

Production line case study

[Business](#)



Spartan has gently introduced cell manufacturing to improve the lead time for a family of 4 products. Although the results initially looked promising, after several weeks the performance started to decline. At the present time the lead time performance is 8 weeks | Nils Is consolable unacceptable o Spartan Management. I en Tall target Is to reach a lead time of at most 5 days, but for the short term (which is the focus for this report) the target is 15 days or less. Structure of the Report The current chapter introduces the products and the manufacturing processes at

Spartan. The next chapter, Manufacturing Cell Modeling explains in detail how the current process is simulated.

The chapter Improvement Alternatives outlines the problems and improvement options that are considered for Spartan. The last chapter offers conclusions and recommendations for Spartan Management. Product and Process Information The manufacturing cell under investigation produces Hubs. Currently the cell makes 4 different hubs. Each of these hubs consists of a hub, a number of mounts and a sleeve. The mount in turn consists of 2 brackets and 2 bolts.

The BOOM for each of the hubs, along with the demand is shown in Table 1. Each of the 4 hubs follows the same basic process, but the parameters of the individual machines are different. The next chapter describes the details of the process. A high level flowchart of the process is depicted below in figure 1 . Each product leaves the process either as good product or as scrap. Hub
Equipment Operator Operation Setup (min) Run Time (min) Bench 10
Rupture VT Lathe 17 15 Deeper Fan I urn 120 25.

5 20 Inspect 7 12 Rework Repair Slot

Mill Table : Hub Equipment Data Hub Fenton 150 Tap Drill Table : Hub
 Equipment Data Hub 11 9. 5 50 Table : Hub Equipment Data Hub Run Lime
 (ml) 2 a e Huh 4 Equipment Ad Manufacturing Cell Modeling This chapter
 delves deeper into the current situation that was introduced in the previous
 chapter. The first part of this chapter explains the process parameters of the
 current process. In the second part of the chapter we explain the model for
 simulating and improving the current process. Current Manufacturing
 Process

Tables 2 through 5 show the process parameters for each of the hubs and for
 each of the operations. Further assessment of the effectiveness of the
 process requires additional information.

This information is presented in Table 6 for equipment characteristics and in
 Table 7 for quality characteristics. Equipment Number (m) MATT METRO
 Availability (A) 3 0. 952 4 0. 909 2400 0. 833 240 10000 0.

977 Table : Equipment Details Inspection Station Repair Station Total Scrap
 Rejected (not scrap) Scrap Reworked 5% 7% 1% Table . Quality
 Characteristics