Capgemini Consulting

Global Supply Chain Control Towers

Achieving end-to-end Supply Chain Visibility

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Introduction

Today's competitive business landscape and ever evolving customer demands are re-shaping traditional supply chains. First and foremost, Globalization is increasing supply chain complexity, as physical supply chains extend their geographic scope in order to leverage low cost sourcing options and gain access to emerging markets. The movement of manufacturing facilities near to the key markets is also increasing supply chain complexity. And, outsourcing is taking the supply chain outside the four walls of an organization meaning collaboration with partners becomes imperative for supply chain effectiveness.

In addition to the complexities brought by globalization there is continuing pressure in most organizations to increase revenues and profit margins. These critical business challenges are driving the need to focus on creating strong end-to-end Supply Chain Visibility capabilities.

Supply Chain Visibility is the key enabler for managing a business both within the organizational boundaries as well as across the boundaries. This visibility provides speed, reliability and flexibility in order to gain a competitive advantage in the form of well controlled and managed supply chain functions. In response to the need for Supply Chain Visibility, the leading Supply Chain Visibility principles are increasingly being embodied in *Supply Chain Control Towers*. 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.

Current state and challenges in Supply Chain Visibility

Supply Chain Visibility

Supply Chain Visibility is all about how organizations capture and interconnect data to extract critical supply chain execution information. It provides a single view for tracking information, material and/or cost by monitoring key dimensions in a global supply chain, such as inventory positions or shipment in-transit status and real-time order movements in order to make informed and fact based decisions.

Delivering Supply Chain Visibility means measuring and controlling the effectiveness of the overall supply chain in four key areas (Figure 1- Source: supply-chain-visibility.com):

1 – agility, defined as the capacity to change supply chain processes, goals, partners, facilities, and other tangible aspects with minimal delay or unwanted impact.

2 – resilience, which is defined as the capacity to withstand unknown and uncontrollable events with

