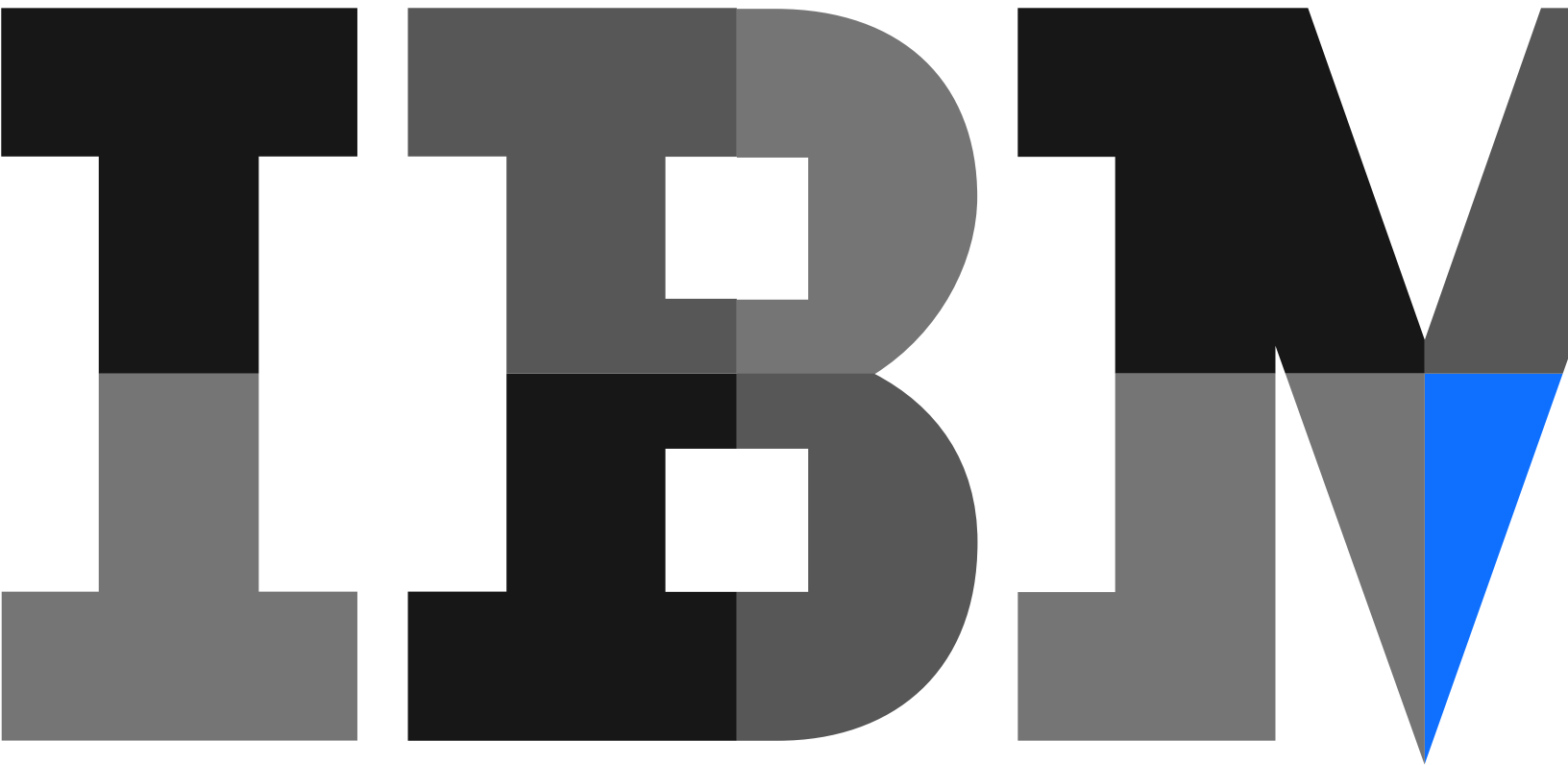


Planning, budgeting and forecasting: Software selection guide



Contents

- 2** Overview
- 4** Planning challenges and process problems
- 4** Origins of planning challenges
- 5** How software supports best practices
- 11** Checklist of key capabilities in a planning solution
- 12** Workshop evaluation
- 13** Planning Software Selection Matrix
- 17** Conclusion

Overview







The planning process – planning, budgeting, forecasting, analysis and reporting – presents a formidable challenge to many companies, regardless of size or industry. Planning is a crucial component of both financial and operational performance management and it can contribute greatly to a company’s overall success, especially in today’s business environment, with disruptive competitors entering even the most tradition-bound industries.

