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# A STRATEGIC FOCUS ON INVENTORY MANAGEMENT BUT WITH ROOM FOR IMPROVEMENTS

DILF and researchers from the Department of Entrepreneurship and Relationship Management at SDU in Kolding conduct each year several mini surveys focusing on different supply chain management issues. Respondents to these mini surveys are voluntary senior managers from various Danish companies represented by the Danish Supply Chain Panel. This article presents the results of a mini survey dealing with warehousing management systems.

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By Jan Stentoft, Professor at Department of Entrepreneurship and Relationship Management, University of Southern Denmark and Ole Stegmann Mikkelsen, Associate Professor at Department of Entrepreneurship and Relationship Management, University of Southern Denmark

## DANSK RESUMÉ

Hvert år udfører DILF i samarbejde med forskere fra SDU en række "mini-surveys" besvaret af 'Det Danske Supply Chain Panel'. Disse surveys tager udgangspunkt i forskellige problemstillinger indenfor supply chain management. Denne artikel, skrevet af Jan Stentoft og Ole Stegmann Mikkelsen fra SDU, har specifikt fokus på et survey, der handler om warehouse management systemer.

Med udgangspunkt i de mange udfordringer virksomheder har måtte stå overfor de seneste år, undersøger dette survey, hvordan virksomheder har måtte tilpasse sig de forskellige eksterne faktorer, som har påvirket deres supply chain.

/Redaktionen

## 1. Introduction

Inventory management plays an important role for companies' competitiveness. Well-managed inventories enable companies to gain profit by delivering goods at the right time, in the right amount, in the right quality to the right costs. Other purposes of holding inventories are economics of scale, protection against demand and lead-time uncertainties, reducing costs by larger lot sizes, hedging against rising price levels, improving customer service with high fill rates, protection against force majeure and to take advantage of quantity discounts (Stentoft et al., 2018).

Hence, it is recommended that companies apply a strategic orientation about their inventory management system. The business environment has for many companies become more turbulent and volatile during the last three years with supply chain disruptions like the COVID-19 pandemic, the grounding of Ever Given in the Suez Canal and latest the terrible war in Ukraine due to the Russian invasion. It's imperative for companies to focus on issues such as operating with the right assortment, the right amount of goods, the right turnover rates, minimizing obsolescence and using the right technology.

In this mini survey, the respondents have been asked questions to see if the companies find that they have the right level of strategic focus on

inventories, and whether this focus has changed due to the different types of disruptions we have seen in the recent years. The answers from the respondents are shown in Figure 1.

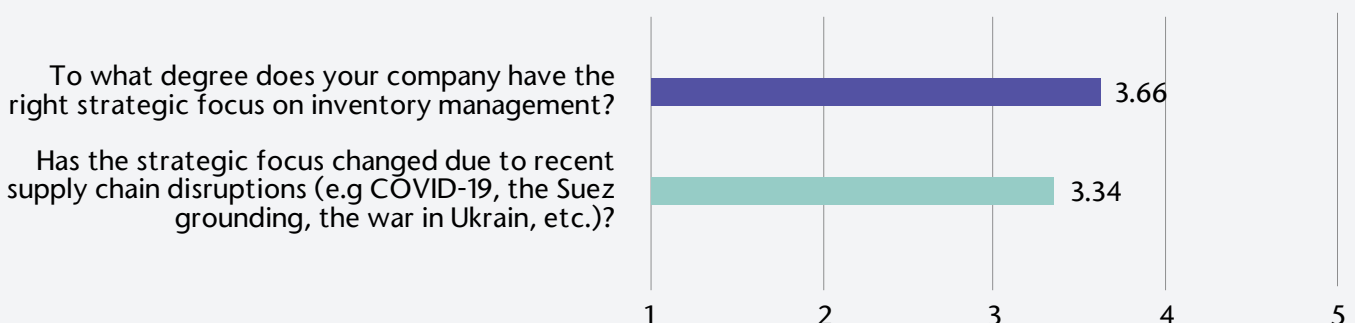
In surveys like this, based on a 5-point Likert scale from 1 (very low degree) to 5 (very high degree), we normally interpret an average of 3.5 and above as being significant. As it appears from Figure 1, the respondents lean toward the higher degree (3.66) when asked if the companies have the right strategic focus on inventory management. The answer above aligns with the answer about the possible change of the strategic focus, due to the recent supply chain disruptions.

