



USE OF SALES AND OPERATIONS PLANNING IN SMALL AND MEDIUM-SIZED ENTERPRISES

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ABSTRACT. Background: Increasing competitiveness in the market, customer expectations related to the shortening of the deadlines and the reduction of prices of products and services force companies to improve the efficiency of internal processes. The integration of planning process is one of possible ways to achieve this aim. The integration of planning processes by the use of SOP model (Sales and Operations Planning) is a method to implement this idea. The study allowed to identify ways to implement the process of sales and operations planning in small and medium-sized enterprises.

Material and methods: The study was conducted in companies from different industries. The research method was in-depth interviews conducted with managers of companies or persons occupying management positions in the organizational process of implementing sales and operations planning.

Results: During the survey, 10 companies were asked about the use of sales and operations planning, its elements and organizational aspects of its development, by the company.

Conclusions: The use of sales and operations plan is closely dependent on the size of the company and its localization in the supply chain. Small enterprises are not interested in the integration of the planning process due to the small scale of operations and the centralization of decision-making process. Medium-sized enterprises, due to the increased complexity of the processes of planning, see the benefits of their integration in the SOP model.

Key words: sales and operations plan, integration of planning processes, small and medium-sized enterprises.

THE ESSENCE OF SALES AND OPERATIONS PLANNING

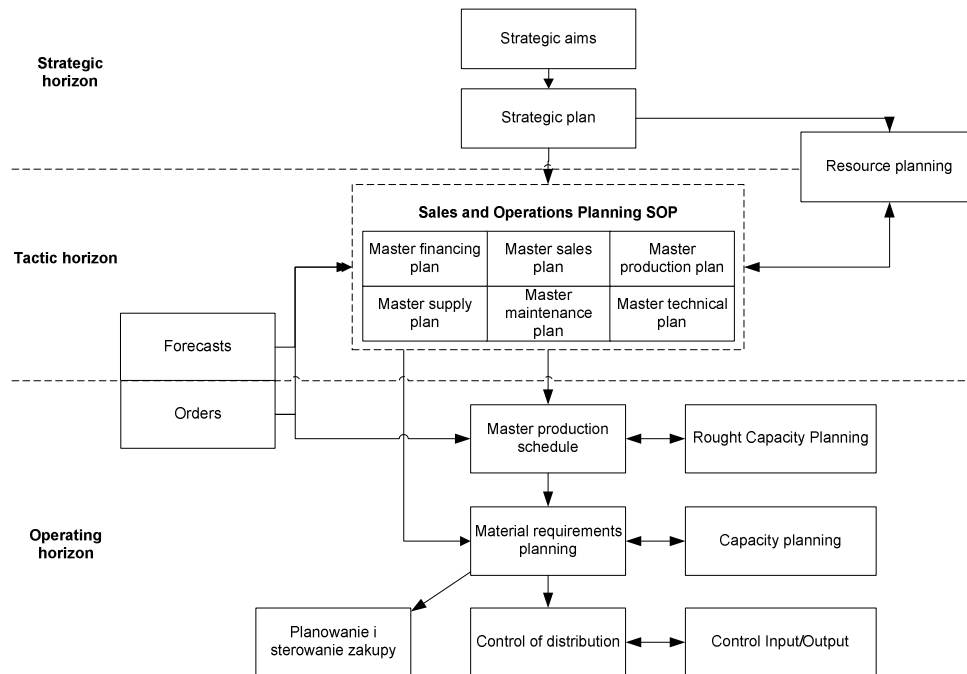
According to APICS definition [APICS 2008] Sales and Operations Planning (SOP) is „a process of creating tactical plans to ensure company's competitive advantage, based on the continuous integration of client-orientated marketing plans (taking into account currently produced products, new products and products coming out of the market) and the supply chain management. The process integrates various plans prepared within a company: sales plans, marketing plans, research and development, production plans, purchasing plans and financial plans. The plan is prepared once

a month at the level of products groups. SOP plan is a combination and a confrontation of plans fulfilling both needs of the medium-term planning of resources requirements as well as one-year business planning. This plan combines also strategic plans with the implementation, the performance measurement as well as the continuous improvement of operations”.

