Case Study: U.S. Steel
Can Information Systems Save U.S. Steel?

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Table of Content

1. Introduction

1.1. Early Years (History)

The United States Steel Corporation (U.S. Steel) was founded in 1901 by some of the most legendary businessmen of America. A. Carnegie, J.P. Morgan (who was the most important financier of his time – his company still exists and he formed the well known General Electrics Corporation), C. Schwab and Elbert H. Gary launched the largest business enterprise ever by combining existing steel companies. It was the first company in the world with more then a billion dollar authorized capitalization ($1.4 billion). U.S. Steel was responsible for 67 percent of all steel produced in the United States in their first year. First, U.S. Steel was steelmaking only but through the grow of the company and several acquisitions, they got into the energy market as well (1980s).

1.2. U.S. Steel's Position

According to the International Iron and Steel Institute (2006) U.S. Steel is ranked 6th for the output of 21.2 million metric tons crude steel per year. Arcelor Mittal (Global) is ranked first for 117.2 million tons and the later mentioned POSCO (South Korea) 4th with 30.1 million tons in 2006.

During the last years, U. S. Steel grew slower due to foreign competition and increasing costs. However, according to the U. S. Steels annual year report (2007) the net sales per year are still increasing ($16 billion in 2007 compared to $14 billion in 2006 and $13 billion 2005).

They have about 48.000 employees now compared to about 500.000 in their early years. Theses figures are impressive because they now produce more steel then ever before – Innovations and Technologies made it possible to increase the amount of steel produced while reducing employees at the same time and therefore be more competitive because of cost savings. However, firing employees was never easy for U.S. Steel, history shows that they had always problems with the workers union and they had to cope with several strikes. However, U.S. Steel is still a company operated in a top-down fashion and is governed by a Board of Directors. Because of several acquisitions, the company culture is varies widely and cannot be operated like in the early days.

They also had to face some environmental cases in the last years and therefore compliance costs have skyrocketed.

2. Competitive Pressure & Inability to compete

What management, organisation and technology factors were responsible for U.S. Steel's inability to compete with other steel manufactories?

2.1. POSCO

The South Korean company POSCO is a good example to show why U.S. Steel got into the situation of inability to compete. There are several other competitors who had or still have the same advantages then POSCO.

U.S. Steel located their plants near the sources of iron and coal in the nineteenth and early twentieth centuries. That sounds like a good idea, but the market has changed. The largest single cost in producing a ton of steel is the purchase and the shipping of raw materials. So today every new plant will be located on the coastlines of Atlantic or Pacific to reduce these shipping costs. But that is just one organisational disadvantage U.S. Steel has.

In the case of POSCO, the South Korean government decided very late (1966) to establish a steel industry. Therefore, the have chosen to build a plant on the coastline and because of their late start into this industry, could use state of the art technology right from the beginning. U.S. Steel had less modern technology in their old plants and had to invest a lot more money to maintain and upgrade them.

Another reason why POSCO produces steel cheaper then U.S. Steel is the cheap labour in South Korea. U. S. Steel with its unionized workers needs to pay medical and pension expanses for them. That is the reason why they try to keep the men hours needed to produce a ton of steel very low and therefore invest more into technology but it is still an organisational disadvantage.

2.2. Ford Motor Company

U.S. Steel was and is one of the leading suppliers of Ford and they had a strong relationship until Ford evaluated U.S. Steel as the worst in performance of their suppliers (1996) and it is well known that the American Motor industry is not doing well either. So Ford was about deciding to buy steel somewhere else. That rang a wake up bell at U.S. Steel and that was when they made some strategic decisions.

2.3. Strategic Decisions

Due to market pressure U.S. Steel had to make their value chain dramatically more efficient. Because it is a company with a long history of growing in different places, they had many inhomogeneous information systems, controlled locally. This results in a system, very difficult to maintain and uneasy to interconnect efficiently in the matters of IT.

3. Information Systems

3.1. Software Development / Technology

They analysed their value chain and evaluated their existing information systems and started improving it step by step. Existing IS subsidiaries and the IT department got help from external consultants and companies (Oracle for data management software) to home grow their software.

One step reconfiguring their wider value system was the use of the Internet to process data with their suppliers and customers.

A good example of the improvements of the process was the system used for tracking orders. U.S Steel and their customers did exactly now the status of each order at every time. That supported their value chain and reconfigured their wider value system because they gained competitive advantage by fulfilling orders more efficient for their customers.

Furthermore, U. S. Steel started using IS / IT to support activities of their value chain. This included also their inventory system and warehousing.

As a result of all this IS / IT support and integration, they managed their entire supply chain through a single integrated system.

What happened next is also worth mentioning: U.S. Steel created a subsidiary to generate additional revenue by setting up such integrated systems for other companies (not only in the steel industry).

3.2. Impact

How helpful were information systems in addressing U.S. Steel's problems?

They not only helped their customers with better service (Ford), they also made themselves more efficient. With their order fulfilment system they started forecasting their customers demands and therefore made their inventory system more efficient.

By making their own value chain more efficient with IS / IT, they improved the wider value system of the Ford Motor Company and saved their business relationship.

U.S. Steel was successful with their strategy on using IS so far, but they still face some problems. For example are their systems developed mostly in COBOL which is a very old language and therefore not easy to maintain and it is also hard to find developers for it. Switching to an modern ERP Solution like Oracle ERP or SAP is not very easy for such an big existing home grown software with all its interfaces.

4. Conclusion / My Opinion

In my opinion, U.S. Steel is one of the best examples of the importance of IS / IT in value chains in general and how powerful they support the reconfiguration of existing value chains to gain competitive advantage. Without this integrated system they built, they would not be competitive any longer to countries with cheap labour.

Due to the inability to compete because of their history and background, their only chance is to be innovative and use IS to make their value chain more efficient. There are still some major challenges left or in other words, there is still potential left to integrate IS more into their strategy by upgrading to more modern technology.

I believe that the acquisitions of the last years help them becoming more independent from their old fashioned plants in the U.S. and to gain more innovations.

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