



For many organizations, PLM system implementation projects are not yielding the intended results of improving business efficiency and information management. From our experience, one possible reason is whether the project was set on a course for success. For example, did the project team start by delving into software demonstrations or with cross-functional process development? Was the project budget based on assumptions or was it created after understanding all business requirements?

These answers will likely determine whether the outcome of the PLM implementation project is successful. We believe using a process-centric approach is critical to a successful implementation.

“By embracing a process-centric approach, cross-functional owners define the business processes upfront,” said Emil Kacan, Global Product Development Process and Systems Leader. “Bringing people together to describe how they work and what they deliver before discussing software will likely result in streamlined work with reduced complexities.”

Another result of empowering the business to own their processes should be a movement away from organizational fire-fighting and toward becoming proactive knowledge workers. This should be a natural outcome of establishing flexible, robust processes.

Management benchmarking surveys generally show that top performing organizations are highly process focused and strive for continuous improvement, compared to laggards that still embrace fire-fighting as

standard practice. Organizations where lean practices have matured within the office environment may have better success reaching this point.

Putting the business in charge of processes empowers them and increases their involvement with the PLM project, which also helps ensure that the deployment will succeed. Giving process ownership to the business user should yield continuous system improvements over time because users enthusiastically control their destiny.

“For this to work, there must be a fundamental understanding by all levels of the organization that these cross-functional processes are ‘owned’ by the business users, not IT or the technical group responsible for implementing PLM,” emphasized Lenny Grosh, PLM Program Manager.

As part of the process-definition approach, the business team should gather requirements for the PLM system while developing the processes and cross-functional touch points. It is generally recommended to involve a business analyst accustomed to managing conflicting priorities and needs, as well as requirements documentation techniques to facilitate these sessions.

Requirements Matrix--Business Needs

Requirement	Business Need				
	Manage project progress	Efficient data entry/info management	Manage project cost/weight targets	Inform upper mgmt and X-function team	Efficient Project creation/attribute management
4.1 Procurement Attributes	X			X	
4.2 Engineering Attributes	X			X	
4.3 Project Overview Attributes				X	
4.4 Cost Attributes	X	X			
4.5 Mandatory Attributes	X	X	X	X	
4.6 Report Threshold	X	X			
4.7 PIMS-Updates		X			
4.8 Logic-controlled Attribute Changes		X	X		
4.9 Data Entry Validation Checks		X		X	
5.1 Multiple Column Configurations		X			
6.1 Filtering					X
6.2 Multi-Variant Design	X	X	X	X	X
6.3 PIMS Attribute Data Entry	X	X		X	
6.4 Teamcenter Project	X	X		X	
6.5 Managing Manufacturing Parts	X	X	X	X	
6.6 Build Lock Views	X	X	X	X	X
7.1 Bulk Data Update	X	X	X	X	X

Process Focused Innovation Management

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In conjunction with the process owners, the analyst should use priority matrices to manage requirements and establish development phases, as well as obtaining requirement approval from stakeholders to proceed. It is recommended to use tools such as 5-why, fish bone, RACI, use cases, traceability techniques, etc. during requirement gathering to make the activity as objective as possible.

In addition to having traceable requirements, they should also be measurable for all levels of the business:

- Management – requirements must demonstrate business value, key to obtain resources and support
- End Users – requirements must satisfy for adoption and sustainable success

Finally, the requirements document should capture the proposed process and requirements in detail. It is critically important to provide clear, unambiguous communication to the implementation team and potential off-shore resources involved with system configuration and testing.

Once “To Be” processes and requirements are defined by the business team, budgets for purchasing licenses and configuration resources for the implementation can be established. At this point, the business should understand what modules will enable processes, as well as how many author or consumer licenses are necessary. With this information, and phased requirements, a scalable deployment is now available because the licensing and configuration spend can be budgeted.

