

THE EX-ANTE USE OF PLANNED REVENUE IN A SALES & OPERATIONS PLANNING (S&OP) SYSTEM, FOR MORE TIMELY AND EFFECTIVE DECISION MAKING, BY SENIOR MANAGERS, IN MULTI-NATIONAL ENVIRONMENTS.

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Abstract

With supply chains continuing to get more complex, companies struggle on a day to day basis when making critically important decisions about how to positively influence the future performance of their businesses. In particular, attempting to figure out what products to make, when to make them, how much to keep in stock and where to stock them, leave Supply Chain practitioners with the constant dilemma of balancing the risk of running short of stock and therefore impacting Sales, while on the other hand trying to prevent having too much capital tied up in inventory, with the risk of write-offs and obsolescence. Sales & Operations Planning (S&OP) has proven to be a popular and effective process for bringing control and a level of predictability to the product planning challenges of many companies. With the multi-site and global nature of Multi-Nationals, a process that attempts to have all the critical functions operating off the same plan is particularly valuable and is reflected by the greater deployment of S&OP processes in this sector. With the key to planning being about anticipating the future, any good S&OP process will focus on enabling timely and effective decisions to be made, when faced with a number of potential scenarios. This paper proposes a practical Closed Loop System to enhance the performance of S&OP processes. The System uses an ex-ante (predictive) view of the critical business Key Performance Indicator (KPI) of Revenue as the catalyst to ensure that decisions that need to be made are surfaced in a timely fashion. With a complete system in place, covering process, tools and behaviours, senior managers have the opportunity to make decisions, while understanding the full potential impact across the business.

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Introduction

For most companies, one of the greatest challenges is to be able to predict how the sales of its products or services are going to perform in the future. This becomes particularly complex for large global companies, with multiple design, manufacturing, distribution and sales sites. The business planning exercise can consume a lot of time and energy in attempting to gather intelligence across the company, that can be combined with the various output reports from IT systems, in order to come up with the latest plan. In practice of course, this plan is outdated as soon as it is produced and quite often the quality of the result does not justify the effort to create it. In such situations, senior executives and middle managers across the company will tend to rely on their own knowledge and experience to make the best possible prediction, from their own perspective, ignoring the elaborate business plan that gets delivered periodically, typically monthly.

For large multi-national enterprises, companies invest millions of dollars on Enterprise Resource Planning (ERP) systems as well as Advanced Planning Systems (APS), in order to try and get efficiency in their business and in addition, hope to be able to extract the data they need in a timely fashion to support their critical planning decisions (Singh, 2002). However, the reality, as highlighted by Holsapple et al. (2005) is that such systems tend to concentrate on their transactional and record-keeping aspects, rather than on their decision-support capabilities. Therefore, while companies may achieve returns with respect to efficiency gains, there remains a gap in the availability of information to increase their knowledge for effective decision making. This gap is depicted by Delfmann & Remmert (2000, p9) and repeated below in Figure 1.

To address this gap, one might assume that the logical place to research is the area of Decision Support Systems (DSS). This is an area that is certainly well developed, having been a focus for researchers since the late 1950s / early 1960s (Carlsson & Turban, 2002). However, as late as 2002, Carlsson & Turban made the following assertion: *“Most of the challenges of the DSS, as we knew it, are still valid. For example, complex and integrated decision-making is still done semi- or completely manually. Decision automation is spreading among front-line employees and in middle management, but not to the top-level complex decisions”*.

