COMMAND CENTER FOR HIGH-EFFICIENCY LOGISTICS PROCESSES
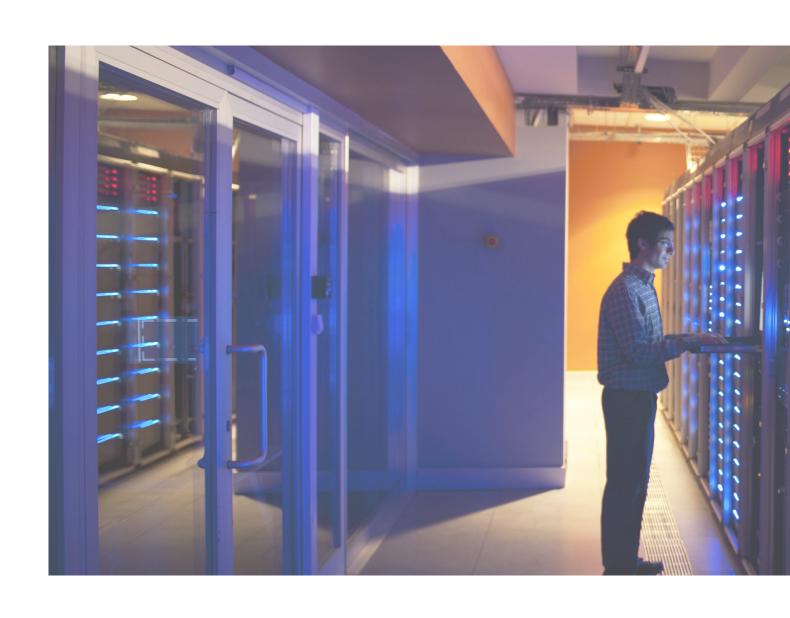
Control Tower

SIEMENS

Content

Enhanced supply chain **visibility and performance**

Enhanced supply chain visibility and performance *Information forges connections*. This gives it a key role in logistics networks. But the value of information depends heavily on how good it is and how quickly it is made available.

Customers want to know about every step in the supply chain – preferably in advance. Because every event that may impact deadlines or shipping quality ultimately determines how satisfied the customers are. That's why real-time data and forecasting are so essential today in making data meaningful.

Information creates visibility. In the supply chain, information is the foundation for controlling and monitoring shipping processes. It is the digital thread that connects suppliers and supply chainers, goods and services, production and storage facilities, unit load devices and modes of transport. It enables the smooth collaboration of everyone involved in the logistics process.

Information empowers sound decision-making. Good decisions come about when all the data and information from the logistics process chain flow together at a central point to be bundled, analyzed, and vetted. The result is maximum supply chain visibility. The control tower provides the technology to make this happen. The control tower, as an information hub, serves as the cross-roads for all supply chain data and the command center for a data flow that infuses supply chains with new energy – for the ultimate in efficiency and performance.

Or in the words of Capgemini Consulting:
"A supply chain control tower is a central hub with the required technology, organization and processes to capture and use supply chain data to provide enhanced visibility for short- and long-term decision-making that is aligned with strategic objectives."

Source: Capgemini Consulting, "Global Supply Chain Control towers",
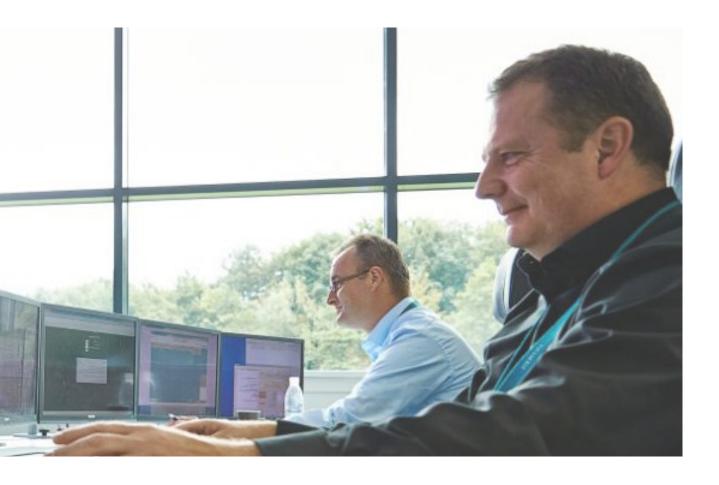http://www.capgemini.com/resources/global-supply-chain-control-towers

The IT control tower solution

Create infrastructure

The cloud is the ideal infrastructure for bundling and controlling digital information. A cloud-based platform makes it possible to consolidate data from different sites and enterprises. It is easily accessible to all players and enables collaboration in complex logistics networks. The cloud creates an open, scalable framework for all supply chain partners to interact seamlessly anytime, anywhere – even from mobile devices.

