White Paper
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Enterprise planning in the manufacturing industry

Technology and best practices for better performance

Information Management

Cognos. software

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Abstract

This IBM Cognos® white paper reviews ways to bring industry-standard best practices into the corporate planning process, and lists several factors to consider when choosing an enterprise planning solution for manufacturing. Spreadsheets alone are no longer the answer. Manufacturing companies seeking improved financial and operational performance now recognize the need for enterprise-level planning, budgeting, and forecasting software.

Overview

For manufacturers worldwide, today's business climate is increasingly complex and competitive. Manufacturers of all sizes face the combined challenges of managing extended supply chains, improving revenue performance, and controlling operational costs, all while attempting to grow market share and improve service levels. Success or failure in these areas depends in part on effective enterprise planning, a crucial component of financial management.

The enterprise planning process—planning, budgeting, forecasting, and reporting—is a formidable challenge for any business, and nowhere is this more true than in the complex world of manufacturing. Yet, despite its importance to a company's financial well-being, planning is often back-burnered because it is seen as burdensome and time-consuming. And therein lies an opportunity for the forward-thinking organization.

This guide will help you take the first steps toward improved enterprise budgeting, planning, and forecasting by aligning top-down financial targets with bottom-up plans. It outlines a systematic approach that combines best practices and leading-edge technology with planning activities in your organization. By taking this approach, your organization can significantly improve its financial and operational performance.

Business problems

Planning challenges

In manufacturing organizations, corporate decision-makers typically voice similar concerns with regard to planning, budgeting, and forecasting:

- Processes are tedious and time-consuming
- Changes are difficult to implement
- Data integrity is questionable
- Explanation of variances is difficult

For managers outside finance, planning can be perceived as little more than a periodic invasion of their time with minimal benefit. Managers can feel besieged by demands for information and improved projections, while still being expected to deliver results.

> *"Finance executives believe they spend too much time on forecasting, budgeting, and planning. When asked about the most acute problems with their current planning process, more than 60 percent said it 'takes too long.' Nearly 43 percent said 'not enough time to analyze data,' and more than a third cited 'lack of ownership by business units."*
>
> *CFO Research Services*

Origins of planning challenges

Despite substantial investments in enterprise resource planning (ERP) systems, most manufacturers still rely on manual planning processes using spreadsheets—an approach that's cheap in software terms, but costly in the long term because spreadsheets are cumbersome, error-prone, and ineffective in managing large amounts of data. Among the challenges of spreadsheets:

- Business rules (formulas) are mixed with data and prone to corruption
- Files must be sent back and forth, creating version control issues
- Presenting or analyzing data from different perspectives is difficult
- It's difficult to follow or duplicate the logic of the spreadsheet's creator
- Data aggregation is difficult and time-consuming
- Complex calculations are not supported, and multidimensional reporting and analysis are impossible.

Business drivers

The need for visibility

Leading manufacturers are seizing the opportunity to improve business processes by leveraging new technologies and employing best practices in planning, budgeting, and forecasting. They are rewarded with more accurate plans, timely forecasts, and effective decision-making. Overall, they save time, reduce errors, improve collaboration enterprise-wide, and foster a disciplined financial management culture that delivers true competitive advantage.

By providing visibility into customer, product, and channel profitability, ERP enables manufacturers to gain visibility into, and control over, the entire enterprise. This isn't limited to just financial planning, but incorporates imperatives such as sales and operations planning (S&OP). For example, manufacturers can:

- Consistently deliver more timely, reliable, and flexible plans
- Strengthen the link between strategic objectives and operational and financial plans
- Improve communication and collaboration among managers
- Enhance strategic decision-making, enabling leaders to more quickly identify, analyze, and forecast the impact of changes as they occur
- See the big picture by integrating revenue, demand, promotion, supply, and production plans for a complete view of all the factors that affect revenue, profitability, and supply chain performance
- Implement a systematic approach to S&OP that is jointly owned by Finance, Sales and Operations, making sure that demand, supply, and finance considerations are simultaneously modeled

- Perform multiple scenario analysis to find the optimal balance between meeting customer demand, producing the most cost-effective supply plan, and meeting the overall company financial objectives
- Incorporate trade promotion management into the planning process to focus on promotions yielding the greatest sales lift and return on investment (ROI)

When manufacturers have the benefit of timely, reliable, and flexible plans, decision-makers can quickly identify, analyze, and forecast the impact of changes as they occur. They can strengthen the link between strategic objectives and operational and financial plans, while fostering communication and collaboration among managers.

The solution

Supporting best practices

Planning software should support best practices to enhance timeliness, information reliability, and participation by key people across the enterprise.

