

SUPPLY CHAIN LOGISTICS SYSTEM

Background

Procter and Gamble (P&G) is the worlds largest Fast-Moving Consumer Goods (FMCG) company with 23 Billion-Dollar Brands, which include Ariel, Braun, Duracell, Gillette, Head & Shoulders, Iams, Olay, Oral-B, Pampers, Pantene, Pringles, and Wella. The UK market is the second most profitable for the company after the US selling to customers such as Tesco, Asda, Sainsbury's and other retail customers of all sizes.

One of P&G's key goals is maximise the efficiency of how it handles inventory. Storing product is an expense, and P&G aims to produce and ship only what it will sell, as close to the time of sale to the consumer. On the other hand, if P&G can not fulfil customer orders then P&G products can go out of stock and consumers will therefore look for alternatives, which can cost significance business in terms of lost sales and competitive advantage.

P&G has decided to commission a new system to optimise its UK supply chain control system in order to maximise the efficiency and keep inventory at the optimal level.

Goals

To:

Design and build a prototype of a supply chain logistics system to plan and track goods deliveries

In a way that:

- Maximises the efficiency of the delivery process
- Ensures that the status of deliveries is up-to-date and visible at all times
- Ensures that the status of upcoming deliveries is clearly visible at all times (enough stock available, where will it come from, etc.)
- Provides a customer order number and estimated delivery time (as close as possible to customer requested time) when the order is confirmed.
- Alerts customers and P&G employees to developing issues with product supply (running out of stock, trucks running late, etc)
- Allows detailed reporting on the history of customer orders, fulfilment times, stock movements and any stock level issues
- Allows Order entry by both uploading mass customer orders into the system in a standard file format and manually entering a single order through a graphical front end.
- Allows users to create a delivery plan for the next 7 days – the system needs to calculate the plan of deliveries going from manufacturing plant to distribution centre to customer's store based upon lead times, stock levels, vehicle availability and distance.
- Provides detailed reporting to support key measures important to P&G
- Can accept orders and plan from a minimum of 24hrs and a maximum of 7 days before delivery.

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So that:

- P&G can maintain customer satisfaction by meeting its planned delivery times
- P&G is able to keep the customer constantly in touch with the status of their order, and immediately aware of any issues

Environment

For the purpose of the prototype, we can assume the following:

- P&G has 3 Distribution Centres: London, Skelmesdale, Edinburgh

Locations in attached sheet named "DC" in format:

<DC_code>, <name>, <address1>, <address2>, <address3>, <address4>, <post_code>, <volume_capacity_in_square_meters>

- P&G has 30 Customer delivery points

Locations in attached sheet named "Customer Location" in format:

<customer_code>, <name>, <address1>, <address2>, <address3>, <address4>, <post_code>

- P&G has 5 plants: London, Manchester, Newcastle, Wrexham, Glasgow manufacturing 20 Finished Products, as below:

London:

- Ariel
- Pampers
- Febreze

Manchester:

- Wella
- Clairol
- Head and Shoulders 300ml
- Pantene

Newcastle:

- Olay
- Crest
- Vicks

Wrexham:

- Gillette Mach 3
- Gillette Fusion
- Duracell AA Batteries

Seaton Deleval:

- Hugo Boss
- Ghost
- Lacoste
- Max Factor

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Locations in attached sheet named “Plant Location” in format:

<plant_code>, <name>, <address1>, <address2>, <address3>, <address4>, <post_code>

Product specifications in attached sheet named “Product Specification”, in format:

<SKU>, <Name>, <length_in_meters>, <width_in_meters>, <height_in_meters>, <weight_in_KG>

P&G Uses 1 standard Pallet size in the UK:

- 1 meter x 1 meter, pack 1 meter high, up to 1000Kg

Assumptions

- Assume wagons move at a speed averaged to 50 mph across every journey.
- Customer orders must come from one of the DCs. There is to be no direct plant to customer movement.
- Journeys will be taken by the most appropriate route.
- Wagons may move stock from locations other than their own base, however they must return to their base location at least once in a 24 hour period.
- We can only ship full pallets to a destination.
- For this business case, assume we are only managing the UK operation. Note P&G usually manages its businesses globally in order to leverage scale and value, so this solution would be widely applied.

You will also be provided with:

- A spreadsheet containing the reference number, volume capacity, and base location of each P&G vehicle in the UK
- An example file, containing customer orders in the same format they will be entered into the system. These orders must be processed sequentially in the order they are entered into the file. The system may not ‘scan ahead’ in order to optimise delivery routes for orders that will appear in the future. A certain amount of ‘order forecasting’ is assumed to be implicit in the production plans, but this does not guarantee that all orders can be fulfilled on-time.

The samples will help you to construct and test the system. P&G will supply updated copies of all these files, with different values, to test the prototype upon delivery. These sample files are not necessarily representative of the real size of P&G’s UK business and contain no commercially confidential information.