Vehicle Program Management Solution from IBM

Navigate the curves in the road
The vehicle program management solution from IBM can help you recalibrate your program management tools and processes. Make project management decisions based on near real-time information. Optimize your engineering resources. Improve the selection and reuse of components and modules by interrogating vehicle configurations—such as electronic bills of material—to help you safely navigate the road ahead.

The vehicle program management solution uses design maturity status information, gathered from multiple project information sources, to allow you to make near real-time decisions about resource utilization within and between vehicle development projects.

Based in large part on an on demand maturity model (ODMM) methodology, our solution manages the dependency and maturity of design information in the inherently risky concurrent development engineering process. ODMM is an iterative process that entails inputting current project plans, engineering plans, resource plans and associated job completion milestones, and then interrogating the sources of these inputs throughout the engineering design lifecycle. The new information is then fed through an algorithm based on probability density to readjust the job schedules and reallocate engineering resources.

Implementing the ODMM methodology allows for greater visibility into and more accurate reporting of the development progress of each successive component in a complex, highly interdependent and integrated product development lifecycle. This in turn allows for proactive risk management and continuous process reengineering.

Gain the inside track on your competition
Our industry-first solution can enable you to meet your production goals and delivery milestones without incurring excessive costs. It is designed to help you deliver new vehicle models and automotive components profitably with the same or fewer resources. The vehicle program management solution from IBM can enable you to stay ahead of your competition, advance your brand and retain customer loyalty, while achieving:

- **Reduction in development time—through improved forecasting accuracy.**
- **Elimination of rework—by doing things right the first time, every time.**
- **Quality output guarantees—of finished vehicles and supplied components.**
- **Improved resource allocation decisions—within and between projects.**
- **On-time delivery—by reducing delays in vehicle launches.**
- **Increased sales—through delivering products to market on the optimum delivery date.**

Manage risk. Reduce time and cost.
The vehicle program management solution from IBM addresses the management of risk in concurrent development processes. Schedule delays and rework are inherent in any environment in which work processes overlap. Using an on demand maturity model (ODMM) methodology, our solution helps management make resource decisions based on a rigorous evaluation of complex interdependent parameters—to reduce production time and cost.

Why IBM? Kick our tires.
Our solution leverages IBM's extensive automotive industry experience and dedication to innovation, including:

- More than 25 years of global automotive industry experience and expertise in product development and deployment.
- A worldwide network of more than 2,500 automotive industry experts—from Stuttgart to Detroit to Tokyo.
- Automotive Centers of Design Innovation in France and the U.S.
- Experience garnered from projects with all the major automotive original equipment manufacturers (OEMs) and suppliers in their product development areas.
- Direct involvement in automotive industry associations and standards bodies.

In addition, IBM Project Financing™ enables you to finance all or part of your solution, including multi-vendor hardware, software and services.

Engineer efficiency in your pit crew
Our vehicle program management solution enables project managers, engineers and resource managers to better coordinate complex concurrent development processes on a large scale. The solution provides visibility into and detailed information about a given set of interrelated, sequential processes in a product lifecycle—so design engineering decisions can be made with full knowledge of the risks and benefits of concurrent process development.

The solution is designed to deliver operational benefits such as:

- Greater forecasting accuracy.
- Smarter resource allocation.
- Optimization of engineering resources.
- Maximization of factory utilization.
- Reduction of costly schedule delays.
- Reduction of reworks.
- Reduction of quality failures.
- Reduction of development costs.
- Reduction of over-costing risk.

Automaker speeds development time by 13%
From November 2007 to January 2008, we applied the ODMM methodology in a pilot project with a major Japanese automaker to realize reductions in development time, and reworks in their manufacturing engineering and tool manufacturing processes for body pressings. We modeled maturity and dependency of the design information in the manufacturer's press-process-planning and press-die-design processes. We also optimized the concurrent execution based on the ODMM method, and provided tools for tracing and analyzing design maturity evolution.

Results included:

- Meeting 13% development time reduction target
- Reduction of reworks
- Standardization of development processes
- Early detection of schedule delay risk

We used ODMM to optimize the concurrent execution of the press-process planning, die manufacturing and die-design processes. We also provided tools for tracing and analyzing design maturity evolution for proactive risk management and continuous process reengineering. By introducing two requirement feedback loops, we eliminated major reworks and feedback delays, allowing concurrent execution of the die-design process to begin sooner than previous to our engagement.

Shift gears to meet future market demands
Vehicle development takes two to three years, so forecasting models must be able to predict future market demands. Extending development time due to schedule delays has a tremendous impact on the automaker's business. Industry research reveals that sales will decrease exponentially when development is delayed. Eliminating schedule delays can increase sales as forecasting accuracy is achieved, enabling the manufacturer to deliver finished product to market at peak time.

Environmental changes also impact development. For example, oil prices may impact vehicle design decisions. Reducing development time allows manufacturers to adapt to these changing market drivers, providing flexibility and agility.

Revved up and ready for the green light
Concurrent development projects face increasing risk of schedule delays and over-costing due to globalization of the development environment and the increasing number of resources involved. Determining exactly how much overlap can be achieved without introducing design flaws or product failures that require rework is the key technology challenge. Our vehicle program management solution provides smart concurrent process development.

In the technology race, we've earned the pole position
In addition to 25 years of global automotive industry experience and a track record of systems implementation success in the areas of vehicle diagnostics and telematics, we have highly skilled consulting resources with product development optimization expertise.

We offer:

- Proven integrated product development capabilities, including an innovation governance process and a common building blocks approach to drive commonality and reuse

- Program management approach for the industry—quality gates process

- Systems engineering methodology—IBM Rational® Unified Process for Systems Engineering (RUP-SE)

- Research projects, including on demand maturity management and common quality framework

- Service oriented architecture (SOA)-based solutions to federate and virtualize the heterogeneous product lifecycle management (PLM) environment

Tools to optimize your concurrent development process

Our solution uses an on demand maturity model (ODMM) methodology to provide a more precise assessment of the moment a work process is complete enough to warrant the start of complementary, or interrelated, work processes—all of which utilize the same sets of information from a host of sources, including computer aided design (CAD)-type engineering designs, project plans and resource plans. Based on the maturity model, we design process synchronization, which can positively impact concurrent development.

Components of the solution may include intellectual property assets such as:

- Methodology of concurrent development process management.
- System architecture for maturity-based service.
- Dynamic process modeling method, including network dependency of information.
- Maturity-based services including:
  - Estimator of design stability from maturity events.
  - Job scheduling advisor based on maturity and company policy.
  - Risk and bottleneck analyzer.
  - Design-change impact analyzer.
- Maturity monitoring dashboards for:
  - Project managers.
  - Resource managers.
  - Engineers.

Drive down costs, speed up time to market

The vehicle program management solution supports more efficient and cost-effective concurrent development processes with a methodology and technology that can:

- Identify bottlenecks and risks early in the process.
- Improve forecasting accuracy.
- Reduce rework and the associated costs.
- Optimize resources within and between projects.
- Eliminate vehicle launch delays and get new models to market on the optimum delivery date.

Through integration with your existing PLM tools, ODMM leverages your existing IT investments and provides functionality not available in current program management solutions.

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