

TCS PDIT: Holistic Product Development IT Systems Transformation

CIMdata Commentary

Key takeaways:

- *About 25% of all Enterprise IT applications support product development, a far greater number than traditional CAD and PDM applications where organizations typically focus their IT efforts*
- *Industry segments such as automotive, aerospace, high tech & telecom, and industrial machinery all have unique challenges, and all have legacy systems such as mainframe, in-house, and commercial-off-the-shelf (COTS) applications, as well as suboptimal information flows embedded within their business processes*
- *TCS's Product Development Information Technology (PDIT) transformation offering guides customers along a maturity path using a flexible framework that results in reduced operations and product development costs, shortened time to market, and improved product quality*
- *Cost reductions obtained along the PDIT maturity path are used to reinvest on tactical and strategic initiatives*

Product Development Complexity

Product development is complex in any company, especially for multi-site global manufacturing companies. Effective and efficient transformation of an idea into a product or service and bringing it to market requires coordination of many data elements and processes. Ensuring that the product definition is consistent and correct throughout its lifecycle across all the different data elements requires that people, process and technology work together in a holistic, integrated way.

About 25% of the Enterprise IT landscape in an industrial company supports technology development and new product introduction, i.e., product development. In medium sized companies, twenty-five or more product development-related applications are typically in use, and in a large global company hundreds of applications can be employed. Applications that support the product definition go way beyond core engineering and facilitate up-stream and down-stream functions such as innovation, portfolio management, project management, compliance management, simulation tools, workflow including change management, costing analysis, manufacturing planning, CNC programming, configurators, technical and marketing documentation, and service manuals. Also, in many companies, there are tools including homegrown solutions, duplicates due to acquisitions, and departmental level purchases that perform overlapping or duplicate functions. Some of the homegrown applications can be decades old and are often not well understood by today's employees. These tools are generally not integrated, operating in silos, and teams are forced to use email and shared drives to collaborate. This creates multiple copies of data and unrepeatable processes, ultimately adding confusion, errors and cost. For organizations that have grown through acquisitions, these information silos heavily, negatively impact the business synergies due to duplicated parts, proliferation of suppliers, redundant systems, etc.

Major industries like automotive, aerospace, hi tech & telecom and industrial machinery have their own unique challenges but all have issues with capturing and using knowledge. A major concern is knowledge capture from retiring subject matter experts (SMEs) who understand how to work around poor integrations, lack of system documentation, and broken processes. In addition, multiple support providers, unclear problem ownership and many other IT-related enterprise level issues are growing business concerns. To be successful in this fast changing world, it is mandatory to have an efficient and business-aligned product development IT system.

Addressing Business Goals with IT solutions

At CIMdata we view PLM as a business approach that optimizes people, processes, and technology holistically. Each of the three elements must be optimized in the context of the other two elements. Essentially technology enables people to execute new or updated business processes faster and easier while producing better products. Common goals for implementing a PLM solution include:

- Leveraging investments and improving operational excellence and productivity
- Improving product development budget and schedule predictability
- Improving product quality and reducing customer issues
- Capturing SME knowledge and fostering innovation

Achieving these goals is difficult, and companies often seek external help from a service provider. Internal staff is typically focused on keeping operations running smoothly and implementing incremental upgrades. The right external advisors will have the skills and the necessary experience with technologies, deep industry knowledge, scale, and a global footprint to implement transformational changes.

TCS's PDIT Transformation

Tata Consultancy Services (TCS) is one of the largest global enterprises focused on providing IT services, consulting, and business solutions. Their over 300,000 employees support virtually all industries. In their most recent fiscal year TCS had revenues of \$13.4 Billion, with 16% year over year growth. Product Development Information Technology (PDIT) is TCS's service offering to optimize and transform the entire product lifecycle, and has been employed by more than 50 of their clients. It provides clients with support for all the technology required to define and manage the product definition, well beyond CAD and PDM. PDIT uses a maturity model to assess a client's current state and develop a path to transform the company across multiple IT, operational, service delivery, and business dimensions. By using a maturity model, TCS's clients can understand the level at which they are operating, what improvement objectives are, and how improvements impact people, processes, and technology. CIMdata sees the use of maturity models as a best practice consulting methodology, and the gains claimed by TCS are impressive. Table 1 shows how the benefits grow as the client moves up the maturity path to higher maturity levels by implementing more of the transformation elements. The process starts simply, consolidating service delivery and addressing relatively modest issues. As the clients continue to mature, the improvements accumulate leading to the stage where operational transformation occurs, resulting in large savings.

