

# Value chain at siemens wind power commerce essay



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Siemens is a world-class service provider with over 30 years of experience in providing high quality services with superior safety principles. Based on this significant knowledge, a flexible range of service solutions have been designed for both onshore and offshore projects, to optimize the output of wind turbines throughout their lifetime.

The purpose of the Service Department is to repair damaged main shafts of the wind mills. The range of operations in the service department can be divided into two main categories: On-site repairmen and substitutions of the damaged or broken main shafts.

At Siemens Wind Power the service department in many cases is prioritized down in the organization because it is costing the company money, and not really generating any money. The service department it just building up inventory, and haven't run since January 2009.

So we decided to take a look and make a analysis of their value chain to have a overview of the current situation and to see if there are any problems which need solving.

A value chain is a chain of activities for a firm operating in a specific industry. A value chain typically consists of inbound distribution or logistics, manufacturing operations, outbound distribution or logistics, marketing and selling, and after-sales service. These activities are supported by purchasing or procurement, research and development, human resource development, and corporate infrastructure.

We used the Value Chain framework of Michael Porter from the strategic management book because it breaks down the activities of the organisation into its many parts. Contribution of each part can be analysed for its contribution to the total value added by the organisation. Afterwards this can be used to see where to put in the effort and make improvements.

The goal of these activities is to offer the customer a level of value that exceeds the cost of the activities, thereby resulting in a profit margin.

### **Primary Activities:**

#### **Inbound Logistics :**

Includes receiving, storing , inventory control , transportation scheduling

They have a safety stock in Denmark in Tinglev that consist 5 pieces of each component and in USA they have the safety stock in Huston and consists 10 pieces of each component. The safety stocks are enough to cover demand of 35 days according to their forecast. Production capacity is 30 turbines a week of the 2. 3 and 4 a week of 3. 6 and they have 60. 000 components.

Process when a part is broken: Demounting the defect shaft and then can be transported directly to Brande, or through the regional Headquarter and then mount it. Then it is send back to Fabriksvej and repaired and then to Tinglev, where it fills up a container, which consists of 2 main shafts. Lead time of one year of main bearings from the assembly department.

### **Operations:**

Includes machining, assembly, equipment maintenance.

The Customers have to make the foundation, electricity and have the infrastructure. They are only buying turbines, customers has to know for themselves the weather conditions etc. A wind mill costs approx. 18 mio. DKK for turbine without SLA. Siemens promises in the SLA that the windmill is running 95 % of the time. But it is actually running 97% of the time. Siemens fulfill the customers' service contracts through the SLA (service level agreements) which is made in corporation with the customers. They have a Monitoring department that can see if the main bearing gets too hot and then switch it off and in the UK have their own monitoring departments but sometimes it brakes when it is turned on again.

Siemens can monitor the customer without the SLA, but don't, because they didn't pay for the service. Only if the customers want it later, they can start monitoring them.

## **Outbound Logistics**

The activities required to get the finished product to the customers:

warehousing, order fulfillment, transportation, distribution management

In the past Siemens faced a problems with higher demand than expected and couldn't deliver spare parts to the customer because of low safety stock levels there were a demand for 10 in UK because they were broken down, but Siemens only have the safety stock of 5, which is not sufficient but also keeping a high level of safety stock is also not good because it takes lots of money to keep components in the stock.

Siemens is not prioritizing the service department regarding the suppliers

when they need to share capacity on old components, broken components or <https://assignbuster.com/value-chain-at-siemens-wind-power-commerce-essay/>

new components. When it is new components, the service department forecast a year ahead, to meet the demand.

Siemens in order to reduce variability in demand and increase flexibility in order to meet the demand they try to build a corporation with the service regions; USA, Germany & Uk to get a forecast from them at least 4 months ahead. Further they ask the regions to have service materials on stock, so they don't get to many urgent orders. There is also a safety-stock in USA, which covers the demand for 35 days.

From this they are making forecasts to their suppliers, for them to be able to plan their capacity, they use Delta forecasting and using Delphi method compared with failure rates. The forecasts are updated every month by the demand management department.

### **Marketing and Sales:**

The activities associated with getting buyers to purchase the product.

The Siemens service headquarters is located in Brande, Denmark for both onshore and offshore services. In order to optimize knowledge transfer and customer value globally, regional service centers have been established.

These main offices are located in:

The United States of America

Singapore and

Germany.

