

**HOW MANUFACTURERS CAN USE  
PROJECT ERP TO  
WEATHER TOUGH TIMES**

**WHITE  
PAPER**

# HOW MANUFACTURERS CAN USE PROJECT ERP TO WEATHER TOUGH TIMES

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Everything manufacturing executives thought they knew about project management and operations management is changing.

It used to be, that project management had to do with building a one-off item or executing a one-off plan. But now, project managers may be connecting certain elements of an ongoing enterprise with a project in order to achieve certain defined goals, or use projects in more of a recurring fashion, as in the development and launch of new products or management of a product lifecycle.

In this white paper, we will deal with the benefits that manufacturers can realize by using project centric enterprise software to adopt a management by project approach to their business, and address specifically how management by project can be used as a management tool for recessionary times.

This sea change is reflected in the APICS and Project Management Institute (PMI) bodies of knowledge, which reveal a convergence between project management and operations management.

PMI's literature positions projects and operations as separate, and assumes a project management team will work on a specific project and at some point hand that off to an operations team. In the meantime, APICS, which is the Society for Operations Management, sees a blurring of this line between projects and operations, as do many companies in both project-intensive and repetitive industries. More and more, manufacturers want to use projects to manage product families to they can see how the associated costs accumulate and shift over time. Management by project is also attractive to these manufacturers because they can separate and track their usage of resources as they bring a new product online, as the cost to produce or

demand for the product fluctuates over time, or as they retire that product at the end of its lifecycle.

But projects can be defined in a number of ways to encompass not only a product lifecycle but a customer lifecycle, or the lifecycle of a group of customers. Consider the case of an equipment engineering and fabrication firm that has traditionally served OEM manufacturers in the electronics industry, but also has some customers in the oil and gas industry. Management by project will track resources consumed by each group of customers, and this might reveal that revenue from OEM customers is in decline while the oil and gas-related customers were clamoring for more resources. This project-centric approach can also facilitate the process of shifting more internal resources to serve the oil and gas customers.

Some elements of management by project may seem to be old hat to those in project-centric industries like engineer-to-order (ETO) or make-to-order (MTO). But even executives in industries characterized by repetitive manufacturing can benefit from this way of thinking, and the fine points of management by project will still offer benefits to traditionally project-intensive industries.

Let's say you are in the beverage industry and want to launch a new soft drink. There will be a certain cost to launch that product, including financial cost, operational capacity and even sales revenue that might be cannibalized from other parts of the business. All of those costs would have to be balanced against the anticipated revenue for that new product. In automotive, launch of a new product is extremely resource-intensive, and all of those resources, from equipment time tracking at engine testing facilities, tooling, engineering and design time, prototyping, etc. can be rolled up into a project that encompasses that product launch. That product launch project can later be rolled into another project that encompasses the lifecycle of that new model.

Many executives outside of ETO or MTO approach their business as static, as operating in much the same way from one day to the next, and many enterprise applications are designed under the same assumption. Management by project operates under the assumption that even ongoing business operations are affected by anecdotal circumstances, changes and trends, and leverages project management thinking and practices help manage those anecdotes.

### Important during lean times

Management by project is particularly applicable during periods of slow business, because without proper insights, businesses may make changes to their business that they later regret. This is because they lack visibility of which product families are the most profitable, and therefore cannot change their plans to mitigate the

impact on their business. Meanwhile, project functionality within an enterprise application like enterprise resources planning (ERP) can help executives manage an economic downturn like a variance in a project by making amendments in real time to keep that project on budget and profitable.

Even in the best of times, many executives do not know from one day to the next whether their organization is profitable or what products are making money and which are losing money. If you are not able to separate out costs and revenue by project, with a project representing an entire product lifecycle, you are likely putting emphasis on products that are losers and starving or underemphasizing products that could add even more value to your business. In flush economic times, an executive may get away with this. In an economic downturn, walking away from additional margin through suboptimal management could be devastating.

Leveraging an ERP system that allows for management by project can allow executives to recognize these patterns of profit and loss, and as economic tides ebb, they can move resources, including staff, from products that are in decline to products that are thriving, allowing top-line revenue and margin to increase even through a recession. Lacking this information, too many executives take the easy way out, laying off employees rather than repurposing them onto more profitable projects.

These layoffs are the result of a demand shock just like any other unanticipated shift in demand for the product. And many times, executives will over-react, cutting the work force by 20 percent to correspond with a 3 percent decrease in Gross Domestic Product. In recessionary times, management by project will treat a period of economic slowdown as a simple variance in a project rather than a catastrophic event. This allows a more thoughtful analysis of what type of correction is necessary to keep that project—be that project a collection of product lines, product families or an entire enterprise—on budget.

Without management by project, it is difficult to analyze business data with the understanding that a slowdown is only temporary. And while the initial layoff results from a demand shock, eventually the economy and product demand will recover, which will lead to a corresponding supply shock. Suddenly, the executive that was perhaps too hasty in laying off very good employees will have to rehire. This exacerbates that demand shock as hiring and training takes time, and those new workers will only gradually become as efficient as those they replaced. In this instance as well, management by project can help plan the process of a return to full productivity and determining the cost of new employees going through that learning curve. On the other hand, if you have managed to keep your workforce through the downturn, you will be able to keep your costs much more stable during the recovery.

