

CHAPTER 3

THE BUSINESS AND COMPANY PROFILE

3.1 The Market Structure for Hydraulic Excavator

The market of the heavy equipments product in the world has growth significantly specially in Asia Pacific Market. The heavy equipments market development in the recent years influence by increase some mining commodity and fuel. From the market analysis report of the Corporate of PT ABC the machine industry growth shown on the table 3.1.

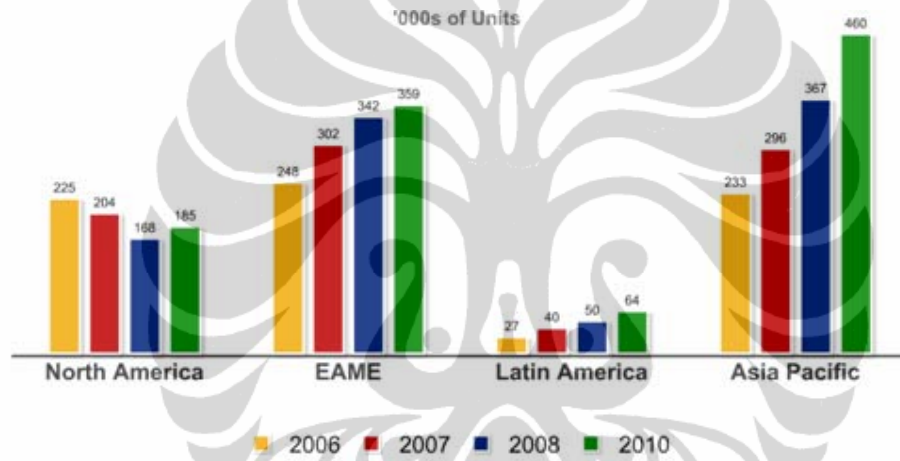


Figure 3.1 Machine Industry Growths 2006 - 2010

Source: PT ABC Corporate Market Analysis

Inside the machine industry contain the hydraulic excavator products that become the famous product in heavy equipment products, many manufacturing players of heavy equipment currently focuses to the Asia Pacific market to expand their market, if player win in Asia Pacific market, will win in globally. There are four big players of hydraulic excavator producer at Asia Pacific with the installed capacity as follows:

- a. Group PT ABC Capacity 18,800 per year
 - b. Group PT Komatsu Indonesia Capacity 13,500 per year
- (Exclude Japan production)

- c. Group PT Hitachi Indonesia Capacity 10,700 per year
(Exclude Japan production)
- d. Doosan Daewoo Capacity Capacity 17,000 per year

On the competitive market analysis from Bernstein, Group PT Komatsu Indonesia is strategically focused on Asia and Russia. PT Komatsu Indonesia believes that it is wise to focus in these markets because they are already a market leader where the relative strategic situation *vis a vis* Group PT ABC is much more favorable than in the North American Market. Second, Group PT Komatsu Indonesia believes that even when North America emerges from a period of cyclical weakness it will still be a structurally slower growing market than emerging Asia Pacific and Russia. As a result, a relentless focus on expanding distribution and manufacturing across Asia and Russia is the key strategic push. Of course, Group PT ABC and the rest of the key players in the sector are also heavily focused on Asia and other key emerging markets. One of the key controversies for the Machinery and Capital Goods sector over the next several years will be who emerges as the leading multinational in these key emerging markets. The issues of whether or not manufacturers in emerging markets become important players on the global scene will also be key issues.

When reviewed into the South East Asia market that expected become the future market for PT ABC and referred to the analysis report from the marketing group to market of Indonesia; Malaysia; Thailand; Singapore; Philippine; and Vietnam. The market performance on the key competitor as follows:

- Hydraulic Excavator from Komatsu has been overall market leader in the last 5 years.
- In 2008, Komatsu had 35.5% market share with Group PT ABC at second with 23.6% market share followed by Hitachi with 17% market share. Kobelco is in fourth place with 13.4% market share.
- Volvo is at fifth place with 4.7% market share.
- Komatsu is market leader in the two biggest markets, which are Indonesia and Malaysia. Also market leader in Laos, Cambodia and Vietnam.