M.Muzumdar and J.Fontanella [Muzumdar, Fontanella 2007] define SOP as a set of business and technological processes, which enable a company the most effective confrontation of market demands with production and purchasing capacities of a company.

The completion of presented above definitions is the Authors' view at the structure of the planning processes, taking into account sales and operations plans. This structure is presented at the Figure 1.

According to the presented structure, SOP plan is constructed of series of plans, starting from financial one, through sales plans, production plans, supply plans up to technical and maintenance plans.



Source: own work based on [Łopatomska 2007] after [Chapman 2005]

Fig. 1. Localization of sales and operations planning in the structure of production company processes
 Rys. 1. Miejsce planowania sprzedaży i operacji w strukturze procesów planowania przedsiębiorstwa produkcyjnego

Date about chosen strategy, demand estimations and long-term orders are the input date for a SOP plan.

The result of such plans is the requirement for resources, quantitative date (for each assortment) necessary to prepare the master production schedule as well as information on long-term material requirements. SOP plan incorporates tactical plans and enables the implementation of strategic objectives of a company at the operational level.

IMPORTANCE OF SOP FOR COMPANIES AND SUPPLY CHAINS

Sales and operations planning has a big importance from the point of view of the effectiveness of a company and a supply chain. The elimination of barriers in information flow

is possible thanks to integrated process of plans' preparation. It enables to increase the internal and external integration level (within supply chain) [Thome, Scavarda, Fernandez, Scavarda 2012]. Overcoming obstacles takes place in a 5-step process of creating SOP plan [Tinker 2010]:

- *Step 1* - collection of data - it is particularly important both for creating the whole plans as well as its parts. Data are often gathered in companies in a non-institutionalized way, which inhibits their gathering for SOP purposes;
- *Step 2* - demand forecasting - creating the sales plans for following months based on historical data and information gathered from clients;
- *Step 3* - material flow planning - this step includes production planning, purchasing planning as well as stock levels planning;

- *Step 4* - working meetings - managers of tactical level from various departments, prepare solutions and recommendations for the company's management board. The main decisions concern the preparation of best possible sales plans, taking into consideration production and supply plans;
- *Step 5* - presentation of prepared recommendations and solutions. The choice of the best one and its approval for the further implementation is the task of management board.

The above presented steps of the preparation of the plan show the big range of operations needed in this area. The SOP plans should be created by the interdisciplinary team, consisted of specialists from various areas [Lapide 2007] such as production and logistics planning, supply chain, marketing, sales and finances. The SOP planning consists of planning of sales volumes in each distribution channels as well as adapting operational activities such as: logic of material flow, production potential, transport of individual parts of the chain and throughput of warehouses. The key data analyzed at the SOP level from the point of view of the effectiveness of a company or a supply chain are [Śliwczyński, Koliński 2012]:

- location of suppliers and formulated inquiries;
- criteria of the evaluation of tenders and offers;
- criteria of the qualification of suppliers;
- criteria of the ranking and the evaluation of suppliers.

Considering the material flow within a company or a supply chain, SOP plan allows leveling of requirements for the potential. The identification of long-term requirements for resources makes possible to organize required resources on one side, and on the other one to prepare the profitability analysis of individual material flows, their selection or changing the time of their implementation by the use of safety stocks (leveling) [Hadaś, Cyplik 2012]. The advantages of the implementation of SOP planning, having connection with a market, on which the company operates, are: increase of a market share, increase of a sale, growth of sales profits as well as advantages connected

with the implementation of internal processes such as: improvement of the efficiency, reduction of losses, decrease of the needed capital, and consequently the increase of profits [Bower 2010]. Taking into consideration the above presented advantages, SOP can be one of the most powerful tools for a company operated on a competitive market, which wants to be profitable one, thanks to the ability to provide proper goods to proper clients by proper channels [Mazel 2004].

