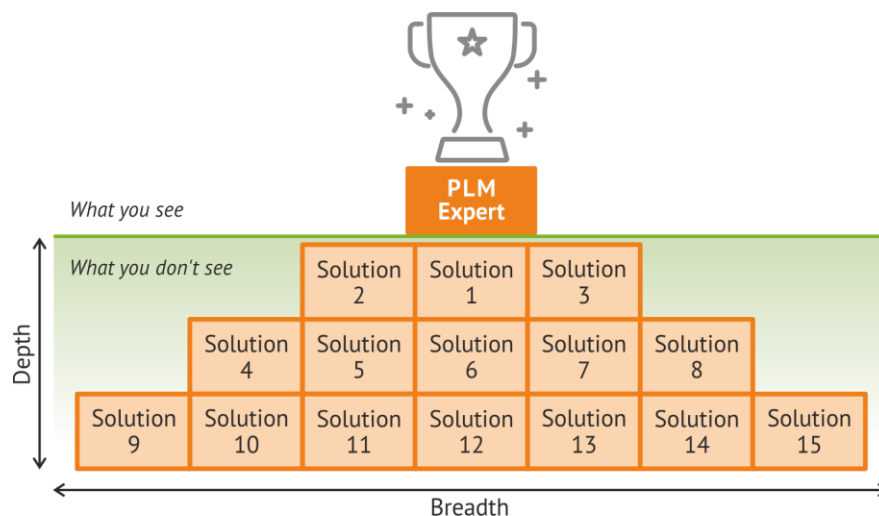


How to Identify an Expert PLM Service Provider? Look for The Depth and The Breadth of PLM Solutions.

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Enterprises strive to engage experts in solving their PLM problems, but the question is: how to determine the expertise of experts? This PoV discusses the identification of PLM expertise by analyzing the depth and breadth of solutions, using the example of ITC Infotech's PLM solutions.

Exhibit 1: Depth and Breadth of PLM Solutions Determine Expertise



Source: EIIRTrend

Why does expertise matter in PLM?

Expertise is the key to deliver PLM outcomes faster, better, and in a cost-effective and future-ready manner. Engaging experts helps in two specific ways:

- **Get it right.** Experts understand what customers want and they have the expertise to deliver it. The work is completed in fewer iterations. None to very little rework is required. The quality of work is better.
- **Get it fast.** Experts get the work done faster. They know what challenges might occur and are prepared for them in advance. There are fewer iterations, thus the work is done faster.

PLM is an enabler for product development, and it has a cascading effect on the quality of product development and delivery timelines. Getting PLM to work better and faster is imperative for enterprise product development.

Solutions determine expertise in PLM

How can we determine the expertise of any service provider in general, and PLM in particular? Expertise may be either people-dependent or company- or process-dependent. Experts will perform well anywhere, but an expert service provider cannot solely rely on people. Service providers must develop sustainable capability and expertise at the organization level.

It helps if the service provider has prior experience. Although both longevity and quality of experience matters, but the quality of experience is more important. What has the service provider learned from its prior work, and how it can help a new customer?

This is best determined by the learning curve of the organization—the ability to deliver better and faster because of its learning over the years. The learning curve of the service provider is best embedded in the solutions it has developed. The learnings and experience are converted into expertise by service providers via solutions and accelerators. Solutions help the service provider jumpstart delivery for a new customer, and work better and faster.

When evaluating solutions, two important aspects should be considered:

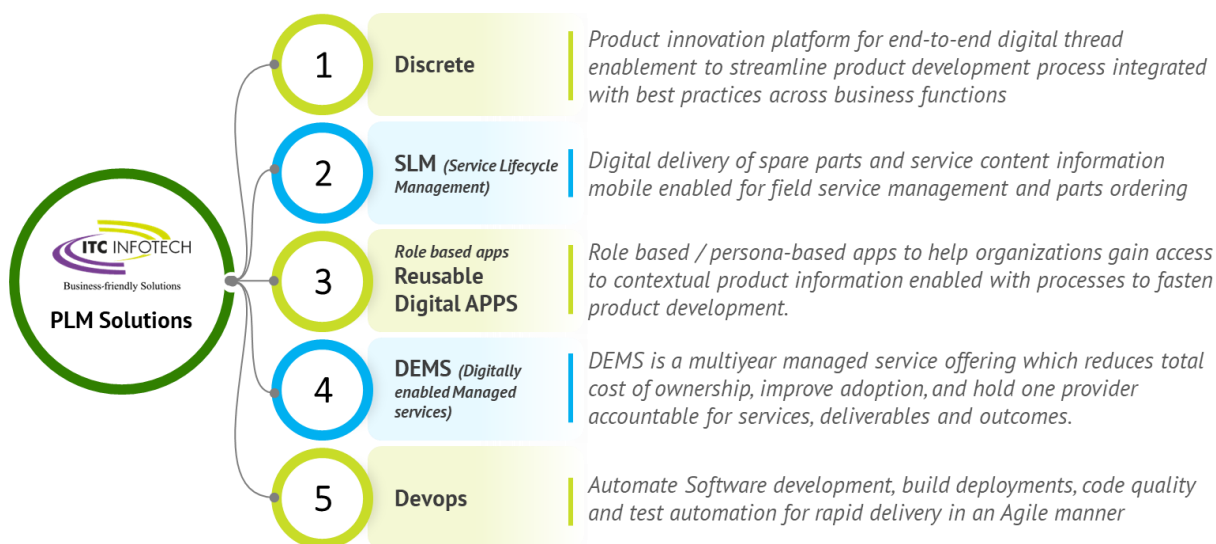
- **The depth of solutions.** How deep is the expertise of the service providers? Can they anticipate and solve technical challenges that might occur? The deeper the expertise, the more capable the service provider. More solutions and customer examples on a particular platform or vertical, the deeper the expertise is in that particular segment.

- **The breadth of solutions.** Expertise is also determined by the ability to solve as many problems as possible in a particular segment. In this way, enterprises need not hire other experts for the transformation. In PLM, it is about the ability to develop solutions for the whole PLM life cycle.

Depth and Breadth of ITC Infotech PLM Solutions

ITC Infotech, in its 20+ years of PLM experience, has solved many challenges and delivered outcomes in numerous engagements. It has converted its learning and expertise in different solutions. The depth and breadth of 20+ PLM solutions developed by ITC Infotech, with learnings of over 20 years of PLM experience, are summarized in Exhibit 2 and detailed in Exhibit 3.

Exhibit 2: ITC Infotech PLM Solutions Summary



Source: ITC Infotech

Exhibit 3: ITC Infotech PLM Solutions Addressing Challenges

Discrete solution details

Solution Details	Challenges Addressed	Results Achieved
New Product Integration Solution Enablement of New Product Introduction (NPI) solution for a manufacturing organization to streamline their overall product development process, enabled with stakeholder collaboration across different functions and project dashboards to efficiently track status and measure progress.	• Non-standardization of NPI Process across business units, resulting in variations in subprocesses • Limited design reuse due to lack of information visibility across business units • Manual errors in tracking project deliverables • High operational costs involved to maintain a project dashboard with status updates • Overall delays in launching new products	• Improving NPI productivity by 15% to 20% • Enabling progress tracking, increased reuse in design information, and improved overall user adoption to the PLM system
Integrated BOM management Create a holistic, multi-disciplinary product definition (ECAD, MCAD, and Software/Embedded) that supports accurate decision making, reduces product design time, and improves collaboration.	• Product design rework occurring due to a lack of cross-discipline product information • Traceability and applicability of software/embedded data with product design • Disconnected release and change management process due to product information maintained in disparate systems	• Unified PLM system for ECAD, MCAD & Software/Embedded BOM data to improve overall productivity and reduce design rework
Manufacturing Process Management Solution Manufacturing processes management with associative eBOM mBOM/pBOM capabilities. Implementation of integrated change process to promote concurrent engineering and ensure information traceability of BOMs to manage the complex product development process.	• Creation and management of mBOM for traceability and planning • Concurrent product and process development with dependencies • Disconnected change process • Auto-creation/authoring and reuse of work instructions • Management of subcontracting parts from one plant to another	• Build traceability between eBOM and mBOM • Manage process plan by reusing existing plan • Dynamic generation of 3D-enabled work instruction for production • Automate BOM transformation

