

Survey | Demand Planning

The importance of APS in Demand Planning



In today's volatile business environment, it is necessary to predict the demand with as much accuracy as possible to be successful in a competitive marketplace.

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Introduction

Demand planning is a business planning process that enables development of demand forecasts. These forecasts can serve as input to:

- MRP/Replenishment planning
- Sales & operations planning
- Inventory planning
- Collaboration with suppliers/customers
- Handling of phase in and out of products (PLM).

In today's volatile business environment, it is necessary to predict the demand with as much accuracy as possible in order to be successful in a competitive marketplace. Demand planning is often seen as the foundation of a supply chain and that it enables the required agility. Being able to predict the demand accurately allows companies, through their supply chain, to meet demand at the right time with the correct service or product in an efficient manner. Demand planning enables ways to cut costs, for example decrease holding cost, obsolescence and waste of inventory. It can also be a way to increase revenue by improving order fulfillment on new products so that no potential sale is missed. Most importantly, demand planning provides the ability to size the supply chain costs according to demand.

As supply chains become more complex, increased pressure is put on the functions that are responsible for the demand planning. Hence, there is a need for tools that support such functions. Advanced Planning and Scheduling (APS) is becoming a more common characteristic of companies in the forefront of demand planning, as essential supporting tools. An APS system covers more than demand planning, and according to industry standards, APS describes any computer program that uses advanced mathematical algorithms or logic to perform optimization or simulation on finite capacity scheduling, sourcing, capital planning, resource planning, forecasting and demand management¹. This survey focuses only on the forecasting and demand planning functionalities when relating to APS.

Based on the experience from a number of successful demand planning projects with several implementations of APS, BearingPoint conducted a survey with the purpose to identify to what extent companies are using APS within their demand planning process, and what they identify as improvement areas.

The survey included 29 companies, representing various industries and sizes (figure 1), and they all used APS, Excel or manual solutions. Excel and manual solutions will hereafter be grouped together. The respondents (figure 2) answered questions in 8 different categories related to demand planning. A majority of the companies belonged to the manufacturing and retail industries.

Supporting data was provided from a similar BearingPoint study conducted with 20 companies. That survey had a broader focus on supply chain, however one of the main topics was demand planning and in areas where they overlap, both results will be presented in this survey report.

Figure 1. Size of participating organizations and titles of the respondents

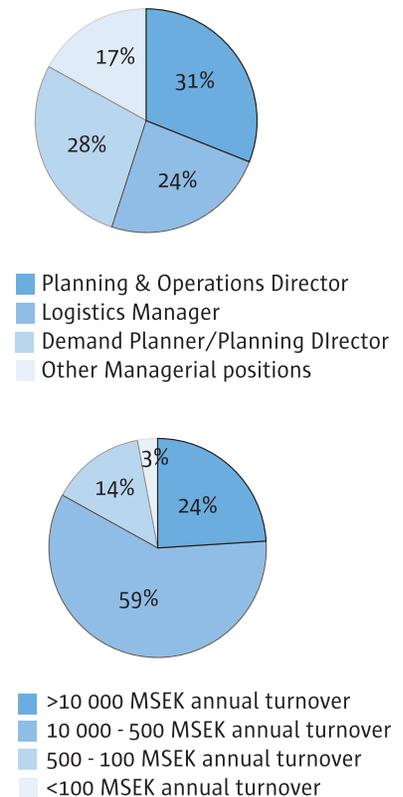
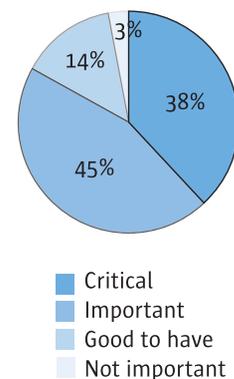


Figure 2. The respondents perceived importance of demand planning



¹ APICS, Association for Operations Management, Dictionary, 12th Edition

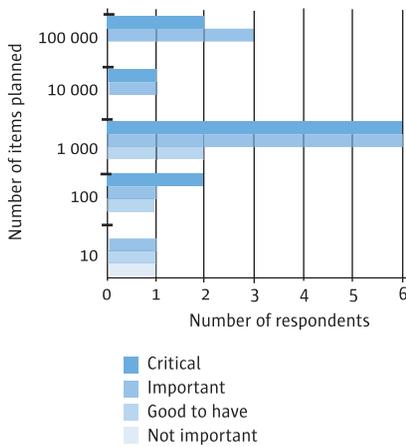
The Importance of Demand Planning

The perceived trend of demand planning’s level of importance was easily confirmed from the results of the survey. According to Figure 2, more than 80% of the companies in the survey view demand planning as either critical or important to the company’s overall performance. Only 3% responded that demand planning is not important to their company. Furthermore, the survey found that forecasting on an operational level is viewed as critical for almost 50% of the respondents. The survey also confirmed that forecasting on a tactical level, phase in and out of products, and collaboration with suppliers and customers are all important or critical aspects of the business for over 70% of the companies.