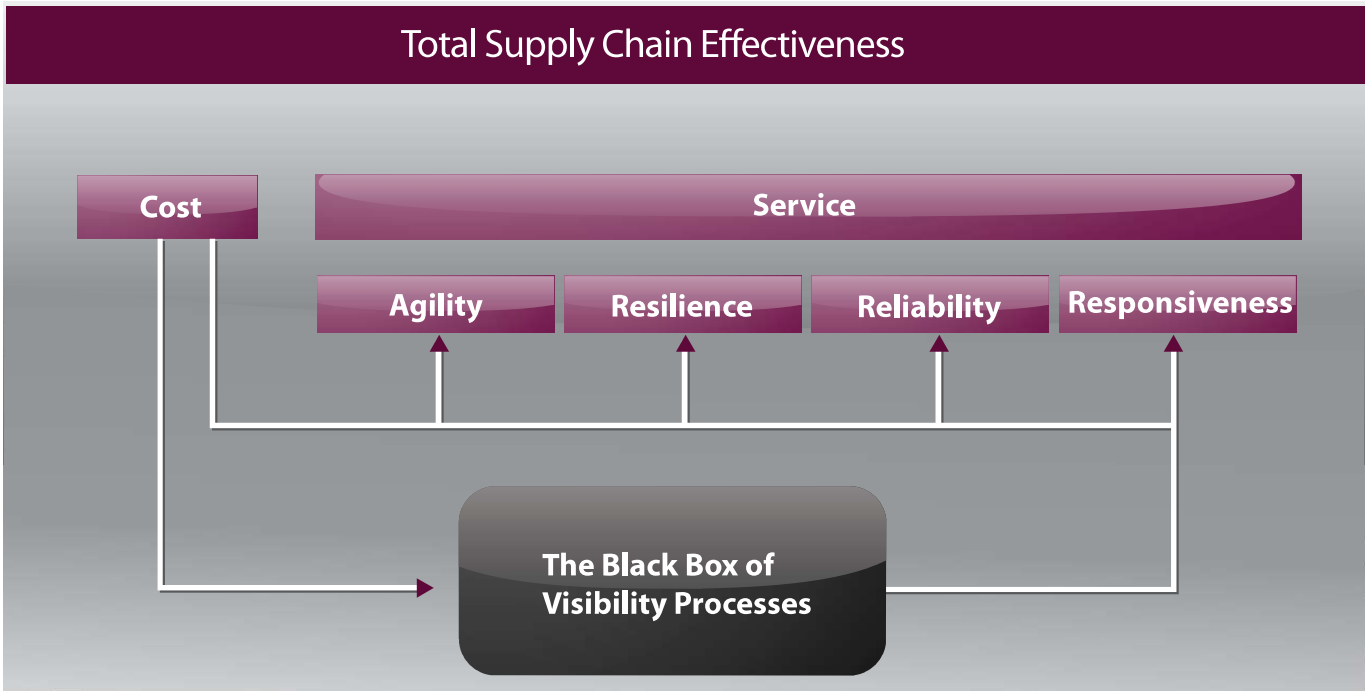
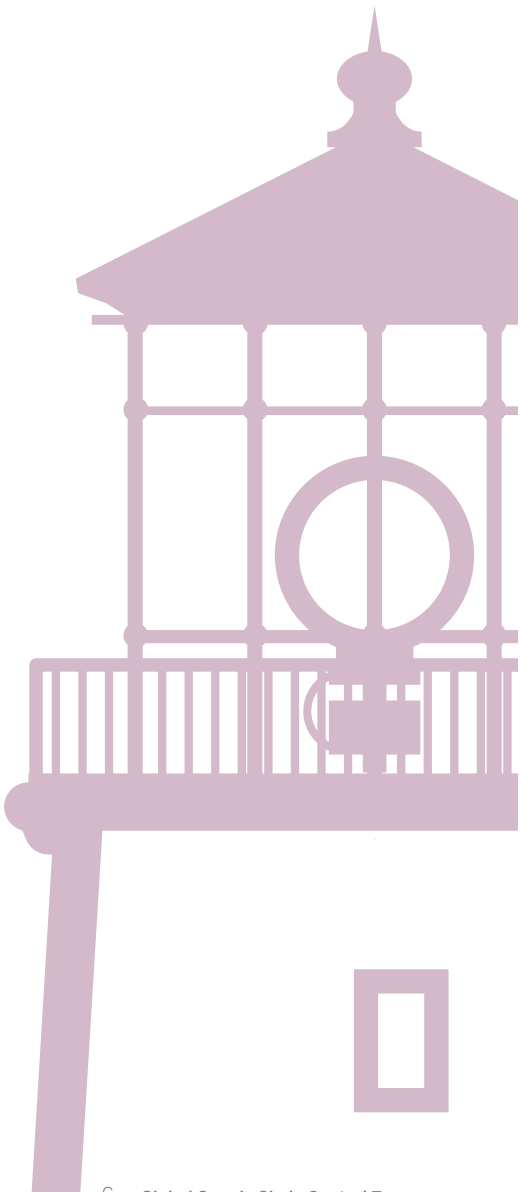


Figure1: Supply Chain Effectiveness



minimal impact, to operations whether in terms of magnitude or duration.

3 – reliability, which measures the capacity to meet commitments on quality, timeliness, cost, availability, service level, etc. which is a basic requirement of supply chain effectiveness.

4 – responsiveness, defined as the capacity to capture information and adapt to changes in the environment including changes in demand, capacity, regulations, the competitive environment, or any other aspect which has the potential to impact business value.

Phases in Supply Chain Visibility Transformation

Many organizations have already implemented or are in the process of implementing Supply Chain Visibility solutions. However, these solutions reflect different levels of maturity. The maturity level of a particular visibility solution is defined by the associated tools, processes and skills of the people involved and generally will fall into one of three phases. As might be expected, each phase reflects a higher level of maturity than the previous one.

Phase One - At the most rudimentary level, the focus is on achieving operational level visibility on supply chain data such as shipment and inventory status. The scope of the solution is usually limited to one or two processes, such as either outbound or inbound logistics depending on the strategic importance of one or the other. The tools focus on collecting data. The capabilities of staff are very much on operational level.

Phase Two - The second phase focuses on following the status of shipments across multiple supply chain nodes and tracing the problems occurring in between. The scope includes all the processes related to inbound and outbound logistics. The tools provide alerts for exceptions and events. These applications are incorporated with some basic reporting and analytics capabilities and a knowledge bank for decision support. The organization and supporting staff has capabilities to pro-actively act upon (potential) issues in the supply chain.

Phase Three- The third (advanced) phase, known as predictive visibility, focuses on self learning algorithms to predict the potential problems and generate alarms for upcoming events. These solutions are gaining popularity by providing proactive monitoring of supply chain functions and helping with decision support systems. This type of visibility is useful in the short term, assuming the operations provide the real time information. Such visibility also enables improved planning capabilities and allows shippers to make better tactical or strategic decisions on optimization of the supply chain.

