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DILF and researchers from the Department of Entrepreneurship and Relationship Management at SDU in Kolding conduct each year a number of mini surveys focusing on different supply chain management issues. Respondents to these mini-surveys are voluntary senior managers from various Danish companies represented as the Danish Supply Chain Panel. This article presents the results of mini survey which focuses on performance management in supply chains.

**Surveys of 2018:**
1. Corporate social responsibility
2. Leadership and management of supply chains
3. Supply chain design
4. Performance management in supply chains

**Supply Chain Performance Measures Lacks External Orientation**

DILF and researchers from the Department of Entrepreneurship and Relationship Management at SDU in Kolding conduct each year a number of mini surveys focusing on different supply chain management issues. Respondents to these mini-surveys are voluntary senior managers from various Danish companies represented as the Danish Supply Chain Panel. This article presents the results of mini survey which focuses on performance management in supply chains.
Measuring performance in the supply chain is vital to evaluate whether the supply chain operates as expected both from an external perspective (customers and suppliers) and from an internal perspective. More specific, performance management is being used to motivate by looking ahead: what should be achieved? It can also be used to compensate by looking back: what has been achieved? And we can use performance measures to compare past and current performance. It is important to measure the performance of the supply chain due to at least three reasons. Firstly, the supply chain in many corporations often consumes up to two thirds of the total cost consumption why a focus of this spend should have a top management awareness. Secondly, many companies today compete on their supply chains which means the performance in terms of customer-oriented measures as well as cost consumption measures are deemed important to secure competitiveness. Thirdly, what is measured gets done and what gets done can be rewarded. Thus, supply chain performance measures can help to monitor the well-being of the supply chain and consequently provide important insights where developments must take place if needed.

Accordingly, this mini-survey has set out to investigate the practice with supply chain performance measurement in the Danish Supply Chain Panel. Therefore, the first question is concerned with to which degree the companies have implemented performance management in their supply chains, ranging from to a very low degree (1) to a very high degree (5) on five-point Likert scale. The answers are shown in Figure 1.

**Figure 1. Source: The Danish Supply Chain Panel**
On average the companies answer 3.15 on the question, but only 36% of the companies report that they to a high or very high degree have implemented performance management in their supply chain. In the other end, 25% of the companies have only to a low or very low degree implemented such initiatives in their supply chain. This is surprising as this may carry high risks. In today’s globalized world with an ever increasing speed of changes and high volatility, not monitoring and measuring the supply chain may leave the companies in a reactive and not proactive mode on errors with potential significant impact on customer service and/or cost.

**What performance models are used?**

Given the fact that there are quite a few different predefined performance management systems in the market, the respondents have secondly been asked to answer what performance model they use when measuring the performance in their supply chains. The results show that companies may find it difficult to comply to a predefined system. As can be seen in Figure 2, the majority of the respondents (67.5%) report that their performance management system is home knitted. 15% is using Balanced Scorecard, 7.5% answer “other” of which respondents clarify to OTIF performance, 5% is using SCOR and 5% is using The Baldrige National Quality Program.

The results follow the same pattern as an earlier mini-survey in the panel about performance management (Arlbjørn & Mikkelsen, 2012), even though home knitted/own developed performance management systems have lost a little footage (was 76% in 2012). The difference is now spread with a few extra percent on BSC, SCOR and the Baldrige National Quality program. Reasons for this apparently low degree on using established performance frameworks can be a perception of a lack of flexibility in the

![Used Supply Chain Performance Management Systems](source: The Danish Supply Chain Panel)
frameworks to adapt to specific situations or simply a lack of knowledge of the frameworks by supply chain and/or finance staff.

**Linking performance measures to corporate strategy**

One of the objectives for performance measurements is to set the strategic direction (Gunasekaran & Kobu, 2007). Such a direction must be derived from and aligned with the overall corporate strategy of the company. Hence, the third question in this survey is focussed on to which degree the defined measures support corporate strategy. The results are shown in Figure 3.

