

FACILITATING COMMUNICATION IN PRODUCTION AND IMPORT PLANNING THROUGH ERP SYSTEMS IN A MULTINATIONAL COMPANY ACTIVATING IN THE FOOD INDUSTRY

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Prezenta lucrare spune atenției măsura în care utilizarea sistemelor informaticice ERP poate facilita comunicarea în planificarea producției și importurilor în cadrul unei companii multinaționale activând în domeniul industriei alimentare. Este analizat stadiul actual al comunicării interne și externe cu ajutorul sistemului ERP și sunt prezentate o serie de disfuncționalități existente în comunicare precum și impactul acestora asupra eficienței activității de planificare a producției și importurilor. Sunt propuse de către autor o serie de măsuri corective care ar putea contribui la reducerea disfuncționalităților și la creșterea eficienței activității de planificare a producției și importurilor.

The present paper brings into attention the level of the use of ERP computer systems which can facilitate communication in production and imports planning in a multinational company activating in the food industry. The actual stage of internal and external communication with the help of the ERP system it is analyzed and some malfunctions in communication as well as their impact upon the efficiency of planning production and imports are presented. The author proposes some corrective measures which could contribute to the reduction of malfunctions and to the increase of efficiency in planning production and imports.

Keywords: planning, production, sales forecasting, performance indicators

1. Introduction

Nowadays, the economic environment is continuously changing and players in the food industry need to react fast in order to keep path with the new demands on the market.

In big multinational companies, the complexity of activity is high and communication flows are complex. Therefore, advanced computer systems are used in order to standardize communication and to increase speed of reaction between partners placed in different geographic areas.

The objective of this paper is to present how internal communication can influence the performance of production and import planning.

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2. Communication in planning production'

Active people spend most of their time in the organization they work to communicate with others. Predispositions and preferences influence the type of interpersonal reactions established with surrounding persons. But, the relations between the individual and his colleagues, superiors or subordinates are directly influenced not only by predispositions but also by the duties he has to fulfill in the job [1,2,3,6].

Nowadays, in big companies, complex computer systems called ERP (Enterprise Resources and Planning) are used, in order to facilitate communication by using the same language in all subsidiaries of the company placed in different corners of the world.

The company analyzed in this paper activates in the food industry and uses the SAP system (Systems Analysis and Products in Data Processing). This is the largest business application and ERP solution used nowadays.

A department of critical importance in this company is the Planning Department which is in charge of planning all production and import activities, in order to ensure that as products are available for sale, on the right time and at the right place. This department has six employees lead by a manager. Five of the employees are in charge of import planning (each employee handles one or maximum two categories of products) and one employee is in charge of production planning. Imports are coming from factories all over Europe and production is done locally, in Romania.

Both imports and production are planned in SAP. The main advantage of using this system lies in the fact that it facilitates easy communication between all subsidiaries of the company spread worldwide. It gives any employee from any subsidiary of the company the possibility to check products, inventories, production and delivery plans, sales and all other information related to products, clients and suppliers. Any employee has access to certain features of the system, depending on his job and position in the hierarchy of the company.

Communication in production planning is done at two main levels:

- 1) internal communication: takes place locally, between the departments of Marketing, Sales and Planning
- 2) external communication: takes place between the local planners and the planners at the production sites (in Romania or abroad).

The "bridge" between the two levels of communication is represented by the SAP system as technical resource and by the employees in the Planning department as human resource.

Internal communication

Production planning is done starting from the estimation of sales level for the following 18 months. These estimations are done for each product separately. That is why a very good communication is necessary between Sales and Marketing departments (who analyze the evolution of the market and the competition and set promotions and launches of new products) and the Planning Department. This happens once a month, during a forecast meeting where the representatives of the three departments meet. They commonly agree on the quantities to be sold in the coming period. Direct communication in these meetings is extremely useful, having a direct impact on the efficiency of the planning activity, import production and distribution.

