

CHAPTER 3

SOP IN ENTERPRISE AND IN SUPPLY CHAIN – CASE STUDY

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Abstract

Chapter presents the use of integrated planning in terms of Sales & Operations Planning (SOP) in the Polish enterprises. The integration planning process plays a key role in improving the efficiency of manufacturing enterprises. This is particularly important in times of strong market competition. Keeping production activity is usually associated with the necessity of cooperation with many business partners in the supply chain.

In addition, manufacturing enterprises have a complicated structure of the planning processes (as a result from the need for many types of plan). The benefits of the integration planning process is reducing operating costs and boost profitability of sales and retain funds for such an important development of the commercial offer.

In the first part of the chapter the authors present the theory associated with the planning SOP. It includes descriptions of typical structures, planning processes in manufacturing enterprises and original approach this issue. The authors draw attention in this part of the twofold nature of SOP describing his approach structural and process. In structural terms the authors describe such plans are subject to inclusion within the concept of SOP. In terms of the process describe in detail the steps leading to the creation of the plan and the participants involved in this process.

In the second part of the chapter authors submit a detailed analysis of the application of SOP in a large manufacturing enterprise operating on the Polish territory. Authors presents a range of integrated plans, key data for the implementation of SOP and organizational changes which require implementation.

Keywords: sales and operations planning, planning integration, planning process

3.1. Introduction

In the era of globalization and growing customer requirements not only the enterprises are competing on the market, but entire supply chains (Christopher, 2000, p. 37). Supply Chain Management has a strategic relevance as a source of competitive advantage (Christopher, 1992, p. 36).

Many enterprises operating on today's market are faced with the challenge of unstable demand, short lead times and reduced life cycle of goods. One of the ways to solve these problems is to coordinate and integrate logistical processes (including planning processes) within a supply chain. Coordination was defined by Malone (Malone, 1987, p. 1320) as: a 'pattern of decision making and communications among a set of actors who perform tasks to achieve goals'. However, Romano (Romano, 2003, p. 120) views integration as "breaking boundaries between the enterprise's functions and between enterprises in supply chain".

3.2. Sales and Operations Planning (SOP)

Defining the sales and operations plan requires taking a more holistic look at the structure of the planning processes implemented in today's enterprises. Many authors discuss this issue in their publications (Klimek, 2003, p. 114; Łopatońska, 2007, p. 257). The planning process structure as presented by Fertsch & Głowacka-Fertsch (Fertsch, Głowacka-Fertsch, 2004, pp. 75-79) is especially interesting according to the Authors of this paper. Fertsch & Głowacka hold that the structure of planning processes starts with a business plan/enterprise game plan. Such a plan involves long-term quantitative sales forecasts, arranged into groups of goods and markets. After the sales forecasts have been assessed against available resources, a master plan/sales & operations plan is being prepared. The plan usually covers a year and is divided into quarters. The plan basically includes: product range, quantity, sales and production deadlines. Production capacity is balanced against tasks to be performed on a quarterly basis. The plan is complex and usually consists of master plans: financing, sales, production, technical, overhaul and procurement. At lower levels of process planning structure (in a shorter timescale), each of the primary plans is subject to verification in terms of the availability of resources. Master production plan is verified at the rough-cut capacity planning stage. The placement of SOP in the structure of planning processes of a manufacturing enterprise is presented in Figure 3.1.

