

From Our
Experience



SHAREPOINT TO SUPPORT PRODUCT DEVELOPMENT

Documents, test reports, analysis feedback, notes, and meeting minutes can be scattered everywhere. Often this unstructured information is stored within emails, local drives, and network servers. Keeping local teams collaborating effectively in this scenario can be a challenge.

Trying to have global, remote teams work this way is nearly impossible – especially if it is critical that everyone is updating the correct document, or seeing the right analysis results.

Many years ago, Mercury Marine implemented SharePoint as a platform to help provide a single source of truth for unstructured data such as test pictures, project team documents, test analysis reports, document templates, etc.

This platform has become even more critical with the globalization of engineering resources, suppliers, and partners.

From the perspective of supporting Mercury Marine's Product Lifecycle Management initiative, SharePoint is used in three capacities:

- Product development process and support
- Product development program management
- Project Management/System Documentation

"SharePoint provides an ideal platform for managing project-related documentation and processes because it is flexible, highly configurable, and pretty simple for people to learn," said Carl Wendtland, manager, strategy & systems architecture at Mercury Marine.

Within product development process and support, several SharePoint sites are used to support Mercury Marine product development needs. These include:

China Part Check-out Approval—For IP security, there is a separate Teamcenter server in China from the central product development server for other locations. A SharePoint site is used by Chinese engineers to request approval to receive CAD models. Once the SharePoint form has been reviewed and the workflow approved, the part geometry is sent to the Chinese Teamcenter server. Records of the request, approval, and transfer are stored in SharePoint.

Engineering Knowledge Base—The intranet site initially built using Cold Fusion provides engineering-related content throughout the plants and non-engineering user base. This site is gradually being replaced by SharePoint sites accessible to the same user base.

Information Sharing Sites—Sites set up for training, technical wikis, departmental, ISO, safety, and much more. These sites are intended to be used by teams or departments and contain documents, specifications, meeting minutes, tasks, templates, etc.

The systems mentioned above provide access to information used throughout engineering and also gives access to users at Mercury's global locations. For example, the information sharing sites are owned by the users and they are empowered to update Web parts, create views, and contribute to Wikis to enrich the experience for the entire team or department.

Process Focused Innovation Management

Sample Information Sharing Site

Mercury Marine Product Development & Engineering

View All Site Content

Documents

- PD&E Templates
- PD&E Documents
- PD&E Wiki
- PDM Documents

PD&E Presentations

- Top 5 Meetings

IRS Sheets

- Create new IRS
- IRS Tasks
- Fishbone Template
- Is Is-Not Template

Site Hierarchy

- Electrical / Electronic
- Engine Peripherals
- Facilities
- GD&T Training
- Global Systems Envir
- Mechatronics Team
- Product Integration I
- R&D ISO Website
- Safety Team Meeting
- PD&E Documents
- PD&E Templates
- PD&E Wiki Docs

R&D Presentations

New Upload Actions Edit

Type	Name	Modified By
Folder	Top 5 Meetings	Saurabh Mishra

Announcements

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One of the most impactful implementations of SharePoint has been within Mercury's product development process. This is largely because these product development programs touch almost every functional area within Mercury Marine.

Product Development Process—Site created for all users to understand the organization's five-step gated product development process, and download document templates. Content for this site is gradually being transitioned into SharePoint from other sources.

Product Development Program Team Sites—Each product development program has a SharePoint site with web parts provided via a standard site template to help deliver consistent functionality to each team. These sites contain critical program documents such as requirements, VOC, gate review presentations and meeting minutes, as well as tasks, testing reports, etc.

Parts Planning Application—The .NET developed SharePoint-based application automatically receives bill of material content managed within CAD/PDM systems, or transactional attributes from ERP are integrated into the solution as read-only data. This single tool allows cross-functional global teams to view and report against engineering (bill of material structure and related attributes), transactional (purchase order, costs, quality, etc.), and simultaneously contribute transient planning (dates, names, etc.) information.

This solution allows world-wide product development project participants simultaneous access to a single environment to view and report against critical project attributes such as dates, source, supplier, purchase orders, and build locations.

As discussed in other content provided by Mercury Marine, the Parts Planning Application also drives critical product cost and weight metrics throughout all phases of product development.