Additionally, the representatives from Sales and Planning Departments meet in weekly meetings when they analyze stock levels and sales evolution or any other problems regarding the respective products. The importance of these meetings is critical because thus, sales people can be informed about expected stock out situations which they can further communicate to their clients. On the other hand, if sales evolution is bad, the Planning Department is informed and they can reduce imports or production.

Monthly, an operational meeting is held, involving the employees from Planning and the top management of the company. The planners present here reports concerning sales evolution for each category of products, compared to the yearly plan level. Thus, the top management is directly informed about the evolution of the yearly plan and can take actions when necessary. In such meetings, the main advantage is the fact that information can be requested and direct feed-back can be received on spot leading to the resolution of several problems.

As during promotions, sales raise significantly, in order to avoid stock-out situations, sales representatives must inform planners in written (on a special form) about promotional periods and quantities estimated to be sold. These forms must be sent with two months in advance to planners and must be signed by them as a guarantee that quantities requested will be available.

Informally, the representatives of the three departments, Planning, Sales and Marketing communicate directly, face to face, by phone or e-mail any time it is necessary in order to have a correct forecast of the sales in the coming period.

After the forecasted quantities are set, they are introduced in the SAP system by planners, in monthly and weekly buckets for each product, separately. This information is replicated weekly in another part of the system, part which is visible to the producers. Producers gather forecast information from all receiving markets, centralize them and elaborate the production plan.

This process of gathering information and transmitting it to the producers is represented in Fig. 1.