Another finding from the survey, which may seem intuitive, is that the more products forecasted, the more critical do companies perceive the demand planning function. Companies planning in between 10 000 to 100 000 items recognize demand planning as either important or critical. The results further indicates that companies that does not consider demand planning as important or good to have, are all found in the lower half of the spectrum and plan fewer items. The only company that considers demand planning as not important is consequently found in the category with the lowest amount of products forecasted.

The conclusion is therefore that demand planning, for almost all companies, is a function that is seen as important to an organization. Furthermore it is even more critical for companies that plan a large amount of items. Still only 18 out of the 29 companies use an Advanced Planning and Scheduling System (APS) that is designed to improve demand planning performance.

Figure 3. Effect of number of items planned on view of demand planning

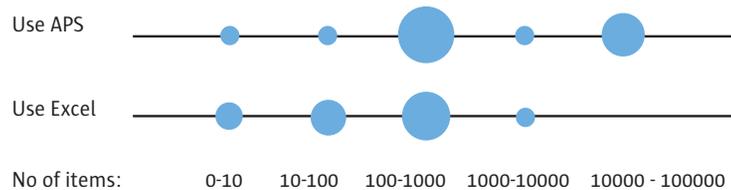


There seem to be a lag between recognizing demand planning as critical or important, and implementing supportive systems that are designed to enhance the performance of the demand planning function.

Demand Planning Enabled by Advanced Planning and Scheduling Systems

The survey shows that an APS is more likely to be in place for companies that plan substantial amount of items. Figure 3 indicates that companies that plan more than 10 000 items all have an APS in place. This implies that if the number of items planned exceeds an approximate amount of 100, an APS is a necessity. Still there are several companies that plan between 100 and 10 000 items that use Excel for forecasting and demand planning.

Figure 4. Relationship between number of items planned and type of system use

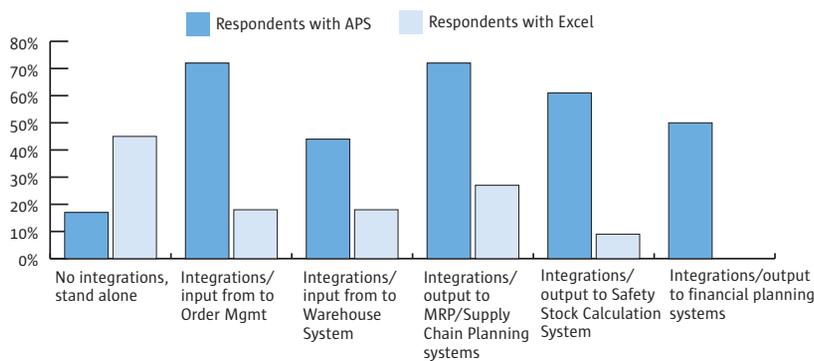


When the above findings are compared with previous mentioned results on how important demand planning is perceived for companies with the corresponding numbers of items, a gap can be identified. There seem to be a lag between recognizing demand planning as critical or important, and implementing supportive systems that are designed to enhance the performance of the demand planning function. This gap is further demonstrated by how companies that are using Excel view their demand planning. It can be noted in figure 4 that 27 % of the 11 companies that are currently planning their demand in Excel consider demand planning as critical to the company, 64% consider it as important. Not a single one of the companies using Excel considers demand planning as not important.

One important finding from the survey was that the forecast accuracy depends on whether the company uses APS or an Excel based solution. The respondents were asked about the performance of the forecast with regards to six different aspects, how well the forecast; considers seasons, trends or campaigns, handles input from suppliers/ customers, handles products with low sales volumes and finally how well scenario analysis was supported. For every aspect, the performance of APS was rated higher than Excel. Excel itself does not provide any assistance in those areas. For example, there is no way to support scenario analysis in Excel without extensive programming by a statistical expert. APS systems on the other hand have the mathematical tools to perform calculations and optimizations built in to the software. Therefore, it can be established that APS has stronger capabilities than Excel and this survey shows that APS systems outperform Excel throughout all aspects mentioned above.

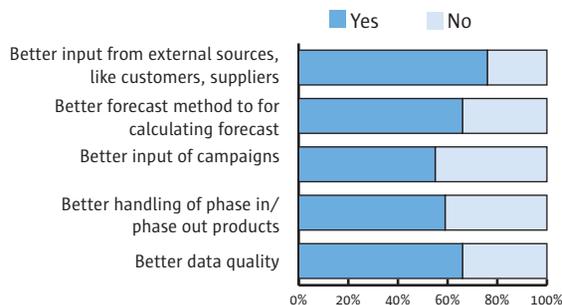
A significant gap between APS and Excel performance is in how well they integrate with other business system. Excel has much lower integration capabilities. By having integrated systems, manual labor is decreased, the information flow is faster and there is less room for errors. For example, by integrating an APS with an order management system, orders will be automatically extracted to the plan and thereby providing the ability to take immediate action to changes in order quantities.

