ONiQUA™

ENTERPRISE ANALYTICS

Driving better decisions.

Adding Enterprise Analytics
to your ERP

Applying Enterprise Analytics to the wealth of information
locked in your ERP can have immediate and tangible results.

Author:
Philip Duncan

Date:
December 2002

Version:
1.0

Oniqua Enterprise Analytics

9635 Maroon Circle
Suite 100 Englewood
Colorado 80112 USA
T: 303 685 8164
F: 303 575 6379
philip.duncan@oniqua.com

TABLE OF CONTENTS

About the Author

Philip Duncan is Vice President Strategy for Oniqua Enterprise Analytics. He has been involved in delivering solutions to the mining and energy industries in North America, South America and Australia, including stints with PricewaterhouseCoopers, and also as Australia's Trade Commissioner to South America.

ADDING ENTERPRISE ANALYTICS TO YOUR ERP

Applying Enterprise Analytics to the wealth of information locked in your ERP can have immediate and tangible results.

ERP Systems As Transaction Engines

Companies have spent an estimated $39 billion on Enterprise Resource Planning (ERP) systems in the last 5 years, according to AMR Research. These ERP implementations have generally improved transaction processing across functional silos, streamlined operations and standardized corporate IT environments.

But they have not fully addressed the information needs of these organizations. Few companies have been able to unlock the information that could help them make faster and more accurate business decisions from within the mass of data collected and stored in their ERP environments.

ERPs serve as transaction engines in many organizations. The advantage of ERP systems is that they collect, organize and transact large quantities of financial, operational, materials and other data. Ironically, the *disadvantage* of ERP systems is that they amass large quantities of data. *Too much data to actively manage*. There are simply too many transactions in the system, each with multiple parameters of price, cost, frequency etc. Users are not able to examine all the transactions and manage how they happen, or even if they should happen.

Because ERPs are optimized to process transactions, they do not have the architecture to analyze and distribute that information in an accessible, usable format. Users don't have convenient access to the information or tools they need to optimize the transactions, and without an analytical framework, the ERP is unable to automatically optimize the transaction parameters itself.

> **One of our clients in the mining industry was trapped in this dilemma. Despite being good users of a modern ERP, the materials group was unwilling to use the automatic purchasing capabilities of the system, because the data was unreliable. There were simply too many transactions to manage one by one. The process of examining reorder points and reorder quantities against usage history was too cumbersome within the ERP, especially with 36,000 line items to examine.**

Even worse, users may know what changes should be made, but actually loading the changes in the ERP may be too time consuming for multiple items or frequent changes.

> **At another client, an oil and gas player, a huge project to examine maintenance tasks within the system was halted after the tasks had been extracted from the ERP, and extensively analyzed and optimized. The final project stage of going back into the ERP to change the task parameters proved to be simply too large and too slow to happen before those parameters were themselves out of date.**

Popular business intelligence (BI) tools offer only a partial solution to these issues. They typically function by extracting ERP information into a datamart capable of analyzing and delivering information to users. The best BI tools now incorporate templated domain and industry knowledge, which the user previously had to develop. But they do not enable the user to change transactional parameters for upload to the ERP. There is no feedback loop. Nor do they change the parameters automatically. For that task, ERP systems need Enterprise Analytics tools.

Fortunately, ERPs contain the seeds of their own salvation.

Optimizing Transactional Parameters

If the ERP is a transaction engine, then Enterprise Analytics act as an engine management system, constantly and dynamically tweaking the engine parameters to account for current driving and road conditions. Enterprise Analytics tools like the suite of solutions from Oniqua can be ''snapped on'' to modern ERP systems to dynamically optimize operational transactions, across operational areas such as inventory, purchasing and maintenance.

The current focus on optimizing operational efficiency, particularly within asset intensive industries, is driven by economic and business pressures. The Meta Group described the current focus in the utility industry this way:

"During 2002/03, a renewed focus on operational efficiency will drive increased investments in asset and work management solutions, including an emphasis on reliability-centered maintenance, e-procurement, crew scheduling, and inventory planning."

(Back to Basics: Energy Industry Trends for 2002, Meta Group Trend Teleconference Transcript, February 6, 2002)

Fortunately, ERPs contain the seeds of their own salvation, in the form of historical data which can be used by Enterprise Analytics to dynamically tune current transactional parameters. Enterprise Analytics contain industry specific domain knowledge and methodologies. By applying sophisticated statistical algorithms to historical transactional data, Enterprise Analytics can forecast future demand for materials or resources, or predict the impacts of process changes using powerful 'what if' analysis. This results in more robust decisions, and greater clarity of decision making across multiple departments.

ERP design is focused on automating the workflow and Analytics is focused on 'tuning' the workflow
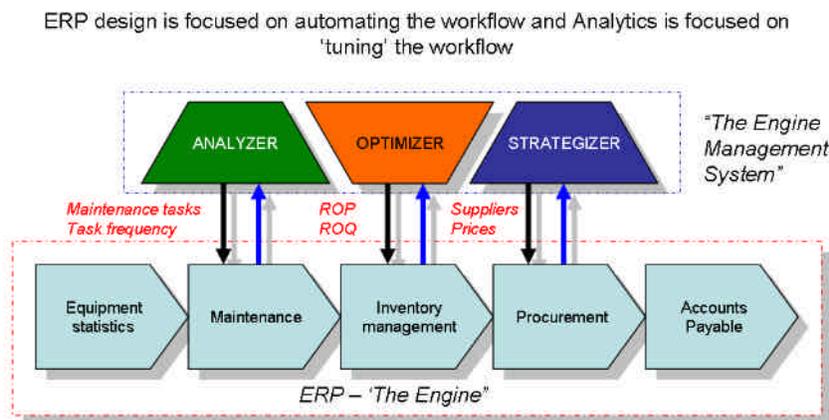
Consider the information contained in most ERPs. Many of the transaction parameters were imported from legacy systems, or were perhaps contained in manufacturers' original recommendations. So you continue to hold two spare gearboxes, even though the ones in service are much more robust that anticipated, and have not failed in service. You continue to order a certain bearing, even though the equipment that uses them is being phased out of service. You continue to reline vessels at fixed intervals, even though your RCM system recommends a longer interval. The ERP continues to perform these transactions as they were originally specified, because there are too many items to actively manage, and the changes are too difficult to make, especially where they impact multiple items or tasks.