## Supporting technology

Moving towards management by project is relatively easy with the right enterprise technology. As the name implies, management by project differs from project management primarily in that you are treating the ongoing demand for your product and your ability to meet that demand with supply as an ongoing project. If you have something like a project-oriented manufacturing resources planning (MRP) system that integrates seamlessly with a project management software module, this can be a very seamless transition for any executive team to make. Manufacturers lacking this functionality will have a more difficult time adapting this management technique, however.

Within the right enterprise environment, management by project is as simple as right-mouse-clicking on a customer order line or other element and indicating which of a number of projects it is associated with. Or, you can create demands in the future and attach them to a project, or even attach engineering or administrative time that otherwise would have been considered an indirect cost or overhead and associated it with a specific project.

In selecting an enterprise application for management by project, it is important to ensure that the solution is integrated enough for cost to flow up to financials as well as up through the project so you can see how each project is progressing over time.

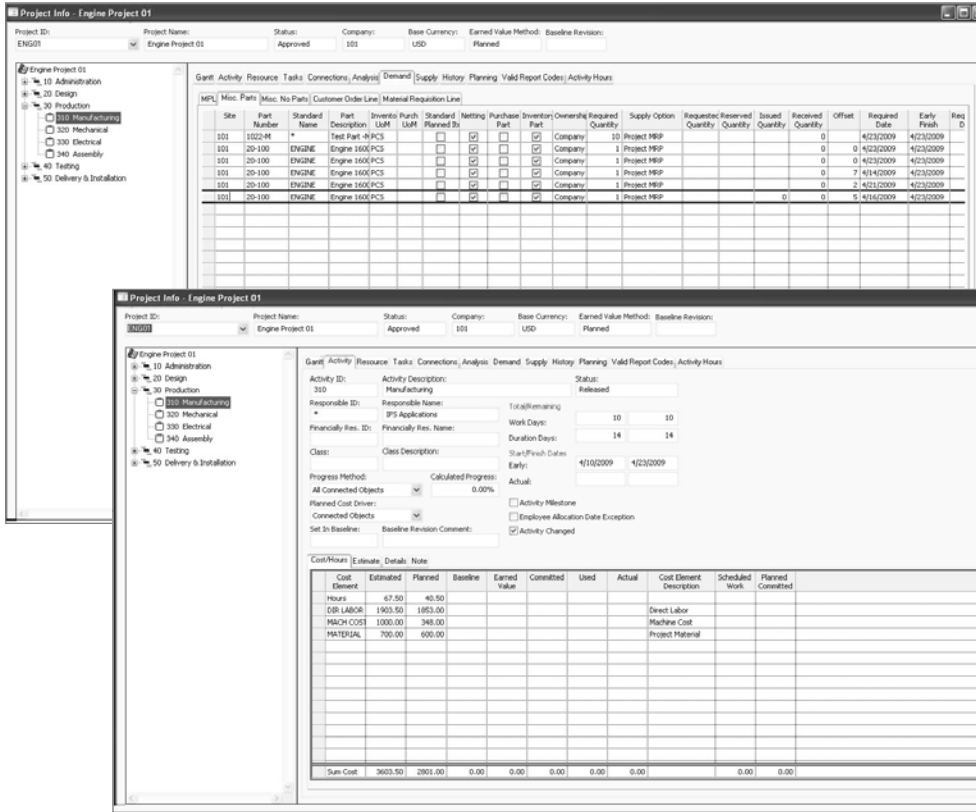
Optimally, we do not want integrated point solutions, but rather a unified enterprise application that allows budgeting and forecasting, so that C-level executives can see how certain project-defined areas of the business are progressing against plan.

Some marketers of enterprise applications claim to offer integrated project management, but it often is limited to accounting functions, and it is really not tied into the rest of the application. So it is important to look for an ability to connect your project functionality into the rest of the application, including manufacturing. This means that project-centric environment encompasses things like standard bills of material, MRP, capacity planning, shop orders and purchase orders. This allows executives to attribute to project-specific buckets, in real time, everything from costs, completions and estimated completions to earned value on design work being completed on behalf of a customer.

This integrated functionality should deliver three essential benefits:

- *Tracking of Front-End Costs:* Ability to deal with the project-specific costs from a design perspective, engineering, creation of documents and other time that typically would be considered indirect.

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At top, Master Scheduling for Manufacturing by Project, and below, a costed view of a Manufacturing by Project Master Schedule."

- Full project ERP:* Make sure the project functionality is connected into the application’s planning engine as well so production items show up on the project plan. This delivers full project-oriented MRP so the typical bill of materials explosion can be separated by project for analysis and management purposes. That data is then passed back to standard MRP to facilitate sourcing and actual production.
- Standard Plan:* Obviously, the goal of implementing management by project is to allow detailed management and analysis of parts of the business as de facto projects. But even within those projects, some parts should be allowed to be shared commonly across multiple projects. Standard Plan capabilities—that allow some items like nuts, bolts, screws, fasteners, washers or other common components—to be common to multiple projects and divide their cost evenly among them.