Despite its importance however, planning – especially the annual budget process – is often seen as burdensome and needlessly time-consuming. Back in 2015, the IBM Global C-suite Study found that 81 percent of CFOs regarded optimizing their planning, budgeting and forecasting as an important goal.¹ Yet, a few years later, only 14 percent of CFOs reported that their business functions were in an “optimized” state technologically, with systems enabling data-driven decisions.²

Obviously, change is overdue. Forward-thinking organizations now realize that when planning is dynamic and based on input from across the enterprise, it offers great opportunities to drive process efficiency and business insight. These organizations also realize that modern planning solutions can deliver enormous value to business functions outside of finance, such as operations, supply chain, sales, marketing and HR. When managers in these and other areas can see how their decisions affect other parts of the organization, all of the organization’s activities can be better coordinated.

When companies embrace data and analytics in conjunction with well-established planning and forecasting best practices, they enhance strategic decision-making and are rewarded with more accurate plans and more timely forecasts. Overall, these tools and practices can save time, reduce errors, promote collaboration and foster a more disciplined management culture that delivers true competitive advantage.

Specifically, such companies are able to:

-  *Quickly update plans and forecasts in response to new threats and opportunities.*
-  *Identify and analyze the impact of changes as they occur.*
-  *Strengthen the links between operational and financial plans.*
-  *Improve communication and collaboration among plan contributors.*
-  *Consistently deliver timely, reliable plans and forecasts, plus contingency plans for a range of possible events.*
-  *Analyze variances and deviations from plans and promptly take corrective action.*

This Software Selection Guide addresses the challenges of planning, budgeting, forecasting and analysis in a spreadsheet environment and highlights the advantages of software solutions designed specifically for dynamic planning. Business challenges and drivers are discussed,

including organizational and technological best practices to follow. A Planning Software Selection Matrix is included to assist decision makers in selecting the most appropriate planning software for their specific business processes and needs.

The 2018 CFO Study from the IBM Institute for Business Value, titled *Elevate Your Enterprise*,

identified three distinct groups of finance organizations, which the study named “Reinventors,” “Practitioners” and “Aspirationalists.”³ The Reinventors were the standouts. They place a greater reliance on data and analytics to inform their decision making and, as a result, they were more effective in virtually all dimensions of the finance agenda. They also outperformed their peers in revenue growth, profitability and innovation.

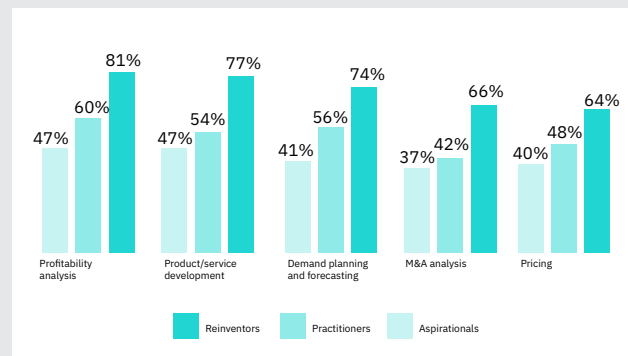


Figure 1: CFO Reinventors are better at all forms of analysis and prediction.

Q: How effective is your organization in the following areas? (Percent of respondents answering “Very effective”) — 2018 CFO Study, IBM Institute for Business Value, June 2018⁴

Planning challenges and process problems

For line-of-business managers, planning and budgeting can sometimes appear to be little more than a periodic intrusion on their time, and one that produces minimal benefit. They can feel besieged by demands for detailed information and under constant pressure to do more with less. As a result, they often fall back on a strategy of overestimating budget requests, with the expectation that budget allocations will fall short of their needs. But these inconveniences are minor compared to the missed opportunities that can result from inflexible and static planning and forecasting, particularly in times of economic volatility.