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Requirements Matrix--Priority Criteria

Requirement	Priority Criteria				
	Who Requested	Complexity (L=Low, M=Medium, H=High)	Priority (MH=Must Have, SH=Should Have, N2H=Nice to Have, NLR=No Longer Required)	Phase (2.1.5, Late July, 2.2=Q1 2010, 2.3=Late Sept)	Risk of Project Failure Due To Omission (L=Low, M=Medium, H=High)
4.6 Report Threshold	Team	M	MH	2.2	M
4.9 Data Entry Validation Checks	Sup Chain	H	MH	2.2	M
6.2 Multi-Variant Design	Heap	M	N2H	2.2	M
6.5 Managing Manufacturing Parts	Team	M	MH	2.2	H
6.6 Build Lock Views	Team	M	N2H	2.1.5	L
7.1 Bulk Data Update	Team	M	MH	2.1.5	M
7.2 User Attribute Review Task	Sup Chain	L	MH	2.1.5	L
8.1 SharePoint Project Administration	Team	M	MH	2.3	H
8.2 SharePoint Attribute Management	Team	M	MH	2.3	H
8.3 SharePoint BOM Management	Team	M	MH	2.3	H
8.4 SharePoint User Administration	Team	M	MH	2.3	H
8.5 SharePoint Sync Job Admin	Team	M	MH	2.3	H
8.6 Admin Report Generation / Management	Team	M	MH	2.3	H
8.7 Program Attribute Management	Team	M	MH	2.2	H
11.1 Ability to update attribute values directly from screen	Team	M	N2H	2.1.5	L
12.1 Update part replacement screen	Team	M	MH	2.1.5	H
13.6 DCM/DCR Report Outs	Team	M	MH	2.2	H
14.1 Dashboard Functionality Overview	Team	M	MH	2.2	H
14.4 Project Build-Based Targets	Team	M	SH	2.2	M
14.5 Dashboard—Total Calculation Flags	Team	M	SH	2.2	H
14.6 Dashboard—Business Logic	Team	M	SH	2.2	H
14.7 Dashboard—Format and color display	Team	L	SH	2.2	H
14.8 Detail Button	Team	M	N2H	2.2	L
14.9 Dashboard Metrics	Team	M	SH	2.2	M

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Sample Project Core Team

Role	Req. Sign Off
Manufacturing Lead	Y
Procurement Project Manager	N
Cost Accounting	Y
Engineering Lead	Y
Engineering Manager	Y
Quality Lead	Y
BOM Group	Y
Application Development Project Lead	N

After processes are defined, the business can create a cross-functional 'core team' comprising of one critical user from each functional area for each phase of the PLM implementation. This core team is ultimately responsible for final process definition/refinement, application scope, and managing customer requirements.

"Each core team member uses inputs from their functional organization to make final tweaks to the process," said John Bayless, Director of Program Management and PLM at Mercury Marine. "The core team must be empowered to make decisions for the entire organization within the bounds of their PLM project phase."

After the processes are defined, bring in the software configuration experts to review what the business has created and provide any technical feedback. Generally speaking, most experienced configuration experts can make the processes work within the PLM tool of choice.

However, there are some exceptions where customization may be required, or the PLM system simply cannot perform what has been requested. If this occurs, the business should weigh whether to adjust their process, or embark on the customization. Be aware the customization may make it difficult to install patches or upgrades for the core system.

Core team business involvement must continue during final PLM system configuration and testing.

