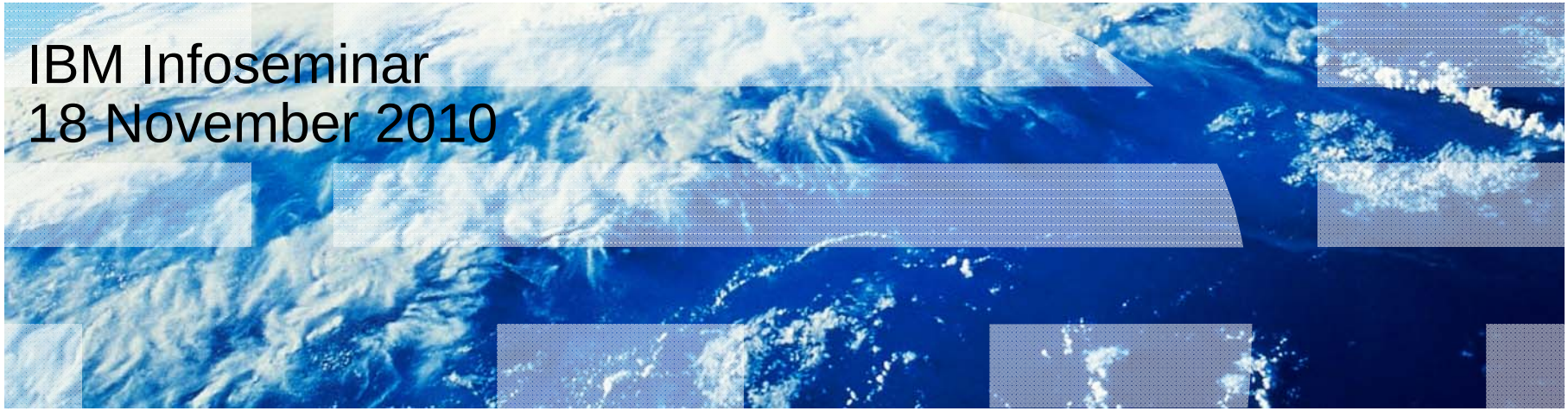
Better Business Results Through Predictive Analytics

Anette Heimbs, Senior Solution Specialist Business Analytics



Business Analytics

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Agenda

- IBM SPSS Predictive Analytics
- IBM Cognos 10
- Demo: Integration Modeler 14.1 – Cognos BI
- Demo: IBM Cognos 10 Statistics

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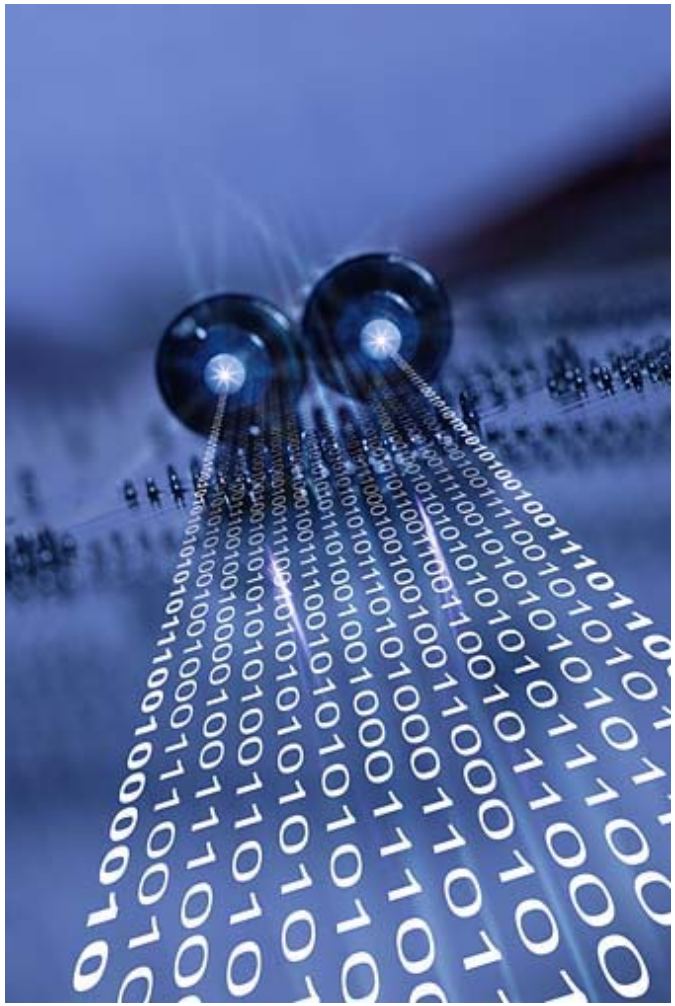
What is Predictive Analytics?



