

Astra Honda Motor brings innovative motorcycles to market faster through design collaboration between Indonesia and Japan

Overview

■ The Challenge

In Indonesia, where traffic is congested, motorcycles are more than a mode of transportation; they are a way of life. To remain competitive and set trends, market leader Astra Honda Motor needs to continuously innovate and bring new designs and technologies to market rapidly. This required the company to bridge a process gap between Honda designers in Japan and local designers in Indonesia that had significantly lengthened the design cycle.

■ The Solution

Astra Honda Motor (AHM) engaged IBM Indonesia to deploy a new design platform that enabled a seamless, efficient process flow and faster time-to-market with innovations.

■ Key Benefits

- *40 percent increase in the productivity of AHM design engineers*
- *70 percent reduction in AHM's prototyping requirements for new designs*
- *50 percent reduction in design iterations among AHM suppliers*
- *Improved competitiveness and market share.*



PT Astra Honda Motor (AHM) produces Honda motorcycles for the Indonesian market, where it has been the market leader for many years. It is a joint venture between Honda Motor Co., Ltd., Japan, and Indonesia's automotive giant PT Astra International, Tbk. AHM currently has three manufacturing plants with a total annual production capacity of three million motorcycles.

The increasingly global nature of the world economy attests to a growing consensus around a powerful idea. That is, when capital and information are free to flow in the direction of opportunity—and transcend national boundaries—the world economy as a whole benefits. For the companies driving the trend, much attention has been given to low costs as both an enabler and an incentive for their globalization initiatives. But while these cost advantages are typically a critical foundation for a successful venture, they are only part of the story.

“IBM has played a significant role in helping us find ways to speed up time-to-market.”

– Karsono, General Manager of AHM's IT division, PT Astra Honda Motor

Reducing time-to-market with collaborative design

Business Benefits

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- 70 percent reduction in AHM's prototyping requirements for new designs
- 50 percent reduction in design iterations among AHM suppliers
- Faster time-to-market with new designs
- Improved competitiveness and market share.

In the bigger picture, the success of globalization strategies often depends on how effective companies are at pulling together skills and expertise from around the world to meet the needs of local markets. In short, a successful global strategy is not just about having a local presence. It is about leveraging global resources to bring the right products to market—faster, better and more cost-effectively.

Honda Motor's experience in Indonesia provides a strong case in point. To capitalize on the explosive growth of the Indonesian motorcycle market, Honda formed a joint venture with PT Astra International, Tbk, one of the largest automotive manufacturers in Indonesia. Known as Astra Honda Motor (www.astra-honda.com), the venture operates three manufacturing plants with a total annual production capacity of three million motorcycles. In a market that is both fast growing and hotly contested, the venture was conceived as a way to complement Astra's local market knowledge and design expertise with Honda's world-class engineering capabilities. Astra Honda Motor's consistent leadership in the Indonesian market—with a share of more than 50 percent—attests to the success of this relationship to date.

Staying ahead in a fast-changing market

It is in sustaining this leadership, however, that AHM faces a constant challenge due to the dynamic—and demanding—nature of the Indonesian motorcycle market. As in many Asian countries, motorcycles are a primary vehicle of transportation in Indonesia, due to increased traffic, lower fuel consumption and emissions and economic factors. The growth in motorcycle ownership rates has also corresponded to an increase in the sophistication of the Indonesian consumer, manifested by a growing desire to keep up with the latest 'hot' designs. As a result, product lifecycles are—relative to passenger cars—short, with fundamental design changes occurring more frequently. To stay ahead in the competitive race, motorcycle manufacturers need to not only keep up with changing local tastes, but also bring their new designs from conception to fruition as efficiently and rapidly as possible.

“Because part of the data sent from Japan is already in 3D, we are able to reduce our workload by 20 percent to 25 percent. Moreover, with the accuracy of the digital data improved, we can also increase the efficiency of the processes during the development of the dies and molding.”