Align strategic and operating plans

The ongoing alignment of strategic and operating plans is vital. Because of the importance of aligning demand and supply plans, finance must clearly communicate corporate strategic plans to those who run the day-to-day business. Finance can help translate strategic goals into financial targets and then into specific departmental plans and related revenue and expense drivers, such as headcount and equipment. By translating strategic goals into operational plans, and by tracking and measuring performance against plan, companies are better able to meet or exceed objectives and achieve these benefits:

> *"The average company spends 0.26% of revenue to manage the planning, budgeting, forecasting and reporting process."*
>
> *The Hackett Group, 2005 Enterprise Performance Management Book of Numbers Research*

- Gaining visibility into the demand plan – forecast, promotions, new product introductions
- Understanding the production and supply chain implications of meeting the demand plan
- Building supply plan that meets demand plan, best utilizes available resources, and provides early recognition of potential problems.

"[Ninety] percent of the spreadsheets analyzed contained significant error. Spreadsheet error caused: one company to undercharge a client by millions of dollars; another company to falsely inflate its estimated net present value by 54 percent; and yet another company to compute pre-tax profits 32 percent lower than the actual figure."[1]

From "Classification of Spreadsheet Errors", British Computer Society (BCS) Computer Audit Specialist Group (CASG) Journal, Autumn 2000

Start at the top—and at the bottom

An important ingredient in successful budgeting and forecasting is the ability to align top-down financial targets with bottom-up plans. Some companies establish top-down targets and then turn the annual budgeting process over to finance, along with a mandate to meet those numbers. Other companies require detailed bottom-up planning, and then plug the total company numbers in at the top, so that the plan meets strategic targets. Neither of these approaches reflects a commitment to planning excellence.

Instead, manufacturing organizations should provide initial guidance from senior management's top-down perspective on strategic goals, objectives, and expectations. Then, department managers and suppliers can build a plan from the bottom-up, indicating how they intend to meet established goals. The process requires frequent iterations for these approaches to meet and be reconciled.

The result is a plan that is supported by:

- Managers in the field, because they help create it and will be rewarded for meeting it
- Senior management, because operational goals are aligned with strategic goals
- Finance, because they add value to a productive, collaborative effort, rather than demanding participation in a mere exercise.

Drive collaboration between functions

Not only should strategic and operating plans be aligned, but plans between regions and functional areas should also be coordinated. Best practices include direct involvement by business managers along with a collaborative approach to budgeting and forecasting.

In addition to understanding strategic goals, managers also need to know what other functions are involved in planning. For example, in a company that is planning a new product rollout, manufacturing needs to ramp up production, marketing needs to increase advertising, and sales needs to add new headcount. But the marketing plan should also include training programs timed to help new sales representatives ramp up productivity. The facilities department needs to plan for new headcount, equipment, product storage, and so on.

Such collaborative planning can be accomplished through an iterative process that lets managers forecast and share alternative scenarios. Finance also plays a key role in facilitating the coordination of plans across the company, which helps ensure that operational tactics are aligned with financial targets throughout the organization.

Adapt to changing business conditions

Manufacturers need to adjust plans, metrics, and resource allocations in response to market and internal variability, including the impact of natural disasters on the supply chain. In this case, dynamic re-forecasting is required:

- **Frequent Re-forecasting.** Forecasting may be needed monthly or even bi-weekly, especially in fast-moving, quickly growing businesses with multiple market pressures. Continuous re-forecasting helps managers answer critical questions such as, "What did we expect?" "How are we doing against our plan?" and even more importantly, "How should we adapt our plans going forward?"
- **Rolling Forecasts.** A company running rolling forecasts is always looking forward to the immediate or near-term future. For them, business does not end on December 31st and restart on January 1st. The forecast timeframe should extend out two to eight quarters, depending on business volatility.

Planning should be an ongoing process with frequent opportunities for managers to view the company's latest internal and external performance data. They should be able to alter plans based on new information coming from sources such as other managers, monthly actuals, and top-down target revisions. Finance should be able to quickly consolidate plan data from all areas of the company, and to disseminate new information in real-time. This process will facilitate more informed decision-making in such areas as market trends, pricing changes, capital allocations, or organizational changes.

IBM Cognos Sales and Operations Planning Blueprint

Many manufacturers today are relying on spreadsheets to drive their sales and operations planning. While they may be passable, short-term fixes at the departmental levels, their siloed, localized capabilities fall well short of enabling a consolidated, coordinated, enterprise-wide intelligence that can positively impact an organization's overall performance. IBM Cognos Performance Blueprints provide executives and managers with the information and sophisticated insights required to effectively assess the trade-offs that are vital to ensuring the right mix of production, outsourced resources and trade promotions to maximize sales effectiveness and meet demand.

