

EPM

in Manufacturing: Finally Coming of Age

By Dean Sorensen

What's the value of enterprise performance management (EPM) applications in manufacturing and supply chain organizations (MSCOs)? It's a question that forward-thinking finance professionals are asking as they consider EPM software investments that automate financial planning, budgeting, forecasting, reporting, consolidation, performance management, and balanced scorecard processes. The answer to this question is changing. Why? Because a next generation of EPM applications, which I'll call EPM², has emerged that extends beyond traditional EPM approaches to enable step-change improvements in planning and forecasting processes.

Four fundamental realities are driving the EPM² evolution:

- ◆ The needs of MSCOs are fundamentally different from those of other sectors.
- ◆ As complexity grows, financial and operational integration becomes essential to meeting these needs.
- ◆ Superior business modeling capabilities are required to support such integration.
- ◆ These modeling capabilities are the key drivers of EPM value in MSCOs.

For smaller and less complex MSCOs, the value of EPM² applications is more tactical because it provides the means to eliminate nonvalue-added activities resulting from fragmented financial and operational planning, budgeting, and forecasting (PBF) processes. As complexity grows, however, EPM² applications provide opportunities to drive top- and bottom-line performance. In so doing, they provide the foundation for more effective finance functions—ones that play a central role in driving greater agility, profitable growth, and sustainable cost reduction.

These opportunities stem from coordinating and optimizing resource allocation across functions and entities. A key enabler of such coordination is the integration of financial PBF processes with sales and operations planning (S&OP)—a continuous process for balancing supply and demand and, from a financial perspective, a more mature form of driver-based planning. While some companies have tried to integrate PBF and S&OP, this hasn't been a traditional area of strength for EPM or S&OP applications.

EPM² applications are poised to address this integration challenge, especially for small and mid-sized MSCOs with revenue less than \$2 billion to \$3 billion. Unlike global MSCOs, they don't always need all the operational planning capabilities of traditional S&OP applications. Here's what you need to know about EPM² applications:

- ◆ They provide key capabilities that traditional EPM applications don't.
- ◆ The value of these capabilities can approach 5% of sales.
- ◆ Tactical savings can often self-fund EPM² investments.

Addressing these issues starts with an understanding of the current state of PBF and S&OP in MSCOs and the management challenges MSCOs continue to face.

Current State of EPM

EPM has done much to improve information accessibility and the efficiency of financial planning, budgeting, and forecasting processes, particularly in smaller and less complex manufacturers where EPM often forms the

backbone of enterprise planning and performance management systems.

In larger and more complex MSCOs, however, PBF processes aren't always as effective because complexity exposes lurking EPM capability gaps. For example, many companies still experience:

- ◆ Long and highly political budget processes,
- ◆ Accuracy issues in profit and cash flow forecasts,
- ◆ Completely separate financial and operational planning processes,
- ◆ Ineffective scenario planning and forward-looking decision support, and
- ◆ Difficulty quantifying the impact of scenarios on working capital and the balance sheet.

MSCOs experiencing these gaps often have one thing in common—they still depend on spreadsheets for planning. For all the talk of using EPM to eliminate spreadsheets, they remain a key component of planning processes, especially for maintaining PBF assumptions and bringing together financial and operational plans. What's the problem? In many cases, planning models cause these issues because they aren't sophisticated enough to cope with organization complexity. Table 1 summarizes key complexity characteristics.

As organizations consider rolling forecasts, this capability gap becomes more apparent. Forward-thinking CFOs see little difference between rolling forecasts and sales and operations planning processes. They understand the need to integrate these processes, but efforts to do so often fall short. One contributing factor is a lack of understanding about S&OP and the challenges remaining in these processes.

Current State of S&OP

The benefits of S&OP have been well documented over the years. Organizations typically experience increases in revenues, customer service, and gross margins while seeing decreases in purchase costs, inventories, and lost sales. In fact, one study by Aberdeen Research Group and Plan4Demand, "The Tangible Value of S&OP" (www.ngmanufacturingus.com/media/whitepapers/2012/Plan4Demand.pdf), showed that operating margins increased by 14%. Other studies show similar types of performance improvement.

