

# Information Management in Kockums AB's Supply Chain regarding Development Products

– Driving Forces and Barriers to reach excellence

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*The understanding of Supply Chain Management (SCM) has grown during the last decades, being able to visualize and manage the supply chain is something that is attracting for many companies. One key element of SCM is how well information is managed. This study was carried out at Kockums AB Business Unit Submarine in Malmö with focus on how information is handled regarding the larger systems demanding new development. It was found that there is room for improvement tied to the information managing and driving forces and barriers were set up.*

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## BACKGROUND

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The field of Supply Chain Management (SCM) has evolved and grown in importance as the development of the market and the industrial atmosphere have adapted to a more complex and global environment. The benefits of SCM can be seen through value creation, customer satisfaction and better efficiency. One key element for a successful implementation of SCM is how well information is managed. It is important to fully grasp what type of information that should be shared with each member in the supply chain and when the appropriate time is to share that information. To achieve the desired visibility and trust in the supply chain it is important that the information management is in place and fully working.

A submarine is composed of roughly a hundred different technical systems of varying size and complexity. How well systems are integrated is reflected in the cooperation between Kockums AB and its suppliers and how information is handled, both between the suppliers and Kockums AB and within Kockums AB.

When Kockums AB procure more complex components or functions, where there is no available standard product, they need to have

the products developed and produced for them. This is a work that requires time and effort by both Kockums AB and the chosen supplier. This implies that good information handling procedures need to exist. The right information has to be shared with the supplier, at the right time. Information also has to be transferred within Kockums AB efficiently and effectively.

Theories linked to this type of industry, with few produced products, substantial development and long time from idea to finished products are almost absent.

## INFORMATION MANAGEMENT

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When acting on a market far from mass-producing and with extensive development, meaning phases with intense supplier contact, the authors believe that it is important to have established well functioning information management. The authors hereby present what they believe to be excellent information management in the supply chain for this type of industry and what its enablers are.

To be able to gain significant benefits from cooperation with suppliers and to be efficient it is important that a company is internally aligned (Hoek *et al.*, 2008; Hoek & Mitchell, 2006) meaning that it has a common goal to

strive for, it speaks with a common voice, strategies and standards are found that supports and further gain the business. To present a uniform picture towards the suppliers' independent of which department the supplier is facing would be desirable. Instead of having different departments in the company competing with each other, having them focusing on a common goal is sought-after. Another issue related to company culture is trust. It is important to establish trust in relationships with suppliers and customers, but trust is equally important within a company. If an employee is trusted it is more likely that he will contribute to a good environment at the company. As argued above, being internally aligned with a common picture and goals to strive for is also important for employees to be able to see the direction of their work and thereby enabling them to take credit for their work. This is seen as equally important as get the information sharing enabled with the suppliers. Within this type of industry, where information is both crucial for the success of the project and can contain confidential material that demands special treatment, it is important to establish trust with the suppliers. Trust, as mentioned above, is often related to the culture of the company, and to be able to establish trust between companies the authors believes that one key ingredient is to set up clear incentives and risk sharing.

To address the suppliers in a good way it is important to have clear strategies that are used uniformly in the company (Ljungberg & Larsson, 2001). A strategy is often formulated at a top management level but it is equally important to have this strategy adjusted to a level in which the co-workers can identify themselves with (Chen & Paulraj, 2003). A more substantial way to formulate strategies and processes is to implement standards supporting different goals based on the customer's requirements.

To support internal information handling commonly used communication methods are preferred. Such methods would enable sharing of information, meaning that all information is accessible and that record of previous decisions is accessible so that the competence lies within the processes and documentation of

the company and not in the individual employee. This is extra important in an industry where the development cycles are long and as the working culture has changed over the last decades, from working a lifetime at the same place to a working culture where the employee stay 5-10 year before they are looking for a new job. Having competences stored in the company would mean that a co-worker not have to reinvent the wheel every time a task has to be solved, but he can look at how similar tasks has been solved before and use information from these cases.

Preferably there should be follow ups and evaluation to the decisions presenting the outcome of it, draw backs and improvement suggestions. Such a working method would secure that knowledge is shared within the company and also kept in the company and not in the individual. Such standards methods would also highlight changes in information, such as changes in specifications or drawings, to other affected parts of the internal supply chain. Also present the affected parts to the unit responsible for the changes enabling discussions if necessary.

For a company with a large extent of development and outsourcing of components, strategies regarding these components are desirable (Hsuan-Mikkola, 2003; Lettice *et al.*, 2009). A key feature of such strategies is to have classification or categorization dividing the components into different categories depending on the components characteristics as Weele (2006) argues. The classification is preferred to be used in all departments within the company enabling coworkers to have an understanding for how different decisions in other departments related to the different categories support the common goal.