Here the respondents answer that the strategic focus has only changed a little more than to some degree (3.34). One might have expected these two questions having higher averages, not least given the challenges that companies are currently facing in the availability of raw materials and components. However, the results align with a survey in which it was found that 65 percent of the companies have not changed their sourcing strategy due to COVID-19 (Stentoft & Mikkelsen, 2022). This may indicate that the challenges we hear about every day in the news are not affecting all companies with the same significance.

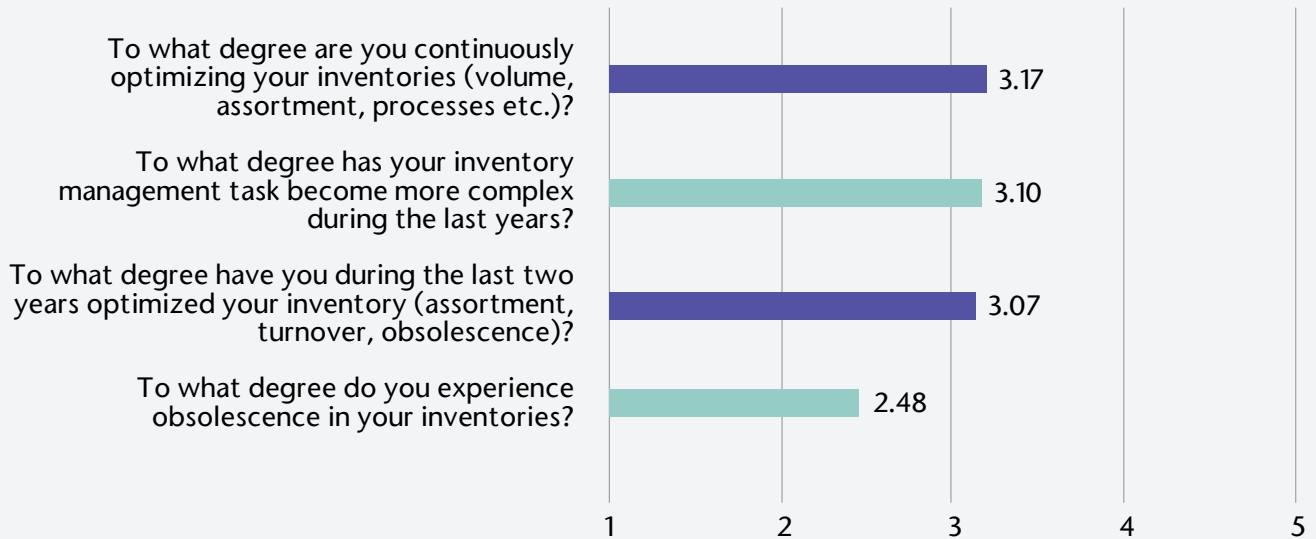
## 2. Inventory management

The respondents have also been asked questions

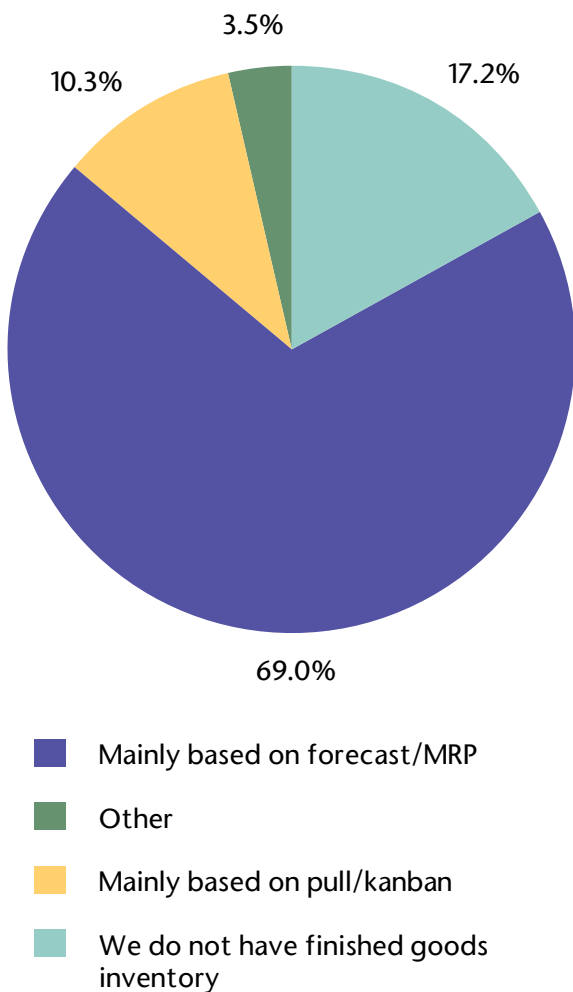
**FIGURE 1.** Strategic focus on inventory management



**FIGURE 2.** Practices of inventory management



**FIGURE 3.** Management of finished goods inventories



about the inventory optimization approaches in their companies (see Figure 2).

From the answers depicted in Figure 2, it is seen that the companies only to some degree (3.17, on the 5-point Likert scale) continuously optimize their inventories on e.g., volume, assortment etc. In the same vein, we see that the companies likewise only to some degree (3.07), have optimized inventories within the last two years. Further, the companies only to some degree (3.10) perceive that the inventory management task has become more complex during the last years.

Once again, this is unexpected given the current situation of upstream supply chain challenges, and all the stories in the news about shortage of raw materials and components combined with erratic and unforeseen postponement of deliveries from suppliers. Once again, this might indicate the asymmetric impact on businesses of COVID-19, the Suez grounding and the war in Ukraine.

One question to ask is, on what principles the companies manage their finished goods. As it

appears from Figure 3, more than two thirds (69 percent) of the companies are mainly driven by forecast/Materials Requirements Planning (MRP) in managing their finished goods inventories. Only 10 percent of the companies are mainly managing their finished goods inventories on pull/Kanban principles, while 17 percent of the companies report that they do not have finished goods inventories. Three percent of the respondents answer that they have another way of managing their finished goods inventories. Maybe the latter is a system based on intuition?

The respondents have also been asked to reflect on the expected level of investments in inventory management systems in the coming 2-3 years.

As shown in Figure 4, 64 percent expects to make considerable or some investments within the coming 2 to 3 years, 18 percent will make small investments, and the remaining 18 percent will not make any investments. The results indicate that there is a recognition of the importance