Solution Details	Challenges Addressed	Results Achieved
PLM MES Integration This solution enables leveraging of PLM data for downstream manufacturing using the MES systems and vice versa.	• Distributed data across sites with little or no collaboration • Manual data sharing—inefficient handoffs, prone to errors, and delays • Costly rework—improper planning impacts the cost of engineering changes • As Designed vs. As Build—reporting non-conformances • Improve traceability between design and production data • Reduce the cost of compliance in the world of design anywhere build anywhere • Early feedback on product design and supporting documentation to be used for manufacturing • Integrating manufacturing changes with engineering changes	• Faster time-to-market • Integrated closed-loop quality management • Bi-direction information exchange from mBOM
PLM ERP Integration Publish up-to-date product bill of material (BOM) information from PLM to ERP systems for manufacturing process management and ensure consistency in product information across the enterprise.	• Disconnected information between engineering, manufacturing, and production teams • Difficult to find and reuse proven manufacturing processes and resources • Struggle to provide accurate manufacturing information to production on time • High cost of operations to manually update product information across systems	• Successful PLM- SAP (and other ERPs)-integrated solution delivered • Enables auto-publish of 25+ part types to 15+ different plants • A framework developed for part creation, replacing MDM in ERP • ERP data migration, including MDM to PLM

Solution Details	Challenges Addressed	Results Achieved
PLM for Medical Devices Medical device-specific solution accelerators.	• UI/UX Issues • Regulatory reporting and oversight • Material compliance • Product quality	• Established Medical Digital Thread • Accelerated deployment of pre-configured solution, increased the productivity of user groups by 30%-40% by improving OOTB updates • Increased tracking attribute changes as required by the regulatory authority by 30% • Improved audit event reporting by 20% • PLM-CRM bi-directional integration
Light Weight Product Configurator An integrated and scalable visual product configurator that leverages digital technology to configure product variants from a given set of options and facilitate sales organization to create a quote for customers and enhance the customer experience.	• Long lead times for sales to create an accurate quote and submit the proposal to customers • Manual errors in preparing the right product bill of material and pricing details as per customer requirements • Limitations in providing a visual experience for customers to select the right product of their choice	• Reduced customer turnaround time resulted in higher customer acquisitions • Enhanced customer experience due to visualization resulted in more customer satisfaction
Data Migration and Harmonization Single PLM for all to harmonize business processes and product data across various systems (PDM, ERP, PLM, and homegrown applications) to achieve faster cycle times, improved product quality and collaboration amongst stakeholders across various functions covering engineering, manufacturing, suppliers, and service.	Large enterprises with multiple business lines maintaining separate systems results in significant drawbacks such as: • Duplicate part creation • Increase in inventory costs • High infrastructure maintenance with licensing and support costs • Leading to 5%-20% impact on the bottom line	• Migrated over 85+ object types (24 million records) • Cycle time improvement between 10%-25% • Components and standards library helped reuse between 10%-30% • Improved collaboration

Solution Details	Challenges Addressed	Results Achieved
ASPICE Compliance Solution Implementation of ASPICE solution framework to manage the lifecycle for automotive software and embedded systems compliant to ISO/IEC 15504 standards.	• Software products are not quality-certified, so unable to sustain market competition • Many manual errors in managing the system processes lead to numerous enterprise changes during product development • Difficulty in software development due to a lack of system integration with Software IDEs and associative build management system	• ASPICE certification • Reduction in time taken for enterprise changes • Improved software development and quality test automation
Lab Management System Test Data Management End-to-end integrated solution for creation, management, and traceability of test results with product development processes.	• Disconnected systems for test data management and product data management • A manual intensive effort to consolidate test reports from different labs in NABL format • Lack of information traceability of test results with part/product release management • Non-availability of automated inventory list/sample management	• Integrated test requests and test reports • Simplified user experience • Extensive and advanced reporting capabilities
Business Reporting for Production Part Release Management Process Cognos-based solution to generate a business report on part modification advice, enabled with process and business rules automation in PLM for the release management, distribution, and capture of relevant information in the modification advice report to various department stakeholders.	Lack of timely distribution of information across various department functions on part changes approved for production release (PPAP) led to: • delays in the new part introduction on the shop floor • impacted on-time delivery of parts from suppliers for mass production	• 100% elimination in the usage of the wrong part number on the shop floor • Efficiency gain in cross-departmental collaborations • Improvement in first time right build quality KPI metric