This value is created by allowing organizations to respond more effectively to changes in volume, mix, input costs, pricing, sourcing, and capacity. This value is greatest when it enables organizations to optimize and coordinate resource allocation across functions and enti-

Table 1: Complexity Characteristics in Manufacturing

LARGE SCALE: Many products, services, customers, employees, vendors, purchased parts, and commodities.

VARIABILITY: In demand, volume, product and customer mix, inventory service levels, product pricing, and input costs.

RAPID CHANGE: To products, suppliers, services, processes, projects, operational constraints, and organization structures.

ORGANIZATION STRUCTURE: Multiple legal entities, business units (BUs), geographies, and product groups.

INTERDEPENDENCE: BUs share customers, suppliers, production, and back-office services, thereby obscuring profit drivers.

GLOBALIZATION: Lead times across global supply chains, inventory levels, and material availability.

ties in response to these changes.

S&OP is most effective when it's embedded into executive decision-making processes. This doesn't always happen, though, so S&OP can't realize its full potential. Two interrelated factors cause this situation. First, companies miss key requirements because S&OP and PBF processes are usually designed and implemented independently. Second, traditional S&OP applications don't fully support financially based forecasting and scenario planning. For example, they typically support forecasts for:

- ◆ Manufacturing costs, but not cost variances;
- ◆ Gross margins, but not total profitability;
- ◆ Purchase requirements, but not cash flows;
- ◆ Direct costs, but not end-to-end process costs; and
- ◆ Inventory positions, but not working capital or foreign currency positions.

The net impact of these gaps is that S&OP processes don't always fully support executive decision making. Consequently, S&OP often regresses into a tactical and operational role rather than a strategic one. Although these experiences have elevated interest in integrating S&OP and PBF processes, there are many different views and definitions of what such integration entails. The result is confusion about what constitutes leading practices and applications and no course of action to unite the S&OP and PBF processes.

What's New?

EPM² vendors have embraced this integration challenge. They understand that effective integration is best

achieved by using a single bill-of-materials model as the basis for both financial and operational planning processes. What further differentiates EPM² applications from traditional EPM is that the logic underlying these models is embedded into the application (see Table 2 for a summary). This logic is important because it simplifies how frontline employees use planning applications while enabling flexible planning processes that respond quickly to change.

What EPM² vendors are doing is similar to what ERP vendors accomplished 20 years ago. Back then, companies used bills of materials and routings to integrate material requirements planning (MRP) with cost accounting to dramatically improve the ability to plan and manage production from both operational and financial perspectives. MRP contributed significant bottom-line value to organizations that implemented it, and EPM² is poised to deliver similar improvements to financial and operational planning as well as forecasting processes.

This EPM² approach enables integrated PBF and S&OP processes that provide the means to simultaneously and accurately quantify how revenue and demand scenarios affect:

- ◆ Cost structures and profitability;
- ◆ Purchasing requirements and commodity hedging positions;
- ◆ Manufacturing requirements and potential capacity constraints;
- ◆ Inventory movement and related cost of goods manufactured;
- ◆ Variances from budgets, prior forecasts, and other scenarios;
- ◆ Volume, mix, and price components that comprise these variances; and
- ◆ Cash flows and working capital.

This last point is especially important as forecasting cash flows and working capital remains a major challenge for many MSCOs.

Cash Flow Forecasting

Improving the accuracy of cash flow forecasting (CFF) is difficult because it isn't always well integrated with PBF and S&OP processes. Moreover, few companies have effectively combined short- and long-term CFF into a single process. For example, treasury workstations support short-term CFF, while a variety of other tools, including EPM, support longer-term needs.

The modeling logic supported by EPM² provides the means to address these fragmentation and accuracy

Table 2: Modeling Logic

What separates EPM² from EPM is that the following logic is embedded into applications. Such logic should be considered when defining requirements and comparing applications.