The product development sites provide a consistent, common environment that enables collaboration within

Parts Planning Application User Interface

Status	Seq Nbr	Level	Item ID	Item Revis	Item Name	Design Lead Accountable	Commodity Manager	Buyer	Quality Engineer	New/Current Part	Part Rank	Source	Primary Path Supplier
1	82	5	8M0045865	01	COMPRESSION LIMITER	sanderso	landerso	cthuerna	molivas	New		RE-Reference	Hengon
1	83	5	8M0035901	03	BREATHER FITTING	sanderso	landerso	cthuerna	molivas	New		RE-Reference	Hengon
1	84	4	88552525	B	SCR-M6 X 25 HEX FLANGE HI	sanderso	rdstokes	wchapin	tkaczmar	Current	CP	P-Purchase	LSP
1	85	4	8M0041011	01	OIL PUMP ASSEMBLY	sanderso	bkluge	ckonyn	dkjek	New	B+	P-Purchase	Mkuni
NEW	86	5	8M0045945	01	BASE, OIL PUMP	sanderso	bkluge	ckonyn	dkjek	New		RE-Reference	Mkuni
1	87	5	8M0045947	01	GEROTOR SET	sanderso	bkluge	ckonyn	dkjek	New		RE-Reference	Mkuni
NEW	88	6	8M0045946	01	INNER GEROTOR	sanderso	bkluge	ckonyn	dkjek	New		RE-Reference	Mkuni
NEW	89	6	896062001	-	ROTOR-OUTER	sanderso	bkluge	ckonyn	dkjek	New		RE-Reference	Mkuni
NEW	90	5	8M0045944	01	COVER, OIL PUMP	sanderso	bkluge	ckonyn	dkjek	New		RE-Reference	Mkuni
1	91	5	896067	-	PIN-DOWEL	sanderso	bklue	ckonyn	dkiek	New		RE-Reference	Mkuni

global, cross-functional product development teams. For example, one advantage the Parts Planning Application provides program managers is the ability to watch activity within their program's site via the audit trail that records who is making changes to the attributes, but also bill of material changes. Without having to call a meeting, the program manager can identify potential areas of concern, and contact those team members directly.

“By providing a global environment for collaboration, our product development teams are able to work more efficiently to deliver programs to market that provide value to our customers and shareholders,” emphasized Wendtland. “SharePoint has become our product development community.”

The final category of SharePoint sites within the Mercury Marine PLM fold are related to project management, including Agile-SCRUM processes, and system testing/validation. These sites are owned by the Engineering Information Systems team responsible for maintaining the global PLM implementation. Sites include:

Portfolio/Project Planning—The project activation process is enabled within SharePoint. This includes idea capture, project approval, and project execution. A SharePoint site manages the weekly Agile-SCRUM board and delivers team SCRUM performance metrics/dashboards. Each project team site contains high-level performance dashboards including links to the corporate time/labor tracking database, critical gate review documents, and traditional traffic-light style alerts. Project business case, requirement gathering, and other documents are also managed.

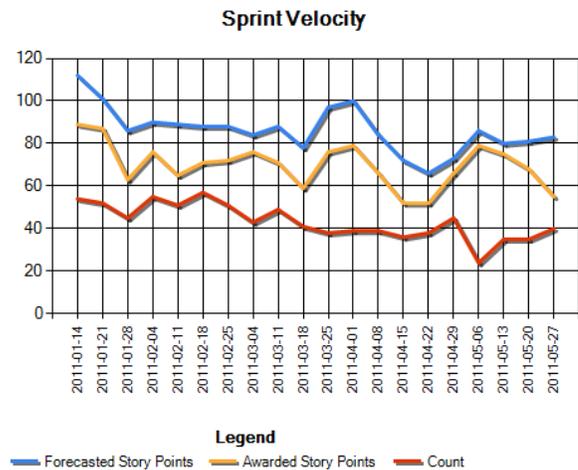
Systems—Sites for each major system supported by a PLM team member, as well as environment architecture, validation plans, validation workflows, functional specifications, technical

specifications, admin training, and end-user training materials are managed within a system SharePoint site.

These sites allow EIS team members working from remote locations to remain connected. For example, by allowing each contributor to update their own SCRUM board goals and story points, the weekly kick-off and wrap-up meetings can be held with remote participants providing input. Dashboards updated weekly on the SCRUM home page keeps everyone updated with team performance KPIs such as goal attainment, failure reasons, and workload. It also helps catch resource bottlenecks earlier so project teams can make the necessary adjustments.