The above mentioned advantages of sales and operations planning demand various activities within a company to make possible to create plans in terms of SOP. The basic barriers to use sales and operations planning are: lack of tools for the transformation of strategic objectives into operational ones and moving the required resources for their implementation as well as the lack of tools for the control of the operational activities, which translate the results for the purposes of the correction of tactical and strategic plans [Śliwczyński 2011].

INTRODUCTION TO RESEARCHES OF SOP IMPLEMENTATION IN SMALL AND MEDIUM-SIZED ENTERPRICES

Considering the SOP planning, the attention should be paid to the area covered by this subject. There are two basic approaches of SOP: a system approach and a process approach. The system approach refers to plan's structure and allocation of resources, necessary to its realization. The process approach refers to tasks realized as a part of plans, to the involvement of resources as well as to authorities and responsibilities of individual members of a team. Taking into account the presented facts and a diversity of companies operating within a supply chain, the multivariate SOP plans should be expected, both in the system and the process approach. Due to the fact, that most of companies belong to group of micro-, small and medium enterprises as well as their big diversity (among others resulting from differences in number of employees (1-250)), the Authors attempt to define basic characteristic of SOP

planning dependence on the company size. The research problem was defined prior to empirical researches: **is there a relationship between a company size and a structure of SOP and a process of its preparation?**

The following hypotheses were assumed - while the company size increases:

- H1: task and personal scope of SOP plan will also increase,
- H2: the importance of forecasting of future activities during the SOP planning process will increase,
- H3: the degree of the delegation of the authorization in the process of an approval of SOP planning will increase.

The researches were conducted in 10 companies. Due to the small research sample, the conducted researches are only of a demonstration nature. The companies chosen for the research, belong to one of three groups: micro (3 companies), small (3 companies) and medium-sized ones (other 4 companies). The number of employees was the only criterion for this assignment. The companies operate in various areas, each of them had different production profile.

Table 1. Characteristics of companies
Tabela 1. Charakterystyka przedsiębiorstw objętych badaniem

Company	Size of company	number of employees	production profile
A	micro	5	ironwork
B		5	carpentry
C		8	gas installations
D	small	20	agricultural feed
E		30	membranes
F		to 50	elements of small appliances
G	medium	150	transport equipment
H		to 200	automotive equipment
I		200	printing articles
J		over 400	electric cables

Source: own study

The questionnaire included both open and closed questions. The aim of these researches was to identify and to learn the rules and the mechanism valid for the functional area of sales and operational activities of companies.

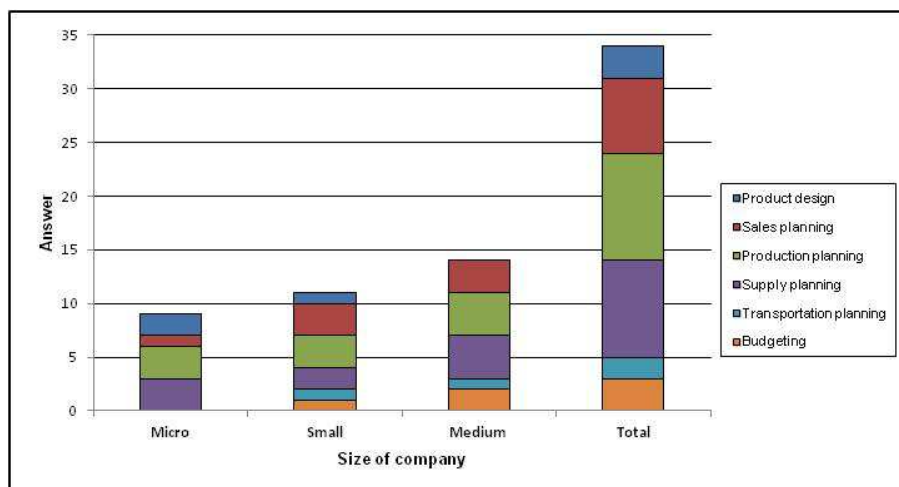
The detailed questions, for which the answers were obtained, are as follows:

- which particular functions are realized within SOP?
- which dates are used in the process of the creation of SOP?
- what activities are involved in the process of the preparation of SOP?
- what organizational cells take part in the process of the preparation of SOP?
- who accepts the SOP plan?

THE RESULTS OF RESEARCHES

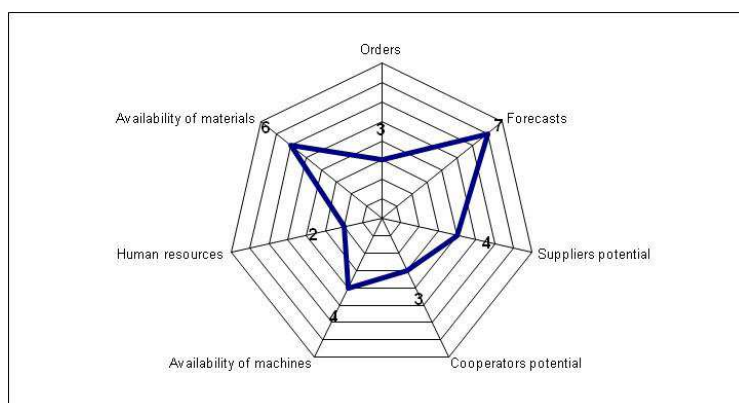
The Authors identified six SOP elements: designing of an article, sales planning, production planning, planning of supplies, transport planning and budgeting. It should be assumed, that a number of elements depends on the company size: the bigger (more complex) a company, the higher number of analyzed elements. The key elements in small and medium-sized companies are: production planning (in 100% of companies), supply plans (in 90% of companies) and sales planning (in 70% of companies). Remaining elements (designing of an article, transport planning and budgeting) are of a minor importance (20-30%).

The highest number of small and medium-sized companies uses data covering the area of sales (70% of all cases) and goods' availability (60% of all cases). The information on workstations' load (production capacities), potentials of suppliers (40% of all companies for each of these two points) and information about orders and potentials of co-operators (30% of all companies for each of these two points) were also of the high importance. The accessibility of human resources was pointed out only in medium-sized companies at the level of 20%. The detailed analysis shows, that the micro-companies base their activities rather on orders, checking the potential of their co-operators and suppliers. The small and medium-sized companies base their activities on forecasting, paying more attention to ensure the availability of materials and production capacities.