Based on the strategies it should be clear which types of suppliers a deeper cooperation should be established with. It is seen as unlikely to have the resources to form a deep collaboration with every supplier of development systems; this is supported by practitioners as Twigg (1998) and Lettice *et al.* (2009). The degree of outsourced design capability and ability to purchase the product as a black box concept will most certainly have an impact at the

degree of close collaboration needed. It is also desirable to have guidelines of how such cooperation should look like; should there be sharing competences, meaning that each company providing competence within its core areas and having a common product development. If not a deep collaboration is desirable a more traditional arm's length cooperation with only sharing operational data may be preferable. When using black box products the will to buy a function rather than a technical specification would also reflect the amount of cooperation needed with the supplier in the development phase. To be able to determine the full need of cooperation it is important that suppliers of unique products are examined to get hold of the adequate information.

When regarding this industry it is important that the suppliers have the competence to fully understand the requirements and that the suppliers are able to supply the product within the time frame. The information regarding the competence and processes of the supplier is seen as great importance. If the competence of the suppliers is tied to a certain number of persons the impact and success of the project would be tied to those persons, and strategies to obtain and deal with that type of information is seen as a necessity.

As well as the importance of mapping the competence at the supplier it is seen desirable to get an understanding of the processes at the supplier to be able gain the wanted attention as well as the ability to efficiently handle eventual changes in specification. A supplier with focus of mass producing products with the same specification may not be able to fully satisfy requirements of late changes in specification. When only purchasing few products with special requirements a supplier's ability to respond quickly to eventual changes is seen as desirable, this will likely be reflected in the processes at the supplier. Suppliers focusing on agility rather than LEAN would probably have a better ability to cope with this type of customer. Even though a supplier's production may be strongly LEAN-focused the product development section at the supplier may correspond well to the requirements. It is

therefore seen as important to include this in the discussion with the supplier.

It is important to enable information sharing in an efficient way. Having standardized routines and procedures to exchange information is seen as essential to facilitate good information sharing. This is applicable for both internal and external information sharing. Facilitate information sharing with the suppliers could be through common data areas. It is also important to emphasize that even if connections are established they may be of no use if the willingness to share information is low. For projects stretching over long periods of time it is important to have standardized communication channels and time frames as well as the will to share information. This to ensure that the projects are proceeding as planned. The will to share information can be connected to trust and the authors believes that in this specific industry it is important to emphasize that trust is established with the suppliers where extensive information sharing is to be carried out. With small production series and information that can be security classed the willingness to share information can be difficult to achieve. It is thereby important to be able to provide the information and incentives necessary to create the willingness.

## DRIVING FORCES AND BARRIERS

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Kockums AB was analyzed through a number of interviews related to different systems. The result of the analysis implies that work can be done to improve the information management within the company. It is presented as the driving forces and barriers to fulfill what the authors believe are excellent information management in the supply chain. The driving forces and barriers are summarized and discussed within the posted categories.

### CULTURE

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It is seen as important that Kockums AB is able to establish a culture within the company that enables information to be shared between the concerned co-workers. To be able to achieve this it is important to realize the value

added by other co-workers as well as other members in the supply chain.

To establish and continuously strive for improvement, both within information sharing and also in other fields of the company, the ability to know and understand what is really unique for Kockums AB is seen as a necessity. This means that even though producing this kind of submarines is unique, the way processes are constructed are probably similar to processes found in other companies. With an established mindset that continuously seeks improvements and benchmark towards best-in-class industries it is likely that the information handling would be improved.

### PROCESSES

The processes are perceived to be in need of an update and are not representative for how work is executed. This indicates that the processes are not fully established. Having them fully established would enable the company to have a united front, both towards suppliers but also of an internal point of view. If there is a perception that the processes are out of date it is less likely that they will be followed.

Having standard routines and procedures related to the processes are examples of driving forces that would enable that the work is performed according to the goals and objectives. In terms of information sharing standard routines and procedures would be seen as having uniformed information channels enabling information to be shared and accessible to all concerned parts.

With processes and standard routines in place the interfaces between departments and system should be clearly defined, resulting in another driving force. This can also mean that the structures will facilitate that competence and knowledge are to be stored within the processes and company in opposite as being stored as knowledge by the individual employee.

Having the employees well aware of the goals and what the employees' role in reaching the goal is desirable. This can enable a better understanding for other departments and also

better support the information to be shared in the correct format at the correct time.