Matching product demand with production and supply chain capabilities is a key driver among manufacturers looking to improve business performance in today's dynamic marketplace. Yet, organizations have struggled with their S&OP processes due to a lack of coordinated planning, metrics and reporting across all departments. The new Blueprint enables management to reconcile sales and demand forecasts with supply plans using a single, integrated performance management framework that ensures enterprise-wide alignment. Users can model and assess the financial impact of supply/demand scenarios to create a multi-plant S&OP view, and then monitor the plan on an ongoing basis using scorecarding and analytics, making "right-time" adjustments as needed.

With the Blueprint, manufacturers can reconcile sales and demand forecasts with supply plans using an integrated performance management framework that ensures enterprise-wide alignment and effective decision-making.

"Organizations that eliminate spreadsheet systems and adopt best practices will achieve a positive ROI. Replacing spreadsheet-based systems with dedicated planning and budgeting tools offers many benefits. The most obvious and direct improvement is the significant reduction in time spent on rolling up, checking, and correcting the numbers. Yet the real payoff is not the time savings itself. It is using the time saved to do better analysis to optimize the plan, and to use the insights gained to make better decisions faster to improve performance."

Ventana Research

Model business drivers

A first-rate budget or forecast is based on a model with formulas that are tied to fundamental business drivers. Simply importing and manipulating past actuals does not reflect underlying operational causes and financial effects. Building driver-based models into plans ensures appropriate consistency across functions and promotes planning coordination between functions.

For example, future revenue forecasts can be tied to the trade marketing spend and seasonality needed to generate a given number of sales. Finance can provide managers with a useful model that includes information about past actuals and current headcount, as well as formulas driven by assumptions. This does not violate the best practice that requires department managers to be responsible for creating their own budgets. Instead, it saves them time by providing a solid, fact-based baseline—a starting point that contains important information about their organizations' relationships to other functions. Managers can then make adjustments to this baseline based on the latest business conditions. This approach also ensures collaboration across functions.

Manage content that is material

A focus on material content in budgeting frees managers from unnecessary detail, enabling them to produce better plans. While supporting detail can provide an audit trail and insight into managers' thinking, more detail does not necessarily make a better plan. Managing material content requires attention to whatever has real and significant impact on expenses, revenues, capital, or cash flow. Content management helps a manufacturing organization:

- Avoid false precision. A complex model might not have any more precision than a simpler model. More detail and intricate calculations can lure managers into the trap of thinking their plan is therefore more accurate.

"Finance organizations that adopt dedicated planning tools are better able to support strategic Performance Management initiatives. Ventana Research believes that planning and budgeting will be transformed over the next five years by nearly universal use of software tools dedicated to this purpose."

Ventana Research

- Monitor volatile – not stable – accounts. Efforts are best spent on fluid expenses such as headcount or transportation costs
- Aggregate accounts. The budget does not need to reflect the same level of detail as in the general ledger. Even if the GL has 15 different travel accounts, managers can often plan in one.

Timeliness and reliability

Many companies have an inefficient and inflexible planning process, at the center of which is the annual budget. Time-consuming distribution and consolidation processes practically guarantee that plan data is out-of-date and irrelevant before it is even published – and plans based on stale data and assumptions are of no value. World-class manufacturers shorten their planning cycles by implementing the best practices described here. They also leverage technology so that they can manage budget consolidation and aggregations in real time.

Technology can especially help improve timeliness and reliability in the area of plan consolidations. Real-time plan consolidation eliminates the necessity to process results manually, and enables a smoother, more consistent, more accurate planning process. Variance reports delivered within two to four days from the period close allow managers to immediately evaluate their performance against plan, and then effectively adjust their businesses.

At an operational level, this type of planning will be less costly and will produce more accurate results than the processes followed by most companies today. At a strategic level, a company's ability to create timely and reliable financial plans will allow it to provide more credible guidance to stakeholders, and to make faster, better-informed business decisions.

Best-practice templates

The use of pre-built, best-practice templates or planning models can help organizations reduce implementation risk and accelerate time to business value. They are being developed by software vendors for a wide range of functional areas and industries. With templates, companies can establish dynamic connections that keep strategic objectives, operational plans, people, and initiatives in sync as business conditions change. Executives can quickly see the impact of changes in operational plans on corporate financials. Transportation managers to shop floor management can quickly adjust resource allocations to support corporate objectives. And corporate guidelines and policies are more consistently communicated and applied throughout the business.

Technology that supports best practices

Leading manufacturers have recognized that spreadsheet-based planning impedes budgeting and forecasting best practices. Instead, they have moved to purpose-built applications with lean infrastructure requirements, which enable them to accurately plan and re-plan quickly, using the same or fewer resources than before. Streamlining the planning process demands technology that can support a faster, more flexible, and adaptive approach. By using an on-demand, dedicated planning, budgeting, and forecasting application that is delivered over the Web, organizations can readily implement best practices.

