Extending Process Manufacturer PPG's Oracle BI Solution

**MANUFACTURING
ANALYTICS SERVICES**

Executive Summary

TEKsystems extended the capabilities of Oracle Manufacturing Analytics for PPG; this facilitated greater insight into the client's production environment, enabling more informed decision making, planning and cost efficiency.

Quick Facts

Client
- **Industry:** Manufacturing
- **Employees:** Approximately 46,000
- **Revenue:** More than $15 billion
- **Geographic Presence:** Headquartered in Pittsburgh, with over 150 manufacturing facilities worldwide

Objectives
- Extend the function of Oracle Manufacturing Analytics to meet PPG's needs as a process manufacturer
- Give PPG visibility into their production floor
- Customize OBIA to suit PPG's business processes and metrics

Challenges
- Utilize an on-site/off-shore delivery model to design, build and test the system
- Identify functional use cases and test strategy to save time and ensure smooth acceptance of the solution
- Work with PPG functional analysts and business users to clearly define requirements

Results
- Enabled PPG to leverage an existing technology investment to make better, informed business decisions
- Extended Oracle Manufacturing Analytics to provide custom metrics that would reduce costs and optimize production activities
- Supported the rollout of Oracle Manufacturing Analytics to PPG's manufacturing plants
- Reduced compilation time for recurring reports

Technologies Supported
- Demantra
- Oracle Advanced Supply Chain Planning
- Oracle Business Intelligence Applications (OBIA) 11g: Manufacturing Analytics
- Oracle Business Intelligence Enterprise Edition (OBIEE) 11g
- Oracle Data Integrator (ODI)
- Oracle Database
- Oracle E-Business Suite (EBS) Release 12

Client Profile

PPG is a global supplier of paints, coatings and specialty materials, consistently delivering solutions customers trust to protect and beautify their assets. A Fortune 500 company, PPG provides added value to global customers in construction, consumer products, industrial and transportation markets and after markets. PPG has partnered with TEKsystems since 2014.

Industry Landscape

With a business or organization, if a function isn't responsible for bringing in money, it needs to be looking for ways to save it. Efficiency and cost-effectiveness are essentially the main objectives of manufacturing plant managers. They are perennially tasked with keeping costs down and looking for opportunities to reduce spending. In a production environment, the devil—and the savings—is in the details. Plant managers need the ability to look at each part of the production process to see where there is excess, where there are delays and where there is opportunity.

Unlike discrete manufacturers (e.g., cars, electronics), process manufacturers (e.g., food or drug companies) use recipes with ingredients to create batches of their product. In order to manage and reduce costs in that type of manufacturing environment, plant managers, chemists and/or planners need insight into the granular details of their batch in the production process. That data could also be used, for example, in the event of customer returns or complaints. The conditions for that specific batch could be analyzed to see if there were any variances, such as an ingredient substitution. Tracking variances is critical from a business standpoint because it allows an organization to see what, where, when and why there is variance, and thus make informed business decisions.

Also, data can provide greater insight into regular production and routing, which is crucial for engineers, formulators, managers and potentially operators who want to track the progression and output of batches. For example, if there are holds in the recipe, they need to have the information necessary to make the appropriate decision during the batch process. Further, data enables comparison of planned consumption and actual consumption.

> " *Initially we chose to partner with TEKsystems to enhance our implementation of the Oracle Manufacturing Analytics module based upon the recommendation from our Oracle Sales team. [TEKsystems] came highly regarded for their knowledge and past experience in extending this module for other process manufacturers. We have continued to work with TEKsystems because of their proven track record and ability to deliver high-quality analytics projects on time and on budget"*
>
> *– Kurt Muenz, Global IT Director, PPG*

Situation

PPG was a new user of Oracle BI, having recently implemented OBIEE/OBIA tools in several areas of the company. Historically, they had a strong history of operational cost management and wanted to maintain their ability to track and analyze variances after implementing Oracle EBS R12. PPG wanted to use Oracle Manufacturing Analytics to provide the level of detail necessary to analyze production history and gain better insight into the production floor.

The ability to examine historical manufacturing data to make future decisions would help optimize future production batches and reduce impact on dependent plants or customers. The data would help produce accurate monthly reports for plant management. PPG also wanted insight into variances in separate categories—such as yield, substitution, gain on usage, nonstandard routing—so that cost accountants and plant managers could analyze what happened in a batch and what contributed to the batch close variance. They wanted the ability to use both lot and standard costing methods.

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PPG did requirements analysis in 2014 and found the out-of-the-box Oracle Manufacturing Analytics application met several but not all of their analytics needs as a process manufacturer.

In early 2015, PPG implemented Oracle Manufacturing Analytics. To add the needed functionality and customization, Oracle recommended that PPG partner with TEKsystems, as our team built the original product.

Solution

TEKsystems developed a multiphase solution to help PPG customize and extend the functionality of their Oracle Manufacturing Analytics application. Our solution would help PPG meet their data and process information needs, align with their business processes and metrics in the manufacturing space, and gain a greater return on their technology investment.

Phase 1

TEKsystems extended PPG's out-of-the-box Oracle Manufacturing Analytics solution to give them greater insight into sub-ledger accounting, routings, recipe holds, and item costs / recipe costs. Our custom solution tied all these details into a single place, which would help PPG make decisions faster.

Our solution would enable PPG to analyze:

Sub-ledger accounting transactions generated during production

Linking sub-ledger transactions to batch activity gives plant management a 360-degree view to help understand the impact of production on the general ledger and provides the necessary oversight to identify key drivers of plant cost performance for future optimization efforts.