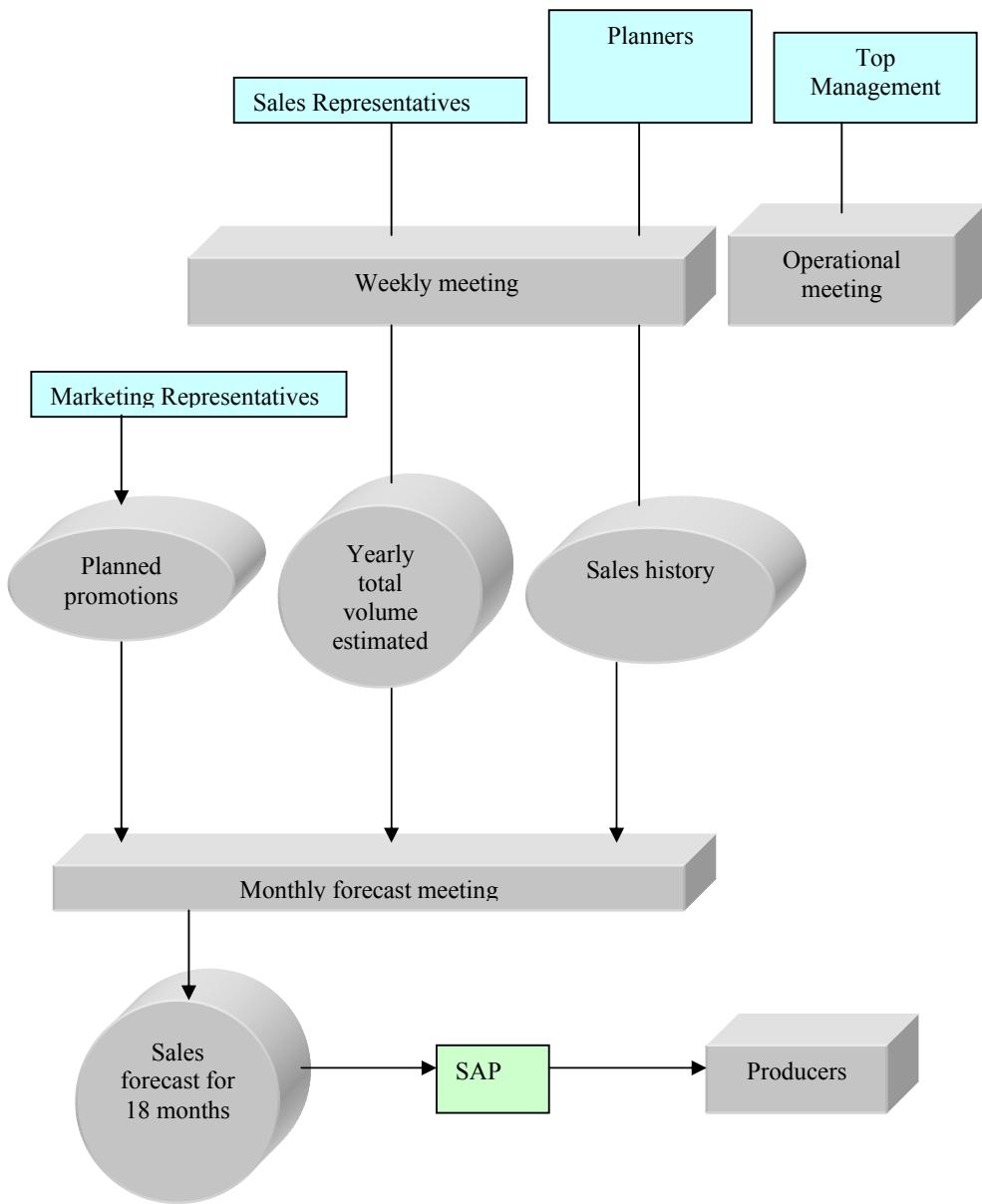


Fig. 1: Internal information flow for sales forecast

External communication

Once sales forecast is introduced in SAP, it starts the external communication between planners and producers. Formal communication between planners and producers is done through SAP system. Production planning is done in weekly buckets, data introduced by planners in SAP being automatically replicated, every week-end, in the part of the system seen by producers. They see the quantities forecasted to be sold by all receiving markets and also the stock levels they have locally and on the production site. Also the stock cover (in days) at each receiver's site can be seen by producers.

Thus, at the beginning of each week, the producer gathers the demands from all receiving markets, getting total volumes estimated to be sold. Then he makes the production plan (usually on Tuesdays and Wednesdays), plan which will be seen by the receiving markets on Thursdays. Depending on the production plan, on stock levels and on the level of sales, the planners can adjust the demand in the system till Friday, when a new communication cycle will start in SAP.

Planners from receiving markets can see the production plan and the quantities they will receive, also the number of days for which the stock will cover the sales.

Data from the system prevail to any verbal or e-mail sent requests. Planners communicate permanently with producers also by phone and e-mail in order to clarify any issues that occur.

Annually, formal meetings are held internationally, between planners and producers. These are workshops organized by top management at international level, separately, for every product category. They represent very good opportunities for participants to meet and communicate directly, face-to-face. These workshops are organized in two parts:

- common meetings with all participants: when general strategies are presented, objectives, market tendencies, new development programs a.s.o.

- bilateral meetings: between producers and planners from receiving markets. With this opportunity, the terms of collaboration are set:

- bilateral contracts: between producer and receiver are set in electronic format, in SAP system. Here are set the yearly volumes and commercial conditions (delivery conditions, minimal remaining life of the product when delivered a.s.o.). Prices are not set here, being agreed by the Financial Departments.

- common files: containing the list of all products which will be sold, yearly volumes on each product and some technical data (minimum production batches, production frequency for each product, minimum and maximum stock levels accepted by the receiver). These data are very useful for producers when preparing the production plan.

Both bilateral contracts and common files are the formal result of the workshops, they represent a reference point commonly agreed, to which the whole cooperation between producer and receiver will be reported. These are kept in electronic format in SAP and can be visualized by both parties and by the top management whenever necessary. Thus, the electronic format has replaced the printed one used previously and it has the advantage of being seen any time by persons from different geographical locations.