A well-integrated planning and forecasting “nervous system” should be aligned with operations and support high participation throughout the organization. Such a system enables management to engage in aggressive, creative activity, develop intelligent contingency plans and adjust resource reallocations quickly to meet changing business conditions.

“CFOs cite analytics as a key source for the discovery of new growth opportunities, supported by the integration of enterprise data with external market and competitor data. Further, CFOs can leverage robust analytics with powerful scenario and what-if analysis to evaluate acquisition opportunities.”

– 2018 CFO Study, IBM Institute for Business Value, June 2018 ⁵

The goal of this guide is to help organizations— in both finance and line-of-business functions—improve their planning processes. The guide outlines a systematic approach to software evaluation and selection that aligns best practices and leading-edge technologies with key planning activities. Readers will be asked to review their own planning process, identify challenges, define stakeholder requirements and match emerging criteria with software features and functions.

Origins of planning challenges

Over the last two decades, companies have devoted considerable resources to implementing enterprise resource planning (ERP) systems. Yet most planning is still performed using spreadsheets, email and countless staff hours. It’s an inefficient approach that is costly in the long run because spreadsheets were never designed to support organization-wide planning and forecasting processes. Sometimes the planning systems themselves can actually impede business responsiveness.

Planning Inhibitors

- ! Spreadsheets are prone to manual input errors and suffer from version control issues.
- ! The greatest portion of staff time – as much as 70% – is taken up with data collection and validation.⁶
- ! Forecasts and reports are not updated frequently enough and presenting or analyzing data from different perspectives is difficult.
- ! Insight into root causes is insufficient – leading to the creation of “shadow systems.”
- ! Planning participation is limited and cross-company teams cannot work together easily.
- ! The business model is not represented well, while business rules (i.e., spreadsheet formulas) are often mixed with data and prone to corruption.
- ! Complex calculations and multidimensional analysis and reporting are often impossible.

How software supports best practices

Planning is easier and more effective when practitioners follow well-established best practices. Software solutions that help support these best practices can enhance the timeliness and reliability of information and increase participation by key people throughout the organization, especially those at the front lines of the business. Leading companies have moved to solutions that address the full planning cycle – data collection, modeling, analytics and reporting – on a common planning platform with lean infrastructure requirements. Such platforms are capable of handling a diverse range of business functions, from budget-focused finance tasks to, for example, supply chain-focused planning for retail environments with thousands of SKUs.

To support fast, flexible and adaptive planning, a best-practice approach applies several key tactics.

Align strategic and operating plans

The ongoing alignment of strategic and operating plans is vital. To fully engage department managers who run the business on a day-to-day basis, the finance team must clearly communicate corporate strategic plans and the reasoning behind those plans.

Finance translates long-range strategic goals into financial targets. Those, in turn, can be expressed in specific departmental plans and related revenue and expense drivers, such as units produced, headcount, and plant and equipment. By translating strategic goals into operational plans, tracking key performance indicators (KPIs), and measuring performance against plan, leading companies are better equipped to meet or exceed their objectives.

“Although specific to each industry, most businesses will have a few non-financial metrics that are key leading indicators, which will ultimately manifest in their P&Ls.”

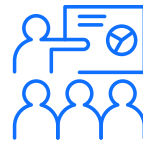
– The Future of Planning, Budgeting and Forecasting, Survey 2016, FSN Publishing Ltd. ⁷

Start at the top—and at the bottom

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

Leading companies provide initial guidance from senior management's strategic goals, objectives and expectations. Employees and line-of-business managers then build a plan from the bottom up, indicating how they intend to meet those goals. This process requires frequent iterations for the top-down and bottom-up activities to meet and reconcile.

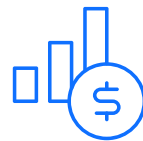
The result is a plan that is supported by:



Line of business managers, *because they helped create it and will be rewarded for meeting its targets.*



Senior management, *because operational goals are aligned with strategic goals.*



Finance, *because they helped add value to a productive, collaborative effort, rather than demanding participation in a budget process that some see as a mere exercise.*

Model business drivers

A useful plan or forecast is based on a model with formulas tied to fundamental business drivers. Simply importing and manipulating past actuals does not reflect the underlying operational causes and financial effects in a business. Building driver-based models into plans ensures consistency across functions and promotes coordination among functions.

