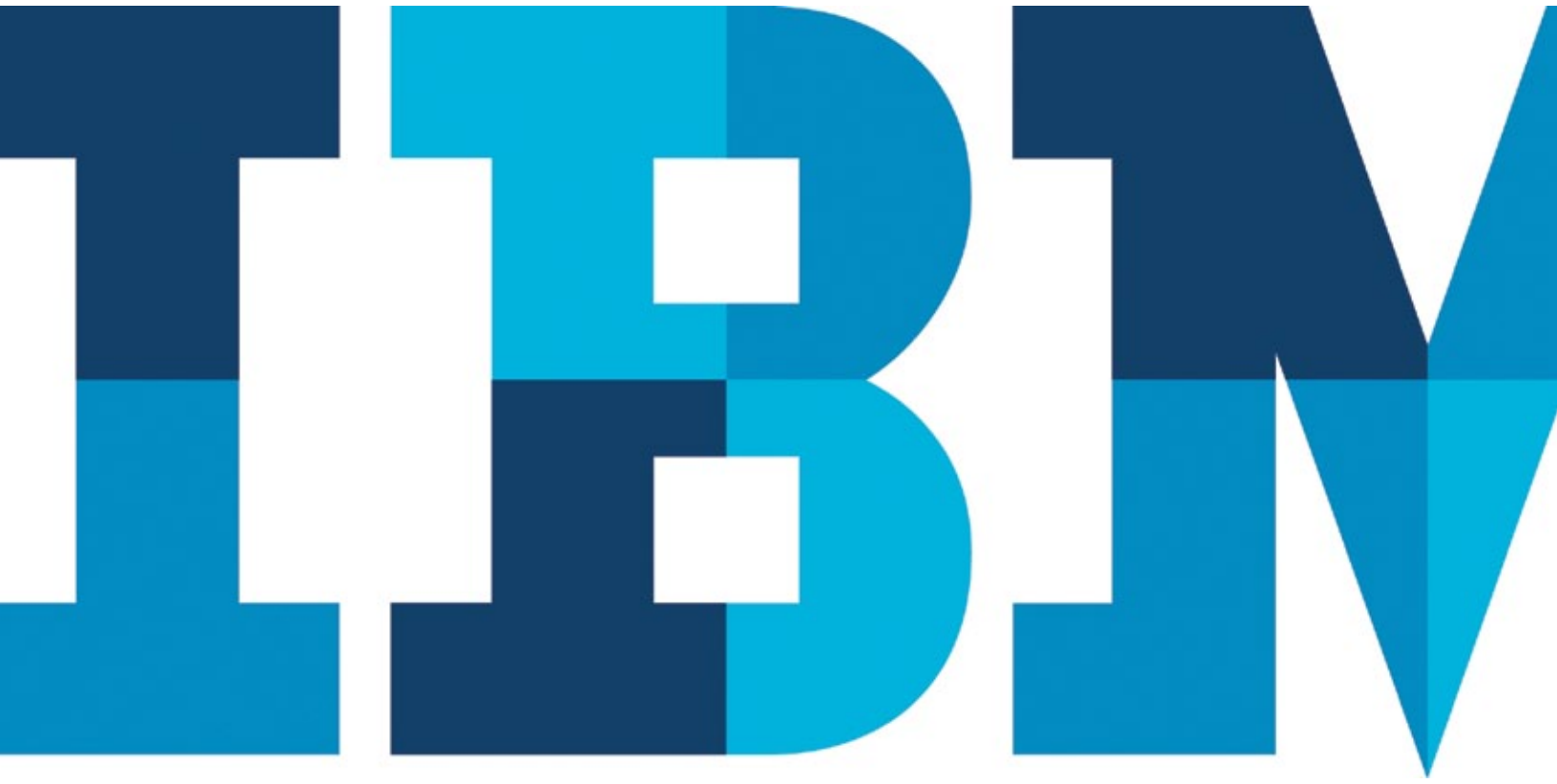
Making confident decisions with the full spectrum of analysis capabilities