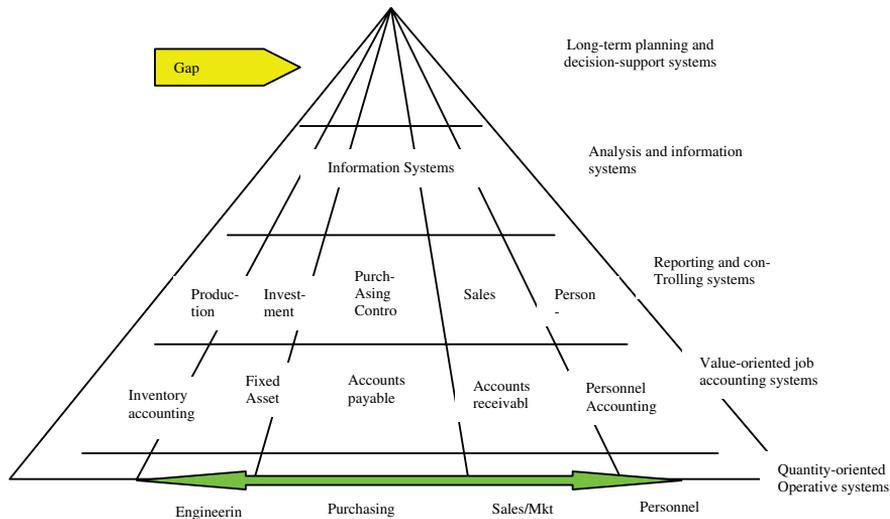


Figure 1:- Delfmann & Remmert, 2000, p9 (Figure 3: Integrated information systems)

One process that has delivered great advances for companies in providing them with the opportunity to make decisions to positively influence their future performance, is the Sales & Operations Planning (S&OP) process. This is a process that is focused at linking the strategic and operational planning of the business. Therefore it operates in the ‘gap’ area identified by Delfmann et al., (2002) as shown in figure 1. It is beyond the scope of this paper to describe this process in detail and the reader is referred to Sheldon (2006), Lapide (2004, 2006), Brander & Fischer (1998). However, the process offers some important aspects that are worth noting:

- Integrated planning across all functions and in particular Operations, Sales & Marketing.
- Acknowledges the behavioural changes required to make the process work.
- Sets an expectation for the organization to plan off one set of numbers.
- Brings the right level of people together such that decisions can be made.

These concepts will be explored further in the next section.

With all the great tools that are available and with integrated processes like S&OP well established, what opportunities are left to improve the decision making to ensure better performance of the future plans ?

This paper explores the hypotheses that with greater exploitation of the critical business Key Performance Indicator (KPI) of Revenue within a closed loop S&OP system, then decisions that otherwise may not even be visible can be surfaced which in turn allow decisions to be made in a timely fashion, that can have a direct impact on achieving a predictable revenue performance.

The Importance of Revenue in S&OP

“Stated in the simplest terms, the S&OP is a monthly planning cycle where plans for both customer expectations and internal operations are reviewed for accuracy, process accountability, lessons learned, and future risk management.”

Sheldon (2006)

One of the significant elements of Sheldon’s practical definition of S&OP is what he refers to as “future risk management”. The S&OP process attempts to take a future look at the customer demand and the associated supply response to that demand. It looks at the risks associated with the accuracy of the demand and the risks associated with the ability of the supply chain to respond to the planned demand. In assessing these risks it supports running scenarios to test various options and advocates a cross functional decision process to conclude on the best option to plan off. The cross functional team who ultimately make the decisions are designed to be the top managers/executives at that particular division where the S&OP is being focused. For example, this could be the management team associated with the subsidiary of a multi-national, a team of Vice-Presidents for a Regional S&OP (eg:- Europe or US) or a corporate Executive team for a Global S&OP process. Within that team the most critical functions are sales, marketing, operations and finance (Sheldon, 2006). It is well documented that one of the big challenges for S&OP is the engagement of the sales & marketing professionals (Lapide 2006, Brander & Fischer 1998). Without their full participation, S&OP can be viewed as an operations process. For many companies, achieving this engagement requires a culture change in the organization (Brander & Fischer, 1998).

In assessing “future risk” it is most important to get a good understanding of the demand plan because this will ultimately drive the decisions that get made in trying to drive the supply response to the demand. There are many inputs to be considered when building a demand plan and Figure 2 depicts those as defined by Class A MRP (Sheldon, 2006). The common KPI that is relevant to each of these inputs is the Revenue KPI:

- Business Plans – will have a prediction, typically annually, on how much revenue (sales) the company expects to make in the financial year that the plan is focused on.
- Marketing Plans – will have a forecast of how much revenue will come from new products, emerging markets, campaigns etc.
- Sales Plans – will have a forecast of what revenue is expected to come from the various geographies being focused on.
- History – will show the actual sales that have been achieved over a defined historical period.