Leading Practices in Supply Chain Visibility

Successful Supply Chain Visibility solutions are deployed around five leading practices which enable an organization to achieve an end-to-end view of inbound and outbound operations:

1. **Create an 'Information Hub' –** integrate and aggregate key information from inside and outside the enterprise such as key order, shipment, and inventory information from all internal ERP, TMS, WMS and other inventory planning systems

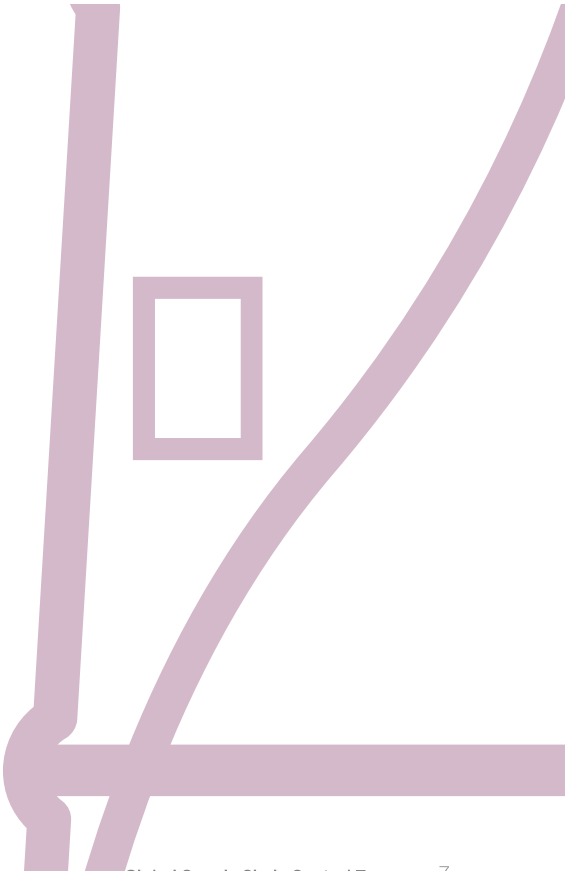
2. **Track landed costs along the chain –** reduce total landed costs by tracking product, freight and insurance costs as well as integrating trade compliance information such as duties, tax, VAT and other governmental charges

3. **Manage trading partners with scorecards –** use a repository of supply chain data and develop scorecards to manage supplier compliance, or transportation booking performance etc. to continuously improve global operations

4. **Achieve organizational buy-in –** gain the CFO and finance organization's support by extending the visibility solution to include financial settlement and financing triggers

5. **Devise a risk management framework –** configure visibility tools and solutions for Sarbanes-Oxley (SOX) risk mitigation and disaster recovery in order to recover effectively from risk related events

These leading Supply Chain Visibility practices are the key in gaining an efficient end-to-end supply chain view. These can most effectively be achieved with an integrated Control Tower solution that includes having the right people chosen and trained to act upon the data provided. A large number of leading organizations have adopted this approach and have been able to successfully reap the benefits, giving them more control over their market reach.



Understanding Control Towers

Control Towers are cross-divisional organizations with system integrated "information hubs" that provide Supply Chain Visibility. These hubs are used for gathering and distributing information, and allow people trained to use these visibility capabilities to detect and act on risks or opportunities more quickly. Control Towers are typically set-up to monitor, measure and manage transport and inventory movements across the supply chain.

As shown in figure 2, Control towers combine organizations (people), systems and processes in order to provide supply chain partners with a high level of product visibility along the entire supply chain. This enables three levels of management control:

- **Strategic** – provides control over the design of the overall supply chain network
- **Tactical** – enables proactive planning of procurement, operations and distribution according to market demand
- **Operational** – encompasses various real time functionality including transportation management, inventory tracking and exception management