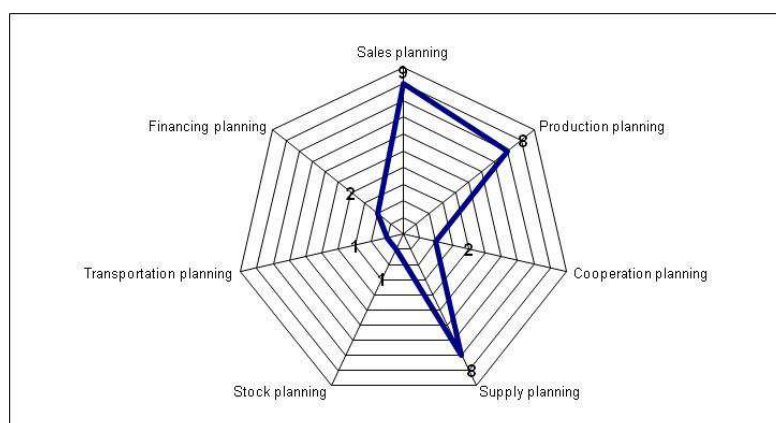
Source: own study

Fig. 2. SOP elements
 Rys. 2. Funkcje szczegółowe w SOP



Source: own study

Fig. 3. SOP data
 Rys. 3. Dane dla planu SOP

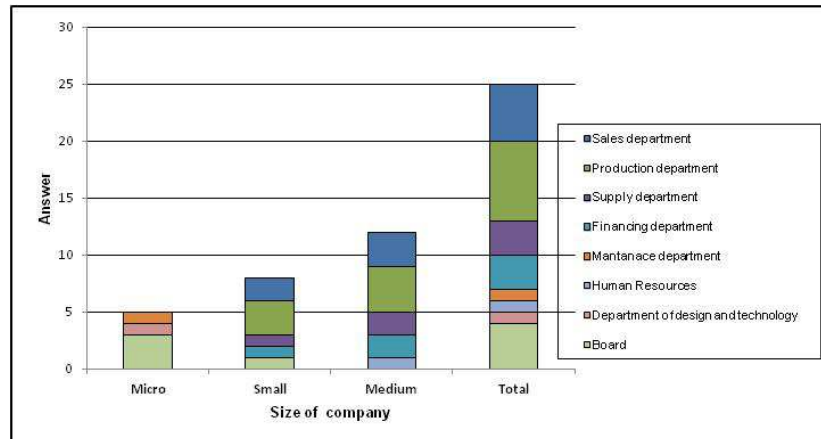


Source: own study

Fig. 4. Components of SOP plan
 Rys. 4. Składowe planu SOP

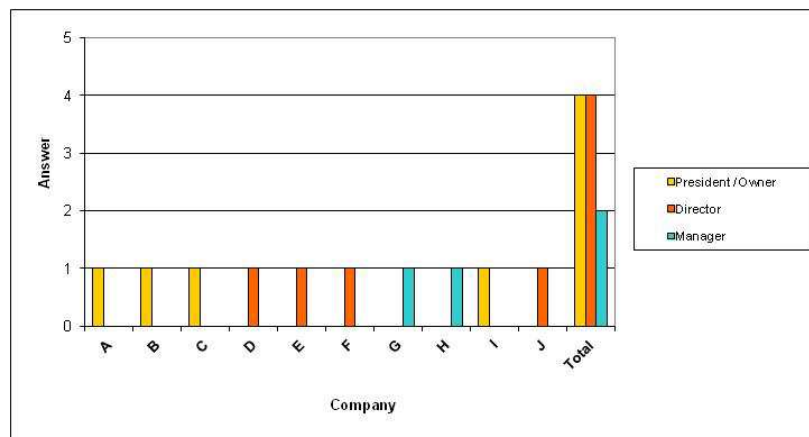
The main tasks of SOP in small and medium-sized companies are connected with three areas: sales planning (90% of all companies), production planning (80% of all companies) and planning of supplies (also 80% of all companies), although in case of the last point it can be observed a small percentage of small-sized companies. Other functional

aspects, such as: co-operation planning and financial planning (10% of all companies for each of these two points) as well as estimating safety stocks and transport planning (10% of all companies for each of these two points) showed to be of less interest (special nature of a branch, scarcity of business).



Source: own study

Fig. 5. The organizational structure and the SOP plan
 Rys. 5. Struktura organizacyjna a plan SOP



Source: own study

Fig. 6. Approving the SOP
 Rys. 6. Zatwierdzanie planu SOP

Considering micro-companies, SOP planning process belongs solely to the owner, who is a manager as well. The situation seems to be more interesting in small and medium-sized companies. The Production Department (100% of all companies) and the Sales Department (70% of all companies) were always engaged in the process of SOP planning in these companies. The Purchasing Department and Financial Department

supported the process of SOP planning within small and medium-sized companies (30% for each of them). Occasionally such departments were mentioned like: HR, Construction and Technology and Maintenance. The specific organizational and production conditions of the organization were reasons of their input in this process. The decisions about sales and operational activities in micro-companies are made by owner/main manager (100%). The

approval of SOP plan in small companies is conducted by the manager of the department (100%). On the contrary, there are a few possible solutions in medium-sized companies, but in a half of cases, the approval is made by the manager of the department (50%). The general tendency can be observed to delegate the authority to make a decision in the down direction - from owner in micro-company, manager of a big department in small companies up to a leader of a department or a team in a medium-sized company.