- Group PT ABC on the other hand, is market leader in Thailand, Singapore and Philippines.
- Volvo is market leader in Myanmar.

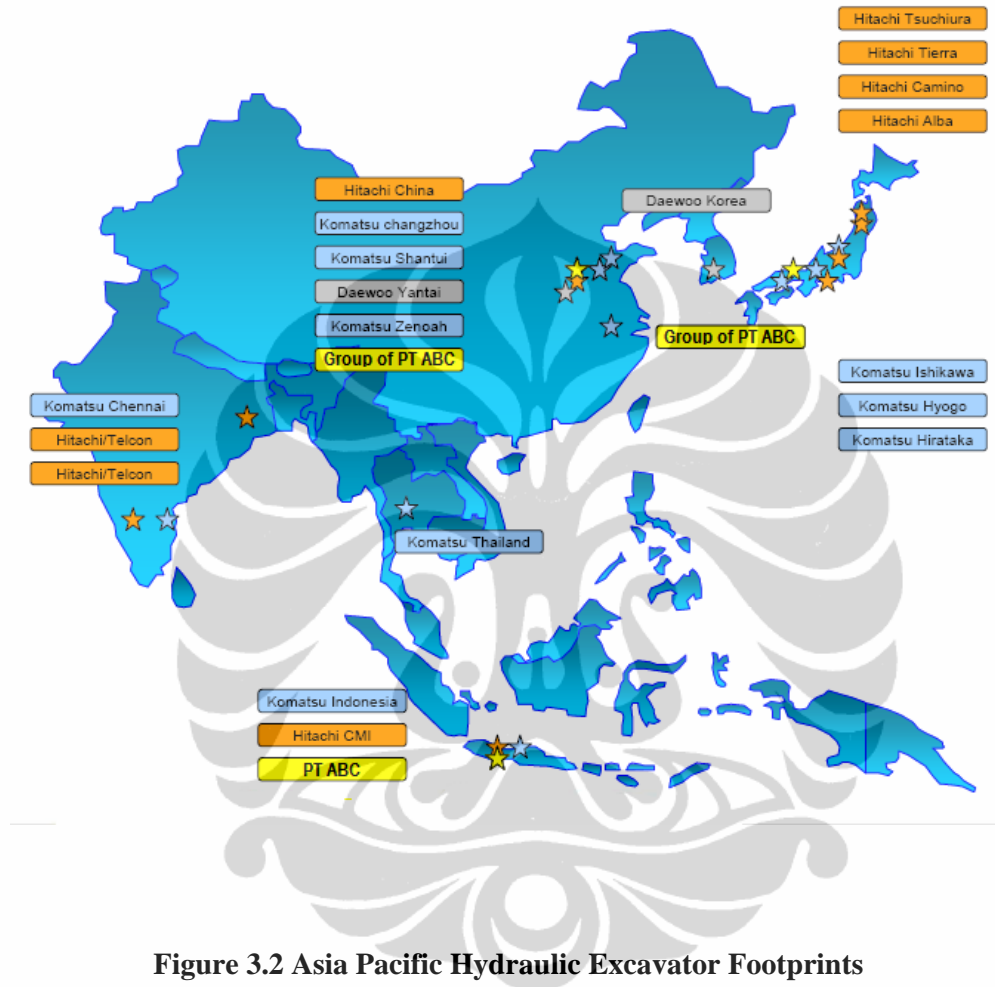


Figure 3.2 Asia Pacific Hydraulic Excavator Footprints

Source: PT ABC Data

3.2 Competitive Landscape

From the big competitors of hydraulic excavator on South East Asia there are keys significant competitor's strategy and progress in competition market as follows:

- a. Komatsu.
 - Indonesia some signs of recovery though sales down 49%.