For example, by understanding the sales trends and profitability related to particular products that may enjoy steady sales during an otherwise slow period, a retailer can balance product mix, marketing, inventory and sales expenses to optimize profits. Finance can provide operations managers with a model that includes information about past actuals and current inventory levels and marketing promotions as well as formulas driven by planning assumptions.

Finance supports the process without infringing on department managers' responsibility for creating their own

plans. Instead, it saves them time by providing a solid, factual baseline – a starting point that contains important information about each department’s relationships with other business functions. Managers can then make adjustments to this baseline to reflect the latest business conditions.

Drive collaboration between functions

Not only should strategic and operating plans be aligned, but plans that affect multiple functional areas should be coordinated. In addition to understanding their own role in achieving broad strategic goals, department managers must know what other departments are planning. For example, if a company is planning a major new product rollout, manufacturing will probably need to ramp up production, marketing may need to increase advertising and sales may need to add headcount.

But the marketing plan should also include training programs to familiarize sales representatives with the new product. Manufacturing may need to add headcount, which will involve the participation of HR, as well as new equipment, warehouse space for inventory and so on. Such collaborative planning can be accomplished through an iterative process that lets managers forecast and share alternative scenarios and contingency plans. Finance plays a key role in coordinating plans across the company and ensuring that operational tactics are aligned with budgets and financial targets throughout the organization.

Facilitate continuous planning and forecasting

In today’s challenging global economy, with multiple market pressures, forecasts may need to be updated quarterly or even monthly. Continuous forecasting helps managers answer critical questions such as “How are we doing against plan?” and, even more important, “How should we adapt our plans going forward?” For example, at a bank or financial services company, if revenue forecasts are below target, the bank may need to introduce new products or services to attract new customers and prevent current customers from leaving. With a model-based approach to forecasting, marketing can perform what-if analysis to test new product or service initiatives,

examining the impact by region and customer segment. These scenarios can in turn be evaluated by the sales team to adjust their sales strategy, such as taking additional steps to retain the most profitable customers.

“73% of organizations have reported a move to a culture of continuous planning over the last three years.”

– The Future of Planning, Budgeting and Forecasting, Survey 2016, FSN Publishing Ltd. ⁸

Updates to plans feed directly to finance, which then turns the marketing and sales projections into net revenue projections. When you can model numbers in real time, all this can be performed in a matter of hours or days rather than weeks or months, when remedial action may be too late.

Leverage predictive analytics

Predictive analytics capabilities help organizations go beyond understanding what has happened to anticipating what is likely to happen next. Predictive analytics augments traditional planning and forecasting. It brings together capabilities such as statistical analysis, data mining, text analytics and machine learning to discover patterns in data and identify factors influencing customer and market behavior. For example, predictive analytics can help firms anticipate customer churn and then take the most effective steps to cultivate customer loyalty and reduce defections.