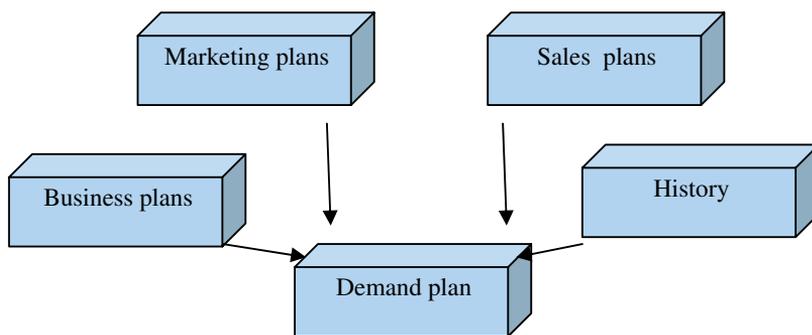


Figure 2: Demand Plan Inputs (Sheldon, 2006)

Once the decisions have been made around the demand plan scenarios, the demand plan then becomes the driver for the supply plan. This in turn drives decisions around capacity, inventory, sourcing etc. Therefore an overall depiction of what is being attempted by the S&OP process is a balancing of demand and supply but made in a collaborative fashion across the functions, with particular emphasis on sales, marketing, operations & finance. This is shown in figure 3.

With the demand plan driving the supply plan and with revenue being the essential element of the demand plan, there is opportunity being lost in the S&OP decision processes by not leveraging the use of revenue more effectively. Revenue is the language that sales and marketing people use (Lapide, 2006).

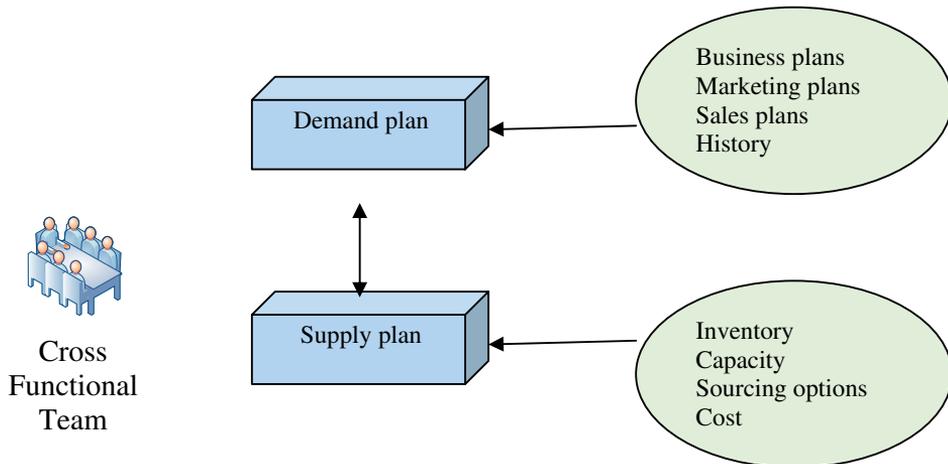


Figure 3:- Demand / Supply balancing in S&OP

In addition, within multi-nationals, when a prediction is given of revenue in the annual business plan, every effort is given to try to meet that prediction. With this understanding, one of the most effective ways to ensure engagement and active participation of senior sales and marketing professionals, in the decision processes around S&OP, is to be able to frame clearly for them how the plans that are being deployed will impact on the predictability of their commitment in the business plan. To do this, a *closed loop system* is required, instead of a linear demand/supply balancing process and such a system is proposed in the next section.