– Karsono, General Manager
of AHM's IT division,
PT Astra Honda Motor

AHM, whose design process required design sharing between its local operations and the Honda design center in Japan, realized that gaps in its design sharing capabilities were hindering its ability to bring products to market as fast as possible. At a high level, the design process begins with the creation of the 'core' design of a new model by engineers in Japan. The core design is then handed over to AHM's local designers, who augment the design with stylistic elements that appeal to local market tastes and requirements. In the last basic stage of the process, the design is reviewed by Honda corporate designers in Indonesia and then either sent to AHM manufacturing facilities or to AHM's suppliers. While the process flow was sound at a high level, a close-up view revealed major discontinuities in the flow that significantly lengthened the design cycle. The root of the problem was a lack of compatibility between the design tools used by the two design teams, which compelled them to ship design specifications, drawings, lists of part structures and other key data via international courier in hardcopy form. It was at this point in the process that the level of efficiency fell off dramatically.

Lost in translation

Once the designs were finally received, AHM had to translate the design data it received in paper form into an electronic file that could be fed into its own computer-aided design (CAD) tool as well as its suppliers' computer-aided manufacturing (CAM) systems. But this transition held a fatal flaw. While Honda's initial designs were developed in 3D, the shift to a 2D medium (paper) had the effect of stripping away a significant amount of data from the design's content. To restore this design content into a format suitable for CAD/CAM systems, AHM's local engineers needed to redraft them—a process that increased the length of the design cycle by as much as 40 percent while adding essentially no value to the final product. AHM realized that its existing design sharing process slowed down new product introduction and—to an extent—offset some of the design synergy that was the basis of their relationship. Solving this problem required AHM to bridge this gap and create a seamless process flow from the CAD workstation in Japan to local manufacturing shop floors. For this it turned to PT IBM Indonesia.

Key Components

Software

- CATIA V5
- Tivoli®

Servers

- IBM System p™

Services

- PT IBM Indonesia

Time frame

- Infrastructure setup: one month
- CATIA V5 deployment: six months.

Why it matters

In the Indonesian motorcycle market, the increasing sophistication of consumer tastes makes it critical for manufacturers to get the newest designs to market fast. By using CATIA V5 to create a seamless design pipeline from its home offices in Japan to its local operations, Astra Honda Indonesia was able to cut a huge amount of inefficiency—and time—out of its design cycle. This drastic improvement has strengthened its ability to translate its design prowess into market leadership.

The IBM team replaced AHM's existing design solution with CATIA V5, the solution then in use at Honda Motor, and linked it to Japan via a high-bandwidth connection. IBM staff also provided training and knowledge transfer to stimulate adoption of the new solution. Running on a new IBM System p server, AHM's CATIA V5 solution automatically receives and processes design files in their original format, thus eliminating the need for AHM engineers to rework designs and enabling them to focus on their core competencies—providing the local design elements that set their products apart in the Indonesian motorcycle marketplace. The most visible and far-reaching result of this process improvement was a decrease in the overall design cycle and a commensurate increase in speed-to-market with new products. A big reason is quality. Before the design process was standardized and designs needed to be reworked, design problems typically required as many as ten prototypes of a new product before they got it right. With the new process, that number has been reduced to two or three.

Suppliers employing CATIA V5 have experienced a similar improvement in their design efficiency and cycle time, with the reduction in rework requirements as a key factor. More often than not, AHM's part and component suppliers needed to go through two or three iterations before their manufactured product conformed to the specifications laid down by Honda Motor. Among suppliers using it, CATIA V5 has virtually eliminated the need for multiple design iterations, enabling significant cost savings and cutting weeks—if not months—from the design and manufacturing cycle.

Building on success

AHM expects to build on this success by engaging IBM Indonesia to deploy the ENOVIA global collaborative environment for PLM solutions, with the goal to further reduce its design cycle by improving efficiency through all phases of the product development process. One particular area of focus will be parts management. With each of AHM's seven models having an average of 6,000 parts and components, it's essential for AHM to be able to track versions to ensure that designers are working with the most current parts designs. ENOVIA will do this by creating a common management capability and a formalized, optimizing workflow for monitoring and tracking design changes. Karsono, General Manager of AHM's IT division, sees the new solution as an important strategic weapon in an increasingly competitive market. "CATIA has given us a technical and speed advantage over our rivals and helped us to become more competitive through our innovative product development," says Karsono. "IBM has played a significant role in helping us find innovative ways to speed up time-to-market".

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