In an effort to stay close to the customer in the complex European region, the heart of the wind industry, smaller offices are also set up in:

The United Kingdom

Spain,

Germany and

Denmark.

They get the most revenue of selling turbines . The markets are Europe, USA and Asia Pacific . Onshore is not growing in Europe, but in the USA and New Zealand it is expanding. Siemens are the best wind turbine manufacturers they offer high quality and good service for the ones who are willing to pay for it.

Their windmills are running 97% of the time, compared with Vestas' windmills, which are running under 95 % of the time.

Brand name Siemens and with the history of bonus they are adding value to their product. The service department crew is adding value when there is a problem with the customers' windmills. The service department has a monitoring department which monitors the windmills all the time.

## **Service**

The activities that maintain and enhance the product's value, including customer support, repair services, installation, training, spare parts management.

The Customers have to make the foundation, electricity and have the infrastructure. They are only buying turbines, customers has to know for themselves the weather conditions etc. A wind mill costs approx. 18 mio. DKK, for turbine without SLA. Siemens promises in the SLA that the windmill is running 95 % of the time. But it is actually running 97% of the time. Siemens fulfill the customers' service contracts through the SLA (service level agreements) which is made in corporation with the customers.

They have different types of SLA's to meet the costumers' needs. When a windmill breaks down, Siemens takes the part back and replaces it with a new one. Siemens Service department repairs the broken part, and then sell it again to another customer, 40 % of the sights (customers) are buying the long term SLA. Only in the service department; the costumers who pay more for SLA, get service first. 70 % want service, only pays 40 % for the quick lead time. 30 % don't want service, but can buy spare parts.

In the service department there are two main categories of operations:

The first type of repairment is taking place on-site by service teams, send out by the service department in Brande, or by one of the regional headquarters in Houston, Germany or in the UK. On-site repairmen's are taking place when the detected problem is a minor damage that can be fixed without removing the main shaft, and when the repairment can be done within the scope of the service level agreement. This means that the turbine has to be up and running again within one week.

The second type of repairment is when Siemens is facing a more serious damage that cannot be fixed on-site then the service department calls for a <https://assignbuster.com/value-chain-at-siemens-wind-power-commerce-essay/>

repaired main shaft from the safety stock, to use as a substitute for the operating and damaged main shaft. The regional headquarters are responsible for planning and execution of the arrangements needed to do a successful changeover of the main shaft. The teams which are sent are trained especially for this operation, and the disassembled shafts are then transported to Denmark, where the repairment is taking place.

Technicians and monitor regions are responsible for telling if they have the new shafts. They communicate to the service department to supply new parts.

When it comes to repairing the wind mills Siemens has to face a seasonality. In the winter is not possible to fix any problems in the field that's why Siemens is trying to fix as much mills as they can before winter in October and November. The second pick period is after the winter when mills not repaired before winter need to be fixed as soon as possible in March and April.

Support Activities.

## **Procurement**

Procurement of raw materials, servicing, spare parts, buildings, machines.

When a part breaks down within the 2 years; first it is sent from supplier to Siemens in Tinglev, and sold, then to the suppliers when it is broken, where it is renovated, then back to Tinglev and then to the new customer who buys it. First when it goes to the supplier it is seen if it is better to scrap or renovate. After two years, you evaluate if it should be sent to suppliers or



renovate it yourself? They sell them as renovated parts for 80 % of the price. The supplier is out of the corporation with Siemens after 6 months if there are problems with the supplier. They have good suppliers which are flexible. At least 2 suppliers on each part. Suppliers have to pay if the turbine is down, if it is their fault. Many suppliers are owned by Siemens, on the main parts. Blades, gearboxes etc.

They have stock in USA and in Tinglev, to supply with a new component, when broken down. Suppliers: Spain for main bearing. Normark are for shafts. Stockgos Germany, bearing houses

Most parts from Europe are from suppliers but they don't have that many suppliers in the USA. So have to build up a supplier network. Siemens has the most expensive turbines and best quality. They are selling service in the US and they have a service facility but no repair. If the parts are under guaranty the supplier will supply a new part or a renovated part. The hours the technicians use will be paid by the supplier. For the most parts Siemens are able to renovate themselves.

## **Technology Development**

Includes technology development to support the value chain activities, such as Research and Development, Process automation, design and redesign.

