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AGCO harvests more value from IT

Like automotive firms, agricultural equipment maker AGCO is planting the seeds of transformation, implementing a common global IT infrastructure, more digital manufacturing processes and an agile approach to IT service and development. By Christopher Ludwig

Manufacturers of passenger vehicles are not alone in implementing technology that will change the way their products and business models operate. Commercial vehicle companies, whether of large trucks, farming or construction equipment, are also looking to a future that is more autonomous, connected and electrified.

Such technology could come even faster for these sectors. While the sensors and compute power remain as complex for autonomous commercial as they do for passenger vehicles, using self-driving tractors on a farm presents fewer obvious hurdles than driverless cars in a city. Predictive maintenance, meanwhile, is already becoming a feature for many types of industrial equipment, driven by the imperative to keep their users' businesses running.

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The supply chains for such firms are also increasingly digital, with software, sensors and advanced automation providing opportunities to improve transparency, data analysis and reduce errors.

Automotive and commercial manufacturers face similar IT requirements in keeping pace with this technology. They both need common platform IT infrastructure that is secure, scalable and yet open to capabilities for software-as-a-service, apps and other innovations. IT organizations must also be agile and flexible, working closely with business units to solve problems and develop prototypes as quickly as possible.

Large industrial and commercial manufacturers also face familiar organizational challenges to their automotive peers, including how to integrate legacy IT systems and manufacturing assets, a disjointed supply chain and management silos.

The digital journey of agricultural equipment-maker AGCO, headquartered in Duluth, Georgia, is a good case study, with lessons and objectives similar to those in automotive, industrial equipment and even retail. The company, the world’s largest maker of industrial agricultural equipment with revenues of more than $9.3 billion in 2018, is split across a collection of brands that mark its history of acquisition, such as Massey Ferguson, Valtra, Fendt, Challenger and GSI.

It is also made up of multiple business units, some of which are very distinct. For example, along with manufacturing farming vehicles and equipment like tractors and combine harvesters, it is also provides farming systems around hay and forage, application equipment for spraying nutrients and protectants. GSI, for example, is a grain system specialist that sells processing machines, with more focus on service and distribution than those brands building large tractors. AGCO also runs a dedicated aftermarket parts and service business.

These units have historically had their own supply chain and IT setups, and likewise have had gaps in how data and best processes are gathered and tracked, according to Jeetendra Kumar, director of IT for enterprise application services. “We have stitched these systems together across regions,” he says.

But Kumar, who joined AGCO just over two years ago after nearly a decade in IT roles at Coca-Cola European Partners (an independent Coca-Cola bottler, formerly known as Coca-Cola Enterprises), has been working with his teams to change that. AGCO is in the process of implementing more standard, on-premise and cloud-based systems, including large global platforms enterprise resource planning (ERP), manufacturing execution system (MES) and other technology across the enterprise and value chain. His team is also working closely on how to connect the variety of IT systems that

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AGCO uses across its manufacturing engineering, planning, logistics and distribution business functions.

“Over the next three to five years, we expect everything to be different. We’re building enterprise systems on common platforms, with standard backend systems,” he says.

Kumar’s enterprise application service team has also changed work patterns at the company, with the aim of distributing IT expertise across ‘domain leaders’ in areas like manufacturing, planning, purchasing, human resources or logistics. While such a structure would not be unfamiliar to large automotive companies, it is a big change for AGCO and an important step in becoming more agile.

Proactive IT, ready to ‘fail fast’
According to Kumar, the intention is to shift IT workers from being “order takers”, to leading more on new processes and product creation. In fact, he thinks that IT has a key role to play in generating revenue and value as well as maintaining operations. He wants IT teams to be involved actively in growing AGCO’s business.

“The purpose has been to get domain leaders to be part of the cadence of the business, because we know that IT has a bigger play in the decisions that we make,” he says.

The IT team is also playing a key role in AGCO’s digital manufacturing strategy, including projects to implement more robot process automation, augmented reality and digital twin capabilities. Logistics is another important area, both in plant and warehousing systems, as well as a global system for transport management and purchasing.

AGCO echoes automotive manufacturers in its attempts to create an IT and software culture that introduces prototypes and products faster. While that can be difficult in the context of enterprise systems that run complex supply chains and factories, Kumar points to an openness to work with or even invest in new partners without putting the day-to-day business at risk.

“We are introducing more of a venture capitalist approach to innovation, willing to take risks with partners and to develop a ‘fail fast’ culture,” says Kumar.

