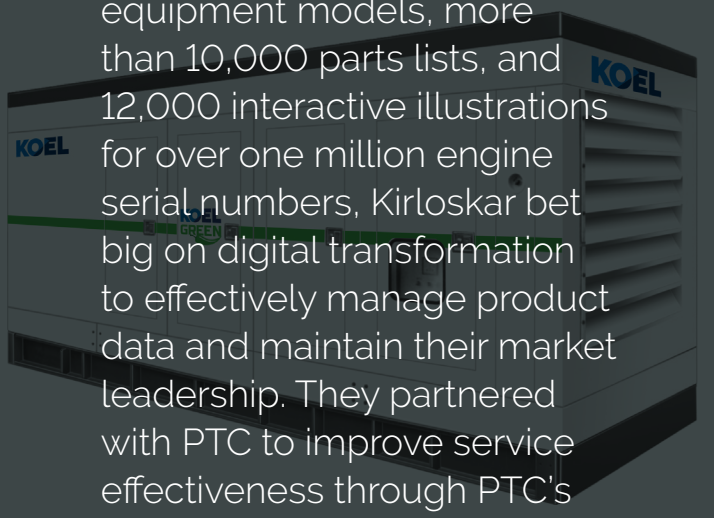
Design for Serviceability: Improving Technician Effectiveness and Service Performance at Kirloskar Oil Engines Limited

With a 3D parts catalog containing over 1,000 equipment models, more than 10,000 parts lists, and 12,000 interactive illustrations for over one million engine serial numbers, Kirloskar bet big on digital transformation to effectively manage product data and maintain their market leadership. They partnered with PTC to improve service effectiveness through PTC's Arbortext Content Delivery combined with a foundation of enterprise-wide PLM.



Paving the way for a greener tomorrow

Headquartered in Pune, India, Kirloskar Oil Engines Limited is a Kirloskar Group Company. Kirloskar is an acknowledged market leader in India for designing, manufacturing, and service of diesel engines. Kirloskar has a state-of-the-art manufacturing unit in India that offers world-class service to its customers. The company has a sizable presence in international markets, with offices in Dubai, South Africa, and Kenya, and representatives in Nigeria. Kirloskar also has a strong distribution network throughout the Middle East and Africa. Kirloskar's engineering capabilities are backed by a strong R&D center that works toward bringing innovative product offerings to customers at competitive prices.

With more than 430 service touch points across India and an extremely proactive service team, Kirloskar boasts one of the best after-sales service support processes in the industry. To enhance the customer experience, the Customer Support Business Group (CSBG) partnered with PTC to realize several 'Go Digital' initiatives that now serve as the benchmark in the industry.

kirloskar Oil Engines

ptc

Change is constant: Diesel engines of the future

A frontrunner in energy conservation—both in its processes and products—Kirloskar's commitment to innovation shows through their focus on developing products that use disruptive and/or innovative technology trends. This includes alternate fuels, electrification of engines, energy storage, and alternate methods of electricity.

For example, the company recently started offering an array of innovative, customer-centric features, such as automatic mains failure (AMF), remote monitoring, new aesthetics, and several class-leading features in canopies. Additionally, they recently launched Kirloskar iGreen, an IoT-enabled generator set, as a standard feature.

Transitioning from service provider to service partner

By providing reliable after-sales and service support, Kirloskar remains closely engaged with their customers—an area of great importance for the company. Doing so enables them to better anticipate and fulfill customer needs and expectations. Kirloskar has a widespread and well-equipped network of 435 service outlets across India with approximately 4,000 people engaged in their service dealerships. The PTC service solution was designed by Kirloskar in collaboration with the dealer network. PTC's Arbortext Content Delivery allows them to meet the current service organization needs, while providing the fundamental building blocks for future enhancements and extensions including remote solutions, enquiry management, easy-to-visualize training material in the same platform, and related initiatives that directly benefit dealers.

The company conducts more than 237 training programs annually with the goal of educating customers on engine maintenance. Measures such as centralized annual maintenance contracts (AMC) and a customer help desk for handling complaints are the proactive steps taken to improve customer relationships. Ultimately, this makes Kirloskar stand out as a leading service brand and a benchmark in the industry.