Electronic communication has a key role in such big multinational companies activating worldwide, as their employees must communicate in real time and need to visualize the common agreements and details regarding production or inventory level for a certain product in a partner country.

The SAP system facilitates communication between the subsidiaries of the company worldwide. In this system, each product is represented by an unique code and description (in two or more languages, out of which one has to be English). With the help of this code, any user from the group can check some features of the product: name, bar code, gross weight, net weight, logistics a.s.o.

Depending on his position in the company, each employee can visualize from anywhere in the world, certain details about a product which are of interest for him. Thus, planners can visualize inventory levels or production plans on different locations in the world. A controlled transparency of the information for different employees is therefore assured, communication at international level being facilitated.

The communication flow for production planning in this company is represented in Fig. 2.

A critical role both in internal communication and in the external one comes to the planning manager. He is a “communicator” type manager, open, very diplomatic and attentive to the messages he sends [4,5,6]. This manager successfully combines sharing his own opinions with requesting feed-back from his partners. He tries permanently to structure an open and efficient communication, both in his department and outside. This manager requests permanent feed-back from his subordinates and communicates with them in taking decisions of common interest, thus developing a participative climate within the department. Thus he encourages his subordinates to search for solutions, develop ideas and participate actively, they feel motivated to get involved. This fact contributes to generating constructive solutions for any problems which occur and to increase the overall performance of the Planning Department.