This puts cloud-based platforms front and center in the digital transformation of the supply chain. The IT infrastructure makes it possible to integrate cross-system data from vehicles, unit load devices, and even production machinery into the supply chain, where it can inform decisions that optimize processes.

Integrate everyone into the process

Customers, manufacturers, suppliers, warehousers, carriers, consignees: Running a supply chain means orchestrating smooth interactions among the various players and their IT systems. Cloud-based platforms help avoid dissonance by offering flexible options for access and integration through EDI interfaces, web services, web accounts, or mobile devices. What used to be bi-directional connections become multi-directional communications networks in which information is always available to the very people who need it so that they in turn can ensure smooth processes.

Design workflows

The scope of activity assigned to each of the various users in the cloud is defined through digital workflows. This requires converting the physical supply chain processes into IT logic and modeling them accordingly. The first step is to define roles that codify the precise rights and responsibilities for users. Validations are used to automatically check data as soon as it is entered and ensure it is complete. Digital milestones mark the path of the supply chain: Whenever any deviation from the pre-defined, rules-based process is detected, the system automatically sounds the alarm to enable early intervention.

Create visibility

The interplay of people and systems in the cloud yields a high-quality shared pool of data. This builds the foundation for a high degree of visibility – just what you need for end-to-end control and monitoring of the supply chain.

The control tower functions here as the overarching controlling entity throughout the supply chain. Users ultimately decide how much power to give the control tower: Should it be more of a passive observer, or should it have an active role in the process? Is it seen as more operational or strategic? Whatever you need – it's possible.

The operational value of the **control tower**

Operational supply chain management requires information to be available when it counts. The control tower offers the end-to-end supply chain visibility needed to make this happen. This includes transparency across the entire transport route and oversight of various interlinking factors that play an important role in ensuring on-time performance.

Manage ressources efficiently
This requires more than just real-time information on the status of the shipment. It also depends on early warnings that allow you to manage deviations from the defined process before they become a problem. The early availability of valid, relevant information lets all the parties take the necessary precautions or obtain whatever additional data they need to make a decision. The control tower provides all the information needed for prudent, proactive supply chain management. This in turn enables more efficient personnel and resource planning at loading docks or cross-docking facilities, for example.

How does the control tower help with the operational management of logistics processes? Let's look at some key features:

• Consistent, high-quality information on the delivery date, with validations that allow the system to identify and intercept errors early on

• Real-time cockpit showing all relevant information and figures and providing an instant snapshot of potential discrepancies or disruptions in the supply chain

• Interactive dashboards for an easy overview of the latest data

• Supply chain event management and automatic notifications of deviations from originally planned delivery date

Features to support quick decision-making, including ad hoc simulation, when unexpected events occur:

• Suggestions for alternative routes in the event of disruptions due to weather, strikes, etc.

• Suggestions for alternative suppliers if the original supplier faces unplanned bottlenecks or interruptions

• Effects of such changes on delivery dates and costs

• Option to automate such decisions within defined parameters

• Expanded tracking that anticipates delays so you can provide customers with better information, resulting in greater supply chain visibility for everyone involved

• Uniform basis of information that reporting and analysis tools can draw upon to better underpin strategic decision-making

Case Study

An industrial enterprise with more than 20 production facilities uses a control tower to manage its global transports. This makes it possible to seamlessly map all transport activities between the company's facilities and its customers. In addition to the production facilities, the cloud-based IT solution also handles the supply chain integration of all the company's modes of transport and the transport service providers it hires. This not only lends visibility across the multimodal transport network, it also unleashes the potential for optimization of the distribution processes. Various monitoring functions along the supply chain automatically check transport-related data and information. This makes it possible to know whether there is any deviation from the planned delivery date, whether transport-related documents such as waybills will ready on time, and whether a shipment has been confirmed by the carrier by the stipulated deadline. If a shipment is delayed, the company is able to notify the customer right away.