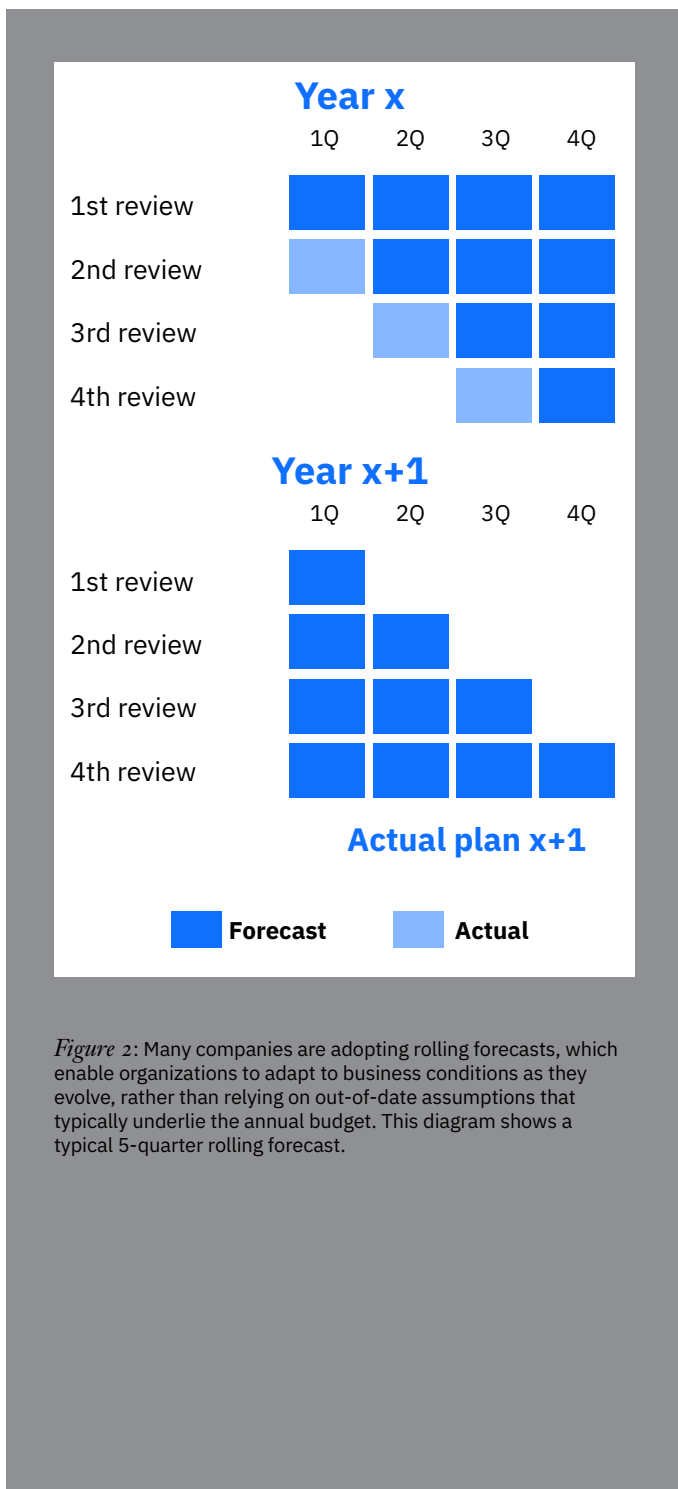


Figure 2: Many companies are adopting rolling forecasts, which enable organizations to adapt to business conditions as they evolve, rather than relying on out-of-date assumptions that typically underlie the annual budget. This diagram shows a typical 5-quarter rolling forecast.

Implement rolling forecasts

One of the most useful innovations in business finance is the rolling forecast. Companies that run rolling forecasts are always looking forward to the immediate or near-term future. For such companies, business doesn't end on December 31 and then restart on January 1. The rolling forecast time frame usually extends out two to eight quarters, depending on business volatility. The forecast should also reflect the input of all departments or business units, not just finance. "The incorporation of nonfinancial data helps to create a holistic view of performance drivers across the entire enterprise," explained Benjamin Cavicchi of the Aberdeen Group.⁹ Such a holistic view is also more accurate. "The incorporation of (or complete transition to) a rolling forecast can significantly improve the accuracy of both forecasts and budgets. Firms that undertake this transition improve the accuracy of forecasted and budgeted revenue to actual revenue by roughly 14%."

To understand what's truly driving your business, planning should be an ongoing process with frequent opportunities for managers to view the latest internal and external data, including information from enterprise resource planning (ERP) and customer relationship management (CRM) systems. Contributors should be able to test new plans or alter existing plans based on new information from various sources, including managers in other departments, monthly actuals, top-down target revisions, and leading market indicators such as customer inquiries, sales pipeline and external market data. The finance team should be able to consolidate plan data from all areas of the company quickly and distribute new information immediately. Such a process facilitates more informed decision-making in areas such as pricing, product family and channel mix, and capital allocations.

80% of global companies with more than \$1 billion in revenue plan to adopt advanced analytics in the next two to three years.