Thanks to process technology developed by Dr. Gerald Hohenbichler (44), steel manufacturers can now save energy by processing metal in continuous strands. Hohenbichler's groundbreaking solution enables molten raw steel to be rolled immediately after casting, reducing a mill's energy requirements by as much as 45 percent.

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Siemens Energy has installed the first prototype of a newly designed direct-drive wind turbine. The new SWT-3.0-101 DD is a gearless turbine with a power rating of three megawatts (MW). Its rotor has a diameter of 101 meters. The prototype was installed near the Danish town of Brande, where Siemens Wind Power headquarters is located. The intelligent, straightforward design of the turbine makes gearboxes unnecessary. The new turbine will officially be launched in 2010.

## **Human Resource Management**

The activities associated with recruiting, development (education), retention and compensation of employees and managers.

They have a new strategy; they are now finding the costumers themselves, because of the financial crisis. Siemens has already fired 400 workers in Brande and 200 in Ålborg.

Siemens training centers offer thorough training programs to ensure that all service personnel are trained to our stringent safety and quality standards.

Training centers are located in:

Brande, Denmark

Bremen, Germany

Newcastle, UK

Houston, United States.

## **Firm Infrastructure**

Includes general management, planning management, legal, finance, accounting, public affairs, quality management, etc.

Peter Löscher, President and CEO of Siemens AG.

The firm's margin or profit then depends on its effectiveness in performing these activities efficiently, so that the amount that the customer is willing to pay for the products exceeds the cost of the activities in the value chain. It is in these activities that a firm has the opportunity to generate superior value. A competitive advantage may be achieved by reconfiguring the value chain to provide lower cost or better differentiation.

Now that we have an overview of Siemens Supply chain we observe that they are facing some problems. We have received information regarding the possibility of investing into a new regional service department in the states which in our opinion might prove to be a very good answer to the problems that they are facing now and since the USA market is expanding for Siemens, a local risk hedging service department may indeed benefit the company. A service department who would communicate with the current service regions and the new found production plant in the USA. Having a repair department in the U. S would cut down the transportation and handling lead times and costs.

The profitability for the service department and Siemens as a whole would be to reduction of inventory costs, because the inventory will be reduced in the service department of broken shafts, when it starts running again. There would be a reduction in transportation costs; severely if they implement a <https://assignbuster.com/value-chain-at-siemens-wind-power-commerce-essay/>

service department in the US, and namely if they optimize the flow in Denmark. It will also reduce the capital bindings in defect components which are in the service department's inventory.

Also a good idea would be built up a supplier network in the USA because most of the parts come from the European suppliers.

### Choosing the right supply chain strategy

Once the production plant and service department are build they need to have a right supply chain strategy which prepares them for the new business challenges and opportunities.

A simple but powerful way to characterize a product when seeking to devise the right supply chain strategy are the two key uncertainties faced by the product which are demand and supply. Demand uncertainty is linked to the predictability of the demand for the product.

In order for Siemens to choose the right strategy they have to follow some steps in order to understand what is going on with their supply chain.

A first step would be to figure out what time of product are they selling functional products or innovative products . Functional products are ones that have long product life cycles and there for stable demand, while innovative products are products that have short life cycles with high innovation and fashion contents as we can see clearly, different supply chain strategies are required for functional versus innovative products. Functional products tend to have less product variety than innovative products, where variety is introduced due to the fashion-oriented nature of the product or the <https://assignbuster.com/value-chain-at-siemens-wind-power-commerce-essay/>

rapid introduction of new product options due to product technology advancements. Demand for functional products is much easier to forecast, while demand for innovative products is highly unpredictable due to the differences in product life cycle and the nature of the product, functional products tend to have lower product profit margins, but the cost of obsolescence is low; whereas innovative products tend to have higher product profit margins, but the cost of obsolescence is high.

A second step would be to choose their supply chain characteristics. A “stable” supply process is one where the manufacturing process and the underlying technology are mature and the supply base is well established. An evolving supply process is where the manufacturing process and the underlying technology are still under early development and are rapidly changing, and as a result the supply base may be limited in both size and experience. In a stable supply process, manufacturing complexity tends to be low or manageable. Stable manufacturing processes tend to be highly automated, and long-term supply contracts are prevalent. In an evolving supply process, the manufacturing process requires a lot of fine-tuning and is often subject to breakdowns and uncertain yields. The supply base may not be as reliable, as the suppliers themselves are going through process innovations. While functional products tend to have more mature and stable supply process, that is not always the case. There are also innovative products with a stable supply process.