Taking into consideration the presented research problem and hypothesis, the following relationships were observed - the bigger the company:

- the bigger number of components were taken into consideration,
- the higher importance of forecasting and bigger pressure put on them, as well as the bigger attention paid to accessibility of goods and production capacities,
- the key planning tasks are as follows: sales planning, production planning and planning of supplies,
- the members of Production and Sales Departments are involved in the process of the approval of plans, with the support of members from the Purchasing and Financial Departments,
- the lower level in management structure at which the plans are approved.

The above mentioned conclusions referring to the correlation between the size of the company and aspects of SOP planning are specific for small and medium-sized companies, employing between 20 and 400 people. The results of conducted researches show that the hypotheses H1, H2 and H3 should be regarded as true ones.

SUMMARY

Taking into consideration assumptions of SOP planning presented in this paper, it should be stated that micro- and small companies are not interested in the implementation of this type of planning, due to the fact, it is too labor-consuming in comparison to possible profits of

its implementation. In this group of companies, the owner is responsible for taking all decisions. Additionally the range of work is small enough that one person is able to manage smoothly all processes. Due to the simple structure and limited resources, these companies restrict management activities only to manage current basic processes. The medium-sized companies acknowledge the necessity of the integration of planning processes. Due to their size and range of work, the planning process is necessary for them. The synchronization of the plan is the next step, recognized to be important by them. Therefore the medium-sized companies show more interest in planning of SOP type.

The type of SOP plan depends on the size of a company. Small companies conduct less complicated processes (both production and management ones) and therefore their plan is created only on a piece of paper. The owners of companies do not expect any changes in this process. The plans in bigger companies are prepared with the IT support and the process is carried out by many employees/departments. It should be pointed out in this case, that the sales plans and operations plans are usually prepared separately. Therefore they cannot be called a SOP plan.

Another interesting issue is the responsibility for the process of the plan preparation. In smaller companies, the owner is responsibility for the whole planning process. In bigger companies the authority is delegated and it is expected that each team is responsible for its part and will prepare its plan. At the management board level (equal to the level of SOP plan), the synchronization of plans is expected. The word "expected" should be emphasized here - this practice is not always implemented.

The companies indicate the need of the integration of sales plans with operations plans. Unfortunately each of them understands differently the operations planning process. The smaller companies shape their management process like the project process. The bigger companies notice the need to divide operation plans into smaller elements: production plans, purchasing plans, co-operation plans, transport plans and financial

plans. The presented rule influences also the structure of data needed for the planning process. The bigger the company the bigger amount of data and the more complex their structure.

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WYKORZYSTANIE PLANOWANIA SPRZEDAŻY I OPERACJI W MAŁYCH I ŚREDNICH PRZEDSIĘBIORSTWACH

STRESZCZENIE. Wstęp: Wzrost konkurencyjności na rynku, oczekiwania klientów związane ze skróceniem czasu realizacji zamówienia oraz obniżanie ceny produktów i usług, wymagają od przedsiębiorstw poprawy efektywności procesów wewnętrznych. Jednym ze sposobów realizacji tego postulatu jest integracja procesów planowania. Metodą realizacji idei integracji procesów planowania jest SOP (Sales and Operations Planning). Przeprowadzone badania pozwoliły na identyfikację sposobów realizacji procesu planowania sprzedaży i operacji w małych i średnich przedsiębiorstwach.

