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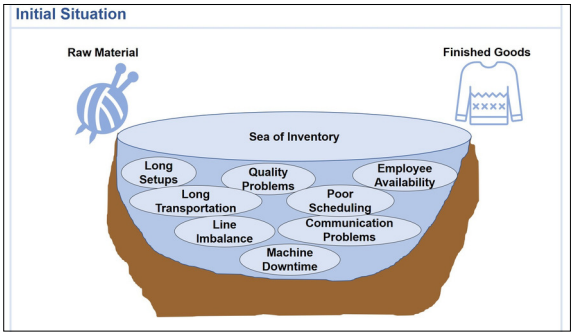
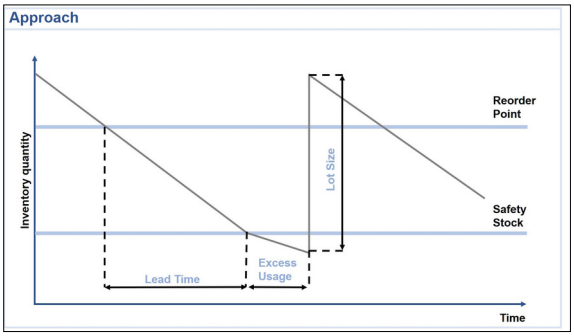
Subject Area	Innovation in Products, Processes and Materials - Business Engineering and Productions

Inventory Management

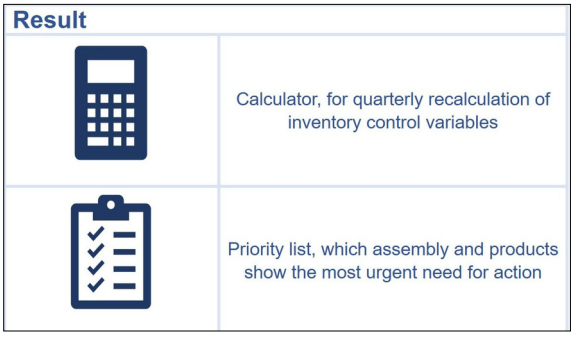
Optimization of raw material inventory without lowering the service level



The reasons for the large inventory can be found in very different places
Own presentment



Visualisation of the inventory control variables
Own presentment



A calculator and a priority list could be developed
Own presentment

Initial Situation: A fast-growing medical device manufacturing company needs a comprehensive renewal of inventory management. The renewal is necessary because essential parameters such as the safety stock or the reorder point have not been adjusted for a long time and it is not possible to determine how the selection of the parameters for all articles was set in the first place. In the past, these facts have repeatedly led to stockouts for particular articles. For other articles, the average storage time is above the desired range. The aim of this project was to to optimize both the tied-up capital and the required storage volume without worsening the service level.

Approach: In a first phase, the ERP data has been analysed with known methods, such as the ABC analysis. So that parts can be found which, for example, tie up a lot of capital and are therefore interesting for optimisation. In a second phase, the theoretical safety stocks have been determined using relevant formulas. These were then compared with the actual safety stocks. In parallel, interviews were conducted with all employees involved. There are two considerations behind this. Firstly, the analytically determined figures should be validated in the interviews. On the other hand, the interviews should draw attention to possible further weaknesses in inventory management. In a third phase, all findings from the previous phases were prioritised according to the criteria explained at the beginning.

Result: The first and longest-term result is a calculator for quarterly recalculations of inventory control variables. This gives the fast-growing medical device company an instrument with which future developments in the supply chain can be calculated. Based on these calculations, the inventory control parameters can then be adjusted. The second and most important part of the results in the short term is a priority list, which assembly and products show the most urgent need for action. This list shows, for example, articles for which the safety stock level must be urgently adjusted in order to achieve the required service level or to avoid unnecessary costs. Furthermore, the priority list shows more long-term measures in the form of concepts. The first concept starts with the goods receipt, which has been identified as a bottleneck. The concept tries to better plan the workload at the incoming goods department through better communication. The second concept starts with the stock-keeping. It tries to use the available storage space more optimally with simple measures. The third concept deals with the introduction of obsolescence management. It is based on the idea that safety stocks can be reduced if the supply chain is managed more actively. The third result is a small simulation, which has been carried out with the calculator of the first result. It could be shown that with optimally set inventory control variables, the tied capital can be reduced by 25% and the required storage volume by 37%.