MODELING LOGIC	THE NATURE OF THE EMBEDDED MODELING LOGIC
Bill of Materials (BOM)	Defines relationships between products sold and components purchased and manufactured, a key component of which is converting units of measure at one level to units of measure at other levels.
Routing	Defines the steps required to manufacture products to support calculation of resource requirements and capacity shortages while also supporting the calculation of standard labor and overhead costs.
Requirements Netting	Calculates production and purchase requirements after applying order point and order quantity parameters to net inventory positions.
Double-Entry Planning	Quantifies the balance sheet and cash flow impact of revenue and cost forecasts by customer and supplier groups.
Cash Flow BOMs	Embeds cash flow/double-entry logic into bills of materials to support cash flows and foreign exchange forecasting.
Multiple Calendars	Supports planning in any format (for example, days, weeks, months, quarters) for any aspect of the business plan.
Cross-Entity Planning	Extends planning models across multiple legal entities and geographies to support enterprise planning while also supporting legal requirements.
Time-Phased Models	Can time-phase any aspect of the model, including product structure, suppliers, lead times, processes, capacities, cash flows, etc.
Distributed Models	Distributes and maintains accountability for different aspects of the model across the organizational functions and staff.
Activity-Based Costing	Links accounts to activities and activities to cost objects while automatically reconciling functional and activity costs views.
Integrated Work Flows	Connects target setting and resource allocation through a single process enabled by a single database that connects budgeting, forecasting, measurement, scorecard, S&OP, costing, and portfolio management applications.

issues. Collectively, they enable a degree of sophistication that traditional EPM applications don't, which includes:

- ◆ Embedding CFF into PBF processes,
- ◆ Integrating short- and long-term CFF,
- ◆ Supporting both direct and indirect CFF methods, and
- ◆ Integrating cash flow and broader business scenario planning.

Not only does EPM² improve CFF effectiveness—it also improves efficiency. Rather than a separate process run by treasury, CFF becomes a by-product of ongoing forecasting processes. Moreover, the embedded model provides the means to engage more frontline people in the CFF process in terms that are meaningful and relevant to them. For example, commodity buyers update unit costs, payment terms, and lead times, and the system

calculates the cash impact. In doing so, it establishes greater frontline ownership of forecast accuracy and better insight into the cash flow implications of various scenarios.

These same capabilities also enable similar improvements to working capital and foreign exchange forecasts. Armed with the ability to forecast cash, inventory, accounts payable, and accounts receivable by country, customer segment, and intercompany transaction, MSCOs can significantly improve their ability to manage cash and working capital.

Trade Promotions

One critical requirement for cash flow forecasting is multiple calendars. This same capability also provides the

foundation for managing trade promotions, which are the costs incurred by consumer packaged goods (CPG) companies to promote new products and increase sales of existing ones. More effective trade promotion management offers significant cost-reduction opportunities for CPG companies. This capability, along with others in Table 2, enables them to plan and manage:

- ◆ Specific start and end dates for promotions within or across months,
- ◆ Inventory and capacities required to support these promotions,
- ◆ New product introduction activities associated with them,
- ◆ The profitability of individual promotions and customers, and
- ◆ How changes in the above affect forecasts and budgets, including CFF.

The ability to support trade promotion, PBF, CFF, and S&OP in a single application illustrates that EPM² provides the basis for a single enterprise planning platform—one that provides insight into the full business impact of plans, scenarios, and decisions. Such a platform also provides the foundation for effective rolling-forecast processes.

Rolling Forecasts

Recent economic conditions have elevated interest in rolling forecasts as a means of coping with increasing uncertainty and volatility. Proponents believe that a faster and more forward-looking process enables MSCOs to more effectively respond to change and manage risk.

MSCOs that have experimented with rolling forecasts are finding that they often require significantly more work but yield minimal improvements to process effectiveness and organization performance. As a result, there's a growing recognition of a gap between the theory and reality of rolling forecasts.

The problem with many financial PBF processes is that there's a lot of nonvalue-added work. For rolling forecasts to work, PBF processes must become more efficient. EPM² achieves efficiency by automating nonvalue-added PBF activities that often plague these processes. The embedded modeling logic of EPM² enables processes that virtually eliminate the need to:

- ◆ Maintain separate financial planning (for example, revenue and cost of sales) models;
- ◆ Reconcile the financial and operational plan since they're one and the same;
- ◆ Maintain separate processes and systems for processes,

such as trade promotion;

- ◆ Conduct manual variance analysis because key components (volume, mix, cost, productivity, and so forth) are automatically calculated between actual, budget, and forecast;
- ◆ Conduct extensive plan validation since capacity planning is embedded into integrated processes; and
- ◆ Execute a separate CFF process as it becomes a by-product of an integrated process.