Metody: Badania zostały przeprowadzone w przedsiębiorstwach reprezentujących różne branże. Wykorzystaną metodą badawczą był wywiad pogłębiony, prowadzony z osobami zarządzającymi przedsiębiorstwem lub osobami zajmującymi kierownicze stanowiska w komórkach organizacyjnych realizujących proces planowania sprzedaży i operacji.

Wyniki: W ramach przeprowadzonych badań uzyskano opinie z 10 przedsiębiorstw na temat stosowania przez te przedsiębiorstwa planowania sprzedaży i operacji, jego funkcji szczegółowych oraz aspektów organizacyjnych jego opracowywania.

Wnioski: Stosowanie planu sprzedaży i operacji jest ściśle uzależnione od wielkości przedsiębiorstwa oraz miejsca, jakie zajmuje to przedsiębiorstwo w łańcuchu dostaw. Przedsiębiorstwa małe nie są zainteresowane integracją procesów planowania ze względu na niewielką skalę prowadzonej działalności i centralizację podejmowanych decyzji. Przedsiębiorstwa średnie ze względu na wzrost skomplikowania realizowanych procesów planowania dostrzegają korzyści wynikające z ich integracji w modelu SOP.

Słowa kluczowe: plan sprzedaży i operacji, integracja procesów planowania, małe i średnie przedsiębiorstwa.

ANWENDUNG DER VERKAUFS- UND OPERATIONSPLANUNG IN KLEIN-UND MITTELSTÄNDISCHEN UNTERNEHMEN

ZUSAMMENFASSUNG. Einleitung: Wachstum der Konkurrenzfähigkeit auf dem Markte, Erwartungen seitens der Kunden hinsichtlich der Verkürzung der Ausführungszeit von Bestellungen und Senkung der Preise von Produkten und Dienstleistungen machen bei Unternehmen eine Verbesserung von innerbetrieblichen Prozessen erforderlich. Eine der möglichen Herangehensweisen an die Ausführung dieses Postulates ist eine weitgehende Integration von Planungsprozessen. Die Methode für die Ausführung der Idee der Integration von Planungsprozessen ist die SOP-Methode (Sales and Operations Planning). Die durchgeführten Untersuchungen erlaubten die Ermittlung der Methoden für die Realisierung des Prozesses der Verkaufs- und Operationsplanung in klein- und mittelständischen Unternehmen.

Methoden: Die Untersuchungen wurden in den Unternehmen, die unterschiedliche Branchen vertreten, durchgeführt. Als Forschungsmethode hat man die vertieften Interviews in Anspruch genommen. Die Interviews wurden mit den Geschäftsführern oder den Personen, die führende Posten innerhalb der für die Verkaufs- und Operationsplanung zuständigen Abteilungen bekleiden, durchgeführt.

Ergebnisse: Im Rahmen der durchgeführten Untersuchungen wurden Stellungnahmen von 10 Unternehmen in Bezug auf die von diesen Unternehmen angewandte Verkaufs- und Operationsplanung, deren detaillierte Funktionsausübung sowie organisatorische Bearbeitungsaspekte, ermittelt.

Fazit: Die Anwendung der Verkaufs- und Operationsplanung hängt mit der Größe des jeweiligen Unternehmens und mit dem Platz, welchen das Unternehmen in der Lieferkette einnimmt, eng zusammen. Die kleineren Unternehmen sind wegen des beschränkten Ausmaßes ihrer Tätigkeit sowie der von ihnen betriebenen Zentralisierung der zu treffenden Entscheidungen weniger an der Integrierung der Planungsprozesse interessiert. Die größeren dagegen nehmen in Hinsicht auf den steigenden Kompliziertheitsgrad der innerhalb des Unternehmens betriebenen Planungsprozesse die aus deren Integration innerhalb des SOP-Modells resultierenden Vorteile wahr..

Codewörter: Verkaufs- und Operationsplanung, Integrierung von Planungsprozessen, klein- und mittelständische Unternehmen.

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