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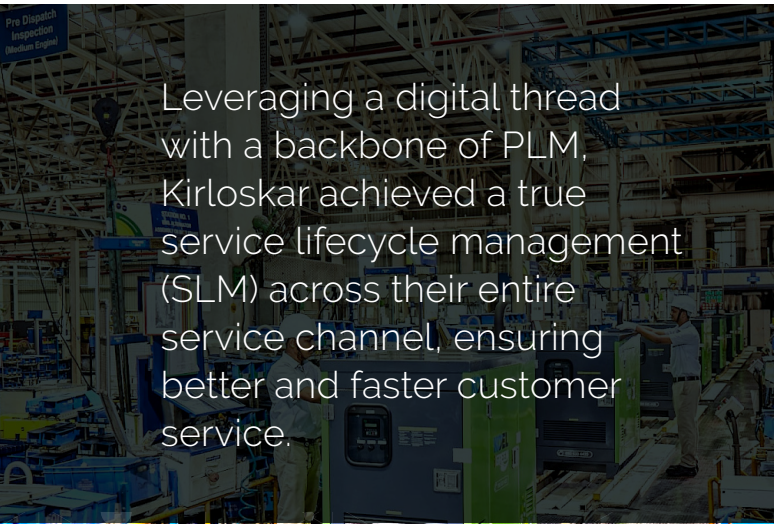
Moving to service-centric delivery

To increase service reach and ensure brand loyalty—each of which are vital for maintaining their revenue growth—Kirloskar partnered with PTC to create a digital thread with a backbone of PLM. This resulted in true service lifecycle management (SLM) across their entire service

channel, ensuring better and faster customer service. Focused on guiding principles of long-term customer retention by driving service efficiencies and quality, Kirloskar implemented digital initiatives to improve their customer support business performance with the following goals in mind:

- *Proactiveness:* Continually provide trustworthy parts and content information to the field, staying in line with the product changes
- *Speed:* Prompt responsiveness and restoration (maximum time to repair under 24 hours)
- *First time right:* Do it right every single time (first time fix rate)
- *Customer delight index (CDI):* Continue to maintain scores of 90+
- Grow service income and margins



Kirloskar implemented PTC's Arbortext Content Delivery (ACD) solution to provide an end-to-end single source of truth between Kirloskar's products and dealers. This new technology provides the ability to rapidly release accurate, up-to-date 3D parts information to the field. For

the service partners, the whole concept focuses on "ease of service." With a service information portal that's available 24/7, integrated directly with the eCommerce/ERP system, dealers can easily identify the right parts required as well as view real-time live information—including unique source of part information, pricing, AMC terms, payment terms, online PDF for proforma invoices, and so on—all on the single platform. Kirloskar has now extended this system to exports marketing for order management, which includes parts tracking in addition to ordering.

Benefits include:

- 3D parts information to aid correct identification of parts and ordering accuracy, an improvement from the outdated 2D, hard-to-read static graphics.
- Better management of orders for distributors and Kirloskar through a real-time distributor-specific dashboard where orders can be amended as well as tracked.
- Digitized approach with no manual intervention, through a seamless integration between the Electronic Spare Parts Catalog

(eSPC) and ERP. Parts ordered on the eSPC portal automatically get booked in Kirloskar'S ERP transaction system. Manual steps based on PDFs, emails, and order requests are now replaced by fully automated processes.

- Immediate invoice and purchase order information is now available through the systematically generated Proforma Invoice.

Due to the new service-centric delivery approach, Kirloskar has realized the following ROIs:

- Maximization of Kirloskar's spare parts sales business through the built-in business analytics reports and metrics, to track ordered parts and view trends as well as up- and cross-sell opportunities and missed order opportunities.
- Saved 100 hours of labor per month due to the built-in automations and seamless processes.
- Technician effectiveness and improved max-time-to-restore (MaxTTR) rates through a one-stop shop for Kirloskar and dealers.
- Reduced costs from incorrect parts being supplied to the field and fewer part returns with more accurate spare parts and specific serial number range information, as well as interchangeable and non-serviceable parts information.