Common platforms, centers of excellence
AGCO’s transition to common, cloud-based IT platforms are already well underway. According to Kumar, the initial transitions, together with SAP, for its ERP system are almost complete in Europe, and will then follow in the Americas and Asia.

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However, full completion will take a long time and require significant investment and buy-in from across the company, something that AGCO's senior management supports. But Kumar admits to challenges in managing these changes, such as connecting every location and working across business units. For example, some factories run stably on local systems, reducing the operational and cost imperative to change to the cloud and matured ERP platforms. However, it can be difficult to extract accurate and real time data from such locations.

"It means that operational control is localized only, and I don't have visibility at an enterprise level, for example about issues with tooling or logistics," he says. "That is why we are going to need to make these changes to really get to the next level."

Enterprise system overhauls would make little sense without adapting AGCO's wider IT and digital organization. That is why AGCO is now grouping IT experts into teams focused on specific departments across the company, rather than working in isolation. The goal, says Kumar, is to create 'IT business functional domains' in each area.

These IT domains mirror key business functions across locations, brands and divisions, working closely with the IT providers in each area and AGCO operations. For example, the 'Plan and Make' team covers all areas of planning, manufacturing engineering, manufacturing and quality. 'Source and Deliver' covers procurement activities, warehouse management, delivery and logistics execution. Teams in 'Sales and Finance' cover order management, pricing distribution, along with and financial and costing transactions.

This concentrated collaboration helps improve communication and not just to address pain points or system faults – but to develop new ideas. "Increasingly, we feel that IT is not just an enabler, but where operational improvements can come as well as the next revenue dollar," says Kumar.

"We are trying to influence our teams so that they go beyond the day-to-day of IT to some extent, and allow them to see the challenges for the future. For example, we want them to actively work on shaping the future of manufacturing."

The digital supply chain
Digitalizing manufacturing and supply chain processes are already an important focus for the IT team, such as implementing augmented reality tools, data visualization and warehouse management.

The move to a common ERP and MES has supported such ambitions in terms of visibility and data. For example, AGCO is using data visualization to track processes and provide recommendations to

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optimize energy and work flows within the MES.

But AGCO is also adding considerable innovation on top of these platforms. An increasing number of plants in North America have introduced augmented and virtual reality (AR/VR) tools, including smart glasses or headsets to assist with quality inspections, non-conformance reporting and assembly.

For logistics, the company has also introduced more automated guided vehicles and cobots at plants and warehouses. In its transport network, the company has made major strides, migrating its global supplier and carrier base onto a cloud-based transport management system managed by specialist provider. The system determines the best material flow by using algorithms that consider capacities, supplier shipping requirements, lead-times and external risks. (Read more about this partnership on our sister title, Automotive Logistics.)

According to Kumar, the company has wider ambitions around using artificial intelligence and data analytics. It has introduced predictive maintenance in some manufacturing equipment to avoid production disruption.
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Jeetendra Kumar, AGCO
Such processes could eventually benefit from more AI, which is being integrated across all system processes. But Kumar admits that the company remains at the early stages and that AI is not a single solution that suddenly transforms all operations. “AI is a process and we are currently testing and piloting,” he says. “What is important for us is to use AI and other technology to assist and enhance our human talent.”

An example of a future improvement that AGCO is currently discussing with SAP is to capture and analyze more data from its sales and distribution channels to help improve demand planning and forecasting. For example, increasingly customers use configurators to choose the tractors and farming equipment that they want, whether online or at dealers.

“We want to use that data better to understand the options that customers are exploring or even considering, and feed that back through our engineering and development process,” he says.

IT as an incubator
Although the enterprise IT teams work across large-scale systems and operations, Kumar is keen to

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promote a start-up mentality based on design thinking and agility. The domain teams are often split further into small working groups with a ‘pod’ leader, for example, whether for manufacturing execution or quality management.

“That allows more opportunities for people to take a team lead, to innovate and make significant improvements,” he says. “It also provides them further opportunities to progress within the domain structure.”

The IT department likewise has a key role to play in working with outside partners, whether large IT providers, or startups in specific applications like AI or machine learning. IT teams contribute to scouting or validating corporate venture initiatives – or coming up with ideas and minimum viable products to take out to market.

“We want to go back to the point where we become internal venture capitalists, for example in areas around digital manufacturing,” says Kumar. “We are gathering more and more ideas from our teams, which we want to promote and turn into reality.”

As with any firm, however, AGCO needs to balance innovation with return on investment, and focus on what adds the most value to products or operations in the business. What’s different now is that IT is increasingly at the center of those value judgements.

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