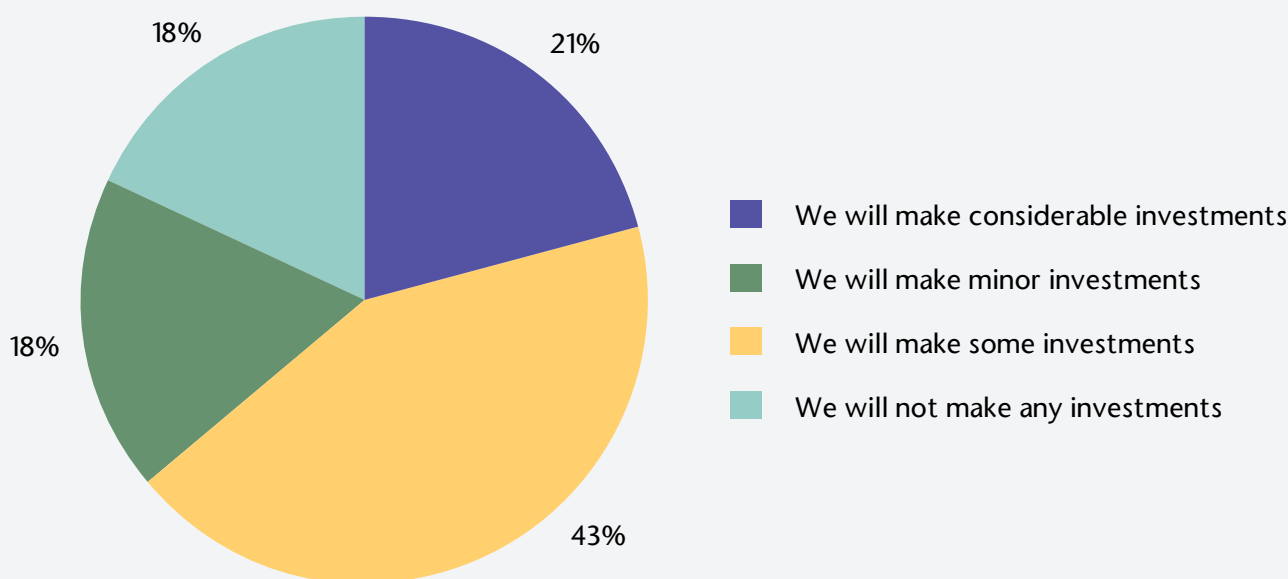
of inventory management and that investments might be needed to remain competitive.

### 3. External partners and inventory management

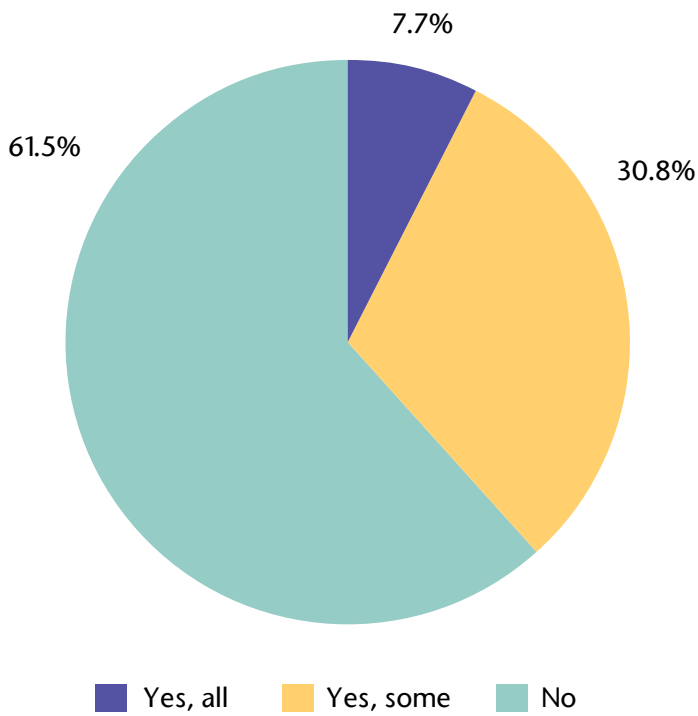
In order to focus managerial attention toward more strategic issues, some companies tend to outsource the management of their finished goods inventory or may lay the management of inbound inventory in the hands of suppliers (vendor managed inventory/VMI). The answers to these two questions are shown in Figure 5 and 6, respectively.

