



BROAD OAK  
Partnership

Optimizing Business Performance

# **A workload planning model**

**By Mike Dymond**

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## **1. BRIEF**

Our brief was to develop a comprehensive budgeting and workload planning model to use in daily, weekly and seasonal labour planning. The tool is to include a performance reporting feature so that managers can base their plans on historical performances which will help them make well informed planning decisions.

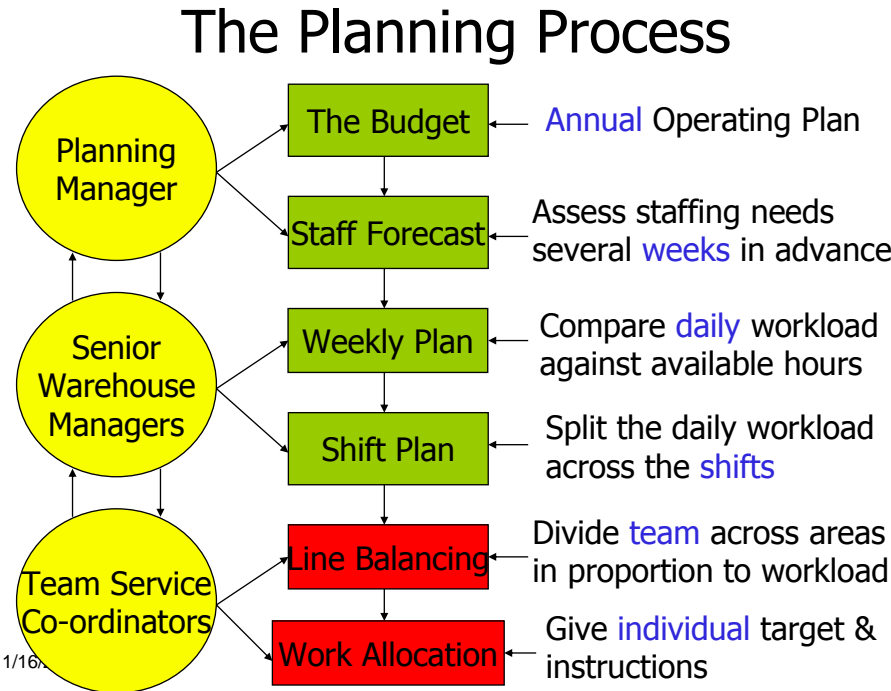
We undertook to coach the management team in operating the planning tool and we have backed this up with a comprehensive operating manual.

We have carried out a programme of work measurement and from this have developed a data base of standard times for direct work. This is at the centre of the planning programme and will enable managers to plan on the basis of objective, measured targets and to adjust for expected performance.

## 2. THE PLANNING SYSTEM IN OVERVIEW

A budgeting and workload planning model has been developed for use in daily, weekly and seasonal labour planning. The tool is based on work measurement standards and has a performance reporting feature. The model allows managers to base their plans on historical performances and accurate process measures to help them make well informed planning decisions.

The planning tool allows managers to follow the first four stages of the Planning Process, as outlined in the table below:



The planning model gives managers the opportunity to adopt a more systematic planning process. Consequently, this promotes greater control over warehouse labour resources and thus staffing costs.

### 2.1 Objectives

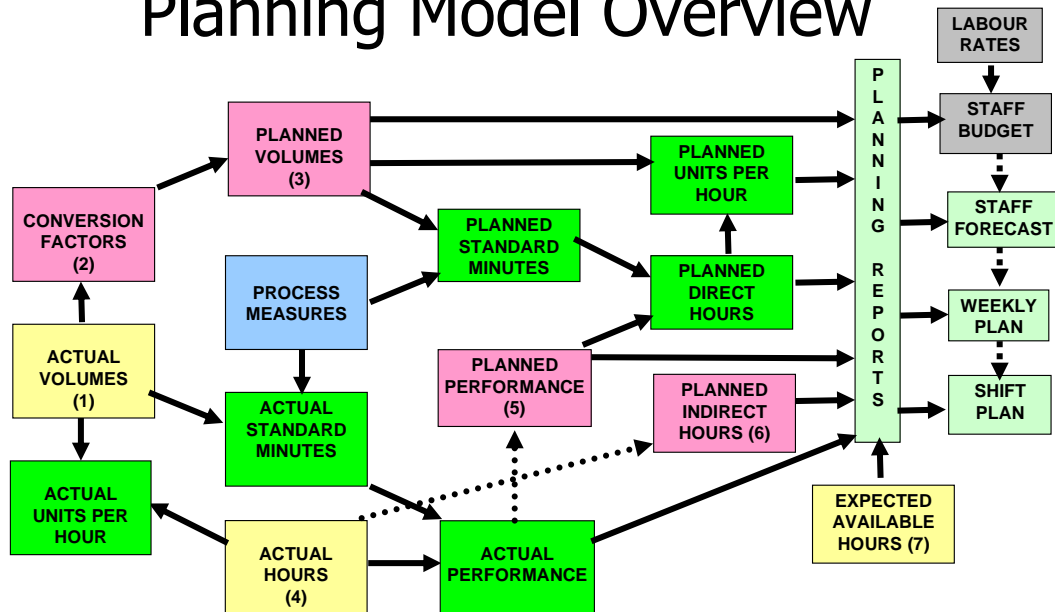
The Operating Procedures outlined below are designed to help managers use the Workload Planning Model to deliver the following benefits:

