

Can handheld scanners and mobile printers increase warehouse efficiency?

By Søren Castor (June 2024) for the Division of Engineering Logistics at the Faculty of Engineering – LTH, Lund University

As the most significant technological trend faced globally, digitalization will affect and is already affecting not only individuals but entire nations as well as businesses across the globe. Adopting digital technologies in organizations or in the operation environment causes changes and challenges for companies. The need for digital transformation was recognized by industrialists as well as governments worldwide after the publication of the term “Industrie 4.0” back in 2011. Since then, Industry 4.0 is progressing exponentially and is transforming the manufacturing as well as the connected supply chain industry.

However, a lot of companies still lack behind. Especially small and medium-sized enterprises (SMEs) need to catch up and are facing major challenges implementing digitalization in comparison to big enterprises. The fact that SMEs represent 99% of the businesses in the EU according to the European Commission, shows how important it is that micro, small and medium-sized enterprises catch up on digitalization in order to achieve competitiveness and to strengthen the economic sustainability.

As the case company of the thesis is part of the companies that lack behind in digitalization and therefore their warehouse processes lack in efficiency, the thesis investigated whether and how handheld scanners and mobile printers can increase their warehouse efficiency. The difficulty of the thesis was on gathering all relevant data about the warehouse processes and to analyze that data in order

to find out whether mobile devices can achieve efficiency increases. After comparing the current processes with adding handheld scanner and mobile printer to those processes, it was investigated that the use of those devices will increase the efficiency.

By designing propositions for the case company on how handheld scanners and mobile printers can be implemented within their current processes, the thesis has proposed possibilities to increase warehouse efficiency and has shown how companies that lack behind in digitalization can catch up. Furthermore, the thesis has investigated the effect those design propositions would have on the efficiency as well as the financial impact such an investment would have for companies. As they were very positive, the thesis together with the developed frameworks can be used as a guideline for other companies approaching digitalization within similar warehouse processes.

As digitalization is the future for many companies, it remains exciting to see how companies especially SMEs deal with their change to approach digitalization. The first step for that is to identify the need to change, which the case company has done. By implementing the design propositions, they are on a good way to digitalize their warehouse processes which they can further improve.

This popular scientific article is derived from the master thesis: Increasing warehouse efficiency by digitalizing warehouse processes using mobile devices at a German steel company, written By Søren Castor (June 2024).