White
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Implementing new logistics requirements with transport management systems

Thomas Krebs
krebs@miebach.com

Future requirements for Transport Management Systems (TMS)

Due to increasing disruptive events like COVID-19, it is becoming more and more difficult to control supply chains successfully. The interaction with different suppliers, production, and distribution sites as well as customers increases the complexity. This is why in an age of digitalization and far-reaching market-related and social changes in the logistics IT architectures of the companies, transport management systems (TMS) are becoming increasingly important as a central software component for supply chain management. These systems not only ensure efficiency, but also fulfill the increasingly important function of an integrator between the involved supply chain partners. TMS are therefore an essential component for an overview of the flow of goods and the implementation of integrated logistics strategies.

Most of the transport management systems used on the market fulfill the classic functions from the administration of transport orders, route planning and dispatching, to preliminary and final calculations. With a view to future requirements for TMS, however, it must be analyzed whether currently implemented solutions need to be expanded or replaced.

Data and Information
Systems and processes generate more and more data, especially through the connection of systems in the course of Industry 4.0
➜ Evaluate data, understand and derive measures
➜ Covering the need of end customers for real-time information
➜ Achievement of service goals

Employer
• Increasing the attractiveness of jobs
• Away from boring routine work, towards the solution of business critical tasks with modern software

Cost optimization
• Increasing cost pressure due to the increasing decentralization of networks, rising service requirements and the small size of shipments
• Increasing shortage of personnel in the professional field of truck drivers leads to higher salary costs and tariffs

Environmental protection
• Reduction of CO_2 emissions through fewer empty runs and inclusion of. climate-friendly modes of transport (e.g. rail)

Overall process chain
• Transparency of orders along the supply chain
• Increasing demands on cooperation and information exchange between the partners involved
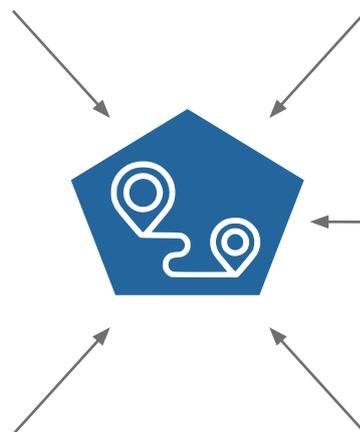• Closer integration between the processes of warehouse and transport logistics

Fig. 1: Future requirements from the logistics perspective

TMS deal with the planning, execution, optimization and control of the movement of goods.

A TMS forms the logistic platform that enables a user to plan transport requirements from procurement, distribution and returns management, to available transport capacities.

Scheduled tours can then be optimized and monitored until delivery.

Future requirements for TMS from the logistics perspective

Collect and exchange high-quality data and make it available in real time

A core aspect of future requirements is the handling of large amounts of data (Big Data, Data Lakes), which is necessary due to the advancing digitalization. On the one hand, transport management systems meet the requirement to collect and pass on high-quality data. This can include evaluations in the areas of adherence to delivery dates, downtimes and throughput times, or costs per loading meter or driven kilometer.

On the other hand, these systems must be able to receive data from other systems, interpret it, and perform flexible and fast recalculations and post-calculations based on the current situation. For example, information on current traffic and/or weather situations can be used to continuously update the ETA (Estimated time of arrival) in conjunction with telematics data. The use of current data also meets the customer's demand for consistent, reliable, and up-to-date status information along the entire order process. These processes include order entry and processing in the ERP, picking and packing in a WMS, and culminate in the planning of deliveries to the customer by a TMS.

Supply chain transparency through collaboration across company and system boundaries

In addition, it is important for companies to use TMS to provide the greatest possible transparency of all shipments and inventories in the supply chain. This transparency offers the possibility to provide information to the recipients of the goods or own production facilities at any time.

In order to create this transparency, direct processing of data by connecting IT systems is essential. In the exemplary process between ERP-WMS-TMS, different partners such as logistics service providers and forwarding agents may be involved. Therefore not only different systems but also companies have to interact with each other. If this interaction is pushed forward, a collaborative cooperation and an integrative transport planning between the areas of transport, warehouse and production can develop. Changes to orders, requirements, shipments, and the resulting routes can be communicated quickly and efficiently, making the supply chain more transparent for all parties.