The strategic value of the **control tower**

Comprehensive, validated data at the operational level of the control tower is also relevant for long-term planning. That's because powerful analysis tools help you to thoroughly analyze and assess key success factors such as transport costs, supply chain performance, and vendor performance. This underpins strategic decisions based on operational insights.

KPI's at a glance

But the control tower doesn't just generate a slew of meaningless figures. The indicators that matter most are merged and presented in a user-friendly layout that makes correlations readily apparent. An example: If the combination of a particular logistics service provider and service type always yields poor (reliability) results for a customer (in a particular region), this is clearly visualized in the provider's performance curve. You have the flexibility to freely define the period of analysis, so even occasional outliers can be identified and studied. At that point, you can decide whether to switch the service provider or service type – or both – to address the problem.

Dream team: Control tower and digital twin

The simulation of logistics processes based on the available real data takes things one step further. As the volume of shipments grows, what effect does this have on the robustness of the logistics network? How can the scheduling of suppliers for a new plant be optimized? What operational hurdles need to be cleared for same-day delivery to succeed?

Analysis and simulation tools make it possible to replicate various scenarios in a virtual environment before they are actually implemented for the purposes of network planning or inbound optimization. This is where the "digital twin" method comes in: creating a data- and rules-based virtual model of the supply chain.

The detailed model includes actual sales and purchase order data, so it's possible to conduct a risk-free "stress test" of all the elements in advance within a protected environment to gauge the effects on the supply chain processes. The digital twin takes into account all the real-world parameters: routing rules, available capacities and resources – even realistic cost calculations based on process costs.

In other words: The digital twin lets you simulate various approaches while highlighting the pros and cons of specific decisions. This in turn enables reliable forecasting on any number of scenarios:

• What effects will the relocation of a hub have on the distribution structure?

• Does it make sense to change the mode of transport from road to rail?

• What kind of savings are achievable through a change of routes or the bundling of transports (better capacity utilization by replacing LTL with FTL, etc.)?

Real data can be leveraged in the area of tender management to analyze the current network situation so you can identify where savings are possible at current shipping volumes. Current data can be compared against targets to evaluate existing contracts and look for alternatives. This provides specific quality criteria to help you restructure contracts.

| Looking ahead

The control tower assumes an outsize role in the complex business of logistics. It provides orientation beyond its central monitoring and control function. It helps supply chainers channel and analyze the unrelenting flow of big data. It makes it possible to derive added value from the data that logistics networks produce along every inch of the supply chain. These attributes make it one of the key components of the digital world of tomorrow.

Intelligent control tower for intelligent logistics
In this world, the potential uses of the control tower grow with each day. In the internet of things, data streams broaden into oceans, with the control tower acting as a lighthouse. Next-gen industry meets next-gen logistics. Machines learn to communicate the smallest details and automatically avoid potential disruptions in production through the predictive maintenance of plants and systems.

Equipped with artificial intelligence (AI), the control tower grows and learns with each millisecond. It recognizes patterns in recurring events. It sounds the alarm when it sees any deviation from normal behavior. It connects industry and logistics. And it uses algorithms to automatically find the best way to implement the ideal solution.

Those who wish to embrace the digital revolution with its cloud-based options for standardizing and automating logistics processes will see in the control tower an enabler whose intelligence grows through machine learning with each step of the process. In a nutshell: This is about a self-learning system that doesn't rely on human-made, pre-programmed rules but recognizes patterns on its own and deduces rules from existing data.

Foreseeing opportunities and risks
For logistics, with its intricate and collaborative network structures, this means that risks diminish and opportunities grow. Simulations bring light to "What would happen if?" scenarios and future process workflows. Suddenly, the road ahead is clear: What is launched in simulations as a pilot project for specific sites or routes can be rolled out and scaled with confidence in the real world.

The future becomes clear with the help of prescriptive analytics in the supply chain – thanks to the control tower. The question is: What actions must be taken to bring about a specific result? Prescriptive analytics, in addition to predicting the probability that a given result will occur, also offers appropriate recommendations for action in specific situations. The results have not only been anticipated, they've been simulated. This gives business leaders the confidence to make grounded decisions to optimize logistics and limit risks.

Realizing saving potentials
At the end of the predictive process chain are huge potential savings for logistics service providers and their customers in all sectors of the economy. Transport and cargo space capacities are used to maximum effect, routes are optimized using real-time data, and potential bottlenecks are avoided. All this means that the control tower will undoubtedly play a key role in the supply chain of tomorrow.