Integrating I²M with Actano RPlan® to Improve New Product Development

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Introduction

In today's global markets, having the information needed to keep new product programs on track--avoiding costly delays and rework--is one key to bringing world-class products to market. Giving customers the ability to find new information in existing data is just one way that Template Software helps make that happen.

Organizations are typically rich in data created and managed in separate stand-alone applications. The data is often created by one group for a specific purpose and without consideration for other uses. Intelligent Information Manager (I²M), alone or coupled with third party target applications, can organize and link data and improve an organization's performance, process conformance and analytical capability.

Recently, a major automotive manufacturer approached us with a project to replace their aging in-house project management information system. The manufacturer, or OEM, was simultaneously moving from a regional to a global product development process and reducing the size and budget of the centralized planning organization. As a result, the number of vehicle programs underway at any given time grew to several hundred while the resources available to support them shrank. We worked with the OEM to leverage existing data to help streamline their global program planning process, tying it more closely to their portfolio and part systems, and helping fewer people manage more programs and schedules.

The I²M Process Model

I²M allows users to draw on data from external sources and transform it into executable *work products* such as project schedules, product designs, manufacturing requirements, work orders and more, in targeted applications. Our "Organize, Analyze, Act" (OAA) process model describes the I²M functionality in terms of three high level steps:

- **Organize** data from multiple external sources into a structured view based on shared attributes
- **Analyze** information based on user managed business logic to support key decisions, understand data relationships, and assess on-going changes
- **Act** on the information by applying business logic to create new work products and data relationships internally or in target applications

Figure 1

The Challenge

Each vehicle product program requires the coordinated effort of functional groups working around the globe to execute the overall program plan. The Program Managers developed their plans in a popular desktop project management application. That plan was then distributed and manually recreated by each group working on the program in multiple unconnected planning systems. The program status was typically communicated via static PowerPoint charts that lagged the actual program plan by up to two weeks in some cases.

For the functional groups that were managing hundreds, or even thousands of related plans and schedules, any delay in understanding the real program requirements could result in costly mistakes and unnecessary rework. Functional groups managed their work using local “stove-pipe” solutions. They had to manually review program plans for key dates and changes and rarely had access to schedules from related functional organizations. Most mechanisms for reporting schedule status and timing issues involved long meetings where critical engineering issues dominated and schedule status took a back seat.

The functional groups had other challenges as well. Product Development, for example, manages the design and engineering of sub-systems and parts required for each vehicle. For any given vehicle program, the Part Management System includes thousands of parts and the Bill of Material System includes hundreds of vehicle sub-systems. Keeping track of the product content changes and their impact on the hundreds or thousands of related schedules consumed most of the limited resources available.

As a result, the teams responsible for executing programs were running blind. The OEM had product development and manufacturing launch processes that were designed to address some of these concerns, but the right tools were not in place to support them.

The Solution

The OEM wanted a solution that could implement their vision of translating existing data into program management information. This solution would blend their global product development processes with program management and engineering data to manage

hundreds of product programs spread across the globe. When implemented the system would allow the OEM to:

- Coordinate the activity of functional groups located around the world
- Manage tens of thousands of inter-related schedules
- Focus attention on important project decisions
- Address issues and timing conflicts at the right level of the organization
- Automate repetitive activity that wasted valuable planning and engineering man-hours
- Provide a simple and consistent program management environment so that users across the organization could have direct access to the timing and status information

The OEM evaluated numerous alternative vendor solutions. Although each had strong points, none were able to apply business intelligence to the problem of organizing information to build and integrate schedules, a unique strength of I²M.

Template Software's solution combined I²M for applying business rules to existing data, with RPlan®, the easy-to-use collaborative project management application from Actano. The result is a tightly integrated solution that met the OEM's objectives.

The process for building integrated schedules involved three major steps that correspond to our OAA model.