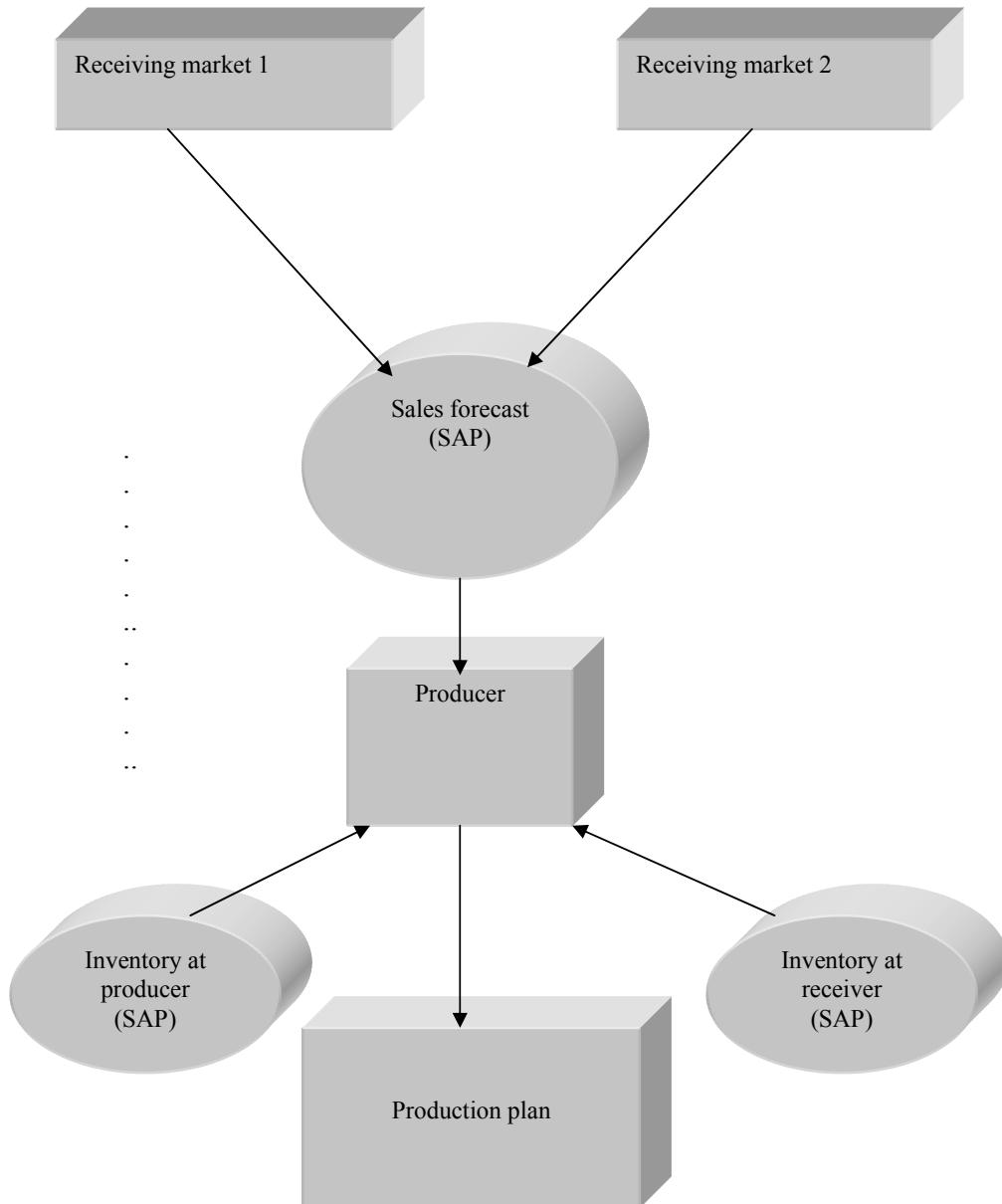


Fig 2: International communication flow in production planning

A critical factor in production and import planning is represented by a good internal communication. Thus, being very enthusiastic on the acceptance of

a new promotion by a client, sales representatives often forget to communicate promotions to the Planning Department. During promotions, sales levels rise significantly above the monthly forecasted levels and, very often, local inventories cannot cover them. Under these circumstances, the Planning Department puts pressure upon producers to deliver supplementary quantities. Factories cannot react on spot, having limited inventories and production capacities. Under these circumstances, out of stock situations are impossible to avoid and they affect the key performance indicators of Planning and Customer Service Departments.

At the beginning of each month, planners calculate three key performance indicators for the previous month, for each product category. These indicators are:

1) Sales Plan Accuracy (SPA): this indicator shows how close was the level of orders received (without considering the quantities not covered by inventory levels) compared to the forecasted level of sales

The monthly level of this indicator must be above 75% in order to consider that the sales forecast for that month as accurate. This indicator is calculated at two moments in time:

a) For the previous month (M-1): the level of orders received during the previous month is compared with the level forecasted one month before (e.g: $SPA_{(M-1)}$ for September the level of orders received in September is compared with the level forecasted in August to be done in September)

b) For three months ago (M-3): the level of orders received in the previous month is compared with the sales forecasted three months ago (e.g. $SPA_{(M-3)}$ for September takes into consideration the level of orders received in September compared with sales forecast made in June for September). This indicator shows the accuracy of forecasts done in time, being more relevant than the first one, as an accurate forecast with three months in advance is needed in order for the factories to be able to react, by increasing or reducing production. This has a significant impact also on planning the supply of raw and packaging materials and the workforce needed. During peak seasons, supplementary temporary workforce is needed to be hired in factories and since recruitment and training takes time, sales forecast must be accurate with three months in advance in order to make sure that the necessary quantities of goods will be delivered on time.

2) Stock cover level at the end of the previous month: this indicator shows how many days of sales would be covered by the inventory from the warehouse at the end of the previous month. This level varies from one product category to another since the frequency of production, the production batch, the average level of sales a.s.o. are taken into consideration. Thus, for products with high rotation levels, for which a production batch is sold quickly, the level of stock cover at the end of the month must be low, while for products with lower rotation level, for which a production batch is sold slowly, the stock cover level at

the end of the month can be higher. A too high level of stock cover at the end of the month is undesirable since this is reflected in a high level of working capital and high levels of warehousing costs, while a too low level of stock cover at the end of the month is also undesirable as it represents a potential danger of out-of-stock situation for the coming month.