Automation Is Key

Importantly, much of this tuning of the ERP transactions can take place automatically, within the limits of business rules specified by the user. It is this automation aspect that enables users of Enterprise Analytics systems to actively manage large amounts of data, such as large inventories or huge numbers of maintenance tasks. Where changes fall beyond the limits of the enterprise business rules, decisions are referred to the user, with recommendations for actions.

Automation, together with exception reporting, allows users to dynamically optimize large numbers of transactions through a process of continuous improvement against current business conditions.

The optimal transaction parameters vary constantly with business conditions. Maintenance tasks may change with the regulatory regime. Inventory may vary according to demands on assets. Procurement needs to be constantly monitored to align with variation in supplier performance. The parameters in the ERP must be dynamically tuned to current business conditions, and the business rules of the enterprise. Driftage from this optimal alignment costs money and results in resource misallocation.

The Oniqua Enterprise Analytics suite

Oniqua provides enterprise analytic solutions for supply and maintenance in asset intensive industries. Oniqua solutions analyze and optimize transactional data from corporate systems (ERPs). The solutions are ERP independent, and are currently applied to systems from SAP, Mincom, JD Edwards, Oracle and others.

Oniqua Enterprise Analytics harvest information from corporate systems, optimize it within an inventory, procurement or maintenance context, and then update the ERP with optimized parameters.
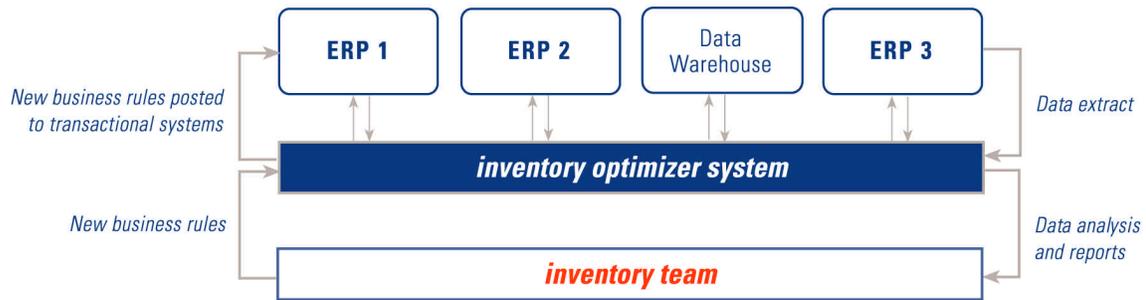
Inventory Optimizer is a decision support system for inventory managers. It presents corporate information in an inventory context, and incorporates domain knowledge tailored to the needs of asset intensive industries. By profiling and dynamically segmenting inventory items, it allows business rules and policies to be consistently and automatically applied to every inventory item. This results in more robust decisions, and greater clarity of inventory decisions to both finance and maintenance departments.

Importantly, much of this process of adjusting reorder points and reorder quantities happens automatically, with exception reporting where adjustments fall outside defined business rules. This allows the inventory group to actively manage large inventories efficiently. They can also take advantage of flexible reporting tools, and the ability to conduct 'what-if' analyses.

Users have been able to reduce inventories by 15 to 30%, reduce inventory costs, reduce stockouts and reduce production risk.

Procurement Strategizer uses sophisticated analysis and domain knowledge to deliver information that enables buyers to segment their supplier base, focus on the key suppliers that contribute to the business, and continuously assess their performance.

Drawing on order, delivery and invoice data from the ERP, the procurement group is able to assess supplier performance against key performance indicators, providing both buyers and suppliers with a consistent picture of performance and potential improvements.

Procurement Strategizer also enables procurement professionals to generate electronic Requests for Quotation (RFQ) and automatically compare bids from suppliers using considerations of more than just price, to determine to total cost of doing business with that supplier.

Maintenance Analyzer enables the use of dynamic maintenance strategies by analysis of maintenance data. It tracks maintenance performance and measures over time and compares maintenance performance between business units. Users can conduct what-if analyses using multiple parameters eg plant criticality, costs, and maintenance activities to determine the most effective maintenance regime for plant. Users are able to optimize maintenance activities and frequencies. A dynamic feedback loop enables continual alignment of the ERP system to the maintenance strategy.

Maintenance Analyzer draws on data from the ERP and other sources, and gives the maintenance group the tools to analyze the data, optimize tasks and task frequency, and then update maintenance strategies for individual pieces of equipment. Maintenance Analyzer is a practical tool that enables the maintenance group to review and continuously tailor maintenance strategies.

Oniqua solutions have quick, clear ROI, and are generally able to be implemented in a short time as discrete, definable projects, using the information already contained in the ERP.

Conclusions

Enterprise Analytics can be added to most ERPs to improve the management of large numbers of operational transactions and transaction parameters. Using automation, together with exception reporting, optimized parameters can be uploaded to the ERP to provide continuous tuning of transactions to current business conditions. Oniqua provides Enterprise Analytics in the areas of inventory, procurement and maintenance.