### STRATEGIES

The perception of the outspoken opinion is that the overall strategies are not broken down to fit the departments. When the strategies get stuck on higher level it can be difficult for the individual to understand and see the contribution to the overall goals.

It is also visible that the strategy for how to handle suppliers is lacking. It is seen as important to have such a strategy recognized by all so that it is well known how that supplier should be handled. The strategy should be connected to a classification. It is seen as essential that the classification is know and used in the same manner throughout the company.

The supplier strategy would preferably tell what kind of information that ought to be shared with different types of supplier. Which kind of supplier should be involved in deeper collaboration with are valid points that should be answered. In addition to this it is possible that the information exchange also will be in form of knowledge to educate the supplier. Whereas when the supplier posses the most knowledge the need for closer collaboration is perhaps not as crucial. When dealing with cutting edge new development it is large risks involved as the uncertainty is high. This would imply that an extensive sharing of information between Kockums AB and the supplier is preferred, as having up to date information would enable correct decisions to be made.

The authors believe that for this kind of systems it is important to secure the competence at the supplier. To examine where the knowledge is possessed, is it tied to the company's processes or is it tied to certain employees. Other important factors to emphasis are what drive the costs and the lead time.

It was stated above that it is important to have strategies to handle the competence at the supplier; it is also good to emphasis that fact internally at Kockums AB. To have strategies for how to find and cope with single

competences can be crucial to secure that the competence will stay in the company.

## INFORMATION HANDLING

There must exist ways to handle information. Ideally they should be easy to use and clear stated who should have what information at what time. Given the fact that Kockums AB are involved in projects stretching over long time resulting in low number of delivered products having reactive information handling is not most appropriate.

One driving force to support the information handling is to have a common area for data and data sharing, both internal and external. This would enable easy sharing of data but require that all parts are willing to invest time and money into such an area.

Highlighted in this study is the need to make sure that the supplier understands all requirements, especially requirements that usually not appear with other customers, such as the submarine specific requirements

To be able to control the cooperation with the suppliers a single point of contact can be used. It is important that the contact point are aware of all different departments involvements of the system so the information will reach all necessary parts and not be stopped.

## CONCLUSION

The findings in this study imply that there is room for improvement for Kockums AB and that these improvements will have a positive effect on the company. As a guideline for discussion these improvement and suggestions has been formulated into driving forces and barriers. They have been summarized into a conceptual model, figure 1. The model is not meant to act as an action plan but rather as a foundation for further discussion.

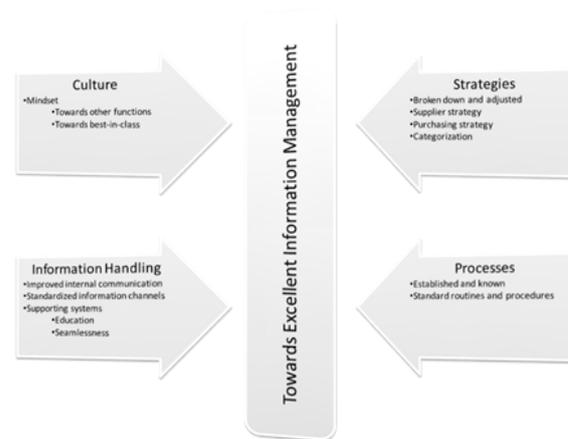


FIGURE 1. CONCEPTUAL FRAMEWORK FOR KOCKUMS AB TO WORK TOWARDS EXCELLENT INFORMATION MANAGEMENT

## SOURCES

- Chen, I.J. & Paulraj, A. (2003) Towards a theory of supply chain management: the construct and measurements. *Journal of Operations Management*, 22 (2), 119-150.
- Hoek, R.I. van & Mitchell, A.J. (2006) The challenge of internal misalignment. *International Journal of Logistics: Research and Applications*, 9(3), 269-281.
- Hoek, R. van, Ellinger, A.E. & Johnson, M. (2008) Great divides: internal alignment between logistics and peer functions. *The International Journal of Logistics Management*. 19(2), 110-129.
- Hsuan-Mikkola, J.H. (2003) Modularity, component outsourcing, and interfirm learning. *R&D Management*, 33 (4), 439-54.
- Lettice, F., Wyatt, C. & Evans, E. (2009) Buyer-supplier partnerships during product design and development in the global automotive sector: Who invests, in what and when? *International Journal of Production Economics*, 127 (2), 309-319.
- Ljungberg, A. & Larsson, E. (2001) *Processbaserad verksamhetsutveckling*. Lund: Studentlitteratur.
- Weele, A.J. van (2006) *Purchasing & supply chain management - Analysis, strategy, planning and practice*. Croatia: Thomson Learning.