

# Integrating social and economic sustainability with lean production methods

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## THE WORK IN CONTEXT

Ergonomists have traditionally ended up on the side line of production, left to remind the key actors in the company about the human agenda. Managers and production engineers have been occupied by contributing to key business goals, and in practice considered health and safety of workers as an intrusion to this endeavour. Legal obligations, workers' demands and institutional pressure have secured a moderate place for health and safety in the operations, but pushed to experts (ergonomists and OHS engineers) out of the central line of management.

Development during the last decade has increased the priority to the sustainability issue, a development enforced by the UN sustainable development goals. Both private and public companies are developing policies to strengthen the sustainability of their operations. Climate and the environment have for good reasons been in the forefront, but with the holistic approach of the sustainable development goals, other issues such as work get stronger attention, among others in the form of CSR policies and reports. However, the link to the daily operations where work takes place and the safety and health of workers potentially are at risk, is in many cases rather weak.

In spite of frequent criticism, lean production methods open possibilities to create a tangible link between the traditional drive for productivity and the need to secure a safe and healthy workplace. Lean offers possibilities to get in-depth insights into the flow of work, which has a clear link to the ergonomic approach to work analysis. Yet, lean may, as just as ergonomic tools, carry a risk of easing the work with one hand and intensifying work with the other hand. A risk which needs to be controlled during the effort to increase productivity as well as safety and health.

## KEYWORDS

Sustainable development goals, garment, hospitals

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## A brief outline of the work carried out

This paper presents two studies, which show how a lean approach can be used to integrate productivity, and safety and health improvements and thereby initiate a movement towards greater economic and social sustainability. The first study is from the garment industry in Bangladesh. It covers a lean intervention with integrated ergonomic methods in six factories. Before and after measurements were made of both production and safety and health key performance indicators. The other study was placed in a hospital setting in Denmark. It includes a lean based intervention in a large university hospital to follow up on problems identified during risk assessment of the work environment. The collected data focusses on the implementation process and the tangible changes in organisation of work.

## **Findings**

The results in the garment study (Hamja et al., 2019) show implementation difficulties in several factories, but in spite of varying fidelity, production key performance indicators improved in most factories: value added time (0-100%), efficiency (3-26%) and 5S (housekeeping, 10-22%). For workers the results show a reduction in an acute muscular pain and fatigue index of 16-88%, although it was not possible to study long term health effects.

In the hospital (Starheim et al., 2019) five departments participated in the lean intervention. Management and staff selected issues identified as particularly hazardous. The departments carried out value stream mapping of the work processes related to the issues, and used the insight in the work to improve conditions. An example is urology where the department succeeded in increasing daily bladder examinations and refusal of patients referred outside the pre-plan, at the same time as resolving a year-old conflict between time planners and nurse assistants.

## **Impact**

The two examples from very different contexts indicate the scope for lean as an approach to integrate productivity and health and safety and thereby advance social and economic sustainability.

## **References**

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