- a) **Greater Accuracy** – The planning tool uses Time Standards, Recent Actual Data and Actual Performances to help managers calculate the staffing requirements more precisely.
  
- b) **Lower Costs** – The planning reports help managers identify days and shifts with excess hours that represent potential cost savings. The budget staffing and costs worksheets help managers select the optimum staffing levels and shift structures to minimise labour costs.
  
- c) **Better Customer Service** – The planning reports identify days and shifts that may require additional hours to meet customer requirements.
  
- d) **Higher Productivity** – The model allows managers to monitor actual performances and units per hour and compare them against budget and historical levels.
  
- e) **Longer Term Planning Focus** – The model allows the planning manager to calculate and review staffing requirements several weeks and months ahead. This presents managers with the opportunity to investigate and implement changes to staffing levels and shift structures that will allow them to more closely meet business requirements.

## 2.2 System structure

The model has been configured to deliver a variety of outputs from minimal inputs. Indeed, several calculation tables are used to convert the inputs into the output data required by the various the reports. The structure of the planning model is outlined below:

# Planning Model Overview



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The model is comprised of 5 different types of worksheet, as follows:

- a) Actual Data Input – Actual historical data
- b) Process Measures – Time standards derived through Work Measurement. **NB All the data and calculations in the work sheet are protected.**
- c) Planned Data Input – The planning assumptions made by the planning manager after reviewing the actual historical data
- d) Calculation Tables – These tables apply the actual and planned volume data to the process measures to calculate the planned direct hours and actual performances. **NB All the calculations in these work sheets are protected.**
- e) Outputs – Planning and budget reports

## 2.3 Actual Input Data

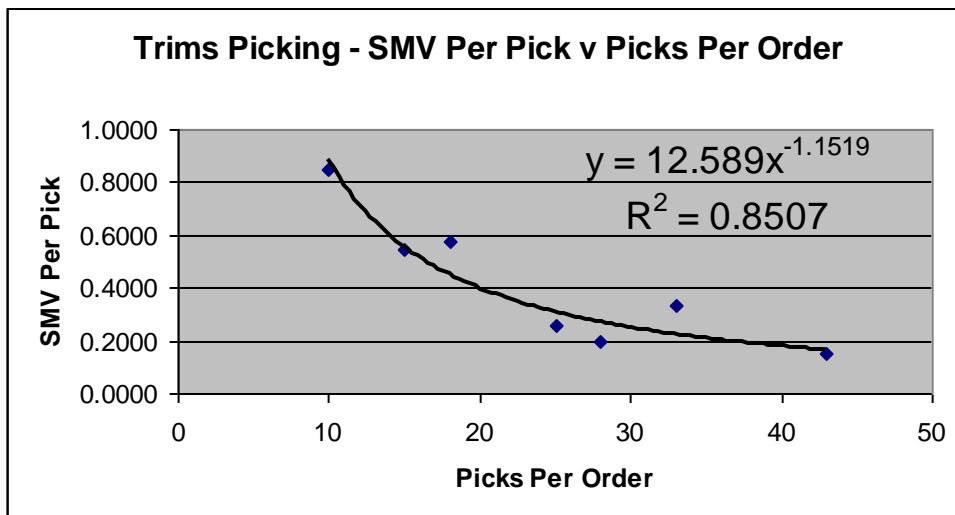
The model requires accurate daily historical data to help the planning manager identify current business trends. The 2 main actual inputs are as follows:

- a) **Actual Volumes** – This table includes the detailed daily volumes processed by the warehouse during the period 6am to 6am each day. This information is used to calculate the actual conversion factors (e.g items per order) and the actual standard minutes that are used to calculate actual performance results.
- b) **Actual Hours** – The actual hours should include all the hours that have been assigned to a direct process or indirect activity during the course of a day (i.e. 6am to 6am). These hours must also include any transfers of hours between departments.