These EPM²-enabled capabilities support step-change improvements in the accuracy and speed of PBF processes by enabling a continuous top-down and bottom-up process that a company can execute in 10 to 20 days. Moreover, they enable a more risk-based approach that focuses on changes in key assumptions.

Scenario Planning

A central component of such a risk-based approach—effective scenario planning—entails having the ability to quickly answer key questions across outlying scenarios, such as:

- ◆ Are targets realistic and funded adequately?
- ◆ Do we have sufficient capacity to achieve targets?
- ◆ What's the best way to meet demand—inventory build or overtime?
- ◆ Are revenue plans realistic given volume, mix, and pricing assumptions?
- ◆ Does the plan optimize resource allocation across functions and entities?
- ◆ How will cash flow be impacted, and how can cash positions be optimized globally?

In complex MSCOs, the modeling logic in Table 2 is central to answering these questions. Conversely, the lack of these capabilities is a primary reason MSCOs experience challenges with their planning processes.

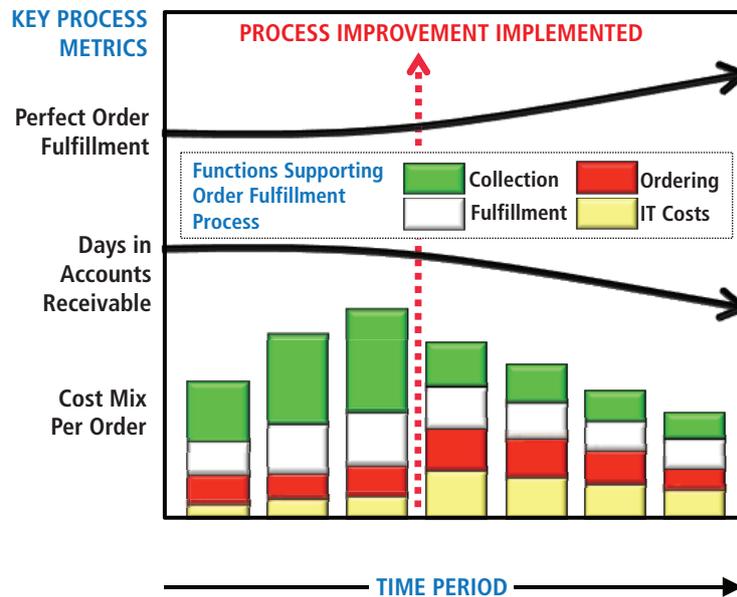
Integrated Measurement

Such improvements to planning and forecasting are essential, but fully capitalizing on the insights requires a free flow of resources across the enterprise. To support such fluid resources, organizations must effectively manage outcomes across functional boundaries, which entails:

- ◆ Focusing people on cost per outcome (CPO), not fixed annual budgets;
- ◆ Rewarding people for managing trade-offs between CPO, service, and quality; and
- ◆ Establishing joint accountability between functions for managing shared outcomes and trade-offs.

Figure 1: Integrated Measurement

This graph illustrates key metrics of an order-fulfillment process along with forecasts for each metric. It also shows how the implementation of a process improvement project reduces days in accounts receivable and cost per order while increasing perfect order fulfillment. The project results in higher ordering and IT costs but lower overall costs per order. The key takeaway is that the ability to produce such a graph quickly is what defines fully integrated planning and what supports effective cross-functional coordination.



Accomplishing these objectives requires the ability to plan and manage business process outcomes, as Figure 1 illustrates. Providing such a graph isn't new. What's new is the ability to do so on an ongoing basis while reconciling process costs (and cost per outcome) to budgets, forecasts, and financial actuals. This is called matrix planning—a capability whereby organizations simultaneously develop plans for functions, processes, and activities from financial and operational perspectives. In other words, fully integrated planning.

Underlying such graphs are measurement structures that provide the means to translate actual and planned performance to lower organization levels. To accomplish this, EPM² applications integrate activity-based costing (ABC) and process-based balanced scorecards into these processes. Without this capability, organizations have realized only mixed results from ABC and balanced scorecard programs because they're typically stand-alone processes with fragile links to financial and operational plans.

