EXECUTIVE BRIEF

How Asian automotive manufacturers can meet today's consumer expectations with a modern ERP

Automotive

With a population of more than **650 million and a GDP of over US$3 trillion in 2019**, the Association of South East Asian Nations (ASEAN) is set for further growth in the decade ahead. Surging growth has its downsides: Personal transport in many parts of the region has become synonymous with gridlocks and air pollution.

It's easy to see the appeal of next-generation electric vehicles with zero-emissions and built-in self-driving intelligence. Electric vehicles have the potential to alleviate both congestion and pollution. Regardless, evolving expectations mean that even consumers looking at non-electric vehicles demand a raft of new capabilities, ranging from advanced safety features to personalised options. Whether it's electric vehicles or the rise of the automobile as a digital platform, this shift in consumer expectations has a direct impact on manufacturing processes and the technology required to support production.

A new approach

Heightened consumer expectations put the onus on automakers to adopt a new approach to building cars—and establish the manufacturing ecosystem to support it. Where the traditional factory line is a one-way street churning out new vehicles in accordance to a fixed template, balancing lead times and increased complexity requires greater flexibility, as well as the ability to make in situ fixes or improvements to the unfinished vehicle.

A winning approach must not be limited to the factory floor but must include the digital ecosystem around production. As data is centralised and real-time production data is piped in from partners and internet of things (IoT) sensors around the factory, the door is opened to far greater improvements beyond ensuring that vehicles are made and the numbers add up for the annual reports.

One aspect of this is the ability to glean next-level insights from a centralised business system that is being used to collect and analyse production data, for example. By leveraging these insights, manufacturers can move beyond basic efficiency gains, and step outside the box to work out better processes. With better decision support, such as accurate forecasting, expensive stoppages in the assembly process can be avoided or pre-empted at a much earlier stage. When it comes to sales, expect the ability to spot sales trends or popular features much faster, allowing winning capabilities to be incorporated into more vehicles earlier.

The digital ecosystem

Aside from more traditional efficiency gains, a digital ecosystem where information flows freely is also the perfect opportunity for automakers to better engage stakeholders and users. Armed with unbiased statistics, automakers can be better positioned to work together to lower costs, collaborate on new capabilities, or find new ways to enhance quality and reduce production time.

Integrating production data and real-time inventory creates a singular, holistic view that gives automakers gains along multiple fronts pertaining to quality, timeliness, and predictability. The latter is vital in minimising idle inventory or wastages and is something that will only get better as more data is accumulated.

Further afield, engine sensors can deliver insights not just for automatic engine tuning, but to offer insights that drivers will find invaluable. Extrapolating from there, the possibility exists to offer similar information as part of an advanced service to consumers for an additional price or to simply increase stickiness—truly leveraging the concept of a car as a digital platform.

The leap forward

The steady encroachment of technology could finally tip the humble car from a mundane mode of transportation to a digital-centric platform that can shuttle us between locations. At the root of this metamorphosis is a confluence of factors, like pervasive digitalisation, a fixation on personalisation, and the rapid pace of technology advancement.

Consumers have come to expect more choices and a larger platter of options. Moreover, the spectre of hyper urbanisation throws additional considerations into the works. According to a **study by the UN**, up to two-thirds of the world's population will live in cities by 2050, with 90% of this increase projected to take place in Asia and Africa. We can expect a far greater emphasis on affordability by a new generation of city dwellers, as well as the ability to tackle overcrowded roads or traffic congestion.

Returning to the topic of electric vehicles, when it comes to the electrification of cars, we must also consider advanced navigational technologies and materials. Advanced sensors from high-resolution cameras to lidar and radar are fast becoming the norm, as automakers furiously work on perfecting autonomous vehicles powered by advanced machine learning (ML) software.

Evolving factory floor

Though the development of the car into a digital platform offers a rich mosaic of opportunities for savvy automakers, it also presents new challenges around the fluid digital capabilities and continuous improvements required to manage the growing complexity of high-tech automobiles. This includes the need to maintain rigour around version control and manufacturing statistics and coping with relentless changes in software and other digital systems.

To maintain their margins, automakers must be more responsive and agile than ever, while simultaneously upping the ante on the sustainability and the traceability of their supply chains. They must turn to electronic information exchange (EDI) and a plethora of digital tools to work with a growing pool of technology partners and suppliers and support the increasingly cross-disciplinary collaboration needed to build modern vehicles.

For a start, factory floors for vehicles must evolve from yesteryear's linear, one-way workflows to one that offers greater agility and flexibility. And where supply chains often see the cost of last-minute component changes or excess stock borne almost entirely by suppliers, newfound inventory visibility can allow partners to benefit by making better decisions to build or retroactively revise components—substantially increasing responsiveness.

Even modest amounts of automation can result in great benefits downstream. Some of these practices are already making their way into Southeast Asia, with enhanced forecasting offering greater insights into profitability at any point in time, rather than at month-end or at the completion of a product cycle.

A post-modern ERP

The most common roadblock to the evolved factory of the future is a legacy IT and monolithic enterprise resource planning (ERP) system that can no longer meet these sophisticated demands. Indeed, the traditional "spaghetti architecture" of scores or even hundreds of disparate IT systems across multiple factories, or up and down the supply chain can severely impede efforts to optimise efficiency.

On the other hand, a cloud-native ERP system is ideally suited to support true digitisation by serving as a platform to deliver the requisite capabilities and scalability. From a centralised repository containing production data and more, this system can manage the large flow of data in today's manufacturing environment, integrate advanced technologies such as real-time imaging processing, and apply ML algorithms to gain insights.

Auto component manufacturer **Fujikin**, for instance, adopted CloudSuite Industrial, a cloud ERP solution built with automotive functionality that accommodated most of Fujikin's existing business requirements out of the box.

By using this platform and the cloud to standardise its systems that were not reliant on specific employees, Fujikin projected a 170-man-hour per month workload savings.

The need to reinvent the ERP system is more pressing than ever in the Asia Pacific region, especially as China invests heavily in manufacturing digitisation. For automakers in Southeast Asia, this represents a threat to competitiveness on the horizon that can only be met with a post-modern system and tools. The question is: Are they doing something about it?

Forging ahead in Asia

The situation is a mixed bag in Asia, with a general reluctance to be the "first" when it comes to change. Currently, the push towards digital is typically driven by a parent company, or by significant customers that mandate it. Suppliers who are further down the supply chain tend to be more isolated, and often respond to demands for greater responsiveness by expediting measures by increasing their manpower or boosting inventories.

This is unsustainable and fast reaching a breaking point, however. Not only is production and inventory control becoming onerous, once staid activities such as packaging are also increasingly more complex due to the need to support increased automation on the part of manufacturers. The industry needs to make a change, and the time is now. Moreover, delaying the inevitable can be harmful, as a hasty move to digitisation will take significantly more effort as well as erode margins.

On the positive side, the appetite and sophistication to embrace digitalisation and new digital-centric approaches exists. By making bold strides now, automakers in the region could leapfrog ahead of competitors in other parts of the world. Ultimately, it's not just about doing things quicker, but about staying ahead by adding value in the supply chain and reducing overheads through better, more efficient methods.

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