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Contents

2 Executive summary
2 The need for broader analysis capabilities
3 Analytical reporting: Understanding the why of business performance
5 Trend analysis: The "aha" moments
8 What-if analysis
9 Advanced analysis: What might happen
10 Conclusion
11 About IBM Business Analytics

Executive summary

Making confident decisions based on facts is a key factor for meeting your organization's goals for profitability, revenue, cost reduction and risk management. And, because there are different types of decision-makers in your company, you require flexible analysis tools that can support managers who want to drill into detail and slice and dice information, business analysts who need to understand inferences and combine information in new ways, and advanced analysts who apply algorithms and build models to validate observations and predict outcomes and more.

This paper covers how the analysis capabilities of IBM® Business Analytics software can help the decision-makers in your organization compile the facts and trends necessary for better and smarter decisions.

The need for broader analysis capabilities

Analysis is not just for the C-suite and IT data analysts any more. Today, most business people want greater understanding of performance so that they can make better decisions. Almost everyone needs insight gleaned from more than dashboards and managed reports. Analysts need to provide facts and data interpretation that go way beyond reporting numbers. Advanced analysts want to uncover patterns and relationships beyond information manipulation.

As a result, the information set considered for analysis has expanded. Organizations now want to infuse analysis into each step of the decision-making process so that they can sustain competitiveness. Analysis solutions must meet these requirements and provide self discovery, the ability to manipulate information and data modeling to create scenarios.

In short, most businesses, including yours, need an analysis solution that addresses the following spectrum of analysis types:

- Analytical reporting
- Trending
- What-if analysis
- Advanced analytics

IBM Cognos® and SPSS® analysis solutions can help. They are designed to provide the spectrum of analysis capabilities you need to:

- View, assemble and analyze all the information required to make smarter decisions.
- Assess your immediate business situation with more advanced, predictive or what-if analysis.
- Engage the right teams and minds from across your enterprise for more inclusive and holistic decision-making and analysis.
- Provide analysis results to the processes and people at the front line of your business.

With these solutions, executives can explore a timely and reliable view of business and take action to drive better business outcomes and decision making. Business managers have a single, reliable view of information at their fingertips that can help them focus on issues that need attention and action. Business analysts can effectively conduct in-depth analysis and share results easily with broader business communities. IT professionals can effectively apply their knowledge, expertise and investment in corporate data to advance the business, rather than having to manage a backlog of requests for information.

The key is making sure that almost all aspects of analysis are covered.

Analytical reporting: Understanding the why of business performance

The majority of employees in an organization want to find answers to business questions fast. They are asking questions that simple reporting cannot answer, such as “Why are we not selling well to customers in this region?” Analytical reporting is the capability that can help them find the answers.

Solutions for analytical reporting include:

- Guided analysis
- Dashboards
- Drillable reports
- Mobile business intelligence (BI)

Cognos analysis solutions are designed to serve the need for analytical reporting by providing top-down views of the business but also making it possible to go into more detail. They help you sort from top to bottom and back, guide you through to additional relevant reports and help you analyze data on demand.

Cognos analysis solutions have a common metadata layer that help users ask for more information about anything they see. For example, they can call up the lineage of a piece of information to see where it was sourced from to increase their confidence in that information. Or, if someone is reviewing a report or dashboard about customers who are purchasing less merchandise than usual, they can link to a report of open support requests for a given customer to see if the lack of purchasing is based on an open service issue. This is guided analysis; the system helps people find what they need to know.

Dashboards provide at-a-glance, high-impact views of complex information so you can focus on issues that need attention and action quickly (Figure 1). They also combine information from different, often disconnected sources. Highly visual, personalized, managed or self-assembled dashboards can provide the most benefits.