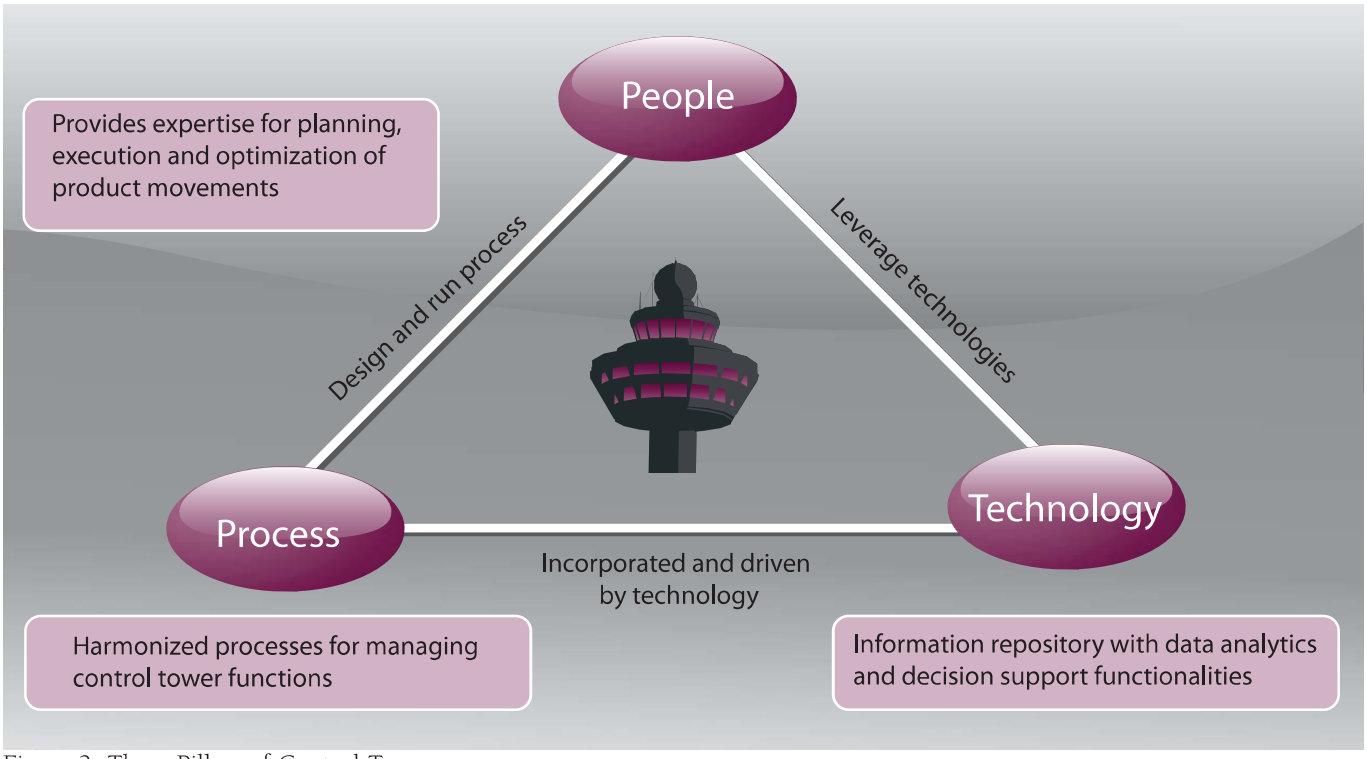


Figure 2: Three Pillars of Control Towers

Getting the technology aspect right is fundamental to the overall success of the control tower concept. As shown in figure 3, while setting up a Control Tower, different systems are integrated with each other with the help of common middleware software and all information is gathered at a centralized location. This information is then used for auditing, monitoring and taking effective decisions.

Every product ordered from a supplier; every shipment shipped to a customer; every document created; every cost accrued; and every event generated in the flow of product from order to final delivery is captured, organized and stored in the tower. In-transit inventory at the part/SKU level can also be captured by the Control Tower.
This way a rich store of valuable supply chain information is created, enabling end-to-end control of a customer driven supply chain.

Figure 4 shows some of the additional functionality that Control Towers provide. Control Towers provide unprecedented supply chain flexibility for dynamic planning and routing. Control Towers allow the generation of reports that shows the total landed