Organize the Data

Data is drawn daily from three principle sources, consolidated and scrubbed into a staging database and made ready for use by I²M:

- The Part Management System, with hundreds of thousands of part records and related data.
- The Portfolio Plan manages data on current and future product programs, including preliminary assessments on content requirements organized around a proprietary product breakdown structure
- The engineering Bill of Material system manages a detailed assessment of content requirements based on the proprietary product breakdown structure

Applied to this incoming data, I²M automatically:

- Organizes the data from different sources based on user-defined criteria
- Presents the data in a single graphical view that can be expanded to examine the details at any level

The result is a view of the data previously unavailable anywhere within any OEM application—a drill down from the product program to engineering sub-systems to

specific part numbers. And when a part is shared across multiple product programs, those relationships are visible as well. Moreover, as the data changes, I²M identifies the changes and updates the relationships so that the planners can evaluate their impact on the associated plans.

Analyzing Information and Taking Action

Once the data were organized, the OEM needed a means to understand what it meant to how they managed product programs.

One method was to simply review the structured data and leverage the newly built relationships. However, with potentially millions of data points (parts, sub-systems, etc.) the results might be uneven. With as many as 750 product programs underway at any one time, each involving hundreds of engineers, program managers, and project planners, the opportunity to produce a consistent set of integrated schedules from program to program and from year to year would be a challenge.

Fortunately I²M doesn't stop at organizing information for visual inspection. With the I²M rule engine, users manage and apply business logic (or *rules*) to analyze their data. For the OEM, the analysis involved answering questions that fell into three major categories:

- Which engineering sub-systems and associated parts require a schedule?
- What template should be used to create the schedule?
- If a part or sub-system characteristic changes, what impact does that have on data relationships and schedule requirements?

Users with access to I²M's rule engine can create and organize rules to answer these questions and take action such as creating new schedules. The predefined schedule templates maintained in RPlan® allow users without intimate knowledge of the product detailed data to produce consistent results.

- Part schedule rules organized by program can automatically create thousands of schedules in RPlan® without the requirement for any additional user intervention.
- Subsystem schedule rules organized by commodity area (Vehicle Interior, Exterior, Chassis, etc.) recommend schedules based on user-defined criteria. By design these rules require users to review the recommendations before creating schedules in RPlan®.
- Schedule integration rules add links between related tasks across schedules, creating an automated, repeatable business process.

The Result

By joining I²M with RPlan®, we built a solution that met the OEM's objectives of improved global project management with fewer business and IT resources:

- ***I²M / RPlan® provides new insight to existing data***
  Our solution is the only place across the client organization where parts, sub-systems, portfolio plans and vehicle program plans are brought together into a single, unified view.

- ***Enabled real time data sharing and collaboration***
  The effort brought a major web-based application to the OEM that facilitates world-wide information sharing. In particular, the OEM was able to move from a bi-weekly "update and communicate cycle" to seeing real-time project status.

- ***Provided consistent results and controls across planning analysts***
  The advent of a global environment with standardized data views and business logic supported the execution of consistent processes across multiple regions. Regions that lagged behind in terms of adopting global processes were able to come on board quickly by taking advantage of common templates and business logic, removing a major barrier to adoption.

- ***Increasing project visibility to business units that need it most***
  The barrier between large global organizations such as Manufacturing Engineering and Product Engineering was breached by providing real-time visibility into product program and manufacturing schedules for the first time.

- ***Increased efficiency and productivity with fewer planning resources***
  Combining I²M business logic management with the RPlan® project schedule manager, tens of thousands of schedules can be created automatically using business data originally developed for other purposes.

The OEM also considers the successful effort a major step forward in changing remaining stove-piped data systems.

Summary

I²M provides an important gateway to existing data sources and enables organizations to improve project performance. Anywhere that organizations make decisions about how to organize and initiate work based on external data, I²M—when coupled with the right target application—can help. The result is always a set of best-practice work-products that can be quickly put in place to support global project ramp up and execution.

Today I²M is tightly integrated with RPlan® and is regularly updated as new versions of RPlan® are released. I²M uses a flexible data and UI model that allows it to be easily integrated with other target applications for managing such diverse work products as manufacturing specifications, product designs, hardware requirements, work orders, inventories and even intelligence data.