

Student: Federico Schiffrini

Project Title: Increasing drug product manufacturing capacity through optimisation of production planning, scheduling and schedule execution.

Abstract: The purpose of this project is to optimise capacity, flexibility and effectiveness for the facility of a global pharmaceutical company. The focus is not only on increasing the capacity of the plant because even flexibility and effectiveness are considered as important factors of the scheduling plans developed by the company. To begin with, in order to have a better understanding of the pharmaceutical industry which is quite specific the project team has undertaken a literature review phase at the beginning of the group project. Secondly, a data gathering phase has been performed to collect data related to the scope of the project. Thirdly, project team performed a data analysis phase to extract information from the data gathered. This has been done mainly to map the AS-IS situation on the shop floor at the facility and to understand the key issues that the group project should tackle. Fourthly, the project team used a simulation software to build the AS-IS operating model and the TO-BE with the improvement initiatives which tackle the key issues identified in the previous phase. After having built the AS-IS model, it has been validated to check if it accurately represents the shop floor of the facility. Furthermore, the project team performed another literature review phase to research feasible and practical solutions of the problems identified. Fifthly, the project team requested company's approval of the solutions provided and only at the very end the guidance documents related to the solutions were provided to the client.

Key Findings:

The main findings of this group project are related to two different main areas which are the scheduling approach used at the facility and the capacity measure that the company used before this group project. Indeed, the manufacturing department at the beginning of this project used a trial and error scheduling approach which is based on past experience and it is not systematic. Furthermore, as mentioned above another finding is related to the fact that the company does not have a clear definition of capacity and its measure. In this way, all the improvement initiatives that the project team has undertaken are related to these two main areas as all the benefits which are gained.

Student: Filippo Giusti.

Project Title: Tool Performance Improvement

Introduction:

The Royal Mint manufactures coins to over 60 countries, including the United Kingdom. The company has undertaken the project to improve tool performance and consequently the business competitiveness.

Aim: to recommend practical approaches to improve tool performance.

Objectives:

1. To analyse the coin manufacturing process to highlight areas of improvement.
2. To apply simulation software to optimise the design of the tools.
3. To study the most suitable coatings to improve tool performance.

Key achievements:

- Developed suitable modifications in the manufacturing process to improve company performance.
- Introduction of simulation technique at the company.
- Developed commercially viable strategies to enhance tool performance.

Students: Chiara Andreotti and Angelo Parentini

Project Title: Re-engineering and improving manual operations in DPD Group UK Ltd Hubs.

Background:

DPD Group is one of the UK's leading time-critical parcel carriers. It integrates its own extensive UK Network with unrivalled ground based service to Europe and Air Express Service to the rest of the world.

Most recently, DPD Group opened its Hinckley Superhub, and this is the largest facility of its type within Europe and has complemented its other Superhub in Oldbury.

DPD has a reputation for delivering the best service money can buy, and is recognised for being the most innovative carrier in the express parcels sector. Thanks to Predict, customers receive a one-hour delivery window via SMS or email, so they don't need to wait in all day for a delivery. Follow My Parcel now allows customers to watch the progress of their parcel on a real-time map, and it also supplies a final 15 minute time slot. DPD offers assured next-day deliveries and timed one-hour delivery windows. Deliveries are made on behalf of a range of well-known brands, including Vodafone, EE, Superdry, John Lewis, Marks & Spence, Amazon, Boots, River Island and Disney Store.

The Oldbury Superhub (Hub 3) is an £80 million facility based on a 27 acre site (equivalent to 14 football pitches) and has a capacity of over 500,000 parcels per night. It can process 55,000 parcels per hour. There are a number of different routes parcels take through the hub; depending on parcel type, size and destination. One of these routes is through a manual sorting operation.

As this process is manually determined there is scope to improve flow and performance for this process route. The company want to engage a team to evaluate the manual sorting operations across their four hubs; and based on best-practice, propose improved systems that will deliver flow and productivity improvements.

Project Aim:

To evaluate the existing systems used at the four hubs and propose improved systems and procedures for manual processing of parcels through identification and reduction of waste. The proposed systems should deliver improved flow and productivity.

Objectives:

1. Analyse and map the manual processing in operation at the four hubs (as-is condition).
2. Evaluate and quantify performance of these manual processing systems.
3. Evaluate labour costs associated with the extant system.
4. Identify best practice approaches suitable for application to the four manual processing systems.
5. Develop possible improved systems and evaluate their respective strengths and weaknesses.

In collaboration with DPD personnel, identify the most appropriate improved system (to-be condition).

6. Create process maps for the to-be system.
7. Develop and deliver training for DPD personnel in operation and maintenance of the proposed system.
8. Develop and deliver presentations on the proposed system to employees from the four Distribution Hubs.

Deliverables:

1. Map of the value streams and associated KPIs for each manual parcel route in the respective Hubs.
2. Quantification of performance achieved and labour required for parcel processing in the extant manual system.
3. Possible improved systems that are co-evaluated with DPD personnel to select the most appropriate system for implementation.
4. Training package and training for DPD employees involved with the transition to the improved system.
5. Company presentations as required to operatives and management to explain the proposed system.