"Ideally, the implementation team will embrace an Agile or Rapid Application Development (RAD) methodology," said

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Sample RAD Project Plan

Weekly team progress/functionality review held Tuesday. Following and support activities by week:

WK	Requirement/Event	Supporting Activities
29 th	1 8.3	<ul style="list-style-type: none"> Decide how much architecture (obj) Potentially revise (one combined file) Hold attribute box Develop solutions Test each requirement
6 th Oct	2 4.1, 4.3	<ul style="list-style-type: none"> Develop solutions Test each requirement
13 th	3 10.3	<ul style="list-style-type: none"> Prototyping Oct 14 Develop solutions Test each requirement
20 th	4 13.4, 9.2	<ul style="list-style-type: none"> Prototyping Oct 23 Test each requirement Develop solutions Test each requirement 6-6 may only be a Search away this
27 th	5	<ul style="list-style-type: none"> Develop solutions Test each requirement Keene working on
3 rd Nov	6 4.4, 4.10	<ul style="list-style-type: none"> Develop solutions Test each requirement Keene working on
10 th	7 7.2	<ul style="list-style-type: none"> Prototyping Nov 1 Develop solutions, hold prototyping meetings as needed Test each requirement solution to certify 100% before moving ahead
17 th	8 4.2, 6.6	<ul style="list-style-type: none"> Prototyping Nov 18: 6-6 Develop solutions, hold prototyping meetings as needed Test each requirement solution to certify 100% before moving ahead

- **Rapid Application Development (RAD) approach**
 - *Fast Pace*—RAD requires team commitment to attend weekly prototype and decision reviews.
- **Weekly development schedules/completion windows**
- **Strict adherence to decisions, session attendees empowered to make decisions**

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Carl Wendtland, Technical Specialist - Global PD&E Systems Architecture. "These iterative approaches tend to provide a faster deployment through time-boxed work packages and increased business involvement during system configuration."

Quick team decisions and frequent prototype reviews are also characteristics of these methodologies.

During solution development, it is recommended that the Core Team holds organization-wide communication Town Hall sessions. Updates at functional staff meetings are also useful, along with Sharepoint/intranet sites as communication mediums.

In addition, the core team members are active in all prototype review sessions, as well as final sign-off approval during User Acceptance Tests (UAT).

To complete the project lifecycle, the business should be heavily involved with shaping the end-user training experience. Ideally, the business representative from each function will attend the training sessions held for their constituents along with the configuration team. This accomplishes two goals:

- The individual who shaped the solution is answering process-related questions from their functional user base instead of an implementation person.
- Core team members make excellent change communication agents within their functions, and across all levels of the organization... this is a key to implementation success.

Finally, trainers should consider travel to all remote sites for face-to-face interaction. If this is not feasible, make remote sessions as interactive as possible.

It is also recommended to define the internal and/or external ongoing administrative support required by the chosen process implemented, which will help establish a plan for growing a PLM support team.

Following are some general guidelines for a successful PLM deployment:

- Involve the business upfront in all PLM initiatives as follows:
 - Business-owned processes enabled by PLM
 - Requirements gathering and project resource loading

- Invest time to understand current processes and drivers for change
- Solicit feedback and suggestions from process owners and user community
- Form a Core team of process owners and cross-functional users to participate in the project
- Use core team to clarify, group, and rank requirements and determine measures
- Provide user training and super-user support when required
- Establish point of contact within PLM team for all initiatives
- Stay in front of functional leaders
 - Business approves annual PLM projects
 - Regular report outs on project progress
- Conduct cross-functional communication sessions as required

Once the PLM system is implemented, business ownership must continue. All future system continuous improvement activities should involve business users. A sure sign of success is when the business initiates and leads those activities.

Mercury PLM Services Unique Perspective

Our differing approach concentrates on understanding your process as a must for success. A process-centric approach requires businesses to review and question existing work streams to understand "why," "what," and "how" work should be accomplished to establish efficient cross-functional work flows that are consistent, repeatable and scalable for growth.

We also offer a unique perspective for helping organizations considering a Product Lifecycle Management implementation because we view PLM from a manufacturing business-user's vantage point because we live and breathe it daily.

Because we work in a dynamic, global product-development environment that supports a worldwide manufacturing footprint, we have a user's perspective that helps drive results and realize improvements. Several of our experts also have been deeply involved with our ISO 9000 certification effort, as well as configuration management, and engineering document-management practices. Mercury PLM Services is a Siemens Zone SI Partner. ■