## **Demand Uncertainty Reduction Strategies**

Only through information sharing and tight coordination can one regain control of supply chain efficiency. Sharing of demand information and synchronized planning across the supply chain are crucial for this purpose.

## **Supply Uncertainty Reduction Strategies**

Free exchanges of information starting with the product development stage and continuing with the mature and end-of-life phases of the product life cycle has been found to be highly effective in reducing the risks of supplier failure. So a good idea for Siemens would be to form a supplier hub in the USA operated by a third-party logistics company which would manage the replenishment and inbound logistics of the parts and materials to a warehouse (known as the supplier hub) which would be in close proximity to the Siemens plant. The inventory at the hub would be owned by the suppliers. The use of the hub will allow the suppliers to have much better information about Siemens needs and consumption patterns of their parts as well as about the inventory in transit. This will result in a more effective management of inventory replenishment and inbound logistics by the suppliers thereby reducing the supply uncertainties for Siemens.

## **Supply Chain Strategies**

Some uncertainty characteristics require supply chain strategies with initiatives and innovations that can provide a competitive edge to companies.

These strategies can be classified into four types:

Efficient Supply Chains: these are supply chains that utilize strategies aimed at creating the highest cost efficiencies in the supply chain. For such efficiencies to be achieved, non-value-added activities should be eliminated, scale economies should be pursued, optimization techniques should be deployed to get the best capacity utilization in production and distribution, and information linkages should be established to ensure the most efficient, accurate, and cost-effective transmission of information across the supply chain. The role of the Internet in this case is that it enables the supply chain to have tight and effortless information integration, as well as enabling production and distribution schedules to be optimized once the demand, inventory, and capacity information throughout the supply chain are made transparent.

- Risk-Hedging Supply Chains: these are supply chains that utilize strategies aimed at pooling and sharing resources in a supply chain so that the risks in supply disruption can also be shared. It is therefore a risk-hedging strategy. A single entity in a supply chain can be vulnerable to supply disruptions, but if there is more than one supply source or if alternative supply resources are available, then the risk of disruption would be reduced. A company may want to increase the safety stock of its key component to hedge against the risk of supply disruption, and by sharing the safety stock with other companies who also need this key component, the cost of maintaining this safety stock can be shared. Such inventory pooling strategies are quite common in retailing, where different retail stores or dealerships share inventory. The Internet plays a key role in providing information transparency among the members of the supply chain that are sharing inventory. Having real time information

on inventory and demand allows the most cost-effective transshipment of goods from one site (with excess inventory) to another site (in need).

**Responsive Supply Chains:** these are supply chains that utilize strategies aimed at being responsive and flexible to the changing and diverse needs of the customers. To be responsive, companies use build-to-order and mass customization processes as a means to meet the specific requirements of customers. The customization processes are designed to be flexible. Order accuracy (i. e., accurate specification of customer requirements) is the key to the success of mass customization. Again, the Internet has enabled very accurate and timely capturing of highly personalized requirements of customers as well as fast transfer of order information to the factory or customization centers for the final configuration of the product.

- **Agile Supply Chain:** these are supply chains that utilize strategies aimed at being responsive and flexible to customer needs, while the risks of supply shortages or disruptions are hedged by pooling inventory or other capacity resources. These supply chains essentially have strategies in place that combine the strengths of “ hedged” and “ responsive” supply chains. They are agile because they have the capability to be responsive to the changing, diverse, and unpredictable demands of customers on the front end, while minimizing the back-end risks of supply disruptions.

Given the different nature of demand and supply uncertainties of different products, different supply chain strategies are needed for different products.



## **The Right Supply Chain Strategy**

### **Innovative Products with Evolving Supply Processes**

Companies with innovative products and evolving and unstable supply processes have to utilize the combination of risk-hedging and responsive strategies. The appropriate strategy here is to establish “ agile” supply chains. Demand and supply uncertainties can be used as a framework to devise the right supply chain strategy. Innovative products with unpredictable demand and an evolving supply process face a major challenge. Because of shorter and shorter product life cycles, the pressure for dynamically adjusting and adapting a company’s supply chain strategy is mounting. Using the Internet to develop agile supply chains with information sharing, coordination, and postponement has enabled companies to compete successfully in their market places. The challenges are great, but so are the opportunities.

**To be continued today**