– “Is Analytics the Answer?” CFO magazine, 2018¹¹

**Manage planning content you can act on—
reduce what you can’t**

More detail does not necessarily make a better plan. While supporting detail can provide an audit trail and insight into a manager’s thinking, a focus on planning content that can actually be acted on frees managers from unnecessary detail, enabling them to produce better plans in less time. Managing material content requires attention to information that has real and significant impact on expenses, revenues, capital or cash flow.

Reducing superfluous detail helps a company:

Avoid false precision.

A complex model might not be any more precise than a simpler model. More detail and intricate calculations can lure managers into the trap of thinking their plan is more accurate.

Monitor volatile – not stable – accounts.

Efforts are best spent on fluid expenses such as headcount and compensation.

Aggregate accounts.

A forecast does not need to reflect the same level of detail as the general ledger. Even if the general ledger has 15 different travel accounts, managers can often plan adequately using just one.

“More detail doesn’t always translate into increased accuracy. Of the respondents who were forecasting in more detail and those who weren’t, a similar percentage (38% and 39%) were able to forecast within 5% of earnings.”

– The Future of Planning, Budgeting and Forecasting, Survey 2016, FSN Publishing Ltd.¹²

Ensure 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 will be out of date and irrelevant by the time it is published – and plans based on stale data and assumptions are of little value. World-class organizations can shorten their planning cycles by implementing the best practices described here.

Finance teams can use technology to successfully manage budget consolidation and aggregations with less effort. In particular, plan consolidation on-demand eliminates the necessity of processing results manually and enables a smoother, more consistent planning process. At the strategic level, timely and reliable financial plans provide more credible guidance to stakeholders and enable faster, better-informed business decisions.

At the operational level, this type of planning is less costly and produces more useful results than the processes followed by most companies today. Variance reports delivered within two to four days after the period close allow managers to immediately evaluate their performance against plan and effectively adjust their business activities.

Share insights with compelling images

Visualizations such as charts, graphs, tables, maps, and other kinds of images can be used to enhance reports, scorecards and dashboards.

Some solutions also enable users to add audio and video. Graphics not only improve the appearance of reports, but help users track KPIs more effectively and communicate insights to decision makers at a glance.

Deploy to suit your business needs—not the needs of the software

Various deployment options need to be considered when selecting a planning solution. Ideally, the solution should be able to migrate between on-cloud, on-premises and hybrid models as needed, giving the organization the same planning capabilities regardless of where the solution resides. The cost of cloud solutions is typically lower than that of on-premises solutions, in part because maintenance, hosting and support are handled by the software vendor. With cloud, organizations can usually add users at will. Functionality upgrades are automatic, although there may be an option to postpone version upgrades if requested.

Certain organizations prefer on-premises solutions for various technical or business reasons. For example, some stakeholders may still have security concerns with cloud solutions, although cloud security has improved to the point where there is usually very little difference between cloud, on-premises, and hybrid solutions. In any case, every organization has different deployment needs and many organizations value the flexibility to be on-premises in some locations and on-cloud in others. Therefore, configuration flexibility is essential to meeting the changing needs of a growing organization.

Checklist of key capabilities in a modern planning solution

Evaluating and selecting planning, budgeting and forecasting software is a complex task. It requires careful consideration of the software's functionality, its value to the planning process and its ability to support planning best practices. There are also less tangible factors such as vendor reliability and support, user community connections and commitment to customer success once the sale is complete.

Many leading organizations seek out solutions that possess the following qualities:

□ *Adaptive.*

- Can you rapidly change models and re-forecast frequently, based on input from business units?
- Can you update plans as often as necessary?

□ *Timely.*

- Is your information always current because users contribute directly to a central planning database?
- Are your consolidations and rollups done automatically to easily meet deadlines?

□ *Integrated.*

- Do your planning, analysis, workflow and reporting functions reside on one common platform, reducing the need to maintain “shadow” planning systems?

□ *Collaborative.*

- Is your solution web-based?
- Does it enable participation anytime, from anywhere with a secure connection?

□ *Self-service.*

- Are users able to access data and perform complex analysis without the assistance of IT?
- Are you able to use the familiar Microsoft Excel interface for faster user adoption and accelerate time to value?