Recipes on hold and their impact on planned production

Our solution provides useful hold-related information (e.g., why the recipe was in hold, by whom the hold had been applied, when the hold was released) to the PPG production team so they are able to make decisions accordingly. This solution will help PPG achieve more timely releases of held recipes as well as eliminate potential creation of batches that have held recipes. It will also provide engineers, chemists and planners the ability to track holds by reason over time to detect trends.

Planned versus actual production at the activity and resource levels

Dashboards with reports and metrics will provide insight into each step of the batch process, highlighting planned versus actual quantities and timings at various stages with the ability to analyze materials and resources in combination at the activity level.

Item costs at the recipe material and resource levels

This part of the solution enables PPG to calculate the recipe cost of an item and enables analysis at the ingredient/resource level rather than just the product level. This ability will guide better decision making during the re-cost process. The ability to derive various

cost factors will also help PPG make decisions related to manufacturing costs faster and inform the selling cost of the recipe.

Phase 2

In the second phase, TEKsystems helped solve PPG's challenges with costs incurred due to variance on the production floor in terms of resource and materials for a batch. This will help PPG reduce costs as well as streamline batch production across different production plants. TEKsystems implemented custom manufacturing variance logic, such as yield variance, substitution variance, gain on usage, nonstandard routing variance and evolution variance, and provided drill-down capabilities to drive root-cause analysis.

TEKsystems worked very closely with PPG IT and business stakeholders to gather and analyze requirements and built a solution in a timely fashion within budget. We involved PPG stakeholders at every step of the implementation, including design review, test strategy and migration strategy, which led to a very smooth and successful implementation.

Results

By extending the functionality of Oracle Manufacturing Analytics to provide various custom metrics, TEKsystems offered PPG the means to reduce costs and optimize production activities. Phases 1 and 2 were completed within budget and on time, giving PPG the key functions and metrics they needed before rolling out the technology to their plants. We also helped PPG roll out the solution to three plants and continue to support rollouts to subsequent plants.

We utilized an on-site/off-shore model to design, build and test the system. Identifying functional use cases and test strategy up front saved substantial time and ensured a

smooth acceptance of the solution. Our team consisted of one BI architect on site, and depending on the project's needs at any given time, a team of four to seven team leads and developers off shore that were aligned to PPG. The whole team had significant expertise and experience in Oracle BI Apps.

The additional investments PPG made into the technology helped ensure greater adoption by their business users. PPG is better positioned to leverage existing technology investments to inform critical business decisions. Insight into production variances directly translates to a more accurate costing process and lends the ability to adjust costs appropriately. Moreover, reporting at various levels will help ensure smooth batch completion. Overall, this insight will help the client increase efficiencies and reduce costs in production. Numerous teams across the company, including accounting, plant supervision and costing, will benefit from the information they receive from this technology.

Additionally, the completion of these projects has further reinforced PPG's decision to cease supporting the traditional methods of ad-hoc analysis using Microsoft Excel and Access that end users had employed. The new analytics capabilities greatly reduce the time and effort for stakeholders and end users to access recurring (daily, weekly, monthly, quarterly) reporting and metrics.

Continuation of partnership

TEKsystems is currently implementing Phase 3 of the project, working to increase PPG's visibility into the number of days of coverage for an item at an end-customer's facility. "Days of coverage" is defined as the number of days that PPG can support a customer's forecasted demand with inventory in the supply chain. The data currently resides

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in three source systems: EBS, Advanced Supply Chain Planning (ASCP) and Demantra. TEKsystems will integrate the data from these sources to plot supply and demand with respect to days of coverage. This reporting capability will help PPG gain a broader view of how supply (i.e., inventory of what is on hand, in transit, received, or a work in progress) relates to demand, as forecasted by Demantra. It will help PPG make more effective decisions so that demand will always be met with supply. We have two people leading Phase 3 of this project on site, as well as our off-shore team.

We have also assumed responsibility for a one-year contract providing managed services for the BI portion of PPG's implementation team for the Oracle R12 project. Our team will be scalable based on PPG's needs, with one person located on site at PPG and five additional TEKsystems resources off shore. We have established a mechanism to flex resources up and down as required by the client's needs.

Key Success Factors

Subject matter expertise

TEKsystems had first-hand knowledge of the Oracle Manufacturing Analytics solution, as we originally built it before selling it to Oracle. Also, our team brought extensive domain knowledge and experience in using Oracle in a manufacturing environment, which was critical to our success in understanding PPG's requirements and developing a solution that met their needs.

Technology expertise

Our technical team thoroughly understands Oracle's BI apps tech stack. TEKsystems is an Oracle Platinum Partner focused on providing consulting services for EBS, Fusion Middleware and the OBIEE stack. We are also an Oracle Development Alliance Partner, with a unique relationship where we co-develop new applications, features and functionality with Oracle. In BI, we are Oracle's only co-development partner. Our long-term partnership with Oracle enables us to deliver deep and unmatched technical expertise.

Trust

PPG and TEKsystems both committed to a high level of interaction to ensure project success. Our team worked closely with PPG's business analysts and IT manager to gather and analyze requirements. Moreover, our team's ability to complete projects on time, on scope and within budget gained the client's trust.

Effective collaboration

PPG served as the on-site functional lead, and TEKsystems provided functional support off site. This division of responsibility allowed PPG to gather requirements and write functional specs in advance, which shortened our development timeline.

About TEKsystems

People are at the heart of every successful business initiative. At TEKsystems, we understand people. Every year we deploy over 80,000 IT professionals at 6,000 client sites across North America, Europe and Asia. Our deep insights into IT human capital management enable us to help our clients achieve their business goals—while optimizing their IT workforce strategies. We provide IT staffing solutions, IT talent management expertise and IT services to help our clients plan, build and run their critical business initiatives. Through our range of quality-focused delivery models, we meet our clients where they are, and take them where they want to go, the way they want to get there.

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