Automation of dispositive work processes increases the quality of the working environment

The change in communication behavior due to the increased integration of systems, as well as the higher data transparency, also have direct consequences for the company as an employer. Through the communication of systems with each other, the employee has to use the telephone less often. The previous daily routine, which was characterized by manual processes, can be standardized and automatically handled by the system in the background.

Additional TMS functionalities for route optimization, determination of the most favorable carrier, and real-time tracking increase the efficiency of the dispatching process. Employees can concentrate on value-adding activities in the transport sector and perform higher quality tasks, such as solving problems in special situations.

This enables companies to increase the attractiveness of the jobs concerned in order to find suitable employees in the highly competitive skilled labor market.

Transport management systems create savings - On the cost and CO2 side

Companies also hope to reduce their freight costs by using transport management systems. Due to the increasing data transparency and the functional scope of a TMS, companies are given the opportunity to realize complete loads, optimize transport routes, and avoid empty transports. Costs that arise from incorrect positioning and underutilized vehicles can thus be avoided. Especially against the background of increasingly scarce carrier capacities and the resulting increase in freight tariffs, optimal fleet utilization and cargo space optimization are of great importance.

Another positive effect of transportation and routes with optimal capacity utilization is the reduction of CO_2. This effect is actualized in particular by the avoidance of empty transports, but also through the TMS functionality for considering multimodal transports (including rail and inland vessels).

For ideal process support, the implementation of a new transport management system may be necessary

The advantages of a TMS are striking. However, in order to realize the potential, the transport management system in use must be one that can perform the functions described. The market for such a solution is large - depending on the requirements, there are specific solutions for different target groups. A project for the introduction of a new software can be quickly developed from this, which begins with the analysis of the current processes and the derivation of the target scenario. When introducing a transport software it is important to pay attention that adjoining business areas are embedded. To create a solid foundation in competitive markets, processes should be designed as flexible and transparent as possible. In addition, customer service needs to be improved and increasing customer demands met.

At the beginning of the selection of a new TMS solution, a query of the functionalities in the provider market is useful

Once the target image has been defined and a first rough overview of future functions has been obtained, suitable partners or solutions can be identified for the initial selection. To get a first impression with regard to the potential partner and its product, a Request for Information (RFI) is a good way to obtain information. This can provide a first rough comparison between requested functions and the solution possibilities of the provider. It is also possible to request an estimated cost indication within the RFI. At the end of an RFI a list of possible software suppliers is formed, which is also called a longlist in the context of an IT tender. Other important information determined by this procedure is the acceptance or availability of the supplier for subsequent steps. Since software projects are currently in great demand, the backorder status of the suppliers may lead to a low availability. It is therefore advisable to contact the suppliers at an early stage, or even better, to already have a well-maintained network.

Starting with a higher initial effort saves discussions and change requests later

In the next phase, the future target functionalities are defined together with all involved areas of the company. The more precise the resulting process description is, the more precise the subsequent discussions with the software suppliers in the following selection steps will be. A suitable tool for the process description is a visual representation of the process flows in flowcharts or swimlanes. If the processes are coordinated by all project participants, the request for proposal can be sent to the remaining software suppliers as a request-for-proposal (RFP). To complete the process, non-functional or general requirements for IT systems must be specified and handed over in addition to the processes. A proof of concept (POC) gives an impression of the handling and usability of the software. On the other hand, a POC enables the supplier to gain a deeper understanding of the requirements.

Once a partner and solution have been selected, the introduction of a transport management system does not differ significantly from other IT implementations. It is necessary to develop and adopt a functional specification, to supervise the programming of the software, and to test all functionalities extensively and comprehensively before going live.

Conclusion

The challenges and opportunities of the advancing digitalization and environmental influences are great. The introduction of a transport management system can be a lever for the potentials if future processes are defined and considered when selecting the partner or product.

The embedding of a new transport management system into the overall company structure will therefore be an exciting and challenging project with several potentials.

Please contact us to discuss your current challenges.