

Streamlined NPI Processes Through PLM Solutions Transform Tractor Manufacturer's Operations

By Rajabhadur V. Arcot

Summary

In the current competitive marketplace, providing and maintaining product leadership, improving and maintaining close relationship with customers, and achieving operational excellence are major challenges for manufactur-

It is critical for manufacturers to manage their design and engineering operations efficiently, seamlessly transitioning new products from design and engineering to manufacturing. However, to succeed in the market, a well-integrated PLM solution is the key that will enable organizations to achieve competitive edge by launching the right product at right time to right market.

ers. These challenges spur manufacturers to strive to deliver innovative and attractive products that meet the customers' needs so that manufacturers can attain and maintain product leadership in the market. Capturing customers' needs and responding quickly to their demands enables manufacturers to forge close relationships with them.

It is critical for manufacturers to manage their design and engineering operations efficiently, seamlessly transitioning new products from design and engineering to manufacturing. The key to achieve this seamless transition is through a well-implemented product lifecycle management (PLM) solution that orchestrates business processes, cutting across different organizational functions – business strategy, engineering, manufacturing, and services.

Realizing that the Future Lies in Product Innovation, TAFE Invests in PLM

Recently, ARC Advisory Group carried out a survey to capture the status of the adoption of PLM solutions in India. In the process, we identified an excellent application that helped Tractors and Farm Equipment (TAFE) not only successfully manage new product introductions, but also transform and energize the company's operations. TAFE, headquartered in Chennai, manufactures tractors and farm equipment and holds a leadership position



in the sub-100 horsepower category. TAFE started producing the popular Massey Ferguson 1035 tractor model in 1961 and presently manufactures tractors under three brand names: TAFE, Eicher, and Massey Ferguson. TAFE has four tractor manufacturing plants in India.

Commodore R.B. Verma, Executive Vice President, TAFE, and P. Nageshwar Rao, Senior Chief Engineer and Product Manager, TAFE, spoke with ARC about how the company, working with Tata Consultancy Services as its consulting and implementation partner, successfully conceived and implemented a PLM solution. The engagement between TAFE, a company with a 50-year heritage, and Tata Consultancy Services, a leading IT services consulting and business solutions firm, started when TAFE realized that its future lies in product innovation that is aligned with changing customer expectations and global market dynamics.

Holistic Approach and Organizational Discipline Transform Businesses

The TAFE team along with TCS consultants analyzed the company's new product introduction challenges and concluded that product design and engineering demands a holistic approach and organizational discipline. The teams concluded further that this transformation required both across-the-enterprise involvement and commitment and new thought and work processes.

Success in product design and engineering demands a holistic approach and organizational discipline. Achieving the required transformation calls for technology investment to ensure across-the-enterprise involvement and commitment that streamlines processes and captures knowledge.

TAFE achieved its vision by a well-defined strategy and roadmap, executed by well-integrated cross-functional teams – works committee, management committee, and steering committee. Strong commitment and transparent communication across the board has made this journey successful.

The guiding principles of the solutions were:

- To eliminate the existing disconnect between its new product design and engineering operations and its production operations
- To capture and reuse process knowledge, and achieve continuous process improvement

It took TAFE two years to realize its goal, and in retrospect, company executives are convinced that the long journey was worthwhile and met the objectives. TAFE also acknowledged the value that TCS has brought to the whole initiative. ARC believes that in such a transformation exercise, it is important to choose the right partner, a partner that stays committed to the cause and delivers promised results. TCS, with its global experience and expertise, has enabled this successful transformation for TAFE.

Aligning Processes and Organizational Commitment for NPI

The opening up of India's economy created not only an opportunity for TAFE to expand its business internationally, but also created intense competition in the domestic market. The company accepted the challenge and linked its future to introducing new products designed and manufactured defect-free right from the start. TAFE decided to focus on its new product introduction (NPI) process and adopt industry best practices. To this end, the company adopted a dashboard approach to align the processes, backed by organizational commitment to the overall goal.

TAFE looked at PLM as a strategic investment that streamlines its NPI processes and achieves competitive edge in the market. In addition to the above broad expectation, TAFE had set clear objectives for its PLM journey:

- Reducing product development cycle time
- Digitizing information for virtualization and visualization
- Timely availability and best utilization of enterprise resources
- Developing and introducing products that can be manufactured right the first time and easily serviced
- Linking engineering bill of materials with manufacturing bill of materials

TAFE decided on a comprehensive PLM approach starting with product strategy and extending all the way to product mass production and phased implementation.

The first phase involved an assessment of current situation, detailed definition of the NPI process for each category of new products, PLM platform selection and implementation roadmap. The second phase involved digitization, which includes various capabilities, such as project management, engineering change management, cost management, enterprise-wide BOM management (engineering, manufacturing, and service), knowledge dash-

boards, and such others. This whole digitization was implemented on an integrated PTC Windchill-SAP platform. The third phase emphasized stabilization support. TCS has partnered with TAFE end-to-end in all the three phases and ensured the achievement of all desired objectives for TAFE, which includes first-time-right and cycle-time reduction.

Implementation Challenges and Benefits

Any new idea or process usually meets with resistance, as old practices and methods are entrenched. TAFE also encountered initial resistance for its PLM implementation, as it involved numerous stakeholders and multiple functions. However, these obstacles faded into the background as the implementation team started making progress and benefits became apparent.

Due to the company's PLM implementation, TAFE reaped benefits as great as a 50 percent reduction in cycle time and improved their process performance by 75 percent in some cases. This enabled them to achieve the goal of first-time-right with shorter product cycle time and achieve competitive edge.

Conclusion

In our recent research into how manufacturers in India approach PLM solutions, ARC gained a good understanding of users' needs, expectations, perceptions, and emerging trends. We also identified several groundbreaking PLM implementations. We believe that TAFE's initiative ranks among the best in India. Awareness about the benefits of using PLM solutions is increasing among industrial companies in India. This augurs well for both technology solution providers and manufacturing companies.

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