SLM solution details

Solution Details	Challenges Addressed	Results Achieved
Service and Parts Information Solution All the information needed by owners, operators, and field service technicians to optimize the performance of a complex piece of equipment is made conveniently available. Also the information to locate, identify, or order a service part.	Inaccessible and outdated product information leads to lost business opportunities in areas such as: • Extended equipment downtime • Low first-time fix rates require repeat service visits and increase service operation costs. • Poor customer/operator satisfaction resulting in lost market share of parts and service	• Up to 25% to 35% reduction in the wrong ordering of spare parts • Increase aftermarket parts revenue, customer satisfaction, technician efficiency, and equipment uptime
Mobility and offline solutions Mobile solutions that deliver contextual service and parts information in handheld devices for field service technicians to operate, repair, and support the product even in remote working locations.	Inaccessible and outdated product information leads to lost business opportunities in areas such as • Extended equipment downtime • Low first-time fix rates require repeat service visits and increase service operation costs • Poor customer/operator satisfaction resulting in lost market share of parts and service	• Reduction of 25% to 35% in the wrong ordering of spare parts achieved
EU 168 solution compliance for Automotive OEMs Solutions to manage compliance for European Commission Type approvals; These solutions are needed to certify the ability of vehicle manufacturers to provide standardized access to automotive repair and maintenance information (RMI) to independent third-party operators (IO).	Noncompliance to EU 168 regulation and type approval certification from the European commission restrains the vehicle manufacturer from introducing and selling new vehicle models in the European market	• Timely type approval certification for the vehicle launch • 35% to 50% improvement in technician efficiency

Reusable Digi Apps

Solution Details	Challenges Addressed	Results Achieved
Reusable Digital APP - BOM Comparison Report This is an on-demand service to compare BOM information between different enterprise systems to conclude up-to-date part design information, which is required either for in-house manufacturing or by suppliers. This is on ThingWorx.	• Lack of enterprise integrations with PLM and ERP systems leading to a version mismatch between design part and manufacturing parts • Sourcing and manufacturing teams have to compare parts manually, leading to delays in product development • Defective product manufacturing leading to rework and product delays	• Helped companies increase product development efficiency by 40% • Minimize product defects during manufacturing
Reusable Digital APP - Change Process Approvals This is a role-based app to review and approve change management-related activities with improved usability by providing relevant information to fast-track the decision-making process. This is on ThingWorx.	Delay in product design approvals and implementation has an impact on: • Overall release timelines • User collaboration • Overall supply chain readiness for part disposition strategy	• Improve PLM adoption by 20%-25% by simplifying user operations • Improving the time-to-market by 5%
Reusable Digital APP - Change Process Status Report This is an on-demand service to provide real-time visibility of Change implementation status and enable stakeholders to review and take appropriate change actions. This is on ThingWorx.	• Lack of global visibility on part change and development progress across enterprise • Inability to quickly identify the root cause for delays in the change release management leading to delays in the design to release and manufacture parts	• Minimize cycle time to implement the change request • Informed decisions for faster product manufacturing