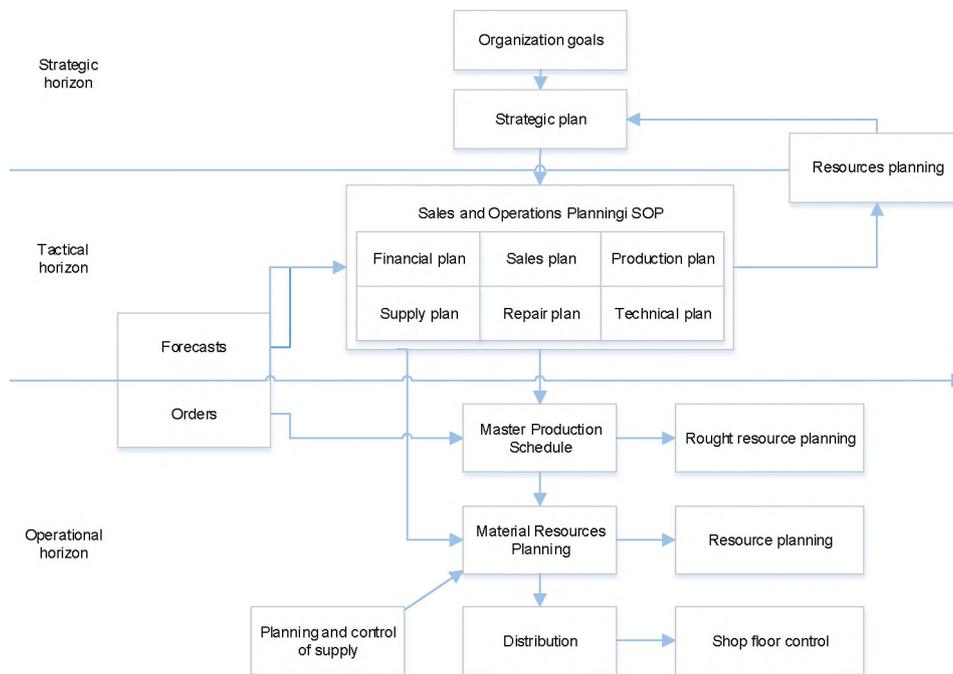


Fig. 3.1. The placement of SOP in the planning process structure at a production enterprise

Source: own study based on: (Łopatowska, 2007, p. 257)

Having identified the location of SOP in the planning process structure, we shall now proceed to the definition. Muzumdar & Fontanella define SOP as: ‘a set of business and technological processes allowing the enterprise to match market demand to production and supply capacity in the most effective manner’ (Muzumdar, Fontanella 2007, p. 35). An expanded definition of SOP planning, including the interconnection of strategic and operational plans, may be found in APICS dictionary (Blackstone, 2008, p. 136). SOP is ‘a proces to develop tactical plans that provide management the ability to strategically direct its businesses to schive competitive advantage on a continuous basis by integrating cutomer focused marketing plans for a new and existing products with the management of supply chain. The process bring together all the tactics plans for the bussinss (sales, marketing, development, manufacturing, sourcing, and financial) into one integrated set of plans (Śliwaczyński, Koliński, 2012, p. 302). It is performed at least once a month and is reviewed by management at an aggregate (product family) level. The process must reconcile all supply, demand, and new product

plans at both the detail and aggregate levels and tie to business plan. It is definitive statement of the enterprise's plans for the near to intermediate term, covering a horizon sufficient to plan for resources and to support the annual business planning process. Executed properly, the sales and operations planning process links the strategic plans for the business with its execution and reviews performance measurements for continuous improvement'.

According to Affonso, Marcotte & Grabot (Affonso et al. 2008, p. 139) a SOP plan is of huge significance for the coordination and integration of planning processes in enterprises, because it brings together many functional areas.

The areas that are linked by an SOP plan in an Aberdeen Group report (Aberdeen Group, 2008, p. 6). The coordination and integration of plans is essential for the cooperation of enterprises in the supply chain. SOP combines sales plans, operation plans and the identification of supplier's limitations, and, thus, goes beyond the scope of individual links in the supply chain. The place of a SOP plan in the supply chain is shown in figure 3.2.



Fig. 3.2. SOP in the Supply Chain
Source: (Affonso et al. 2008, p. 139)

Referring to the SOP as integrated planning should identify areas, which removes boundaries. Figure 3.3. shows the main areas of integration which applies to SOP.

The objectives of SOP are as follows (Gray, 2007, p. 23):

- institutionalizes management decision-making and communication, especially in the areas related to customer demand and manufacturing volumes;
- balances demand and supply in a way that meets the needs of the customer;
- shock absorbers when supply and demand are not equal;
- integrates financial and operating plans;
- links strategic plans with detailed plans and schedules;
- regulates all detailed master schedules and sales plans;
- provides 'long range vision' to other more short sighted processes, especially to resolve potential long-range capacity, material and financial issues.