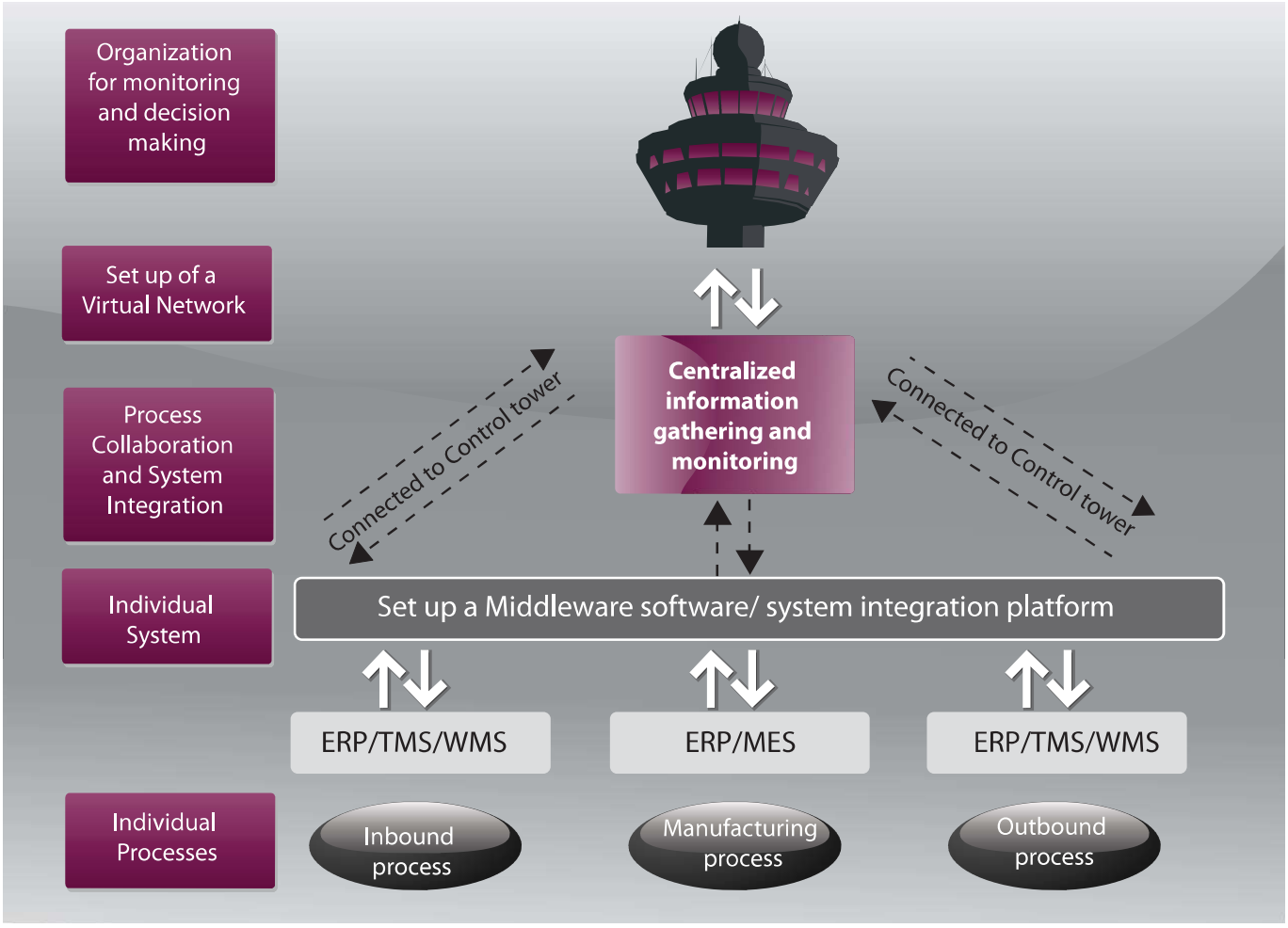


Figure 3: Control tower Technology Approach

cost of every product ordered, including a breakdown by cost, category and also showing how these costs have fluctuated over time. This data can be used to make predictions at the daily "operational" level and to predict supply chain costs. Control Towers can also accurately predict ETAs (Expected time of arrivals) based on what is actually happening in areas of the supply chain that are not always so easy to see.

In order to provide this functionality Control Towers often utilize virtual network organizations. Consequently, the establishment of a Control Tower usually results in the creation of new roles at different levels in the organization which work together towards capturing and monitoring the process flows at each stage and standardizing operational practices. A Control Tower can be customized according to the specific organization's needs in terms of their geographic reach, scope, functions, processes and industry type.