## 2.4 The Process Measures

The process measures are time standards that accurately reflect the work content of measured tasks. These measurements were produced by qualified practitioners studying actual warehouse processes. Furthermore, the study results show clear relationships between key variables and work content. For example, the time per trims pick (i.e. order line or pick location) is governed by the amount of picks in the order. The trend shown in the graph outlined below indicates that the more picks (i.e. order lines) in an order then the less time that is required to complete each pick. This is because there is less travel between individual pick locations. The studies indicated that this pattern only applies when pickers can follow an established pick route as they do for body glass and trims. No such pattern emerged for screen picking due to the random nature of the pick path.

Please note that the sample size for the measurements was small and we set elemental breakdown at a fairly high level. The resulting measurements are accurate for conditions as we saw them but will require updating as operational conditions change.



We have used excel to produce mathematical formulae that represent the relationship between variables (e.g. picks per order) and work content where appropriate. These formulae have been used in the process measures worksheet so that some time standards automatically adjust to reflect the actual or expected order characteristics (e.g. items per pick). This ensures the planning outputs are even more accurate.

## 2.5 Planning Input Data

A manager reviews actual historical data and other available data before deciding which values to use for planning in the following worksheets:

- a) **Conversion Factors** – These factors convert the limited number of units that are entered in the planned volumes table into a far more detailed set of units that are required by the process measures in order to calculate the standard minutes. For instance, the Planning Manager will enter the expected volumes of items for section 1 picking to the planned volumes worksheet. The conversion factor will be applied to the items quantity to calculate the number of daily picks for section 1 picking.
- b) **Planned Volumes** – The Planning manager will enter a limited number of known units (e.g. supplier crates) into the model for each process (e.g. supplier receiving). The conversion factors will generate additional units as described above.
- c) **Planned Performance** – The planning manager will examine the recent performance results in the actual performance worksheet and budget productivity targets before



entering the required performance level. The performance level should be challenging but realistic.

- d) **Planned Indirect Hours** – The Planning manager will enter the minimum required daily hours to complete unmeasured tasks that are not volume driven (e.g. QC). The manager should review the actual indirect hours to help determine the planning value.
- e) **Planned Available Hours** – The Planning Manager will enter the expected amount of hours that will be on shift on the given day. The hours will be based on 7.5 hours per person per day. The hours that are entered to the model will need to reflect booked holidays and long-term absence.

## 2.6 The Calculation Tables

The calculation tables use the actual data, planned data and process measures to generate additional inputs or reference data that are required during the planning process. These tables are protected and cannot be modified by local managers.

- a) **Actual Standard Minutes** – Actual Volume x Process Measure
- b) **Actual Performance** –  $(\text{Actual Standard Minutes} / (\text{Actual Hours} \times 60)) \times 100$
- c) **Actual Units Per Hour** – Actual Units / Actual Hours
- d) **Planned Standard Minutes** - Planned Volume x Process Measure
- e) **Planned Direct Hours** –  $(\text{Planned Standard Minutes} / (\text{Planned Perf.} / 100)) / 60$
- f) **Planned Units Per Hour** – Planned Volumes / Planned Direct Hours

## 2.7 The Reports

The actual data, planning data and calculation tables provide the input for a number of reports:

- a) **Weekly Plan** – Allows managers to examine the following information:

- a. Required and available hours by day
  - b. Planned and budget productivity by day
  - c. Planned and Previous weeks performances and productivity by day
  - d. Planning assumptions (e.g. volumes, performances etc)
- b) **Shift Plan** - Allows managers to compare the following information:
- a. Required and available hours by shift
- c) **Staffing Forecast** – Helps managers explore daily staffing requirements weeks and months ahead.
- d) **Budget Staffing Calculation and Costs** – Helps managers assess the most cost effective options for meeting warehouse work requirements.

## 2.8 Roles and responsibilities

It is anticipated that the worksheets in the model will be maintained by members of the team as follows:

- a) **Planning Administrator** – Keys actual volumes and actual hours to the model on a daily basis. This person will maintain a spreadsheet for available staffing hours that will provide data that is entered to the planned available hours worksheet before the weekly plans are produced.
- b) **Planning Manager** – Reviews actual volumes, actual conversion factors, actual performances and actual hours worksheets prior deciding the provisional figures that are to be entered to the planned data tables (e.g. planned volumes). Produces the weekly plans ahead of the weekly planning meeting and shift plans for the following day. The Planning manager will also produce the staffing forecast and budgets in conjunction with senior warehouse managers.
- c) **Senior Warehouse Managers** – Review the weekly plans and identify any necessary changes to the planning assumptions. Decide the appropriate actions to minimise the

variances between required and available hours/FTE. Propose the assumptions that should be used in the draft staffing budget prepared by the Planning manager.