- Komatsu is rolling out its IT-based dealer support system to more countries; the system is designed to increase dealer service efficiency and increase customer satisfaction.
 - Introducing full-scale global cash management system; goal is to shift funding in countries with growing finance needs (Indonesia and Thailand) and reduce financing cost.
 - Will offer Track Type Tractor (TTT) undercarriage parts in Indonesia.
 - Will offer locally made HEX hoses in China and Indonesia.
 - Expanding reman facility in Indonesia.
 - Closing the gap on brand of PT ABC on product support.
 - Opened a 2nd excavator plant in August 2008 to boost total capacity to 9,000 units
- b. Hitachi
- 2009 results of 31% down in sales.
 - Indonesian sales supported by sales into forestry industry.
 - Plans to expand sales network in SE Asia and Oceania.
 - Launched information monitoring system in Indonesia and plans to expand to other countries in Asia.
 - Donated Hydraulic Excavators to Indonesia's Ministry of Public Works to aid in the recovery from the massive earthquake that struck Java
- c. Kobelco
- Increasing distribution channel equity to improve coverage in Asia.
 - Expanding distribution system in Asia to increase and strengthen coverage
Price vs. value matched with hydraulic excavator models.
 - Opens 20-ton hydraulic excavator plant in Thailand in July 2008 having 2,400/year capacity. However, under the current business conditions, the start of full-scale operation had to be postponed until the market shows signs of recovery
- d. Volvo
- Net sales in Asia down by 31% in April 2009.
 - Targeting key markets such as Myanmar, India and Australia.

3.3 ASEAN Free Trade Agreement (AFTA)

ASEAN has significant potential to integrate with other economies because of its astonishing economic performance since the economic crisis in 1997. Although regional integration should involve trade and investment liberalization and all other types of economic cooperation, Free Trade Agreements (FTAs) seem to have induced much concern in the countries involved. Since ASEAN adopted an FTA (the ASEAN Free Trade Area, or AFTA) among its members, primarily in place in 2003, many individual members have tried to negotiate with nations outside ASEAN to form additional bilateral trade agreements. Those bilateral trade agreements between individual members of ASEAN and the non-member nations tend to grow into agreements between the entire ASEAN region and other trading partners.

For the past decade, myriad studies have confirmed that regional integration stimulates economic growth and flows of international investment, which in turn lead to welfare improvement, for each country involved in the integration process. Nevertheless, size and distribution of those impacts may vary depending on many factors, e.g., how the integration takes place (Chaipan et al., 2006; Sudsawasd & Mongsawad, 2007) and size of the trading partners (Chaipan et al., 2006; Park, 2007; Plummer, 2007). Much empirical research indicates that FTAs induce economic growth for each economy involved in the agreement. Within ASEAN, the most gains relate to the openness of the ASEAN-5 vis-a-vis the international trading system generally. Moreover, benefits from FTA's increase if the agreements involve key countries outside ASEAN, such as China, Korea, Japan, India, New Zealand, and Australia. The benefits normally come in the form of higher GDP. Unfortunately, welfare loss may occur due to trade diversion, which will cause negative terms-of-trade effects (Chaipan et al., 2006; Sudsawasd & Mongsawad, 2007). The combination of countries included in the negotiation proves to be an important factor in determining economic gains. For many possible combinations of countries, the expected benefits from FTAs would increase if advanced economies joined the agreements

(Chaipan et al., 2006; Plummer, 2007). According to the empirical estimates, openness with Japan, the United States, or EU will greatly stimulate economic growth for ASEAN countries. Patterns of trade prior to the FTAs have been shown to be important factors in determining trade patterns and gains after integration (Kreinin and Plummer, 2000). An analysis of income distribution as a result of FTAs is more complicated because we need to consider the economic structures of trading partners as well as the nature of the agreement. Moreover, income distribution can be measured not only in terms of factor payments, i.e., profits and wages within ASEAN and between ASEAN and the rest of the world, but also in terms of the personal distribution, e.g., as measured by the Gini coefficient. FTAs might worsen the income distribution if the agreements are made between manufacturing exporters in ASEAN, such as Malaysia, the Philippines, and Thailand, and agricultural exporters, such as China. FTAs between these two might induce an expansion in relatively capital-intensive manufacturing sectors in ASEAN, and widen the wage gap due to the skilled wage rate increasing faster than unskilled wage rate. On the other hand, a positive impact on income distribution and poverty reduction may occur if the manufacturing exporters in ASEAN make deals with an advanced economy, such as Japan. Such a FTA might stimulate agricultural production and the food processing industry in the manufacturing exporters (Chaipan et al., 2006; Kreinin et al., 2000). Ariyasajjakorn, Garder, Ratanakomut, and Reynolds (2009).