□ *Enterprise-scale data capacity.*

- Is your solution capable of handling very large data volumes without limiting cube size? (Some solutions do not handle “data sparsity” well, forcing data to be split into multiple cubes for analysis, causing version control issues.)

□ *Efficient.*

- Are your managers able to spend less time managing data and more time managing the business?

□ *Relevant.*

- Do you have the ability to customize views for different user roles to help increase adoption and process ownership?
- Do you have formula capabilities that enable modeling of all relevant business drivers?

□ *Accurate.*

- Do your plans contain errors because of broken links, stale data, improper rollups and missing components?

The key is not just evaluating product features and capabilities, but also evaluating how those features will be implemented by different users within the organization. It's important to test out any planning solution that will be used by a large variety of stakeholders, such as finance, operations, HR, sales, and others.

Workshop or software trial evaluation

Validating the criteria for yourself in either a workshop or product trial, rather than simply relying on a demonstration, can put a spotlight on how well the software copes in the real world. A workshop approach can be used to evaluate solution features and the manner in which plans are constructed, distributed and tracked for reporting. A specific business process should be defined (such as capital, headcount or expense planning) as a context for the evaluation of product features and factors such as ease of development, user roles, references and customer support.

Planning software selection matrix

The following matrix can aid the evaluation process by relating best practices to product features. It also helps evaluators prioritize features and assess how well they relate to offerings from different vendors.

Feature Category	Score	Weight	Vendor X	Vendor Y	Vendor Z
		(1=least important, to 5=most important)	(Weight*Score)	(Weight*Score)	(Weight*Score)
Dynamic planning blended with analytics					
Real-time what-if analysis					
Personalized workspace with customized views					
Ability to create and compare personal scenarios (sandboxing)					
Individualized self-service analysis and plan prototypes that can be shared with other planners					
Built-in analysis and reporting					
Data spreading to populate an entire plan based on rules, projections, comparisons (e.g., a number added to the top of a table can be spread across geographics, etc.)					
Extended analysis on the fly, using attribute data					
Ability to allocate plan data based on attribute groupings					
Ability to create self-managing, named metadata sets					
Profitability analytics linked to plan models					
Predictive analysis capabilities					
On-demand reporting, including self-service dashboarding and scorecarding					
Integrated analysis through charting					
Integrated data and metadata loading with transformation					
Align strategy & operational plans					
Modular architecture to allow cross-functional, connected planning applications					
Operational planning aligned with financial planning via application links to improve decision making					
Support for comprehensive planning cycle, from individual to group to enterprise and back					
Page Total					

Feature Category	Score	Weight (1=least important, to 5=most important)	Vendor X (Weight*Score)	Vendor Y (Weight*Score)	Vendor Z (Weight*Score)
------------------	-------	---	----------------------------	----------------------------	----------------------------

Model business drivers/planning applications					
Guided modeling with graphical interface					
Driver-based calculations					
Dimensions separate from models					
Multi-cube development environment					
Ease of development by non-expert finance and business analysts					
Ability to make changes without taking the system offline					
Capacity to handle large dimensions, e.g., retail environments with thousands of SKUs					
Manage content					
Real-time workflow					
Defined user views					
Web client					
Role-based security					
Integrated data and metadata					
Freeform data layout to build custom forms for data entry and reporting					
Dynamically expandable/contractable summary levels with columnar data from multiple data sources					
Built-in ETL (extract, transform, load) capability					
Parallel data processing for managing high-volume data maintenance					
Annotations support for adding commentary					
Microsoft Excel client					
Excel client with slice/dice and pivot user experience for analysis and data entry					
Integrate Excel functions and calculations with planning data					
Common user experience in Excel and web					
Common repository for Excel and web-authored content					
Excel spreadsheet content stored centrally on planning server					
Page Total					