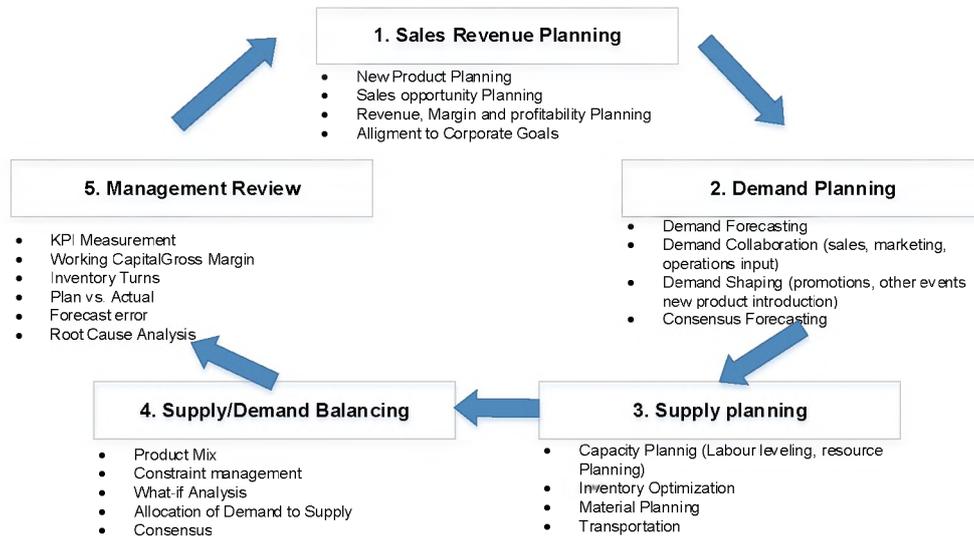


Fig. 3.3. SOP as an integrated planning
Source: (Affonso et al. 2008, p. 139)

Many publications describe the idea of SOP (as provided above), the process take on the situation – namely how SOP “should be” developed in terms of the involvement of organisational units, its implementation in the organisation.

Stahl (Stahl, 2010, pp.35-37) distinguishes five main stages of the creation of the plan SOP:

- Step 1 - data collection - is of particular importance for the creation of the plan and its quality. Often enterprises data are collected in a non-institutionalized for at their meeting the needs of SOP is difficult. The data should be organized in a way that the possibility of making on the basis of the decision which in turn requires them to current and complete;
- Step 2 - demand forecasting - creating a sales plan for the next months based on the collected historical data and information from customers;
- Step 3 - Planning material flow - taking into account production planning, procurement, inventory held, outsourcing and resources needed to implement movement;
- Step 4 - working meeting - at which managers tactical level from different departments of the enterprise they work out solutions and recommendations for the management of the enterprise; major decisions relate to: determine the best option sales plan including production plans

and supplies, repairs, transfer of part of the tasks in outsourcing, to build a financial plan for the enterprise, establish a plan meetings with the management enterprise;

- Stage 5 - a meeting of top management enterprise - the culmination of the development plan SOP. At this stage involves the chief managers of each area (a male by SOP) and the management of the enterprise. At the meeting, managers will learn the management of the current state of the enterprise and present the solutions developed. The task of the board is to select the best in their opinion and approval of a plan for implementation.

In the process of creating a plan SOP opinion L. Lapide (Lapide, 2007, p. 21) should be involved interdisciplinary team, which would include experts from the areas of:

- production planning and logistics - responsible for planning the production of the numbers of sales forecasts, balancing tasks of available resources and to provide information about faults or resource reserves;
- supply chain - to coordinate and synchronize all plans ranging from the supply of production materials, services, energy, and distribution of products to the final customer;
- marketing - decisive for the introduction of new products on the market, determining future prices, market research, customer needs, creating products to meet the needs of buyers;
- sales - creating sales plans, delegating tasks sales;
- finance - making all the plans in the form of monetary compilation of actual financial results planned.

K. Parker (Parker, 2008 p. 30) took attention into necessity of measuring the planning process. To do this, you can use the indicators and measures, eg. Performance, forecasting errors, working capital, start the implementation of the plan. As a result, developing a plan receive feedback that will serve the purposes of improving the next version of the plan.

3.3. KORONA CANDLES S.A.

From the time of its start in 1992 in Wieluń, Poland, KORONA CANDLES S.A. from a relatively small production size enterprise became one of the key scented candles manufacturers.