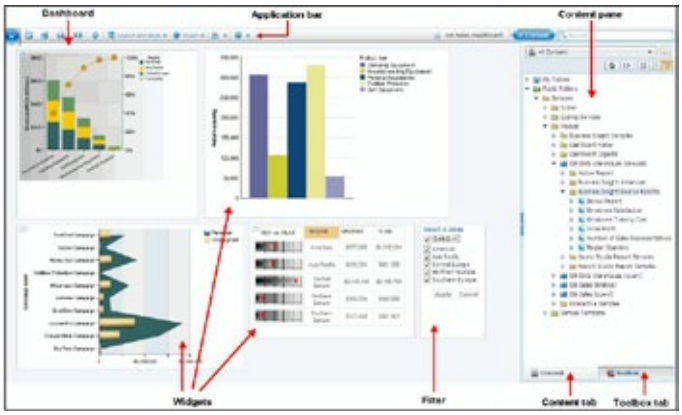

Figure 1: A sample dashboard from a Cognos analysis solution

Dashboards give people a quick status on their areas of responsibility. With Cognos dashboard solutions, you can move from an overview to a detailed view with the click of a mouse. Everything is interactive. That interactivity is not limited to online dashboards accessed from the web on a workstation, either. Cognos analysis solutions include interactive mobile and offline dashboards that are designed to provide self-contained BI and reach more users.

IBM Cognos Workspace: A BI place to start your day

Intuitive and friendly, Cognos Workspace is designed to be the single place that you can go to find the performance information you need to get your work done. It features:

- Pre-assembled workspace content
- Search assisted authoring
- Drag and drop assembly
- Dynamic filtering
- The ability to drill down into data
- A smooth, graduated experience
- Search assisted authoring

These features are designed to help you engage more people in your organization, better use existing intelligence assets, explore and assemble data, gain unique insights and work with a more complete perspective of your business.

Trend analysis: The "aha" moments

Trend analysis solutions can be useful to many people in your organization, including business analysts and advanced analysts. With trending capabilities, you can recognize patterns in organizational performance and the factors that drive them. Cognos analysis solutions are designed to facilitate trending with features for fully exploring data, comparing and contrasting different business areas, analyzing trends over time and rotating and nesting information to gain fresh insights. You can also add trends right in your charts and graphs (Figure 2).

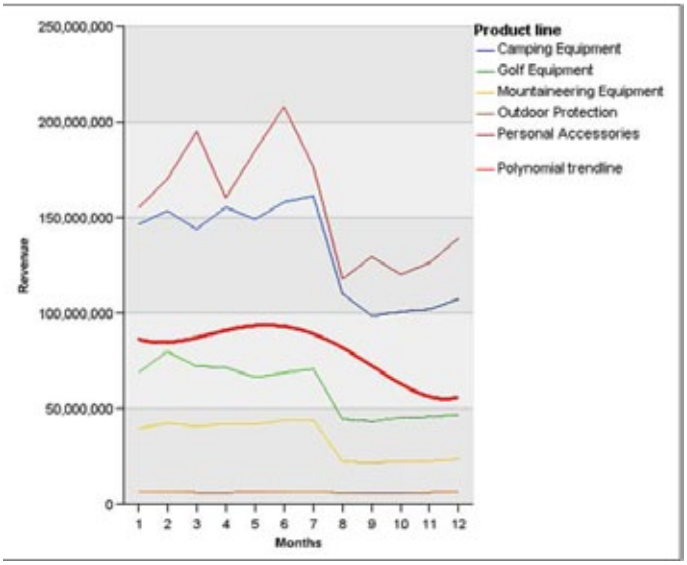

Figure 2: Trend analysis

People can drag and drop information into charts, lists or crosstabs and then interact with them to view the needed level of detail (drilling) and examine it from different points of view (slice and dice or pivot). For example, you can place the top and bottom performers in the same view so that you can compare and contrast their behavior in different contexts. If you are an analyst who prefers comparing and contrasting information in Microsoft Excel, this is possible with Cognos analysis solutions. In addition, anyone involved in analysis can benefit from the ability to add relevant pieces of reports to Microsoft Office applications, such as PowerPoint, and watch them automatically refresh each time they access them.