As for Figure 1, we witness a quite interesting result. On average, the companies report that the performance measures are only to some degree measuring the right things and hereby supporting corporate strategy (3.3 on a five-point Likert scale). In other words, the figure shows that some companies do not have measures that help them guide their strategic direction. As shown in Figure 3, however, only 46% of the companies report that the performance measures to a high or very high degree support corporate strategy, while 16% perceive that their measures only support corporate strategy to a little or very little degree. Many reasons for developing measures not supporting corporate strategy may exist. However, as a starting point performance measures should help one in monitoring progress on objectives and goals. Otherwise it is measuring for the sake of measuring.

**Reliability, real time of data and data foundation**

One thing is to measure performance, another is if the data behind the measures are reliable. Furthermore, it is important that...
the data are not too old to react on in case of need. In a world that moves faster and faster it is therefore important to have performance measures informed by correct and real time data. Therefore we also asked the respondents about this. The results appear in Figure 4.

As seen in Figure 4, companies report that on average the applied measures are perceived correct on a level of 3.43 on a five-point Likert scale, which indicates a perceived reliability level between to some degree and high degree of reliability. 48% of the companies find that their applied measures in the supply chain are to a high or very high degree reliable, while only 10% find that the reliability is low or very low. As for real time data, the companies report more pessimistic with only an average of 2.55. Compared to the reliability of data, the underlying data show a very different picture. Here the companies report that measures are built on real time data to a high or very high degree in only 23% of the companies, while 48% reports that measures are built to a low or very low degree on real time data. So approximately half of the companies in this survey built their decisions on what could be termed as outdated data should call for attention, as they are in danger of making decisions by looking at retrospective data.

We further found it interesting to ask about how and from where data are captured and consolidated. The lesser automated and the more manual the process, the higher the risk of errors and potential rework and needed monitoring. Therefore, we asked the respondents about this with the results shown in Figure 5.

Figure 5 shows that the majority of companies have some sort of automated process around data capturing and/or consolidation. Only 13% of the companies report that both data capture and processing of the data afterwards are fully manual, with data capture in local spreadsheets. On the other hand, only 5% of the companies have a fully integrated and automated business intelligence solution capturing data across all functions. An additional 13% has an automated data capturing and visualisation process. While it can be observed
that spreadsheets are still significantly used in the companies, we also see that most of the companies have either an automated data capture solution with manual processing of the data (40%) or semi-manual solution with data in spreadsheets and automatically consolidation of data (30%).

**Alignment**

One of the challenges in companies is the silo mentality. From a performance measurement perspective this may manifest itself into measures that are not aligned across companies functions and not at all externally at the supply chain level. An often-cited example of conflicting measures is that the purchasing department is measured on price or cost development, which often demands purchasing larger volume from suppliers to obtain discounts, while the logistics department is measured on stock turnover, which in turn puts pressure for lower stock levels. Figure 6 shows the panel members responses on to what degree their performance measures are aligned internally and upstream and downstream the supply chain. The result indicates that the performance measures still are too much inward looking (Gunasekaran & Kobu, 2007).

From Figure 6 it appears that it is especially internally that the companies have aligned their performance measures with 43% responding to a high or very high degree. However, still 28% have only a low or very low degree of internal alignment. Thus, more than one fourth of the companies run the risk that the individual functions develop measures that counteract each other and thereby potentially hinder potential performance improvement.

**Responsibility of performance measures and their update frequency**

The respondents were also asked who in the organization has the main responsibility for the performance measures used and at what frequency the performance measures are updated. The results are shown in Figure 7 and 8.

