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DIGITAL TRANSFORMATION IN TRANSPORTATION AND LOGISTICS

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The article highlights the important role of the Internet in increasing speed and decreasing cost of supply chains. The difference between digital logistics and the traditional one is shown in details. The digital logistics system used by many specialists today is presented.

We are entering a period of dynamic and fundamental change to logistics operations and strategy. While the 1990s saw rapid advances in the logistics competencies of most companies, a number of forces, especially the communication and collaboration potential of the Internet, are dramatically changing the way companies craft logistics strategies, processes and systems. As a result, companies embracing this new paradigm will be able to strip out millions of dollars of operating costs, achieve better supply chain integration, and increase market power through customer-focused fulfillment.

The internet is ushering in a new era of tremendous increases in supply chain velocity and cost reduction through information sharing and logistics synchronization between trading partners and service providers. The logistics opportunities created are driving a market transformation from traditional logistics concepts to a new era of ***digital logistics***.

How is digital logistics different from traditional logistics?

1. Digital logistics recognizes the growing convergence of logistics operation and technology strategy.
2. Digital logistics is driven by a new generation of web-based, enterprise logistics applications that enable collaboration and optimization, leveraging a central logistics information backbone that provides visibility across the enterprise and extended supply chain.
3. With digital logistics, these new enterprise and supply chain logistics applications are tightly integrated with core warehouse, transportation and labor management systems to enable new process models and ensure fulfillment excellence.

Digital logistics breaks down operational silos. It impacts not only the cost side of the value equation, but also fuels growth through the ability to deliver personalized, customer-focused logistics, with faster cycle times and exceptional customer satisfaction [1].

Digital Logistics Framework. Companies embracing digital logistics will recognize, that there is a progression of capabilities that begins with functional excellence, moves to enterprise logistics management, and ultimately to the supply chain integration and collaboration that will characterize supply chain leaders.

Stage 1 – Functional Excellence: Despite the current focus on integrated enterprise logistics management and supply chain integration, digital logistics must be built on a foundation of functional excellence. Many companies have embarked on aggressive supply chain initiatives. For example, only to find they were unable to achieve their objectives due to an inability to perform at the local distribution center level.

Companies embracing digital logistics will achieve functional excellence in at least three key areas:

1. Distribution: Adoption of improved fulfillment processes and current generation, real-time warehouse management system (WMS) technology.
2. Transportation: Many companies are mired in inefficient transportation processes and lack the technology to automate load building, optimize inbound and outbound freight movements, and efficiently manage carriers.
3. Labor and resource management: Few companies have taken advantage of the opportunities to significantly increase productivity, quality and employee retention available through today's advanced labor management solutions.

It is extremely hard for companies that do not have the foundation of warehouse, labor and transportation excellence to move to the next level of digital logistics, since they cannot effectively execute the more complex strategies that are driven at the enterprise or supply chain levels.

Stage 2 – Enterprise Logistics Management: When functional excellence has been achieved, companies can embrace true enterprise logistics management. Key capabilities that will enable integrated enterprise logistics management include:

1. Supply chain visibility and event management: Many companies have made increasing supply chain visibility as a top corporate priority. In today's high velocity logistics environment, end-to-end visibility to

inventory, orders and shipments across the supply chain is emerging as an essential capability to reduce network-wide inventory levels, maximize customer satisfaction, and respond dynamically to logistics events.

2. Centralized command and control: Increased supply chain visibility provides many benefits, but it is not the end in itself. Companies must be able to act upon this information to effect action across the enterprise and beyond. This requires a new generation of enterprise command and control applications that provide enhanced levels of logistics efficiency and support new roles and responsibilities [2].

3. On-line logistics scorecarding and metric systems: Visibility to performance metrics is needed to drive continuous improvement. In a digital logistics environment, performance metrics (i.e., a "logistics scorecard") are widely distributed throughout the organization. They are accessible online, and allow the user to flexibly drill down on the information to gain additional understanding and determine the root cause of problems.

Stage 3 – Supply Chain Integration and Collaboration: Companies need the flexibility to quickly integrate with key trading partners to communicate information, synchronize activities, and collaborate across logistics processes. While direct system-to-system integration is often optimal, it is not always practical, and in some cases not sufficient to enable true collaboration. By constructing a series of collaborative digital applications specific to the roles of individual supply chain participants, "hub" companies can increase collaboration and synchronization. This will drive improvement in supply chain velocity, efficiency, and customer service.

These collaborative digital applications will be built on a backbone of supply chain visibility that serves as the central repository of all logistics information. Various players in the logistics chain may need the capability to view information, add or modify information, or access specific pieces of logistics application functionality required to fulfill their roles in the supply chain.

The human and connected drivers of faster business. Among many drivers there are obviously consumers, users, in other words people, who are expecting more and are increasingly mobile. This goes for all industries and in transportation and logistics, customer experience and engagement rank high in the top priorities as well.

Several evolutions, including mobility, have enabled a shift in behavior, which is further enhanced by the experienced customer, are used to in other contexts than the interactions and transactions with your business [3].

It's the famous 'spill-over effect'. At the edge of each supply chain an end customer sits just as, at the edge of each process a user, a logistics partner or any other stakeholder sit. The focus on the customer or as Forrester calls it, the customer-obsessed operating model, is felt everywhere. Just think, for instance, how in the context of a customer-adaptive enterprise the big data focus has moved towards fast data. Or how we move towards the edges in data analysis (edge computing and fog computing) in a context of the IoT. Or how it is essential to capture and process information fast (without forgetting the accuracy). Real-time economy might be a bit of a misnomer as real-time first describes a capacity. Though we also increasingly see it as a reality.

Hyper-connectivity inherently comes with a dimension of acceleration and speed. The connectivity of processes, people and how it is used [4].

New trends and strategies across enterprise logistics operations, combined with a new generation of logistics technology, will dramatically change the way leading companies pursue supply chain management.

Today, logistics professionals have a powerful array of new digital logistics weapons that can be strategically deployed to unlock significant value and create customer-focused logistics systems that build long-term competitive advantage [5].

Those companies that recognize this changing landscape and invest prudently in process change and supporting digital logistics technologies will reap vast benefits. Those that hesitate may find themselves in the next 2-3 years at a competitive disadvantage that is too great to overcome.

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