3) Level of orders fulfilled for previous month: this is calculated as a ratio between the total quantity sold and total quantity ordered by clients in the previous month. The value of this ratio must be close to 100%, since it is desired that all orders received are covered by the inventory and delivered to clients.

All these performance indicators are communicated monthly to the European zone management, aggregated and on each product category by e-mail. In case of deviations these must be justified and correction proposals must be presented. There is also a special intra-net site where, at the beginning of each month, all countries load their performance indicators – these becoming thus visible and able to be aggregated at group level.

The impact of communication upon the performance indicators for planning

There is a direct correlation between the quality of inter-departmental communication and the levels of efficiency for the Planning Department, which are reflected in the levels of the performance indicators presented above.

Thus, if Marketing and Sales Departments communicate in time the promotions set and respect the timing and quantities communicated to the Planning Department, the level of Sales Plan Accuracy (both for M-1 and M-3) and Orders Fulfilled will be high.

If a promotion is announced to Planning Department only one month in advance, it is, on one side, possible that the producers cannot react in due time to increase production and, on the other side, for sure the SPA_(M-3) indicator will have a low value (since the sales volume forecasted in M-1 will be lower than real sales). If the producer will not be able to deliver enough quantities to cover sales, stock-out situations will appear and orders not delivered to clients. Additionally, that promotion would affect the volumes planned for other clients which could not be delivered due to lack of stock.

For sure, the correlation is stronger if the promotion is directed to an important client, which orders significant quantities and if the product has a higher weight in the total sales of the company.

In Fig. 3, the correlation between the moment in which a promotion is announced and the level of the SPA performance indicator is represented graphically, both for (M-1) and for (M-3). It can be observed that, if the promotion is announced one month in advance, the values for both indicators

($SPA_{(M-1)}$ and $SPA_{(M-3)}$) are low (65.5% and respectively 41.5%). If the promotion is announced with two months in advance, the value of the indicator $SPA_{(M-1)}$ increases to 70.2% while the value of $SPA_{(M-3)}$ remains unchanged. The best values for these performance indicators are obtained when the promotion is announced with three and even four months in advance (80.5% and 68.2%, respectively 85.5% and 75.4%). Implicitly, the moment when the promotion is announced influences directly also the level of orders fulfilled, due to the direct impact upon the availability of the product on stock.

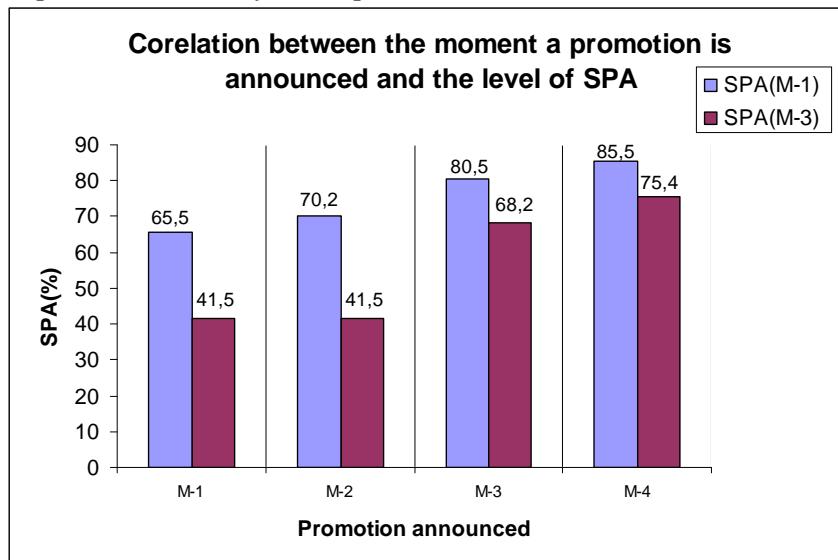


Fig.3: Corelation between the moment a promotion is announced and the value of SPA indicator

Proposals to improve communication for production planning

Due to the high complexity of the activities in this multinational company and due to the necessity for a good coordination of the Romanian branch with all the other branches in the world, it was necessary also for Romanian branch to implement an informatic system capable to satisfy the demands of a complex communication, as the role of the direct communication becomes lower at international level.