Optimizing the service content process with Windchill and Arbortext

Kirloskar deployed a solution that enabled them to transition from a traditional stand-alone system for managing and delivering service and parts information to their users. They moved from document-based, 2D parts catalogs and related documents, to a governance and traceability model—driven by engineering all the way through service—that enabled high quality, easy-to-find content that is filtered for the task at hand. They implemented Windchill (PTC's out-of-the-box PLM solution), Windchill's Service and Parts Information & Instructions module (SPII) for organizing and managing service content, and Arbortext Publishing Engine (PTC's desktop publishing suite) designed to automate the publishing processes for Spare Parts.

From a BOM management perspective, the SPII module integrates with 3D CAD illustrations for parts list information and associative SBOM creation from upstream EBOMs. Change management processes are improved by maintaining up-to-date SBOMs with engineering source data and automatic publishing of parts information to Kirloskar's ERP system. Finally, service manual instructions are greatly enhanced for use by service personnel because the correct service circular is digitally paired with the right engine service number.

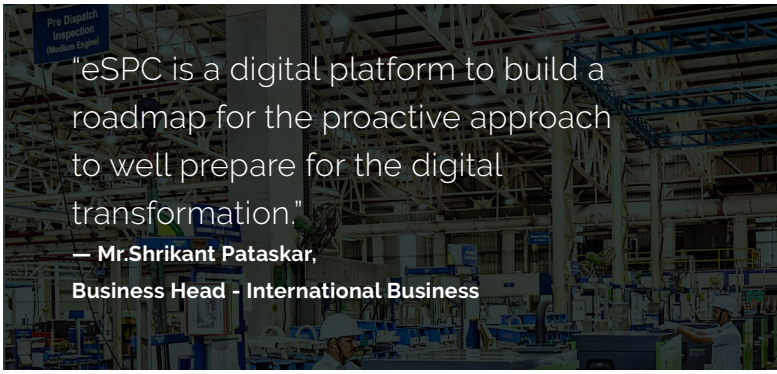
Overall, Kirloskar achieved their BOM to service parts transformational goals by greatly improving their accuracy and efficiency. With PTC's PLM/SLM solutions, technicians have the right information at the right time. Parts lists, technical documentation, and illustrations from CAD models are trusted since they are automatically linked and updated to the latest engineering and design information. Service documentation is then released sooner, resulting in a faster time to market. Finally, support and service engineers solve problems faster, driving up customer satisfaction scores.

Excellence in everything they do: Quality without compromise

With ACD tied in with a PLM/SLM-enabled digital thread, Kirloskar can now ensure the delivery of accurate and updated service and parts information at all times.

Results

- A more collaborative work culture was established throughout the product development process. Time spent manually updating teams and systems has been substantially reduced, leading to fewer meetings and more efficient communications.
- The same data is now used by their service team to create and publish 3D spare parts catalogs to the ACD web portal, where dealers and service personnel can access and order spare parts.
- Parts information on designs or drawings are now instantly available with proper access controls in place. In addition, the quality of the information has substantially improved.
- Operational costs were lowered for parts catalog release and maintenance, improving technician effectiveness.
- Reporting from the solution made it possible for timely intervention and gave stakeholders more control while also not inhibiting innovation.
- The end-to-end system—engineering to supply chain, to production and service—now has a complete change management system. Data reusability is increased as all parts are available on a common PLM platform and service parts are made from designs, meaning reusability has increased.
- Dependency of engineering functions for defining service-related parts or BOM is eliminated, with the freedom to define aftermarket service kits as per engine series, resulting in increased revenue.
- Design work can now be accessed through visualization tools embedded in PTC's solution. This enables downstream departments like manufacturing and quality to review, consume, and process sheets and/or documentation more effectively.



What's next?

Because the PTC service solution was designed by Kirloskar in collaboration with the dealer network, it allows Kirloskar to meet the current service organization needs while providing the fundamental building blocks for future enhancements and extensions. These enhancements include remote solutions, inquiry management, easy-to-visualize training material in the same platform, and other initiatives that directly benefit dealers.

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