As seen in Figure 5, close to 40 percent of the companies have outsourced the management of some or all the finished goods inventory. 30.8 percent have outsourced the management of some of the finished goods inventory, while 'only' 7.7 percent have outsourced the management of all the finished goods inventory. On the other hand, 61.5 percent of the companies maintain the management of finished goods inventory

**FIGURE 4.** Expected investments in inventory management within the coming 2-3 years



**FIGURE 5.**  
Outsourcing of finished  
goods inventory



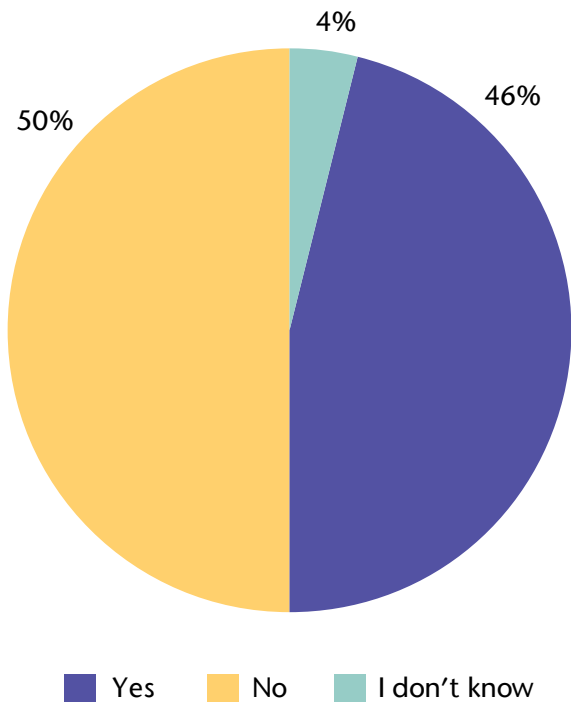
in-house. Outsourcing of finished goods inventories is a rapidly growing business.

In Denmark, several investments in logistical centers have taken place e.g., in Høje Taastrup, Solrød, Odense, Framlev and Taulov Dry Port near Fredericia (Vestergaard & Rose, 2022). The demand for such new logistical centers is among others caused by building up safety stocks by companies to become less vulnerable to supply chain disruptions, and also due to a recognition that such specialized partners may perform such tasks much more efficient than they can do themselves.

In the other end of the supply chain (upstream), we see from Figure 6, that 50 percent of companies does not operate with VMI, while an impressive 46 percent report that they do practice VMI.



**FIGURE 6.**  
Applying vendor managed inventories



#### 4. Type of warehouse management system in use and perceived challenges

It is of interest to dig into what type of solutions are used among members of the Danish Supply

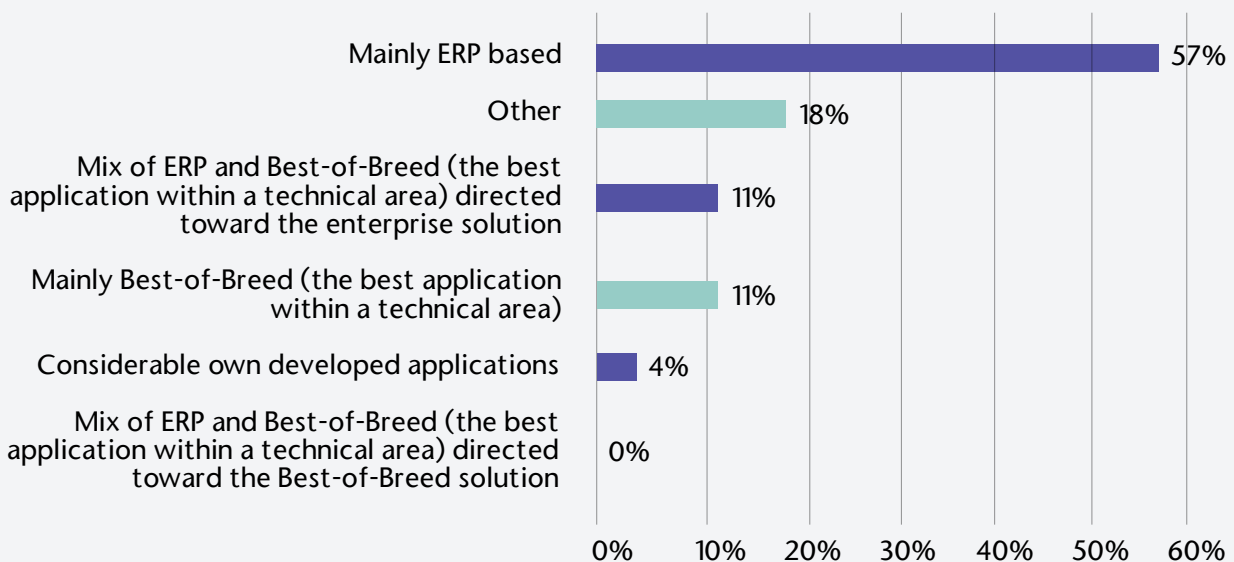
Chain Panel when conducting warehouse/inventory management. Figure 7 indicates that 57 percent of the companies' warehouse/inventory management is mainly based on ERP solutions. In second place, we see 'Other' with 18 percent. Here lies for example Excel-based systems with or without automated integration.