The Ex-Ante Closed Loop S&OP System

The concept of a *system* implies that to be effective the process, tools and behaviours have to be considered when designing the process. This concept is advocated by Oliver Wight consultants (2003) and is shown in figure 4 below:

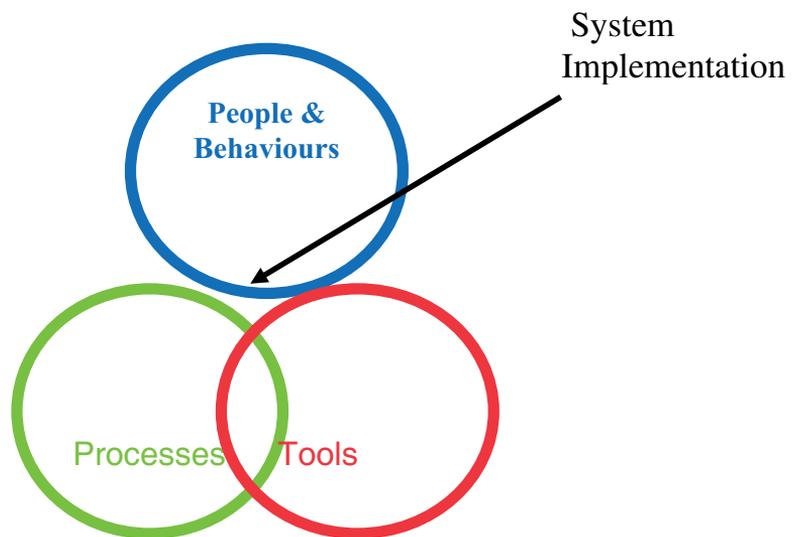


Figure 4:- Successful S&OP System Implementation

It is the behavior aspect in particular where there is opportunity to leverage more timely and effective decisions from senior sales and marketing personnel, by leveraging the revenue KPI. In order to embrace this opportunity, the system needs to be designed such that it creates a *closed loop*, which ties everyone in the process firmly into the commitment of operating off one set of numbers. The closed loop system is depicted in figure 5.

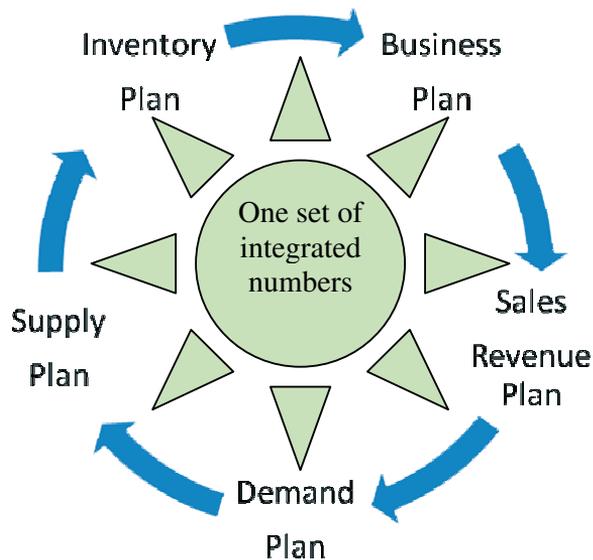


Figure 5:- Closed Loop System

The elements of this closed loop system can be defined as follows:

- **Business Plan:-** The sales revenue that was committed in the plan for the particular fiscal year.
- **Revenue:-** The current sales that are forecasted from the sales organization. Typically a “top down” product family level forecast.
- **Demand:-** The customer demand plan that is built up from the individual code level.
- **Supply:-** The culmination of all the products planned to be delivered from the various manufacturing sites - both internal and sub-contract sites.
- **Inventory:-** The total finished goods inventory that is in place across all locations.

The closed loop aspect of the system provides a mechanism for forcing decisions to be made. This becomes very powerful in addressing the reality, that while senior managers have more data at their disposal today than they ever had, it does not seem to have helped them in making fast and reliable decisions. Shapiro (2001, p521) put forward the following conundrum: *“Is the reluctance and inability of managers to engage in rational decision making diminishing or persisting as they are provided with increasingly flexible and rapid access to comprehensive data pertinent to their decisions?”*. This author’s experience of 20 years plus, in SCM in large Global companies would suggest the answer is

that the *reluctance* and *inability* is at best persisting and there is evidence of it digressing. Therefore, when developing decision support models or systems, an important characteristic of the system has to be to force decisions to be made.