According to ASEAN Organization website, The ASEAN Free Trade Area (AFTA) has now been virtually established. ASEAN Member Countries have made significant progress in the lowering of intra-regional tariffs through the Common Effective Preferential Tariff (CEPT) Scheme for AFTA. More than 99 percent of the products in the CEPT Inclusion List (IL) of ASEAN-6, comprising Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand, have been brought down to the 0-5 percent tariff range, Hydraulic excavator included in the inclusion list with 0% tariff.

3.4 Product under Common Effective Preferential Tariff (CEPT) Agreement

In principle, the free trade area covers all manufactured and agricultural products, although the timetables for reducing tariffs and removing quantitative restrictions and other non-tariff barriers differ.

- a. Inclusion List. Products in the Inclusion List are those that have to undergo immediate liberalization through reduction in intra-regional (CEPT) tariff rates, removal of quantitative restrictions and other non-tariff barriers. Tariffs on these products should be down to a maximum of 20% by the year 1998 and to 0-5% by the year 2002. The new Members of ASEAN have up to 2006 (Viet Nam), 2008 (Laos and Myanmar) and 2010 (Cambodia) to meet this deadline. By the year 2000, there would be 53,294 tariff lines in the Inclusion List representing 82.78% of all tariff lines in ASEAN.
- b. Temporary Exclusion List (TEL). Products in the Temporary Exclusion List can be shielded from trade liberalization only for a temporary period of time. However, all these products would have to be transferred into the Inclusion List and begin a process of tariff reduction so that tariffs would come down to 0-5%. Starting on 1 January 1996, annual installments of products from the TEL have been transferred into the Inclusion List. By the year 2000, there would remain 9,674 tariff lines in the TEL representing about 15.04% of all tariff lines in ASEAN.
- c. Sensitive List. This contains unprocessed agricultural products, which are given a longer time frame before being integrated with the free trade area. The commitment to reduce tariffs to 0-5%, remove quantitative restrictions and other non-tariff barriers is extended up to the year 2010. The new members of ASEAN have up to 2013 (Vietnam), 2015 (Laos and Myanmar) and 2017 (Cambodia) to meet this deadline. By the year 2000, there would be 370 tariff lines in the Sensitive List making up 0.58% of all tariff lines in ASEAN.
- d. General Exception (GE) List. These products are permanently excluded from the free trade area for reasons of protection of national

security, public morals, human, animal or plant life and health and articles of artistic, historic and archaeological value. There are 1,036 tariff lines in the GE List representing about 1.61% of all tariff lines in ASEAN.

The ultimate target for AFTA – Zero Tariff Rates, member Countries are working towards the total elimination of import duties on all products to achieve the ultimate objective of a free trade area. The AFTA Council has agreed that the target dates to achieve this objective will be in 2015 for the six original ASEAN Member Countries and 2018 for the newer Members. This move is expected to create an integrated market where there is free flow of goods within the region. Total elimination of import duties shall achieve a maximum impact in enhancing the ASEAN region's economic competitiveness vis-à-vis the rest of the world.

For the purpose of the CEPT-AFTA Agreement, goods imported under the CEPT Scheme into the territory of a Member State from another Member State shall be eligible for preferential tariff treatment if they conform to the origin requirements under any one of the following conditions:

- a. A good which is wholly obtained or produced in the exporting Member
- b. A good not wholly obtained or produced in the exporting Member State, provided.

For the purpose in the condition number two above a good shall be deemed to be originating in the Member State where working or processing of the good has taken place:

- a. If at least 40 percent of its content (hereinafter referred to as “ASEAN Value Content” or the “Regional Value Content (RVC)”) originates from that Member State or it has undergone a change in tariff classification at four-digit level (change in tariff heading) of the Harmonized System (HS).
- b. If it is specified in Appendix C on the CEPT AFTA Rule and satisfies the criteria set out therein.