Figure 5. Level of integration for users with APS and Excel



Regardless of what system is being used for demand planning, there are many areas that are in great need for improvement. Even if APS outperforms Excel in areas such as forecasting, the survey shows that users with APS experience a need for progress in these areas. Companies want their system to perform better regardless of what system they have. Better handling of input from external sources is something APS inherently has stronger capabilities in than Excel, still users with APS see it as an area for improvement. 50% of the respondents identified all of the areas proposed in the survey as areas for improvements, as summarized in figure 6.

Figure 6. Perceived need for improvement in different areas

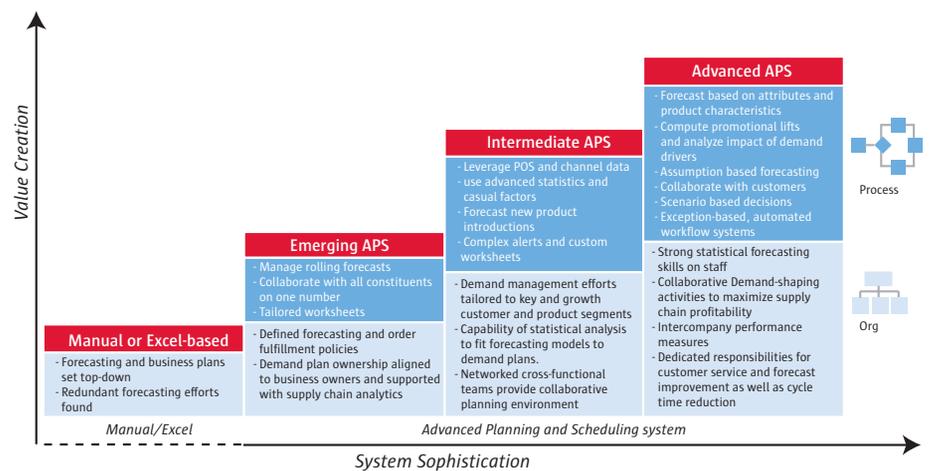


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This clearly indicates that the APS itself will not ensure excellence in demand planning. Instead, it is the combination of the processes, organization and APS that ultimately ensures improved results. Organizations may have installed the most advanced APS tools on the market but if the processes are unclear or there is a lack of significance of the demand planning function in the organization, there is a high likelihood of disappointment in the tool. These findings are further supported by the secondary study which indicates that the accuracy of the forecast can still be a major challenge despite large investments in planning systems. The way the tool is implemented is another factor that affects the usability. Mobilizing a team with members having the right knowledge as well as the necessary support from CxO level is crucial.

Most companies have a long way to go before they reach an advanced level and reap the full benefits of their APS. A step-by-step approach can be used to improve the demand planning function. First of all, basics need to be in place, like collaborating with all constituents on one common plan and establishing policies for forecasting. With the basics in place, it is possible to escalate and extend the demand planning to areas such as forecasting new products and increase forecast accuracy by utilizing advanced statistics and causal factors. By reaching a more advanced level, the level of sophistication increases and, as a result, brings higher value creation to the organization which is displayed in figure 7. The figure shows the interaction between system, process and organization.

Figure 7. Model of a company's maturity with regards to planning and forecasting



Conclusion

The survey shows that there is a distinct difference in how APS systems perform compared to Excel solutions. Throughout all researched categories APS outperform Excel. For example, they have better capabilities regarding choosing the right forecasting method and supporting automatic phase in and out of products. In the supporting study it was further concluded that IT support (APS) for forecasting reduces the time consumption of the calculation and facilitate the workflow between departments. Together this gives a strong indication that most companies should move away from manual or Excel based solutions, especially if the number of items forecasted is of a substantial amount.

This survey has focused on demand planning in companies today and shows that demand planning is considered as critical or important by a majority of the respondents (80%). Still 11 out of 29 respondents work with Excel solutions that have been documented to have lower capabilities compared to APS. To conclude, the findings of this survey imply that there is a gap between perceived importance of demand planning and having the necessary tools in place to support the organization to achieve best in class demand planning. Nevertheless, companies can start with their current position and find major room for improvements, whether it is through process enhancement, organization redesign or implementation of an APS. The structured approach described in figure 7 shows how to reach a more advanced state of demand planning depending on the company's position. From the figure and survey finding, moving away from Excel based solutions is not an option but a pre-requisite if an organization desires to be in the forefront of demand planning.



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