A mix of ERP and best-of-breed applications (directed toward the enterprise solution) are used by 11 percent of the companies. The same is the case for a mainly best-of-breed solution that likewise is applied by another 11 percent. A best-of-breed application is the best application within a specific area e.g., warehouse or inventory management. Four percent of the companies rely on some sort of home-developed systems and applications.

We have also been interested to investigate the panel members' perceptions of the challenges faced with their inventory management. The answers are depicted in Figure 8.

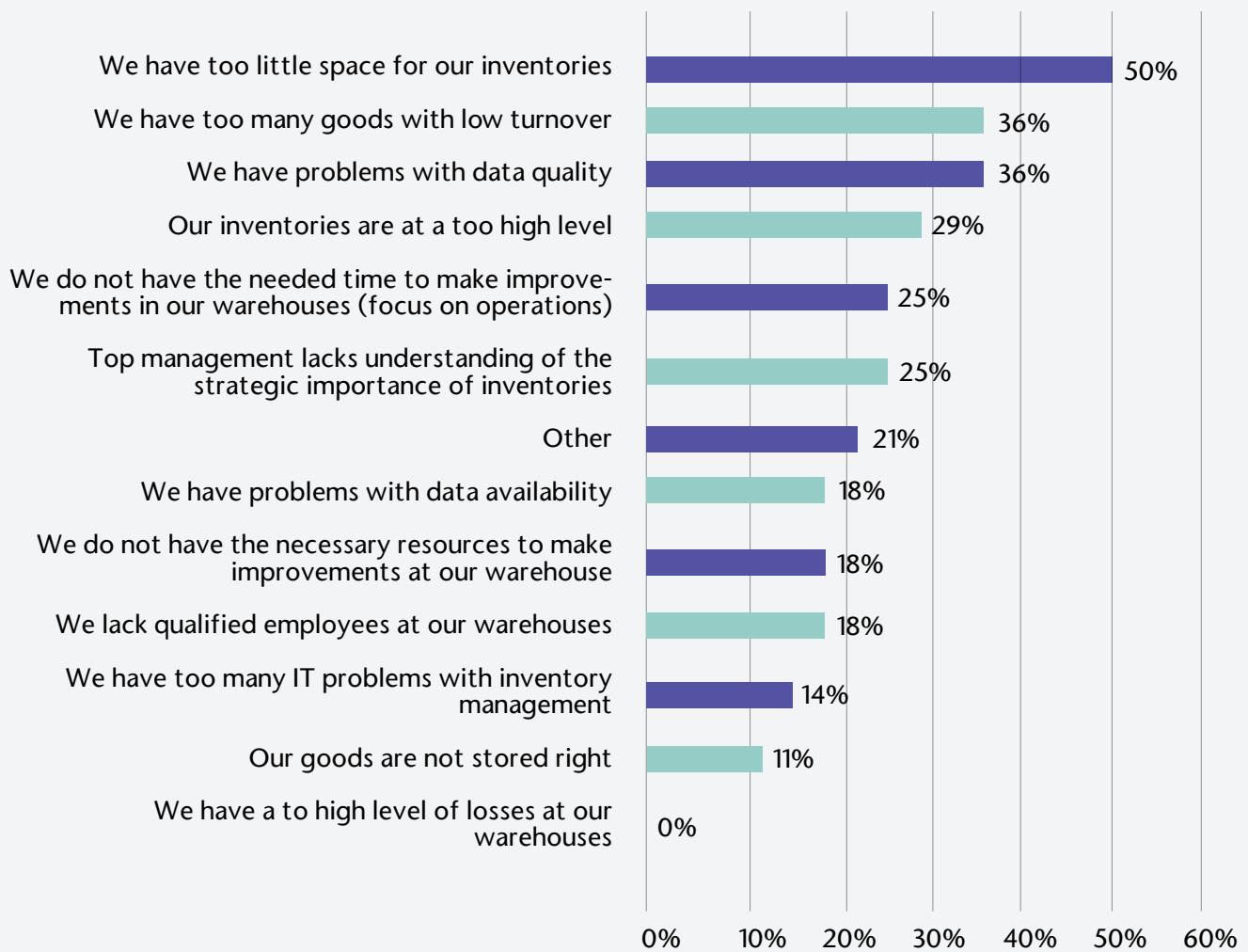
Interestingly, the challenge highest on the agenda is lack of space with 50 percent of the respondents reporting this. It is interesting as we