The formula for calculating ASEAN Value Content or RVC is as follows:

Direct Method

- Direct Method

$$RVC = \left[\frac{((ASEAN Material Cost + Direct Labor Cost + Direct Overhead Cost + Other Cost + Profit) : FOB Price) \times 100\% }{ } \right] \quad (3.1)$$

- Indirect Method

$$RVC = \left[\frac{((FOB Price - Non-Originating material) : FOB Price) \times 100\% }{ } \right] \quad (3.2)$$

3.5 Local and ASEAN Contents.

Regional integration involves processes which distinct national economies become economically linked and interdependence through greater cross-nation movements of products, services and factors of production. In the Free Trade Area (FTA) the local contents requirements, which specify that producers located within the countries provide a certain proportion of products and supplies uses in local manufacturing. If the content requirement is not met, the product become subject to tariff.

In AFTA product specific rule the hydraulic excavator product that covered in Harmonization Code (HS) 8429 with product description self-propelled bulldozers, angle dozers, graders, levelers, scrappers, mechanical shovels, excavators, shovel loaders, tamping machines and road roller with a regional value content of not less that 40 percents will have the benefit zero percent tariff.

The product of PT ABC that achieved more than 50 percent local content are work tools and truck body, while for the prime products machines the local contents as follows:

- Hydraulic Excavator type 20T Local contents 38 percents
- Track Type Tractor Type Local contents 30 percents

The summary breakdown for the RVC contents as follow:

Table 3.1 RVC Summary Percentage on PT ABC's Hydraulic Excavator

Outside ASEAN		
China - Track and Undercarriage		7.4%
US - Hardwares		0.8%
Japan- Direct Import - Radiator, Eng		36.4%
China - Direct Impopt - Pin, Ring		0.1%
Japan - Valve		0.9%
US - Part Service		0.7%
Japan - CKD		15.5%
Indonesia		RVC Contents
Raw material - First operation	20.9%	38.19%
Direct overhead and Profit	17.3%	
Selling Price		100.0%

Source: Project Analysis at PT ABC

Compared with the competitors the local contents on Komatsu products with the similar machine type already achieved more than 50 percents. The high local content results of Komatsu supported by the Japan business model approach by bring the Japan suppliers to support the core manufacturing in Indonesia. The other competitor Hitachi also had more than 40 percents local content on the hydraulic excavator product type EX200. From the data analysis gathering from two bigger competitors Komatsu and Hitachi, they have strong position supplier footprint at South East Asia. Based on the Supply Chain team at PT ABC, there are at least nineteen supplier transplants for Komatsu in Indonesia and sixteen for Hitachi. And there are eight supplier association members from group PT ABC at Japan represented in Indonesia.



Figure 3.3 The Advantage of Local Content Komatsu's Excavator

Source: Supplier Interview and compared with PT ABC product

3.6 Company History

PT ABC is parts of World Class Heavy Equipment Brand and the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, and industrial gas turbines. This company was formed in 1982 to provide selected world class heavy equipment products for Indonesia.

Located on 10 hectares (25 acres) in West Java with more than 15,000 square meters (160,000 square feet) of manufacturing space and a dedicated workforce trained in world class management techniques, manufacturing processes and rigorous quality standards, PT ABC is one of more than 237 manufacturing facilities around the world producing world class heavy equipment products. All share a common commitment to the highest standards of quality and production excellence.

Manpower is provided by around 330 employees who receive continuous training and development, locally and abroad, to keep pace with advancement in the industry. Global linked communications system connects PT ABC with other group facilities in the world. Hydraulic Excavators, Track-Type Tractors are the construction equipments currently produced by PT ABC. Besides assembling, cutting, forming, welding and machining of components are also performed by PT ABC.

Since 1996, PT ABC also manufactures and designs quality work tools for construction equipment for customers in South East Asia. Work tools tailor PT ABC machines to the specific requirements of a customer's working needs. Some of the work tools that have been manufactured at Natra Raya include: Buckets, Grapples, Blades, Logging Forks, and Quick Couplers.

