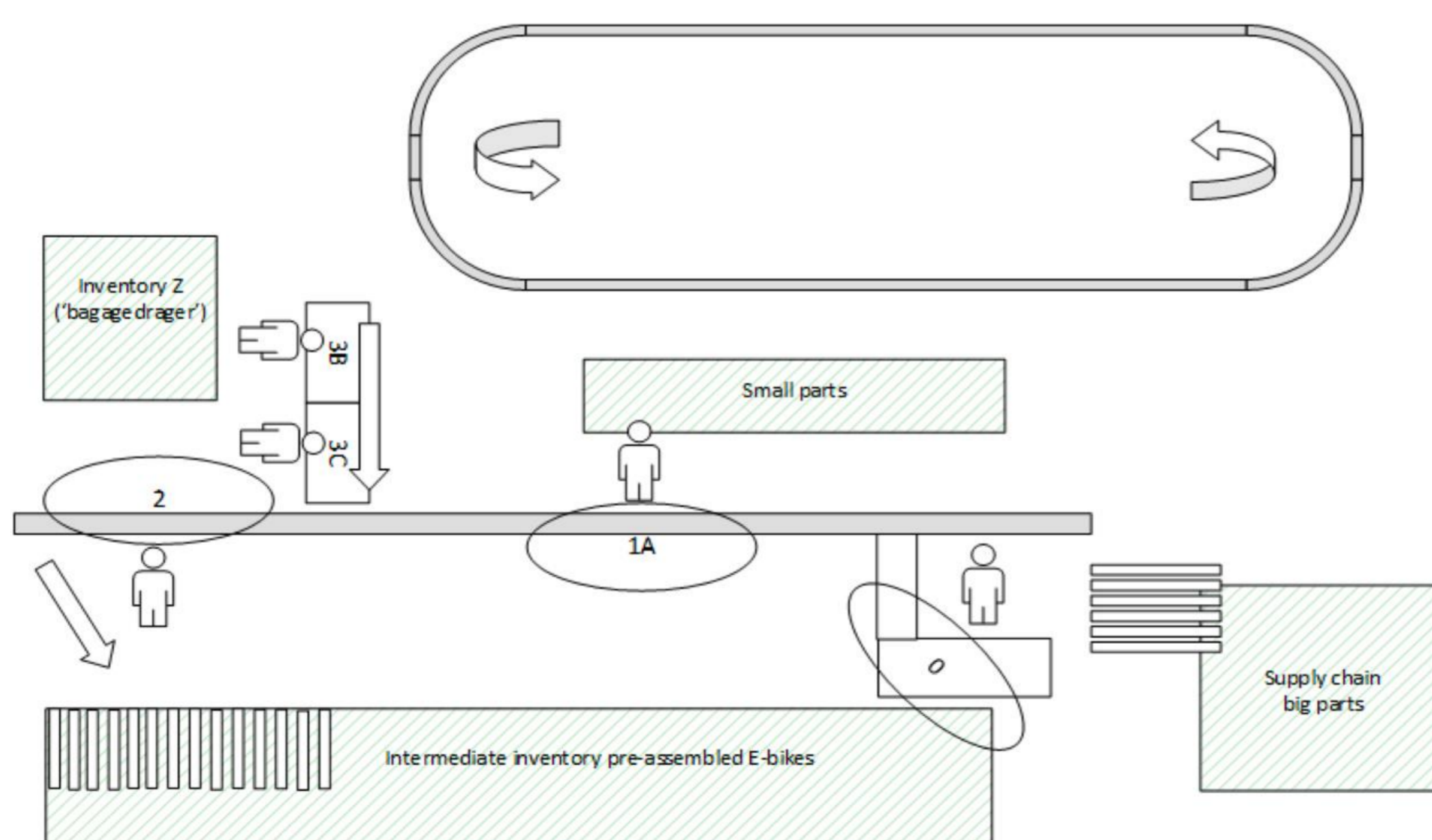
During the cumulative timing procedure, the stopwatch will continuously run throughout the time study, the time study will start at the beginnings of the first process activity of a particular workstation and will not stop until the last process activity of the particular workstation is completed.

4. Results

Total processing time pre-assembly process Bosch E-bike



5. Redesigned facility layout



Contact information

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