KORONA CANDLES successful development has been built on the base of innovative products sold under private label. The enterprise became cost and quality leader thanks to investments in modern and automated production machinery and innovative production technologies.

KORONA CANDLES is currently producing goods in two production plants, attaining a production volume of 11 million candles per day. One of the production plants is located in Wieluń, Poland and the second one in Dublin, Pulaski County, Virginia. Production in United States has started in 2014. The enterprise supplies major global home accessories enterprises and trading networks. The enterprise is producing a wide range of candle products, but is mostly focused on scented and container candles (approx. 63% of production). The current production consists entirely of customized private label collections created from the very beginning of the process in accordance with the customer's design and requirements (<http://www.korona.info/en/>).

The current objectives of the enterprise are focused on strengthening market position and increasing competitiveness through the development of new production technologies and alternative materials. This strategy allows KORONA CANDLES to react quickly to changing market conditions in the candle business.

Candle business is characterized by high variability in demand for finished goods and significant seasonality of sales, which falls in the period from June to December. Peak for sales is just before Christmas season, which makes it crucial to ensure high availability of products during this period. Besides high variability in demand even in the short time horizon, typical for the business are also rapidly changing trends and customer expectations, so the key is to focus on product innovation.

KORONA CANDLES is a enterprise based on production of private label products which means in practice that customers receive products only under their own brands. This results in a customer deep involvement and a direct impact on processes associated with the development of new products and planning, because customers directly provide information on demand and trends they want to follow. Long term plans or forecasts provided by customers are basic information for the whole supply chain. There is limited possibility to use so called expert knowledge of supplier like KORONA and to change assumptions for such a data.

3.4. SOP at KORONA CANDLES S.A.

These characteristics of the candles industry such as significant seasonality, rapidly changing trends, a strong emphasis for innovation and the production of private label make the planning process in KORONA complex and complicated. These factors have decided that in this dynamically developing enterprise it was necessary to establish advanced management methods such as Sales and Operations Planning (SOP).

Before the implementation of a permanent process of SOP, sales plans and production plans for next fiscal year were prepared in two month time before the start of the new fiscal year. Budget plan was not regularly analyzed for causes of deviations that occurred during the fiscal year. The enterprise has not made the regular analysis of the expected, upcoming changes during the execution of the adopted plan. With the rapidly changing conditions in customers demand, in a consequence of the lack of analysis and regular adjustments of the plans that were prepared once a year, the budget plan was not adequate to reality of business needs. Simultaneously, the current planning process was not provided with sufficient data needed to identify upcoming limitations and problems connected with timely fulfillment of customer orders.

The ongoing planning process was involving Sales Department, which was forwarding the information on required size of the production. Sales Department was making decisions about the production for stock and was responsible for the level of the finished goods stock available in the warehouse during whole fiscal year. Production Department planned work of production lines, and was scheduling the production. The responsibility of the Production Department was also monitoring the implementation and execution of production plans as well as forwarding the information to Sales Department about delays in production and expected shipments dates to the customers. The process did not allow for analysis of the production and sales for more than two upcoming months. The challenge was to determine the expected level of demand, and determine the availability of resources in relation to this defined demand.

Sales & Operations Planning at KORONA CANDLES allows to analyze the strategic plans of the enterprise with regard to production capacity, the annual budgetary plans and the expected level of customer service. SOP as opposed to the annual budget plan takes into account the changing market conditions and trends in customer demand. The formal process of creating input data for the analysis is done with monthly regularity and focuses mainly on data supplied from the Sales Department - the expected level of sales of existing products as well as goods which development projects are not yet finished for. Mentioned data from Sales Department are prepared in the following way: the long term plans from customers are being compared to historical sales data as well as enriched with salesmen knowledge about upcoming sales activities like promotional and discounter actions. All these figures are gathered by Planning Manager for further SOP purposes. This pre-work is crucial to support SOP meetings inputs. The most important elements of this process at KORONA CANDLES are monthly meetings with senior executives to review the input data - an updated plans. The aim of the meetings is