HOW MANUFACTURERS CAN USE PROJECT ERP TO WEATHER TOUGH TIMES

Query - View Material Plan - 101 - 20-100 - Engine 1600

Part No: 20-100 Part Description: Engine 1600 Site: 101 Site Description: Main Plant NA

Planner: MIKA Standard Cost: 475.20 On Hand Qty: 0 Qty Not Nettable: 0

UoM: PCS MRP Code: A Qty Available: 0 Qty In Shop: 0

Part Type: Manufactured Qty Available in Std: 0 Qty Available per Proj: 0

Project: Program ID: Project ID: ENG01 Sub Project ID: 30

Activity ID: 310 Activity Sequence: 100200671

Material Planning | Material Planning By Template

Date Required	Supply/Dem Type	Projected On Hand	Supply Qty	Demand Qty	Qty Short	Order No	Line No	Rel No	Line Item No	Status
4/14/2009	Shop ord re	1	1	0	0	207709	PMRP	*	1	ProposalCre
4/14/2009	Proj Misc De	0	0	1	0	ENG01	30	310	100200041	Released
4/16/2009	Shop ord re	1	1	0	0	207710	PMRP	*	1	ProposalCre
4/16/2009	Proj Misc De	0	0	1	0	ENG01	30	310	100200043	Released
4/21/2009	Shop ord re	1	1	0	0	207711	PMRP	*	1	ProposalCre
4/21/2009	Proj Misc De	0	0	1	0	ENG01	30	310	100200042	Released
4/23/2009	Shop ord re	2	2	0	0	207712	PMRP	*	1	ProposalCre
4/23/2009	Proj Misc De	1	0	1	0	ENG01	30	310	100200040	Released
4/23/2009	Proj Misc De	0	0	1	0	ENG01	30	310	100200039	Released

The output of a manufacturing Project MRP run.

### More than Software

But management by project, while facilitated by business software, carries implications far beyond the technology infrastructure, and indeed affects the entire enterprise. To truly manage by project, a company will need to make certain changes to its organizational structure.

*Find a good project manager.* Management by project is no different than project management in that it takes a certain type of person to keep things on time and on budget. A lot has been written about what makes a good project manager, but some key traits involve honesty and a willingness to make waves to do the right thing for a project. They need the poise and confidence to stand up for what is right, the skill to lead others to that right course of action and then marshal the work of others to get it done.

*Form project teams.* Many companies are organized in a departmental structure that oftentimes can be rigid and territorial. Management by project requires human resources from various departments to be on loan to each project. So from a project cost perspective, it is important to be able to monitor the workload each project places on each resource. It is also important for the technology to allow management to see whether certain resources in each department might be overloaded, and to take those capacity issues seriously.

*Create an agile organization.* On the whole, management by project requires a more flexible and agile organizational structure, and that cultural shift can be more

difficult for some organizations than the underlying technological shift. Rather than department structures, the organization is built on rapidly shifting matrixes. People come onto a project team, work on that project until it is completed or their contribution is completed, and then cycle onto the next project.

### Much to gain

The advantages of management by project are attractive under every circumstance and for almost every industry. But in recessionary times, executives can afford to leave less money on the table, need to avoid more waste and ought to be as resourceful as possible to avoid a reduction in force.

Management by project assumes that business is essentially anecdotal, and an economic downturn proves this point. Having the tools to not only make necessary adjustments for a more challenging environment but for the eventual resurgence of economic activity will yield greater benefits than assuming decreased levels of business represent a new status quo.

Technology can provide the visibility of the anecdotal nature of business and facilitate a project-centric approach, but ultimately, it is up to the management of each enterprise to take advantage of these capabilities and create a business culture that is agile enough to respond to today's challenges.

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*Leedale holds a B.A. in Business and Economics from Wittenberg University in Springfield, Ohio and an M.B.A. from Ohio State University, Columbus, Ohio. He is an author of the current APICS body of knowledge and a contributor to APICS' current LEAN ENTERPRISE WORKSHOP. His certifications include Certified*

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## About IFS

IFS, the global enterprise applications company, provides solutions that enable organizations to respond quickly to market changes, allowing resources to be used in a more agile way to achieve better business performance and competitive advantage.

IFS was founded in 1983 and now has 2,600 employees worldwide. IFS has pioneered component-based enterprise resources planning (ERP) software with IFS Applications™, now in its seventh generation. IFS' component architecture provides solutions that are easier to implement, run, and upgrade. IFS Applications is available in 54 countries, in more than 20 languages.

IFS Applications provides extended ERP functionality, including supply chain management (SCM); enterprise asset management (EAM); maintenance, repair, and overhaul (MRO); product lifecycle management (PLM); customer relationship management (CRM); and corporate performance management (CPM) capabilities.

IFS has over 500,000 users across seven key vertical sectors: aerospace & defense, automotive, high-tech, industrial manufacturing, process industries, construction & facilities management, and utilities & telecom. IFS also provides a cross-industry solution for Retail & Wholesale Distribution.

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