Leading companies formulate top-level requirements for evaluating and selecting world-class planning, budgeting, and forecasting software. Solutions must be:

- **Integrated.** Strategic, operational, and financial planning reside in one system. Managers do not need to maintain shadow or duplicate planning systems.
- **Collaborative.** Web-based, distributed planning enables broad participation. The ability to use a secure Web connection allows everyone to access budget information wherever there is Internet connectivity

- **Adaptive.** Simplified version control and the ability to frequently reforecast allow companies to respond to business changes with "what if" scenarios as often as necessary
- **Timely.** Information is always current, because departmental users contribute directly to a central planning database. Since consolidations and rollups are done automatically, deadlines are more easily met
- **Efficient.** Finance managers and department managers spend less time managing data and more time managing the business
- **Relevant.** Customized views for managers increase adoption and ownership. Formula capabilities enable modeling of all relevant business drivers
- **Accurate.** Plans contain fewer errors, since broken links, improper rollups, and missing components have been eliminated
- **Owned by finance.** Finance must be responsible for planning process development, deployment, reporting, and analysis. This calls into focus product flexibility and ease-of-use, both in modeling and day-to-day activities

Selecting the right planning software

Evaluating a vendor's product features and support is a complex task. It requires assessment of software functionality, its value to the planning process, and its ability to support planning best practices. There are also intangibles like vendor support, user community, and commitment to customer success once the sale is complete.

The key is not just to evaluate product features, but also how features are implemented and by whom. It is important to test a planning solution that will be relied upon by a large number of stakeholders and play a critical role in organizational performance. Therefore it is highly recommended that a workshop approach be used to evaluate not only solution features, but also the way a plan is constructed, distributed, and reported on. A business process should be defined (such as capital, headcount, or S&OP) as context for the evaluation of product features and intangibles such as ease of development, roles, references, and customer support.

The following matrix supports the evaluation process by relating best practices and features, as well as helping to prioritize features, and assessing how well they relate to vendor offerings.

Planning software selection matrix

Feature category	Importance/ Weight (1 "least important" to 5 "most important)	Vendor 1 (Weight * Score)	Vendor 2 (Weight * Score)	Vendor 3 (Weight * Score)
Align strategy & operational plans				
Module Application Development				
Application Linking (Planning- specific application modules can be developed one-at-a-time, then linked to model the entire company. Aligns operational planning with financial planning to improve decision-making.)				
Model business drivers				
Driver-based calculations				
Dimension separate from models				
Multi-cube development environment				
Driver-based calculations				
Finance-based functions				
Time intelligence functions				
Ease of development by finance				
Manage content				
Real-time workflow				
E-mail alerts				
Input validation				
Role based security				
Real-time calculations				
Web client				
Microsoft® Excel® client				
Offline capabilities				
Annotations support				

Feature category	Importance/ Weight (1 “least important” to 5 “most important)	Vendor 1 (Weight * Score)	Vendor 2 (Weight * Score)	Vendor 3 (Weight * Score)
Supports timely & reliable planning				
Real-time plan consolidation				
Automated data loads between transactional systems				
Certified connector to ERP				
Standard reporting				
Multi dimensions analysis				
Dashboard and scorecarding				
Best practices templates (pre-built models)				
Allocation planning				
Capital expenditure planning				
Expense planning				
Initiative planning				
Risk analysis				
Integrated income statement, balance sheet, and cash flow				
Sales forecasting				
Strategic planning				
Workforce planning				
Company profile				
Quality of references				
Revenue				
Number of employees				
Number of customers				
Number of industry references				
Independent industry analyst ratings				

Feature category	Importance/ Weight (1 "least important" to 5 "most important)	Vendor 1 (Weight * Score)	Vendor 2 (Weight * Score)	Vendor 3 (Weight * Score)
Implementation and support				
Implementation methodology				
Training options				
Support hours				
User communities				
Customer forums				
Online knowledge base				
Partner network support				
Vendor consulting				
Quality of documentation				
IT infrastructure support				
Database support				
LDAP support				
Single sign-on				
Portal support				
Open API				
MDX support				
HTTPS support				
Total Score				

Conclusion

The successful implementation of a planning solution requires an intersection of technology, business process, and best practices.

This selection guide outlines key principles to help you align business process and technology requirements in the process of selecting planning, budgeting, and forecasting software. By matching your planning process to best practices, facilitated by proper implementation of a planning solution, your organization can significantly improve its financial and operational performance. We hope this guide helps you along in the journey.

About IBM Cognos BI and Performance Management

IBM Cognos business intelligence (BI) and performance management solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Cognos solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Cognos solutions.

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Endnotes

1 Rajalingham K, Chadwick, D & Knight, B (2000), "Classification of Spreadsheet Errors," British Computer Society (BCS) Computer Audit Specialist Group (CASG) Journal, Vol 10, No 4 (Autumn 2000), pp. 5–10.

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