Value and Benefits

EPM² supports three tactical sources of value, which can be sufficient to self-fund EPM² investments and includes the ability to reduce:

- ◆ Software costs by eliminating the need to purchase separate EPM and S&OP applications;
- ◆ Development costs, as embedded logic reduces the need to build and maintain models from scratch; and
- ◆ Nonvalue-added activities in traditional EPM and S&OP processes and IT support.

From a more strategic perspective, EPM² creates value by supporting sustainable cost reduction—a state where strategy and cost structures self-adjust to changing conditions to achieve profit, quality, and other targets. MSCOs often lack this capability. The evidence? Separate research studies by the Corporate Executive Board, “Cost Savings that Stick” (https://cfo.executiveboard.com/Public/Documents/Cost_Savings.pdf), and McKinsey & Company, “Managing Overhead Costs” (www.costkiller.net/tribune/Tribu-PDF/overheadcost.pdf), show that 90% of

organizations that launch cost-reduction programs fail to sustain results for more than three years. Three factors account for this:

- ◆ Lack of shared insight about business economics,
- ◆ Slow processes for redistributing resources, and
- ◆ Functional silos driving suboptimal decisions.

EPM² provides the means to address these issues by enabling MSCOs to quickly identify and respond to three specific types of risk—service, optimization, and financial. Service risk occurs when MSCOs overserve internal and external customers given what they're willing to pay for products and services. While MSCOs have used ABC to identify unprofitable products and customers, most are unable to prevent excessive service levels because they lack the ability to embed ABC principles into planning and target-setting processes. EPM²-based processes address this shortcoming.

Optimization risk occurs when the business makes a decision that optimizes one part of the company at the expense of other functions and the enterprise as a whole. For example, changing suppliers may reduce unit purchase costs but increase transportation, quality, and inventory holding costs. Lack of such insight and coordination is a key barrier that prevents supply chain executives from establishing more effective sales and operations planning processes and strategic sourcing functions. Such gaps also contribute to suboptimal product introduction and customer acquisition processes—one of the primary causes of cost problems.

Financial risk surfaces when organizations are overly conservative in cash investments and foreign exchange hedging because of inaccurate cash and working capital forecasting. By improving forecast accuracy, organizations can achieve greater yields on cash while also minimizing the cost and risk of foreign currency hedges.

Ultimately, organizations are exposed to these risks because they can't manage complexity effectively. In a research study conducted by AT Kearney, "How Much Does Complexity Really Cost?" (www.atkearney.com/documents/10192/cd044988-91e9-4331-8afe-d72265c745e3), the cost of complexity was estimated to be upward of 5% of sales. By providing MSCOs with tools to manage complexity, EPM² has the potential to make significant contributions to realizing this value opportunity.

EPM Strategy

Planning and managing performance in the manufacturing sector has a unique set of complexities that differentiate it from other businesses. Managing this complexity

requires more sophisticated business models that enable greater strategic, financial, and operational integration. As MSCOs move toward more integrated approaches, a number of leading practices will be common to the processes and applications they employ:

- ◆ PBF and S&OP will integrate into a single rolling forecast process that exposes risk.
- ◆ Finance and operations will share a single model to support this process as defined in Table 1.
- ◆ The process will drive cross-functional coordination by providing the type of forward-looking insight illustrated in Figure 1.
- ◆ This model will support a single plan of record that drives highly connected scenario planning and decision making.

Larger and more complex MSCOs have operational planning needs that may limit their ability to leverage off EPM². But for small and mid-sized MSCOs, EPM² presents new opportunities to drive value and competitive advantages from the processes they use to plan and manage their business. Capitalizing on these opportunities will require finance and operational leaders to develop an understanding of the need for, and value of, integrating these traditionally fragmented processes. Moreover, they'll need to help others appreciate how EPM² applications provide important capabilities that traditional EPM and S&OP applications don't and the incremental value they gain from them.

New Approaches

There's an old saying by Mark Twain that goes, "If you always do what you always did, you'll always get what you always got." The challenges facing MSCOs require new approaches that extend beyond traditional EPM and S&OP processes. EPM², a new evolution of technology, supports such approaches. By leveraging its capabilities, MSCOs can tap into unrealized sources of value by making step-change improvements to how they plan and manage their business. **SF**

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