Discover and analyze trends in a familiar spreadsheet environment: Cognos Analysis for Excel

Cognos Analysis for Excel helps you avoid multiple versions of the same data and make the most of existing skills because you can work with BI data in a familiar spreadsheet environment and apply formulas or explore calculations to your numbers. Cognos Analysis for Excel provides:

- **Self-service drag-and-drop exploration with an intuitive, integrated user interface and no need for additional authoring tools**
- **Access to the trusted sources of BI data that refreshes on demand**
- Excel analysis, formula-based and linked calculations and format

Using Cognos Analysis for Excel, you can develop high frequency and high priority use cases for exploring sanctioned corporate data. In addition, you can export Cognos Analysis for Microsoft Excel reports, including new column and row calculations, to standard Cognos reports and dashboards.

In addition, with Cognos analysis solutions, you can incorporate spreadsheet data or data from disconnected departmental systems into your existing Cognos Business Intelligence environment for rapid reporting and ad hoc analysis of trends. This helps you pool your personal sources with those of other interested users without affecting enterprise data sources so that you can confirm what you are seeing in the trends. Cognos analysis solutions are designed to:

- Combine financial targets and forecasts from spreadsheets with actual data.
- Use external data in report filters.
- Build complex models and cube building.

You can also take advantage of "self-service" reporting that uses enterprise data enhanced with on-demand external data.

Shift to more complex analysis: Cognos Workspace Advanced

When you are ready to expand the capabilities offered by Cognos Workspace, you can transition to the deeper analysis capabilities of Cognos Workspace Advanced, which is designed to enable the interactive exploration of information regardless of where the data is stored. It is particularly useful for managers and analysts who need to analyze and report trends in organizational performance. Cognos Workspace Advanced can help you:

- **Conduct complex analysis tasks quickly.**
- **Explore large complex data sets using drag-and-drop techniques.**
- **Drill down through increasing levels of detail and view data by different dimensions, such as sales per region or by product.**
- **View and analyze graphic representations of data relationships and change displays easily to gain greater insight into trends, causes and effects.**
- **Integrate external data into your Cognos environment.**

What-if analysis

Your business continually needs to understand how to allocate and use resources better and understand how these decisions affect the different costs or the effects that investments have on profit and other financial indicators. The what-if analysis solutions that are part of the IBM Business Analytics portfolio were designed to provide the full flexibility needed to:

- Model scenarios.
- Reorganize, reshape and recalculate the data.
- Save different versions and compare scenarios to identify the optimal approach to recommend to the business.

Cognos what-if analysis solutions can help finance and business users analyze their key performance drivers and use the results of this analysis to make faster and better decisions. You can compare the value and cost of alternative courses of action to the status quo to help build strong business recommendations and make strategy change grounded in facts. In addition, your company can respond more quickly to internal and external business drivers and optimize business performance.

What-if analysis powered by IBM Cognos TM1

IBM Cognos TM1® software is designed to help you rapidly analyze and model planning requirements for your entire organization and use them to anticipate the correct course of action for better business outcomes. Cognos TM1 blends advanced personalization, adapted to each contributor's particular preferences, with what-if analysis to help you:

- **Develop scenarios when you need to and share them with others for greater collaboration.**
- **Take advantage of the fast performance provided by a patented, in-memory OLAP engine.**
- **Create personal scenarios that support many different types of alternatives.**
- **View transaction systems to confirm your assumptions.**

Cognos TM1 provides a managed, governed planning, analysis and reporting process that spans personal, work group and enterprise requirements. A personal analytics desktop combines analysis, planning, reporting and personal dashboards in a single interface. In addition, an innovative, guided modeling environment helps ease the development and deployment of planning, analysis and forecasting solutions.