Due to SAP system, the communication between producers and importers is done rapidly, in a formal manner. This system facilitates communication a lot, especially as the producer and importer are placed at long geographical distances in the world. Communication is simplified a lot, by replacing fax, e-mail and even telephone, with this transparent system which offers visibility upon the data introduced. Also, the system presents exact information to the importer regarding

quantities which are to be produced by different producers and the time when these will be produced, regarding the time when these products are to be delivered, stock levels and quantities in transit. All this information can be found out directly by accessing some windows in this program, without using telephone, fax or e-mail, facilitating communication a lot and saving time and money.

Also, direct face-to-face communication between producers and importers, during annual workshops is very effective. With these opportunities, bilateral contracts are concluded, between producers and importers, the annual volumes of products to be transferred are set and also, any misunderstandings are clarified. These workshops also represent a good opportunity for exchanging experience as presentations and free discussions are organized, regarding themes of common interest. Last but not least, these workshops are very good opportunities for the parties to meet face-to-face and to communicate directly.

Regarding inter-departmental communication inside the Romanian branch, some improvement measures are necessary. Thus, it is essentially important that the Planning Department is informed in due time upon any significant increases or decreases, expected for the sales level in the future.

1. A factor which could determine the Sales and Marketing Departments to communicate in time would be that the SPA indicator, both for M-1 and M-3 is also included among the performance indicators of these departments.

2. Also, in the meetings where future promotions are set, representatives of Planning Department should also be invited, together with Sales and Marketing representatives. Thus, planners would be informed upon future promotions even from the start and could plan them in the system in time, announcing producers and giving them enough time to plan the necessary quantities to be produced.

The participation of top managers, including the general manager in the monthly operational meetings is very useful, since with this opportunity they are informed upon the annual sales level up-to-date and thus, giving way to a direct ascendent communication between planners and top managers. During these meetings, planners can draw the attention of the managers upon some problems appeared during the previous month (regarding inventories, production capacity, the level of performance indicators a.s.o.) and can get immediate feed-back from the managers involved.

1. The company procedures regarding communication when problems appear have, on one hand a positive effect, as they standardize communication and each employee knows which steps to follow but, on the other hand they have a negative effect since they increase the duration of solving problems especially through involving more employees and increasing the length of the communication flow. In this respect, it would be necessary a thorough analysis of the existing procedures and of their efficiency in different concrete situations. If some procedures are proven to be too difficult and to increase the duration of

problem solving too much, these should be revised and improved, such as to contribute to a better communication between employees and to increase of the efficiency of solving all encountered problems.

2. Since, whenever planners received supplementary requests for products needed for promotion organized shortly before start and, against the fact that this has affected their performance indicators, they have reacted in a positive manner and did their best to make available the quantities requested, it would be very useful to use an indicator to measure the flexibility of this department. A high value of this indicator could compensate the low values for SPA indicators. The flexibility indicator should measure the capacity of reaction of the planners for the requests of increasing sales forecast in short time. This indicator could be calculated with the help of the level of orders fulfilled, for the promotions announced with less than three months before start.

3. Conclusions

The paper has proven that it exists a direct impact of intra-departmental communication upon the performance of production and imports planning in the multinational company analyzed. At present, communication flows are clear and supported by procedures but there are still malfunctions which need to be adjusted. Thus, all departments involved in elaborating sales forecast must communicate more effectively and in due time, in order to estimate correctly the quantities needed to be produced, which would be in the benefit of all parties involved: on one hand orders will be fulfilled on time since inventory would be enough to cover the demand and, on the other hand, the performance indicators of the planning department would be within targets.

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