- d) **General Manager** – Specify the pay rates for the forthcoming budget. Review the budget produced by the Planning manager and senior warehouse managers.
- e) **Key Performance Improvement** – Maintain the Time Standards for changes in layout, equipment, process or products. Update the Planning model for new management planning requirements or business changes.

## 2.9 Planning timeframes

A series of tasks need to be carried out at different intervals to ensure optimum benefit is derived from the planning model as follows:

### ANNUAL TASKS:

- a) **Prepare the budget** – The Planning Manager should take a copy of the most recent planning model with actual and forecast data. The model should be saved as the draft copy of the next budget. The actual and forecast data should be reviewed to decide the planned input data that will form the basis of the budget. The Planning manager must ensure that the planned input data worksheets contain a full set of data. The proposed budget model should be discussed with senior warehouse managers and adjusted as necessary before being issued to the accountants or senior company managers.
- b) **Set Year Start dates** – The Planning manager will need to set the year start date in cell C8 of the Actual Volumes worksheet for the new budget model. The new dates for the whole year will be automatically calculated and fed through to all the other worksheets in the model.
- c) **Set Days of Week** – The Planning manager will need to ensure the appropriate days of the week (Sunday, Monday etc) in column B of the Actual Volumes work sheet match up with the dates in column C. The days of the week will automatically feed through to all the other worksheets in the model.

- d) **Set Week Dates in Staffing Forecast Summary** – Check the first weekend date in cell C383 of the Staffing Forecast to ensure it matches the Saturday date for the first week of the new year. Check the second week start date in cell B384 of the Staffing Forecast to ensure it matches the Sunday date for the second week of the new year. **NB This check is only made necessary by the fact that the year starts on 1<sup>st</sup> January and the first week of the year will often be less than 7 days. It will be easier to administer the model if each week of the budget year is a 7 day week.**
- e) **Set Bank Holidays** – The Planning manager enters YES in column D of the Actual Volumes against each day of the year that is a bank holiday.
- f) **Issue Budget Model** – The authorised budget version of the Planning model should be used as the Planning model for the new budget year. The Planning Manager should adjust the budget model values for any recent actual data that was generated whilst the budget process was taking place. Then the budget model should be made available on a shared drive for the Planning Administrator and Warehouse Managers to access as required.

#### **QUARTERLY TASKS:**

- a) **Prepare the Staffing Forecast** – The Planning Manager should use the planning model to calculate the staffing requirements for the next 3 months.
- b) **Shift Structures** – The Planning manager should run a series of Shift Plans for several of the days in the quarterly period to investigate whether there needs to be any changes in the levels of staff on each shift.
- c) **Staff Training** - The Planning manager should produce a skills matrix to identify training requirements and develop a training plan with warehouse managers. This will ensure that staff are multi-skilled in order to develop a more flexible workforce.

#### **WEEKLY TASKS:**

- a) **Prepare Planned Available Hours** – The Planning Administrator should ensure the Planned Available Hours worksheet is updated before the Planning manager produces the weekly plans.

- b) **Prepare the Weekly Plans** – The Planning Manager should use the planning model to produce the draft weekly plans.
- c) **Review Weekly Plans** – The Planning manager and warehouse managers should agree changes to the weekly plans to ensure business objectives are achieved.
- d) **Action Plan** – The senior warehouse managers agree and implement SMART actions that address the issues highlighted by the weekly plans. A senior manager should produce a written action plan that reflects the points agreed during the weekly planning meeting. This plan can then be communicated to other members of the warehouse management team.

#### **DAILY TASKS:**

- a) **Key Actuals** – The Planning Administrator should gather the actual data from the warehouse management system. The data must only cover the work done during the period 6am day the previous day to 6am the current day. The administrator should reconcile the data with check figures to ensure the accuracy of the data before keying it to the Actual Volumes and Actual Hours work sheets.
- b) **Review Actual Performances** – The senior warehouse managers should review the actual performance worksheet in the Planning Model and investigate low and high performance levels.
- c) **Shift Plan** – A senior warehouse manager should produce the Shift Plan for the following day and discuss the plan with his shift managers.

### **3. CONCLUDING REMARKS**

The introduction of a new planning system is the first step along the path of performance management. There is a great opportunity to improve performance through the systematic application of performance management principles. In this paper we have described the planning system and set out what we believe should be the objectives for the system.