Advanced analysis: What might happen

Business intelligence helps you analyze data to determine what has happened in the past and what is happening now. But for the most informed decisions, it helps to be able analyze what might happen. Advanced analysis is what you can use to add that dimension to your overall picture of your business. Cognos and SPSS advanced analysis solutions help you uncover patterns in your business and apply algorithms to BI data to predict outcomes. These solutions can help you:

- Predict future events and act on that insight.
- Use data collection to capture customer attitudes and opinions.
- Apply text and data mining to uncover previously undiscovered patterns.
- Apply advanced statistical analysis to raise confidence in conclusions.
- Combine KPIs and other predictive results with other BI content to enrich existing reporting and analysis.

The foundational technology of these IBM advanced analysis solutions uses sophisticated mathematics to help researchers validate assumptions and test hypotheses. From testing opinions about the latest product feature ideas or the efficacy of a new drug treatment or prospective supply chain allocation, your organization can look at what it believes and validate whether those views are based in fact. Gut feeling and instinct are only as good as the experiences brought to the table; statistics will make you confident in the results and the final outcomes of the decisions you make.

IBM advanced analysis solutions are backed by one of the world's leading statistical software suites used by commercial, government and academic organizations to solve business and research problems. As a result, IBM solutions have helped clients validate (or disprove) assumptions faster, efficiently using the right statistical capability at the right time. Analysts have flexible access to a host of statistical analysis power, meeting the needs of the most experienced down to the learner. And, organizations can make the most of their analytical resources, scaling from the simplest initiative to the most widespread endeavor.

This statistical foundation is fully integrated with and complements an IBM predictive analytics solution to provide the modeling capabilities needed for advanced analysis. Predictive modeling helps organizations take seemingly unrelated data and find hidden relationships. Based on these models, an organization can understand what might happen the next time something similar to what has already happened occurs. From predicting which offer will be the most effective to understanding and preventing turnover, modeling can help you consistently make decisions that maximize results.

Make informed decisions with predictors: IBM SPSS Modeler

IBM SPSS Modeler helps analysts model future customer behavior, making predictions about how customers will behave using leading data mining techniques. The focus of SPSS Modeler is productivity. The intent is to mask the complexities and reduce the learning curve of the science of data mining so people in your company can quickly produce useful models of future behavior.

SPSS Modeler is designed to:

- **Promote a no-programming approach to data mining.**
- **Automatically create accurate, deployable predictive models.**
- **Help you choose the best solution with multi-model evaluation.**
- **Data mine in standard databases.**
- **Multithreading, clustering and use of embedded algorithms.**

In addition, automation takes the guess work out of having to pick a specific algorithm to find a solution to your particular problem. Along with automated modeling, there is automated data preparation, which takes care of data preparation and reduces the number of steps you need to go through on your way to the answer. Multi-model creation and evaluation along with the integrated analysis of web, text and survey data helps you create better models, especially when an open and scalable architecture removes the need for specialized databases or proprietary data formatting.

And, finally, IBM advanced analysis solutions include the ability to incorporate models and statistical analysis into your core business reporting. This ability can help reduce the time it takes to analyze data and prepare business presentations because the statistical evidence to back key business decisions is distributed more easily to broader business communities in dashboards and reports.

Conclusion

IBM Cognos and SPSS analysis solutions provide the full spectrum of analysis types—from analytical reporting to trending to what-if analysis to predictive modeling—to support the analysis needs of all users in your organization. These solutions help users access and organize data optimally from any source to provide the blueprint for complete analysis. Together, with the ability to transition from a dashboard to complex analysis in the same unified workspace, these solutions can help business users find the underlying answer to any business question to optimize business performance.

About IBM Business Analytics

IBM Business Analytics software delivers actionable insights decision-makers need to achieve better business performance. IBM offers a comprehensive, unified portfolio of business intelligence, predictive and advanced analytics, financial performance and strategy management, governance, risk and compliance and analytic applications.

With IBM software, companies can spot trends, patterns and anomalies, compare "what if" scenarios, predict potential threats and opportunities, identify and manage key business risks and plan, budget and forecast resources. With these deep analytic capabilities our customers around the world can better understand, anticipate and shape business outcomes.

For more information

For further information, visit **ibm.com**/business-analytics.

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