The system works off a fundamental assumption that a given company is driven by its *Business Plan* commitments. Whatever the senior management have determined to be their revenue plan for the future becomes a strong driver across the company and the entire workforce is expected to align behind this. With this being the case, then this should be compared against the Sales Revenue forecast and in turn the product level *Demand* plan needs to be in line with the revenue plan. Recognising that the Sales revenue is likely to be a financial target as opposed to a product by product detailed plan, it is important to be able to convert the demand plan such that it can be compared in monetary terms with the Sales plan. To achieve this, the demand plan will need to be valued at Average Selling Price (ASP). Once the demand plan has been aligned with the sales revenue plan, then the *Supply* plan needs to be tested to ensure it is aligned to the demand plan. Of course the total supply plan will be made up of the MRP (Materials Resource Plan) plans from the various manufacturing sites as well as consumption of some of the existing inventory. In order to test alignment, the demand plan can be converted to standard manufacturing cost levels for financial comparison or to be more accurate, then it can be compared in terms of the quantity of each part. Once the supply plan has been confirmed to be aligned to the demand plan, then the finished good inventory needs to get projected out in time and compared against the financial inventory target for the company. If these are not aligned, then the loop gets closed by looking at how the revenue plan could get adjusted, in order to ensure sufficient finished goods are consumed to reach the inventory target. Alternatively, to close the loop, there may be a recognition and acceptance at senior management that the inventory target should be changed in the business plan.

The key to the closed loop system rests with the up front buyin from all parties to operate to one set of numbers. With revenue being a critical performance indicator for the company some key decision scenarios come to light for the sales and marketing leaders that otherwise may not even be visible. Some of these are listed here as examples:

- If Sales Forecast is not aligned with the Business Plan then either the Sales plan gets adjusted to come in line or there is a re-commitment required on the business plan. Either adjustment can only occur with clear assumptions that the cross functional team support.
- If the bottoms up Demand Plan does not align to the Sales revenue plan then one of them has to be adjusted to come in line, which in turn could have implications to the Business Plan, in order to maintain the closed loop.

- When the Supply Plan is drafted factoring in existing inventory, if the projected inventory is not aligned to what was committed in the Business Plan, then the Demand Plan has to be revisited to see what can be done to change the sales revenue plan to consume more inventory to bring the projection in line. Alternatively, the business plan commitment has to be revisited.

Without the emphasis on having a closed loop system, with revenue as the KPI that facilitates this, then the sales and marketing people do not have to engage to the level required to force critical decisions to be made. They can leave the business plan commitment as it is and provide as much intelligence as possible to help build the demand plan, but do not have to make the hard decisions and with no accountability for inventory, will typically over forecast, to ensure their revenue plan is not impacted by backorders.

Survey Results from Multinationals

In a recent survey of a group of multi-national companies (see note at end for background to survey) some interesting results were obtained in support of the hypotheses put forward in this paper. It is the subject of a separate paper to cover the survey results in detail. However, some graphs are shown in Figure 6 for reference.

It is clear that all of these multi-nationals engage in a process of generating an annual business plan. In addition there was strong acknowledgement that it was important to meet the targets as set out in their business plans. Over 80% of the responses acknowledged that revenue was at least very important to them. This is no great surprise when clearly any multi-national company will want to be tracking how their top line sales are performing. What was more interesting however, was that while each of the companies surveyed had a Sales & Operations Planning process in place, when asked to list the KPIs that they use in their S&OP process, the Revenue KPI did not appear, as seen in Figure 6. It shows that the companies are using the S&OP process to drive focus and improvement in a number of critical areas, but are not leveraging a KPI that is acknowledged as being one that is very important, if not critical, for the business.