In order to successfully implement a Control Tower, however, organizations need to carefully think through a few vital decisions when setting-up their Control Tower. These decisions include:

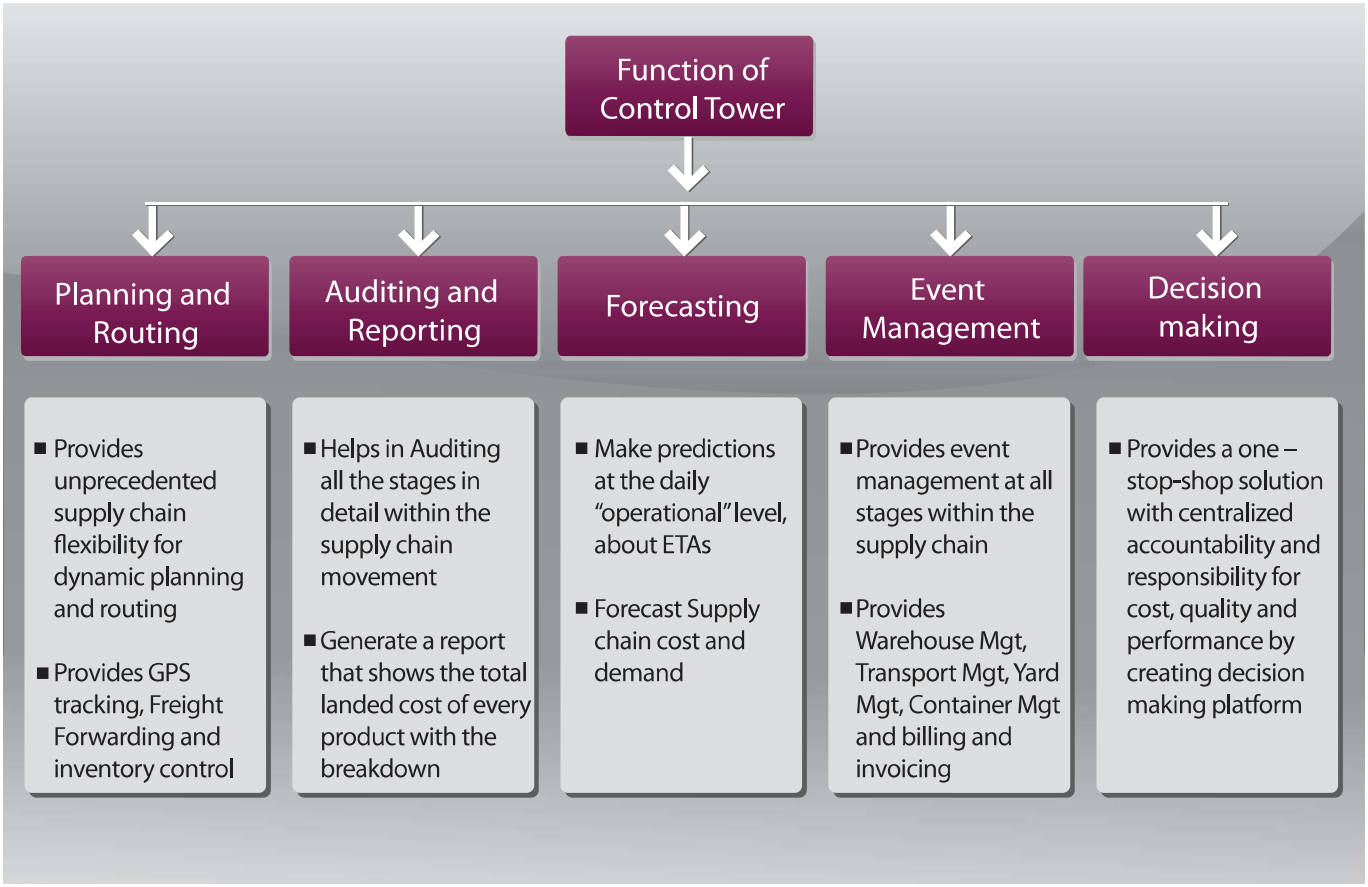


Figure 4: Function of Control Tower

- Deciding on the goals and objectives of Supply Chain Visibility
- Identifying the list of functions, processes or departments to be monitored
- Determining the new organizational design
- Identifying which functions or processes can be run collaboratively or outsourced
- Deciding the technology solution to be implemented and potentially selecting a solution provider to build the Control Tower
- Deciding whether to outsource the Control Tower operation or manage it in-house

While some of these decisions may be complex, if done correctly, the resulting Control Tower will yield important cross-functional benefits that ultimately also benefit end customers and provide the organization with a long-term competitive advantage. A comprehensive list of these benefits is shown in the list below:

Area of Benefits	List of Benefits
General	• Integrated Supply Chain with an ability to retrieve information • Reduced compliance Penalties • Improve decision-making capabilities • Reduced network failures, increased network visibility and responsiveness • Respect customer commitment: schedule, costs, quality and Improved customer satisfaction
Inbound	• Optimal inventory levels and reduced buffer inventory • Synergies in procurement transport carriers leading to reduction in Transportation Expense • Reduction in total landed costs & increase On Time & In Full deliveries • Helps to change sourcing strategies, shift supplier allocations, modify commercial terms, re-engineer a logistics process or swap out a logistics partner
Manufacturing	• Awareness of WIP & improved productivity • Manufacturing in optimal way over plants operating globally • More accurate demand planning, better scheduling, reduction in cycle times, reduced inventory levels and timely and complete management information
Outbound	• Improved load efficiency in Outbound • Improve transport efficiency using best-in-class carriers and redesigning transport solutions • Ability to predict right ETA for customers

Setting up a Control Tower

In order to successfully set-up a Control Tower and ultimately achieve the desired visibility, companies need to follow a proven approach. A two stage methodology to set-up an end-to-end Control Tower solution that can be tailored to an organization's specific scope, functions, processes, industries and geographic needs, such as Capgemini's Control Tower approach (as shown in figure 5), has proven very useful in effectively setting up Control Towers. Such an approach usually consists of two distinct stages a **(1) Strategic stage** and an **(2) Implementation stage.**

Strategic stage

The Strategic stage, generally entails assessing the As-Is business, capturing the Supply Chain Visibility needs and evaluating the benefits (including financial) which a control tower could provide. Areas for collaboration with subcontractors, vendors and partners within the value chain are identified. Once the scope of the Control Tower set-up is finalized, it is important to understand existing internal systems and the systems of identified collaboration partners. After gaining a thorough understanding of the requirements, a high-level To-Be concept for the organization, processes, in/outsourcing and systems is designed. The plan is then shared and signed off with the key stakeholders, along with the detailed roadmap for setting-up the Control Tower. This stage usually lasts for 8 to 12 weeks.

Implementation stage

During the Implementation stage, the high level Control Tower architecture is designed. The most suitable middleware software solution to be implemented is identified which considers the current system set-up and visibility need. The selected solution should also help the organization to integrate all its processes and capture the information centrally. Following approval of the selected solution, end-to-end system integration proceeds on a phase by phase basis. Once the systems are completely integrated, testing is done and a Business Continuity Plan to support any system failure is developed.

Once the Control Tower network is validated, different roles in the virtual Control Tower organization are created and developed. Training in how to generate and interpret different kinds of reports and track the movements within the supply chain is conducted and Control Tower managers are coached in how to conduct process level auditing, planning and predictions based on the available information. Finally a regular monitoring mechanism at each stage within the supply chain flow of the organization is established. This stage takes 6 to 12 months.