Feature Category	Score	Weight	Vendor X	Vendor Y	Vendor Z
		(1=least important, to 5=most important)	(Weight*Score)	(Weight*Score)	(Weight*Score)
Excel template design publishable for html web document reporting and data entry					
Support timely and reliable planning					
On-demand plan consolidation					
Multi-dimensional analysis					
Distributed and connected planning modes					
Certified connector to enterprise resource planning (ERP) systems					
Automated data loads between transactional systems					
Planning types for corporate input, hierarchical and continuous					
Capacity for large data volumes					
Capacity to support detailed (i.e., item-level) planning					
Ability to handle data sparsity (i.e., zero-value cells in a table or cube)					
Vendor profile					
Quality of references					
Annual revenue					
Number of employees					
Number of customers					
Number of industry references					
Independent industry analyst ratings					
Implementation and support					
Implementation methodology					
Training options					
Support hours					
User communities					
Customer forums					
Online knowledge base					
Partner network support					
Vendor consulting					
Quality of documentation					
Page Total					

Feature Category	Score	Weight	Vendor X	Vendor Y	Vendor Z
		(1=least important, to 5=most important)	(Weight*Score)	(Weight*Score)	(Weight*Score)
IT infrastructure support					
Database support					
LDAP support					
Single sign-on					
Portal support					
Open API					
Metadata support					
MDX support					
HTTPS support					
Deployment options					
Cloud					
On-premises					
Hybrid					
Page Total					
Total score					

Conclusion

The successful implementation of a planning solution requires the orchestration of technology, business processes and best practices. This selection guide outlines some key principles to help a company align its business process and technology requirements when selecting planning, budgeting, forecasting and analysis software. By matching a company’s planning process to established best practices, facilitated by the proper implementation of a planning solution, an organization can significantly improve its financial and operational performance. The ultimate results are improved visibility to performance gaps and alternative courses of action, more reliable forecasts, and a shared commitment to clearly understood and achievable goals.

About IBM Analytics

IBM Analytics software delivers data-driven insights that help organizations work smarter and outperform their peers. This comprehensive portfolio includes solutions for business intelligence, predictive analytics and decision management, performance management, and risk management.

IBM Analytics solutions enable companies to identify and visualize trends and patterns in areas, such as customer analytics, that can have a profound effect on business performance. They can compare scenarios, anticipate potential threats and opportunities, better plan, budget and forecast resources, balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organizations can align tactical and strategic decision-making to achieve business goals.

For further information please visit:
ibm.com/analytics/business-analytics

Request a call

To request a call or to ask a question, go to
www.ibm.com/contact/us/en/.

An IBM representative will respond to your inquiry within two business days.

1. Redefining Performance: Insights from the Global C-suite Study – The CFO perspective, IBM Institute for Business Value, February 2016 <http://www-935.ibm.com/services/c-suite/study/studies/cfo-study/>
2. Chris Schmidt, “The Road to Finance Transformation.” CFO magazine. August 1, 2017 <http://ww2.cfo.com/technology/2017/08/road-finance-transformation/>
3. Elevate your enterprise—Chief Financial Officer, IBM Institute for Business Value, June 2018
4. Ibid.
5. Ibid.
6. Keith Button, “Let the Fun Begin,” CFO magazine, November 2017 <http://ww2.cfo.com/budgeting/2017/11/fpa-let-fun-begin/>
7. Gary Simon, The Future of Planning, Budgeting and Forecasting, Survey 2016, Insights from the FSN Modern Finance Forum on LinkedIn, FSN Publishing Limited, November 2016
8. Ibid.
9. Benjamin Cavicchi, You Can’t Afford to be Static: Rolling with the Punches in Forecasting, Aberdeen Group, July 2018, <https://www.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=95016995USEN&>
10. Gary Simon, The Future of Planning, Budgeting and Forecasting, Survey 2016, Insights from the FSN Modern Finance Forum on LinkedIn, FSN Publishing Limited, November 2016
11. Yasmin Ghahremani, Is Analytics the Answer? CFO magazine June/July 2018



© Copyright IBM Corporation 2018

IBM Global Services
Route 100
Somers, NY 10589
U.S.A.

Produced in the United States of America
December 2018
All Rights Reserved

IBM, the IBM logo and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at ibm.com/legal/copytrade.shtml Other company, product and service names may be trademarks or service marks of others.

References in this publication to IBM products and services do not imply that IBM intends to make them available in all countries in which IBM operates.

Microsoft and Microsoft Excel are trademarks of Microsoft Corporation in the United States, other countries, or both.



Please Recycle