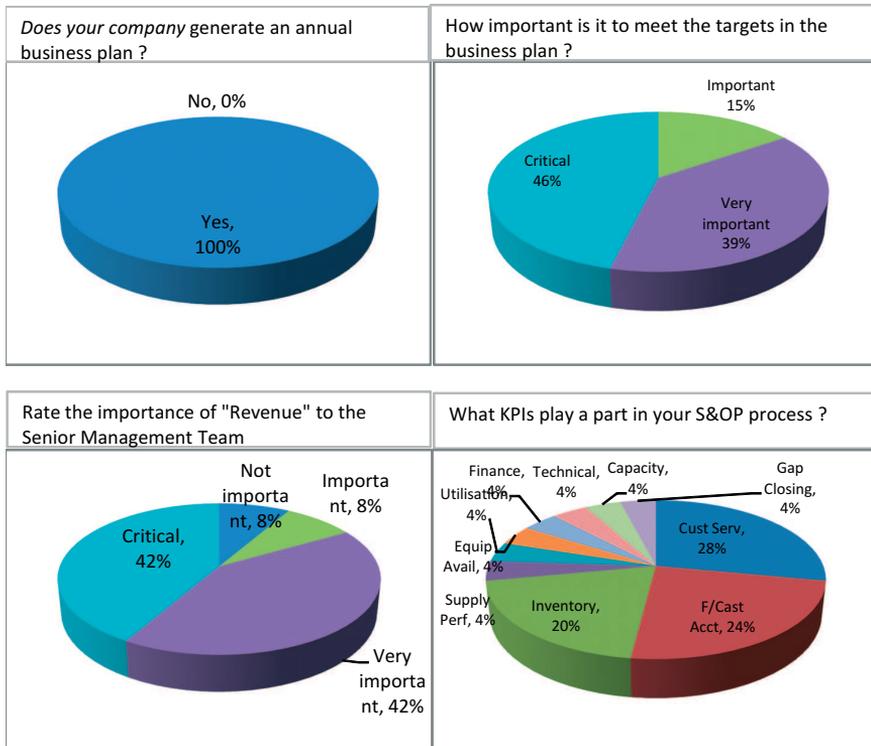


Figure 6: Survey response from group of 13 multi-national companies

Summary

In this paper, an argument has been put forward for how to improve the decision processes within a S&OP process. This is achieved by creating a closed loop system and leveraging the revenue KPI to force the engagement of the sales and marketing professionals and drive decisions to be made that can influence a predictable future performance.

The unique enhancements to the traditional and well documented S&OP process are:

1. Tie the revenue plan back to the business plan forcing reconciliation.
2. Leverage the commitment to one set of numbers by creating a closed loop mechanism that starts and finishes with the business plan.

Note on Survey

With support from Oliver Wight & Associates, a survey was circulated at the European annual Proven Path Club (PPC). This is a forum facilitated by the Oliver Wight consultants where their S&OP customers can come and learn from other company implementations. The survey was conducted in November 2008.

Thirteen survey responses were received and follow on interviews are currently being undertaken to drive the next level of data and ensure the context of responses is correctly interpreted.

It is the subject of a separate paper to present in detail the findings of the survey. However, further detail can be obtained from Jerry.Shanahan@ul.ie.

REFERENCES

1. Brander, A., Fischer, T. (1998) Listen to US: Learn to Lead Your Company to Better Results With Sales and Operations Planning, *American Production and Inventory Control Society*, 245-249
2. Carlsson C., Turban E. (2002) DSS: directions for the next decade, *Decision Support Systems*, 33, 105-110
3. Delfmann, W., Remmert, J. (2000) Influence of Information Technology on Supply Chain Management, *University of Kol*, Working Paper No.4
4. Holsapple, C.W., Sena, M.P. (2005) ERP plans and decision-support benefits, *Decision Support Systems*, 38, 575-590
5. Lapide, L. (2004) Sales And Operations Planning Part II: Enabling Technology, *The Journal of Business Forecasting*, Winter, 5, 18- 20
6. Lapide, L. (2006) Top-down & bottom-up forecasting in S&OP, *The Journal of Business Forecasting*, Summer, 1, 1-3
7. Oliver Wight Consultants (2003) Implementing Global S&OP, Customised presentation.
8. Shapiro, J.F. (2001) *Modeling The Supply Chain*, 1st ed., CA, USA: Duxbury.
9. Sheldon, D. H. (2006) *World Class Sales & Operations Planning*, J.Ross Publishing, FL, USA
10. Singh, H. (2002) The History of APS, Available from: www.supplychain.com Access (2 March 2009)