

## Introduction

The industrial manufacturing industry is responsible for the growth of many other industries. The development of many kinds of machinery is what ultimately led to the industrial revolution. The output of this industry includes all kinds of machinery, from farm and factory equipment, to smaller machinery used in many households, as well as smaller industrial products such as hardware, glass, and paper products.



## Industry Composition

The industrial manufacturing industry is responsible for the fabrication of products intended for industrial use from raw materials; it is the output of this industry which has made further mass manufacturing possible in most other industries. It is responsible for producing a variety of different machinery, from huge industrial to simple household machines, as well as other industrial-use products such as hardware, paper and packaging materials, glass, and other fixtures. However, in spite of the huge range of products, they all have a common function: to eliminate or reduce the amount of human energy expenditure, or manpower, needed to complete the job. No matter what type of machinery is employed, it is crucial in producing many of the goods and services vital to any economy in a timely and cost-efficient manner.

Industrial equipment can be grouped into two broad classes, standard and custom built. Standard equipment is cheaper to build and can be used by many different industries. However, it often cannot fulfill the specific needs of new factories. Custom built equipment is more expensive than standard equipment but tends to be more profitable. It takes longer to build but it can be made to incorporate specific attributes desired by the buyer. Industrial equipment can also be grouped into seven different segments. Agricultural, construction, and mining machinery; industrial machinery; and commercial and service machinery are all special-purpose machinery designed for a specific industry. The four other segments include machinery that is used by all industries: ventilation, heating, and cooling equipment, metalworking equipment, engine and engine related equipment, and other general purpose machinery. Many companies in this industry are conglomerates that produce

## Industry Leaders and Fragmentation

\* All amounts are given in Billions USD

| Company                     | Country | Sales | Profits | Market Value |
|-----------------------------|---------|-------|---------|--------------|
| Caterpillar                 | 161     | 48.5  | 2.2     | 92.6         |
| Mitsubishi Heavy Industries | 179     | 37.1  | 0.636   | 12.8         |
| ABB                         | 225     | 35    | 2.1     | 51.3         |
| CRRCC                       | 173     | 31.3  | 1.6     | 41           |
| Deere & Company             | 161     | 30.5  | 1.4     | 47.7         |



## Profitability and Demand Drivers

### Primary Demand Drivers:

- Overall industry activity
- Health of sectors such as agriculture, construction, manufacturing, and oil and gas exploration
- Production and power generation

### Profitability Drivers:

- Engineering expertise
- Efficient production

## Trends

Efficiency is how manufacturing companies are able to separate themselves from others. The more efficiently a company can produce a product, the more products it can produce at a lower cost which results in higher profit margins. One major trend in the industry is using increasingly high-tech production techniques. Firms are introducing more technology in response to pressure from domestic and foreign competitors. Robotics, computers and programmable equipment are common, resulting in increased productivity due to increased efficiency and a decreased need for unskilled labor. Outsourcing is another change often made by companies. They contract labor for jobs that are not part of the primary function of the factory, such as janitorial or security services; this way the company can concentrate more on its core business and reduce operation costs. However, traditional markets for outsourcing (i.e. China and India) are changing. Due to rising wages in emerging markets, some labor intensive manufacturing is being outsourced from these countries. Lastly, there is an increasing emphasis on Six Sigma quality, which greatly improves the quality of the manufacturing process, and lean manufacturing, which emphasizes looking at the system compared to the product to figure out the best production methods. As an example, at Ford a plan is in affect that will cut the number of suppliers from 2,500 to 1000 for an estimated \$7 billion in savings.

products found in multiple segments. These conglomerates usually are the result of acquisitions and mergers of previous companies