to verify whether the available resources allow for the execution of updated plans considering the customers demand on the expected level of service. The main resources considered are those which can become bottlenecks for the production processes and are most often related to: machines, key raw materials availability, labor hours and warehouse space. The aim is also to compare data provided by the process with the assumptions presented in the adopted budget plan and strategic plans of the enterprise. The entire planning process involves several thousand indexes of stock keeping units of finished products. Of this group, about one thousand stock keeping units indexes remain constantly active. SOP process is a subject to ca. three hundred SKUs indicated as representatives. The representatives are grouped in the main product families. The meetings concerns families of products in order to not create chaotic and time-consuming debates by following too many details related to complexity of all active indexes of stock keeping units. This point seems to be crucial in order to sustain positive results of SOP routine and to keep high quality of planning. Work overload and unnecessary complexity of data would easily discourage the participants. The result of SOP meetings are production plans that are imperative in relation to operational plans - Master Production Schedules. A key element of the process is the involvement of top management of the enterprise to maintain routine of SOP meetings which follow the defined processes, clear to all parties involved.

Sales & Operations Planning at KORONA CANDLES first of all allowed for a significant extension of the planning horizon. Currently available data are being processed in accordance with routine of monthly SOP procedure . This is allowing for analysis of the plan for twelve months forward, in stepwise manner. This change has brought a significant benefits to the functioning of the enterprise. Extension for additional ten months of the planning horizon allows for extensive verification of the available capacity and for the early identification of constraints, giving the time necessary to remove the restrictions by reorganizing production area, changes in the adopted employment schedule, necessary investments etc. Significant benefits are also noticeable in the area of supply, because the data available from the process of Sales and Operations Planning allow for the preparation of forecasts for the main raw materials used for the production of candles. This is particularly important in the case of raw materials consumed in the largest quantities, such as paraffin and palm oils and the long lead time components such as, for example, part of the wicks. Prior to implementation to SOP procedure, Purchase Department was receiving forecast for raw materials on quarterly basis, thanks to SOP tool Purchase has better overview of the volumes contracted with enterprise's suppliers. Data supplied by SOP also allow for better management of

warehouse resources, because they allow for analysis of warehouse occupation and the finished products stock levels in the perspective of twelve months. The same analysis can be conducted for raw materials supply. Regular data supplied by SOP are compared to the budget plan of production, which allows for regular monitoring of the implementation of the objectives of the budget plan. Sales & Operations Planning facilitates better preparation and use of enterprise resources through early identification of constraints and threats to the timely implementation of the strategic plans of the business and customer demand. SOP indicates also course for development and investments such as new production lines for certain families of products that thanks to SOP data are shown as those with not sufficient lines capacity. On the other hand the dropping demand is also a threat to the main goal of SOP – to keeping balance of demand and resources. In the situations of dropping demand, Sales Department is receiving clear signal for doubling the efforts in contacting customers for reasons of such trends and which is even more important – it starts the discussion with the clients on what can be done to avoid unwanted tendencies. In assessment of the value of Sales & Operations Planning process at KORONA CANDLES it should be noted that the changes were necessary in internal enterprise's procedures. The aim was to ensure the continuity and quality of data that were used for meetings inputs. SOP requires the involvement of organizational enterprise's resources in order to sustain the process and complete the monthly routine of meetings. Moreover further changes in the area of the planning processes forced the organizational changes of the existing departments - Sales and Production - by separating the Customer Service and Planning Department. New organizational units are not subjected to pre-existing departments of Sales and Production. These distinctions provided more objectivity in planning processes as Planning Department is responsible for resources best possible utilization. Sales Department is no longer directly involved in planning but can be more focused in searching new sales opportunities.

3.5. Conclusions

Sales and Operations Planning at KORONA CANDLES thanks to gathered data enables managers to make assumptions in terms of expected resource load. These assumptions are transferred to reliable and complex data which motivates the taken actions. Moreover SOP allows planning of future events with sufficient advance as well as improving quality of planning. SOP at KORONA CANDLES proofed to be useful tool for better understanding of importance of balancing foreseen demand and available resources. The knowledge that comes from monthly intervals of SOP provide crucial information on main challenges for achieving

strategic goals of the enterprise. It was important step forward for KORONA CANDLES to implement Sales & Operation Planning in its organizational development. Considering further ambitious plans for the enterprise it is also necessary to maintain these advanced management methods.

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