**FIGURE 7.** Type of warehouse management system in use





**FIGURE 8.** Perceived challenges with inventory management



**Note:** Several marks allowed

previously saw that companies only to some degree continuously or within the last two years have optimized their inventories on e.g., volume, assortment, obsolescence, etc.

It becomes even more interesting, when observing that 36 percent of the Danish Supply Chain Panel members report that they have too many goods (stock keeping units) with low turnover and not least too much on stock (29 percent). One might think that lack of inventory space, low turnover and too much inventory would initiate an optimization initiative.

However, the explanation may be that 36 percent of the members have problems with data quality, while 18 percent have problems with the availability of the right data. It is hard to optimize if one lacks the right data in good quality to make sound decisions on where to start and focus.

At the same time, 25 percent of the respondents report a lack of time to focus on optimization as daily operations precede the development of new processes, tools and improvements. Likewise, 25 percent of the members find that top

management lacks an understanding of the strategic importance of inventories. This may make it even harder to obtain the resources to make improvements in inventory management. Further, 18 percent of the companies lack resources and qualified employees to make improvements.

Finally, 14 percent of the respondents are challenged with too many IT issues in terms of inventory management, while 11 percent find that goods are not stored right. The respondents were allowed to comment on their perceived challenges, and came up with the following challenges:

- Volatile market demands and low forecasting accuracy
- We have not rolled out EWM to all our warehouses yet
- Lack of barcode-use
- Customer change in demand
- Unreliable supply chain from suppliers

## 5. Conclusions

This article has set out to report on the answers from a mini survey distributed to the Danish Supply Chain Panel concerning inventory and warehousing management. Most of the respondents (69 percent) answer that they managed their finished goods inventory based on forecast and MRP, while 10 percent rely on Kanban systems. 17 percent do not operate with finished goods inventories.

In general, the respondents answer that there is a strategic focus on inventory management in their companies, but that there also seems to be a few development areas in optimizing the assortment both within the last two years and on a continuously basis. The optimistic part of this is, however, that 64 percent expects to make considerable or some investments within the coming 2 to 3 years.

The strategic focus on inventories has only to some degree been changed due to the recent supply chain disruptions. Outsourcing finished goods inventories is a widely used practice among the panel members' companies, either the entire inventory or part of it. Close to half of the respondents report that they are practicing VMI solutions.

The specific warehouse management system used is primarily ERP-based followed by Best-of-Breed applications. Concerning the perceived challenges of their current inventory management, the respondents report too little space, too many goods with a low turnover, data quality issues and too high inventory levels. We hope this short article can stimulate discussions in your companies about the degree of excellence of the management of your inventories./

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