3.7 PT ABC Production System and Six Sigma

With Vision 2020, Group of PT ABC provided clarity to the future state of our business. It outlines three top priorities as a company... safety, quality and velocity. PT ABC Production System was created to support and reinforce these priorities — focusing specifically on these priorities, as well as cost and / or trough. Production System is all about helping Team Group PT ABC set the “gold standard” for our industry as we produce the highest quality products, as efficiently and safely as possible. To achieve the gold standard, the processes in the order-to-delivery space were chosen as a strategic area of improvement (SAI). The Order-to-Delivery SAI is about continually improving the process — from how the customer places the order, to how efficiently we manage every one of our processes, including how well our suppliers deliver, to the final delivery of our product to the customer. CPS defines how to implement, improve and sustain these solutions to our greatest opportunities from order to delivery. The continuous improvement of the order to delivery processes is the focus of PT ABC Production System.

6 Sigma is the way we work at PT ABC and the way we will execute PT ABC Production System. The process will use the 6 Sigma fact-based, data-driven methodology to continually manage (Process Management), improve (DMAIC – Define, Measure, Analyze, Improve, and Control) and create (DMEDI – Define, Measure, Explore, Develop, and Implement) processes, products, and services to achieve the strategic goals outlined in Vision 2020. Full-time 6 Sigma practitioners, black belts and master black belts will lead 6 Sigma production system project teams with green belts on their teams. PT ABC belting curriculum will ensure the standard work throughout the production system processes, while emphasizing practical application. PT ABC belting is built on the foundation of 6

Sigma, with various levels of involvement. Yellow belts will focus on awareness, while Yellow belt plus / green belts will apply their knowledge on projects. Black belts will lead those projects, and Master Black belts will be responsible for coaching, teaching and developing the CPS black belts to ensure alignment with 6 Sigma.

Over the last eight years, group of PT ABC has demonstrated the usefulness of 6 Sigma in achieving its strategic goals. This was accomplished by fully integrating the methodology and its principles into all aspects of the business, including suppliers and dealers. It also allowed the integration of knowledge from Black Belt projects across business units. Further, Caterpillar believes that, by using 6 Sigma to drive change, its new goals are obtainable. One example that exemplifies group of PT ABC's continuing integration of 6 Sigma into all aspects of the business is a project that will improve threaded joint design in the assembly process. This project focuses on continuous improvement in group PT ABC's quality culture and provides an opportunity to leverage best practices and replicate solutions across the enterprise.

The company is also working on a 6 Sigma project that focuses on ergonomic improvement. This project is helping PT ABC put processes in place that allow a proactive and, ultimately, preventive approach to ergonomic injuries by providing a better work environment for employees. As you can see, PT ABC is continuing to embrace the 6 Sigma methodologies, not only in manufacturing and engineering, but across the organization. This way of working and thinking continues to be successful in driving the company's strategy for change.

3.8 Manufacturing Processes

The Production Execution at PT ABC process consists of various sub-processes and based on the end product, all or any combination of sub-processes might be applicable. This manual devotes a chapter to each of the following sub-processes, which encompass the majority of production processes:

- Fabrication – The process that encompasses the three sub-processes of Cutting, Forming and Welding:

- Cutting, The process of generating two-dimensional complex shapes from plate steel using an energy source.
- Forming, The process of creating bent shapes from a flat piece of material.
- Welding or Joining, The process of joining two metal pieces by heating them and allowing them to flow together.
- Machining – The removal of material caused by tools contacting work pieces at various feeds and speeds.
- Assembly – The process of joining components and sub-assemblies together to complete a product for shipment to the customer.
- Cleaning – The process of removing oxides and soils from the surfaces and internal passages of parts and components. Cleaning is done to improve product performance and reliability due to the absence of debris in hydraulic and fuel systems, as well as components and to provide an acceptable surface for subsequent coating processes or inspection.
- Product Finishing – The combination of manufacturing processes used to apply paint to machines and engines to impart brand identity, protect functionality from corrosion and enhance customer perception of quality.
- Assembly – The process of joining components and sub-assemblies together to complete a product for shipment to the customer.