Solution Details	Challenges Addressed	Results Achieved
Reusable Digital APP - Data Exchange In the discrete manufacturing world, product information is scattered across different systems. It is difficult to bring them into a single PLM at run time for ease of access and maintainability. This application provides the capability to gather information from non-PLM systems and create/update them into PLM. This is on ThingWorx.	- In the collaborative manufacturing process, product information is scattered across different systems, and migrating or creating them into a single PLM system makes the business easy for accessing and maintaining their data in an effective manner - External or supplier users want to upload the document from an external system into PLM	- This solution helped companies to migrate or create and maintain the product information from the non-PLM systems to PLM systems. - Eliminates vendor-specific migration cost to migrate non-PLM data into PLM data and reduce licensed user costs
Reusable Digital APP - Drawing Retrieval This is an on-demand service for the sourcing team in a manufacturing organization to access up-to-date part drawing information from the PLM system and for further distribution with suppliers for the part manufacturing purposes. This is on ThingWorx.	- No visibility or direct access to the sourcing team for any drawing changes or state changes managed in the PLM system - The sourcing team end up processing obsolete information as changes are made continuously by the development team in the PLM system - Impact on overall product development due to non-productivity and rework by the supplier team	- Helped companies reduce manufacturing defects and rework - Improving collaboration and product development timeline efficiency by 20%- 25%
Reusable Digital APP - Product BOM Cost Roll-Up On-demand service to provide consolidated product cost information scattered across multiple enterprise systems with the ability to make changes to the cost information in real time.	- Poor visibility of cost information defined by sourcing and design teams during the product development cycle - Results in cost difference between planned vs. manufacturing costs affect the overall budget and margin - Variations in plant-based costing eroding overall profitability	- Helped companies gain better visibility on product development cost - Negotiate better with vendors to optimize overall manufacturing cost - Increase margin by 10%-25%

DEMS solution details

Solution Details	Challenges Addressed	Results Achieved
Digital Enabled Managed Services DEMS (Digital Enabled Managed Services) is a multi-year managed service offering holding one single provider accountable for services, deliverables, and outcomes.	• High capex for all new initiatives • Multi-vendor setup for various application services, platform, and licenses • Need for end-to-end expertise	• Up to 30% overall TCO reduction • Up to 300K+ cost savings on digital solutions • Up to 60% cost savings on upgrades • Up to 35% cost savings on enhancements

Devops

Solution Details	Challenges Addressed	Results Achieved
DevOps Continuous Integration Integrating development and operations helps manufacturers to expedite the product development process by automating software development, build deployments, code quality, and test automation for rapid delivery in an agile approach.	• Silo teams (Developers, QA, and Operations) • Lack of tool integration • Manual deployments and releases • Manual loading of test data • Manual testing • Traceability of artifacts and builds • Manual deployments lead to human errors	• Deployment time reduction of up to 90% is achieved by automating the build. • Achievement of up to 50% reduction in software delivery • Automatic load of test data • Traceability of data by integrating CI/CD tools

Source: EIIRTrend, ITC Infotech

These ITC Infotech PLM solutions demonstrate the technical and business capabilities across different verticals such as automotive, discrete, and medical devices and platforms such as Windchill. Capability also exists across different use cases such as digital manufacturing, regulatory compliance, parts information, and PLM integrations with MES and ERP among others. Its solutions helped to solve numerous business challenges for its customers and delivered tangible business outcomes of speed, better quality, cost effectiveness, and simplification.

Bottom Line: Leverage PLM experts to deliver better outcomes. Evaluate the depth and breadth of solutions to discover expertise.

Who doesn't want experts to solve its PLM problems and deliver PLM outcomes? Which enterprise doesn't have these challenges? Which enterprise doesn't want PLM outcomes?

The solution is simple. Look for the depth and breadth of PLM solutions to evaluate and select PLM experts. In the long run, experts are cost-effective, too!

About the Author

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Pareekh Jain is Founder and Lead Analyst of EIIRTrend and Pareekh Consulting.

EIIRTrend.com is a neutral platform to discover emerging engineering, IoT, Industry 4.0 and R&D (EIIR) trends across 12 industry verticals. Pareekh Consulting is a focused analyst and advisory firm for EIIR.

A seasoned EIIR professional, Pareekh has seen the EIIR industry from four perspectives: service provider, sourcing advisor, enterprise buyer, and industry analyst.

He is regularly quoted in the media on engineering services, IoT, and outsourcing trends, including Harvard Business Review (HBR), NDTV, Times of India, Economic Times, Business Standard, Hindu, Business Line, Livemint, Financial Express, Rediff, Voice of America, and Business Insider.

Pareekh is a thought leader, having authored various publications on topics related to EIIR outsourcing. He loves business fiction writing in his free time, and has authored a novel, Who Is That Lady?

Pareekh received his MBA from the Indian Institute of Management (IIM), Bangalore and his Bachelor of Technology degree from the Indian Institute of Technology (IIT) Delhi.

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