Table 1 – TCS PDIT Maturity Path Elements, Areas impacted and Benefits

Increasing Transformation Maturity	Maturity Elements Impacted	Benefits
Operational Transformation for Application Maintenance and Support	Single point accountability, optimized delivery model	Up to 40% savings over 2 years
Service Delivery Transformation	Improved user interaction, small application rationalization, simplified integrations	2 – 5% productivity improvement
IT Transformation	Application rationalization, rebuild integrations, improved internal/external collaboration, next generation technology roadmap development	Overall TCO reduction
Business Transformation	Process simplification, best in class IT enablement of business processes, closed loop processes, and automated data exchange with enterprise systems	Improved time to market, quality, and cost benefits

TCS’ PDIT Framework

The TCS PDIT Framework is a modular platform used to organize and structure a company’s product development system. Its modules address all the elements of product development IT transformation including:

- Product development processes from portfolio planning through design and collaboration to after sales services
- IT systems management and integration planning and execution
- Modern software development and global service delivery methodologies
- Organizational change management and knowledge management
- Alliances and partnerships with technology providers

The framework’s breadth and depth allows TCS’s consultants to support virtually any industry while being guided by a business value measurement system. The business value measurement system that measures the progress along the maturity path using metrics that are meaningful to the customer such as total cost of ownership (TCO) and business benefits tracked by key performance indicators (KPIs). Customer Centric Business Transformation (CCBT) is the core engine of the PDIT framework that enables the transformation from service delivery transformation through business transformation. CCBT is embedded within PDIT and has helped customers realize both qualitative and quantitative benefits.

TCS claims several differentiators that benefit their clients. TCS can effectively transform complex legacy and business critical systems so they support current as well as future business processes and needs. They have an impressive level of experience in many different industries including automotive, aerospace, industrial machinery, hi tech & telecom, energy, and life sciences, etc., and are able to leverage that experience across all industries. CIMdata attended the [10th annual TCS Customer Innovation Forum¹](#) and visited Silicon Valley

¹ <https://www.cimdata.com/en/resources/complimentary-reports-research/commentaries/item/2149-tcs-from-systems-integrator-to-systems-innovator-commentary>

Customer Collaboration Center (SVCCC) in Santa Clara, California in 2014. We heard about the value provided by TCS directly from customers. In addition to direct customer collaboration, TCS also invests in its own intellectual property, some of which was recently covered in the CIMdata commentary entitled [Solutions to Leverage Digital Technologies for Product Realization](#).²

CIMdata is pleased to see cultural change management as an element of the PDIT framework that deploys across the extended enterprise and includes the supply chain. Implementing organizational change is one of the most difficult problems to address in any IT project, and possibly the most difficult issue to address in transforming product development. By including cultural change management within the scope of PDIT, TCS is able to raise the awareness and reduce the risk of implementing a business transformation process by executing an appropriate cultural change management process. Beyond its industry experience, TCS has more than 10,000 product development engineers working in teams distributed around the world. They have a deep understanding of tools through their experience of designing and engineering actual products. The resulting depth and breadth of experiences helps TCS design and execute effective cultural change management plans. A final aspect of PDIT CIMdata found interesting was their funding model. Several recent studies have shown that major portions of IT budgets are used just to keep existing solutions running. As the client progresses along the PDIT maturity path, cost and resource savings from the increased maturity can be reinvested in tactical and strategic initiatives. These investments increase over time, and the cumulative benefit can lead to a breakthrough transformation, the final step on the maturity path.

In discussions with TCS customers, CIMdata heard that TCS has transitioned the customer's applications on multiple technologies including Mainframe, JAVA, etc., in three months with minimal disruption to the business. TCS consolidated the disconnected support team into a single point of contact and was able to reduce the operational cost by simplifying processes and the application landscape by bringing in the right expertise and team having PDIT Transformational experience. In addition, TCS continues to support the customer both from process and technology perspectives and has successfully consolidated some of the applications and processes in support of joint ventures.

The customers were appreciative of TCS's innovative, out-of-the-box thinking and stated that working with TCS is a great experience. They brought in the right skills sets to enable the transformation from both functional and technical perspectives.

Summary

Product development is under pressure from many directions including cost, quality, time to market, and regulatory compliance. To address these issues companies need to transform their business processes and support strategy to leverage state-of-the-art IT solutions that meet market and stakeholder expectations. By using a framework or platform-based strategy, companies can assess their maturity and develop and implement a holistic plan that meets their objectives.

TCS's fusion of IT, engineering, product development, and business knowledge enables them to help companies transform using a proven methodology. The PDIT framework supports the transformation of a typical IT Landscape into an integrated and optimized solution that

² <http://www.cimdata.com/en/resources/complimentary-reports-research/commentaries/item/3227-solutions-to-leverage-digital-technologies-for-product-realization-commentary>

generates significant operational savings while driving business transformation. CIMdata continues to be impressed by TCS's innovation, customer focus, and breadth of industries supported. TCS's successful engagement with the global manufacturing company is just one example of the value that TCS can provide.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata's services, visit our website at <http://www.CIMdata.com> or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.