As appears from Figure 7, the responsibility for performance measures divides equally...
in the companies as a common responsibility within the supply chain as such (40 %) or within each of the individual functions in the supply chain (40 %). Finance has the responsibility of supply chain measures in 15 % of the companies. There seems still to exist unbalance across the functions (Stentoft et al., 2016) since 40 % of the companies report to have a silo mentality when it comes to performance measuring. Potentially the individual functions may focus narrowly on own performance, defining contradicting performance measures pulling in different directions, and thus, lowering the potential performance of the overall company. And this is still un-
der the assumption that, if finance has the responsibility, finance insures that the performance measures are aligned across functions. It is that the silo mentality seems to increase (was approx. 30 %) and overall supply chain orientation decrease among the companies (was above 50 %) when compared to an earlier mini-survey (Arlbjørn & Mikkelsen, 2012). It would be very interesting to dig further into why this is so. The present data unfortunately do not provide access to such knowledge. However, the data indicate that there still is a significant work to be done in tearing down the walls and to ensure alignment between individual functions within the companies.

As depicted in Figure 8, the respondents report that the majority of the companies follow up on performance measures quarterly or weekly, with fewer following up biannually and daily. One may wonder what drives the differences, in those answers. The data do not provide this insight. However, a qualified guess could be that some companies face a more dynamic and volatile market than others forcing them to follow the development closer and therefore carrying out more updates. 13 % follow up ‘ad hoc’. If this covers a reactive approach to follow up on performance measures, only reacting when experiencing something has turned wrong (e.g., increased inventory combined with lower customer service, or increased customer turnover, etc.), it may show a dangerous strategy. With a reactive strategy, companies may experience error too late to correct, followed by significant negative impact on overall company performance.

Challenges with supply chain performance measures

As shown in Figure 9, some challenges with supply chain performance measures exist in the companies. The figures are the averages reported by the companies based on a 5-point Likert scale from a very low challenge (1) to a very high challenge (5).

As it appears the companies faces some challenges with supply chain performance
measures, even that the average responses revolve around the to some degree mark. The responses resonate well with the other answers in the survey. Especially the lack of supportive IT systems is perceived as a challenge. This fall well in line with the previous responses on data capturing (Figure 5), where it was found that spreadsheets still is a much-used tool with all the potential errors following this. Further also time and human resources are perceived as challenges, which again correlates well with data in Figure 5 in which it was found that much manual work is still present in the companies when working with data capturing and consolidation. To get the data to measure the right things as well as securing the right data quality also resonates somewhat with the answers in Figure 4. However, even that companies perceive data quality and validity as challenging they still perceive their measures as rather reliable with a mark on 3.43 as seen in Figure 4. One guess could be that the companies focus on data quality and that the manual process indicated in Figure 5, somewhat compensate for the challenges experienced.

As mentioned previous in the article, Hammer (2007) has listed seven deadly sins of performance management. We therefore found it interesting to ask the respondents to look into the mirror and ask about if and to what degree they perceive themselves as victims of the sins. In Figure 10 we have listed some of the sins and related questions.

Overall the companies perceive that they to a low degree or some degree are facing some of the seven deadly sins (on a 5-point Likert scale). If this holds true it is encouraging. This indicate that companies are more focussed on creating good, reliable and useful performance measures installed instead of measures that just looks good and does not contribute to management of the supply chain. However, the companies perceive to some degree that their measures are too much internally oriented and not including the external world (i.e. the supply chain), echoing the findings on alignment in Figure 6.
Conclusion
This article reports the findings of a mini-survey from the Danish Supply Chain Panel focusing on supply chain performance. The results indicate that most of the panel members use own-constructed supply chain measures instead of relying on established performance frameworks. About half of the respondents report that their performance measures to some degree or to a very low degree are linked to corporate strategy and thus call for improvements. In general, the performance measures seem to be reliable, but their real-time orientation can be improved. The responsibilities for the measures are dominated by the supply chain as a whole or the single functions within the supply chain. The respondents find the highest degree of alignment being internally compared with external alignment towards customers and suppliers. This point also indicates an area for further development which the respondents also seem to agree with. Although we always should be careful to make too generalized conclusions from such surveys, we hope that the results can stimulate to discussions in own organizations. Do we have the right supply chain performance measures in operation and are they real-time based? If not, do we need to develop or modify the measures and how can this be prioritized in a busy working day?

References