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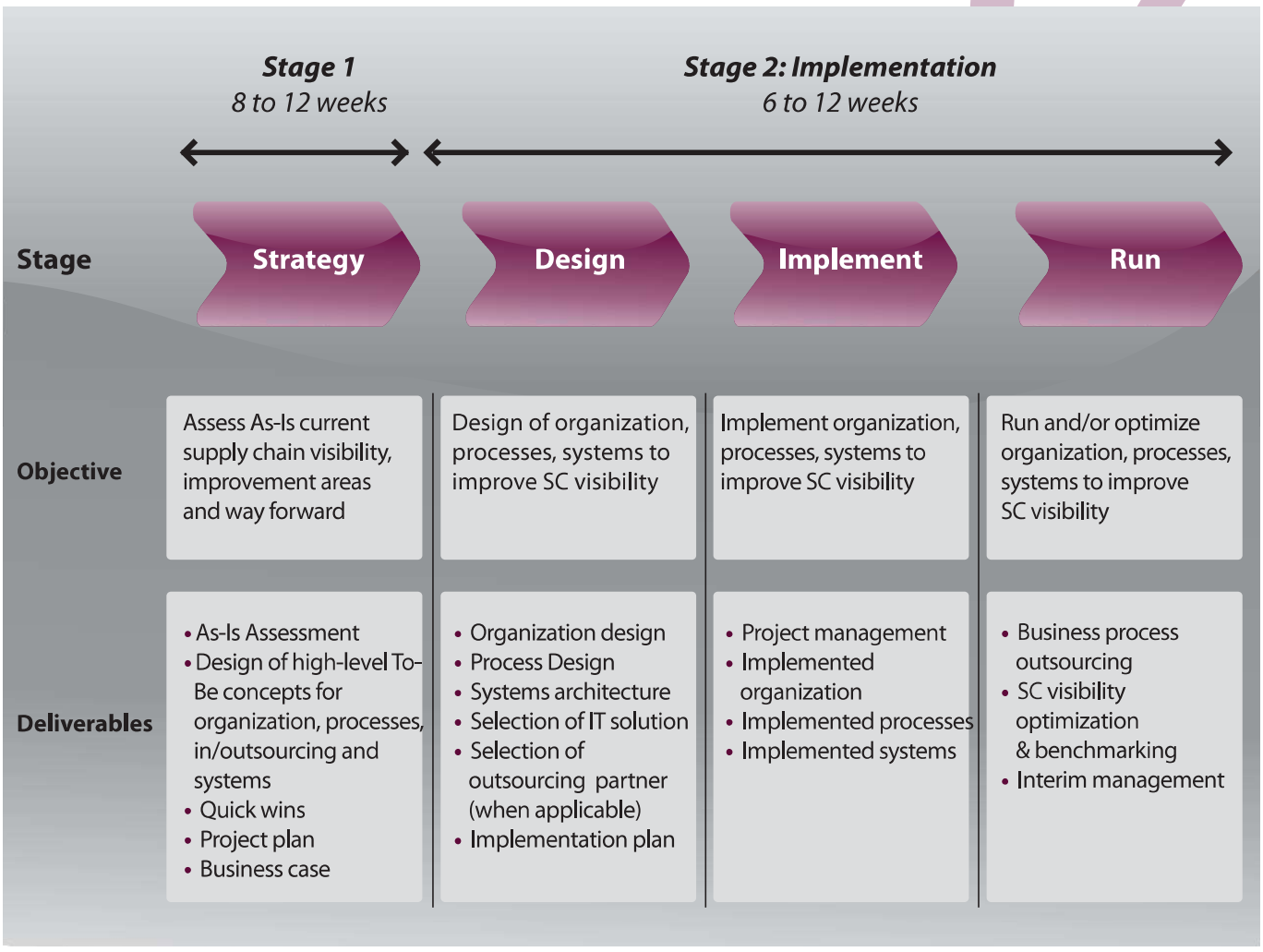


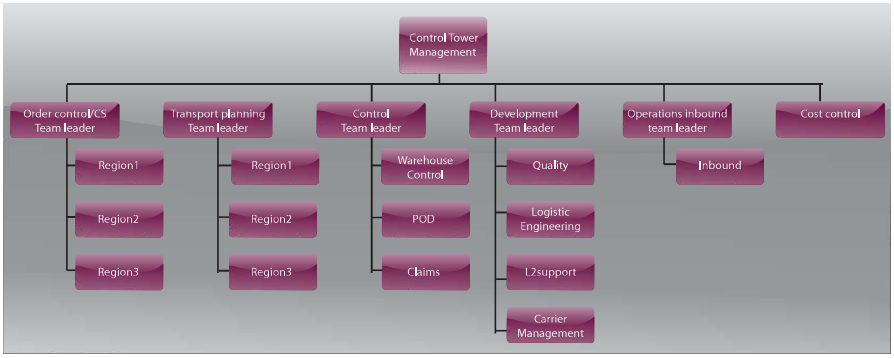
Figure 5: Capgemini's methodology to set-up a Control Tower

Case study: Samsung achieves improved visibility through Control Tower implementation

Samsung, with a presence in 24 locations and with more than 11,000 staff in Europe, has outsourced warehouse and distribution activities to multiple logistic service providers. The fragmented landscape of these LSP's added complexity to the supply chain optimization effort. Capgemini helped Samsung to develop end-to-end supply chain control mechanisms to improve efficiency and reduce costs by using best-in-class carriers and reduce dependence on their LSP's. Moreover, Capgemini developed Samsung's capabilities to manage activities on the tactical level (e.g. carrier management, high level planning, contracting) by deploying a Control Tower solution.

An integrated organization was implemented for planning and controlling the IT product flow from Port-to-Customer. A buying function for procurement and contract management of logistics and warehousing services was developed. A new administrative organization was designed in such a way that all required cost data is captured automatically and can be reported without manual intervention and delays. Additionally, carrier (selection, evaluation, invoicing) and inbound (terminal planning, customs status) integration was achieved.

Visibility tool



Control Tower Organization

The solution deployed by Capgemini is helping Samsung to build an efficient and integrated organization to increase load efficiency, improve tracking and customer service and enhance transport efficiency using best-in-class carriers and redesigned transport solutions.

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