“Adopting the Agile project delivery philosophy has helped drive communication within our PLM team so everyone knows what is going on, who is required to deliver a result, and how effectively we are executing to plan,” stated Wendtland. “Using SharePoint to run our SCRUM board saves time and improves communication, especially for remote team members.”

Sample Sprint Dashboard



Sample Sprint Wrap-Up Interface

Sprint Wrap-up

Sprint	Project	Goal	FSP	ASP	Not Done	Notes	Planning	Support	External
2011-05-27	Cortona Proof of Concept [A]	Clean-up deliverables from the training session	2.00	0.00			No	No	No
2011-05-27	Cortona Proof of Concept [A]	Conduct follow-up interviews	2.00	0.00			No	No	No
2011-05-27	Cortona Proof of Concept [A]	Investigate System Touch Points	6.00	4.00		Raj had to look into China multi-site issues. Also the scope of this task was not properly defined.	Yes	Yes	No
2011-05-27	Mercury Operations [A]	CAD Data Quality - Document & Discussion	1.00	1.00			No	No	No

Sample Sprint Kick-Off Interface

Sprint Kick-off

Sprint	Project	Goal	FSP	Andy	Bala	Brad	Carl	Dave	Emil	Jeff	Ishwar	Lenny	Nat	Nate	Raj	Shirish
2011-06-03	Cortona Proof of Concept [A]	Investigate System Touch Points	4.00	2.00								2.00			2.00	
2011-06-03	Mercury Operations [A]	Help Desk	3.00								3.00					
2011-06-03	Mercury Operations [A]	ISO and LSS Support and Mentor	1.00											1.00		
2011-06-03	Mercury Operations [A]	IT Support / Brad	3.00			3.00										
2011-06-03	Mercury Operations [A]	IT Support / Steve	3.00													
2011-06-03	Mercury Operations [A]	Requirement meeting for PPAP's	1.00								0.25	1.00		0.25	0.25	
2011-06-03	Mercury Operations [A]	Workflow Conductor Installation (Cont)	1.00											0.50		1.00

In addition, Application Sharing is a module of Teamcenter Community (Siemens Teamcenter SharePoint add-on) that connects remote users throughout Mercury Marine, its supply base, and external partners. The tool is similar to WebEx but is free once the license fee is paid, and is complimentary to Teamcenter JT lightweight viewable files because only the instruction for image manipulation is sent via the session, not the entire image, allowing engineers and supply chain partners to work faster and focus on collaboration.

Other uses of SharePoint beyond product development include allowing facilities to track repair requests, sales to manage dealerships, and departments throughout the company to manage documents.

Getting the organization weaned off the 'shared network drive mentality' took time. When SharePoint initially went live, requests to use the technology were rare. Several years later, requests come in almost weekly from many functional areas within Mercury Marine.

If your organization is considering SharePoint, it is suggested to start with a well-defined pilot project. Ideally, a somewhat critical project should be considered for the pilot so team members have some incentive for the project to succeed.

It is also suggested to form a cross-functional team to

establish an overall vision for SharePoint and consider potential uses throughout the organization.

Mercury PLM Services Unique Perspective

Mercury's 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 done to establish efficient cross-functional work flows that are consistent, repeatable and scalable for growth.

Mercury also offers a unique perspective for helping organizations that are considering a Product Lifecycle Management implementation because Mercury lives and breathes PLM from a manufacturing business user's vantage point.

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

PLM OFFERINGS

Business Process

Product Data Process Evaluation
 PLM Visioning & Roadmap
 Business Process Facilitation
 Process Impact Communication

Data Management

CAD Configuration & PDM Integration
 Large Assembly Management
 Product Data Mgmt.
 Change Management
 Visualization

Prod. Data Planning

Portfolio / Project Management
 Part Attribute Mgmt.
 Product Cost Eng.
 Requirements Mgmt.
 Collaboration

Back Office Support

Environment Planning
 System Assessment
 System Admin Mentoring
 Upgrade/Patch Install
Manufacturing
 CAM and Tool Data Mgmt

Knowledge Sharing

Hosted Events
 PLM Mentoring
Implementation
 PLM Implementation
 Training Facilitation
 ERP Integration