3.9 Fabrication Processes

At PT ABC, the Fabrication process for hydraulic excavator consists of the four major Manufacturing Production Execution sub-processes of:

- a. Cutting (including beveling). All cutting process for PT ABC processed in the local supplier first operation by laser cutting technology.
- b. Forming. All forming process for PT ABC processed in the local supplier first operation by laser cutting technology.
- c. Welding – also known as joining (including the Tack process). A type of Materials Joining. (Materials joining are the process of bringing two discrete

sections of material together with the capability of carrying a load between them.) The Welding process produces coalescence of materials by heating them to suitable temperatures. It can also include the application of pressure alone and with (or without) the use of filler material. The major structure for PT ABC's hydraulic excavator such as: Bucket, Stick As, Frame As-Upper, Boom As, Frame As-Under, Counterweight does at in house to maintain the quality of finish product and as the core processes at PT ABC besides final machines assembly.

- d. **Machining Process** – An important sub-process within Production Execution, Machining is the activity involving the use of power to remove material from a work piece to change its geometry surface finish and/or material condition. Commonly defined edge “cutting” processes used in all machining operations are milling, drilling, boring, tapping, turning, and reaming in ferrous and non-ferrous materials. Undefined edge “abrasive” processes commonly used in machining are grinding, honing, polishing and lapping. In essence, Machining transforms raw materials and components into higher value-added finished products to meet Customer Orders by executing plans and instructions created in the Manufacturing Engineering process.

PTABC HEX
Components configuration

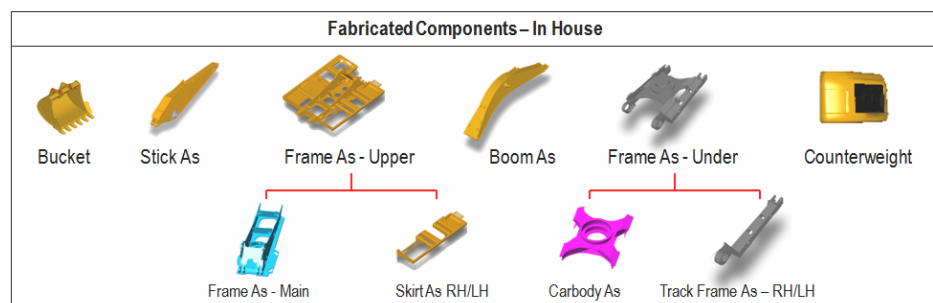


Figure 3.4 Fabricated Components at PT ABC

Source: PT ABC Product Structures

At the current production capacity at PT ABC related with hydraulic excavator production lines, the maximum capacity on each process area as follows:

- Fabrication 55 units per month / 660 units per year
- Machining 132 units per month / 1584 units per year
- Assembly 316 units per month / 3792 units per year
- Product Finishing 100 units per month / 1200 units per year

Based on the data above the constrained area is fabrication and followed by product finishing or painting processes. With this condition the focus the achieved the hydraulic excavator production capacity to meet with 1200 units per months, the processes at fabrication should improved.

The capital investment related with the fabrication processes involved building, welding fixtures, tooling, welding machines, cranes, etc.



Figure 3.5 Fabrication Processes – Welding and Machining at PT ABC

Source: Soft floor Pictures at PT ABC

3.10 Capacity Planning Process

At PT ABC Capacity Planning takes place before the Sales and Operation Planning (S&OP) and Supply Chain Capacity Management (SCMM) processes. It

helps all parties prepare for the transition from strategy to tactics to execution. Internal and external suppliers should have the best information to ensure that material, staffing and machinery will be in place to meet the demand for products. Capacity Planning provides data to the S&OP process on what levels and mix internal and external suppliers can support.

Capacity Planning is aligned with the Manufacturing Engineering and Manufacturing Production Execution processes. Manufacturing Engineering utilizes Capacity Planning to plan capital investment. Manufacturing Production Execution provides feedback on actual performance versus capacity expectations.

Enabling processes such as Value Stream Transformation, Information Management and Capability Building support Capacity Planning to deliver benefits to the enterprise. Capacity Planning is a small but integral part of the Governance and Assessment process.