Predictive Analytics helps connect data to effective action by drawing reliable conclusions about current conditions and future events.

— Gareth Herschel, Research Director, Gartner Group

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Why Predictive Analytics?

- Proactive customer service
- Acquire profitable customers efficiently
- Sell more to existing customers
- Keep profitable customers longer
- Proactively manage risk from fraudulent activity
- Proactively manage resources, human and physical

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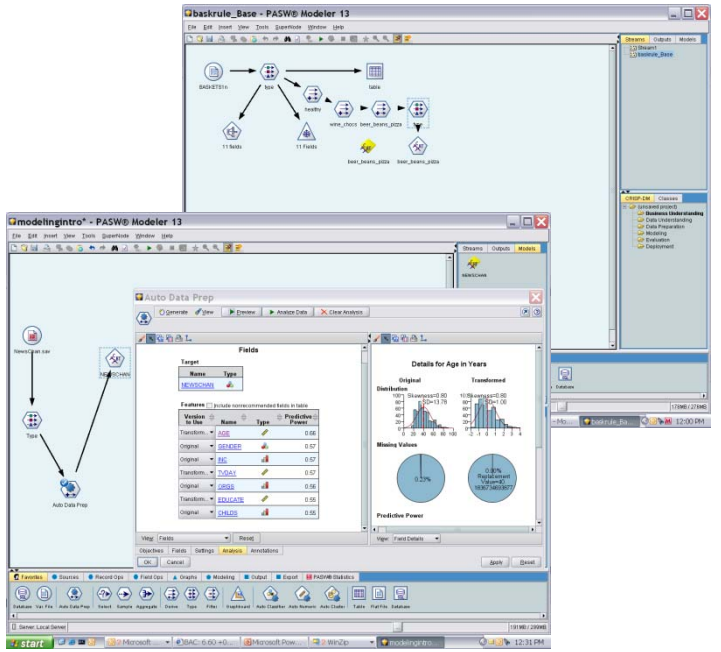
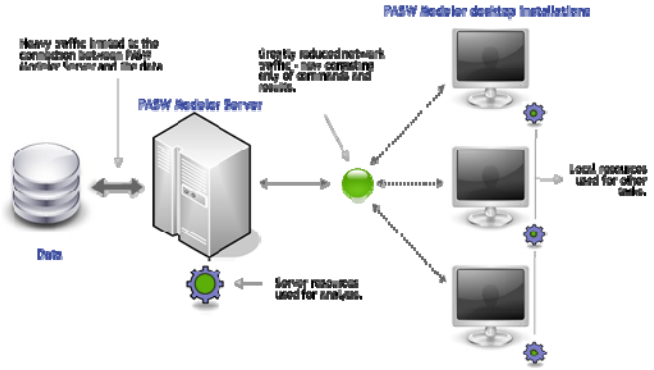
What is IBM SPSS Modeler?

- High-Performance Data Mining and Text Analytics workbench
- Easy to Learn / Intuitive Visual Interface
  - Visual approach - no programming
- Powerful Automated modeling
  - Automated data preparation
  - Multi model creation & evaluation
  - Integrated analysis of text, web & survey data
- Open and scalable architecure
  - Data mining within standard databases with SQL pushback support
  - Maximized use of infrastructure with multithreading, clustering and use of embedded algorithms (in database mining)
  - Integration with IBM technologies such as IBM Cognos Business Analytics and IBM InfoSphere Warehouse





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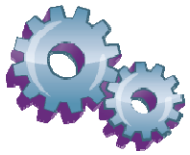
Example 1: Optimize Marketing Campaigns

Campaign History
- Contact Data
- Response/Decline
- Test/Control Group

Interaction Data
- Call Center
- Website Visit Data
- Service Request

Customer Data
- Demographics
- Account Activity
- Product Holdings
- Survey Data



Analyses

Predict who is likely to respond, based on each customer's profile

Scoring

Apply model to new customers

Marketing campaign process

Use models to identify who should receive what offer

Results:

- Lower mailing costs, higher response, more profit
- Better cross-sell/up-sell rates

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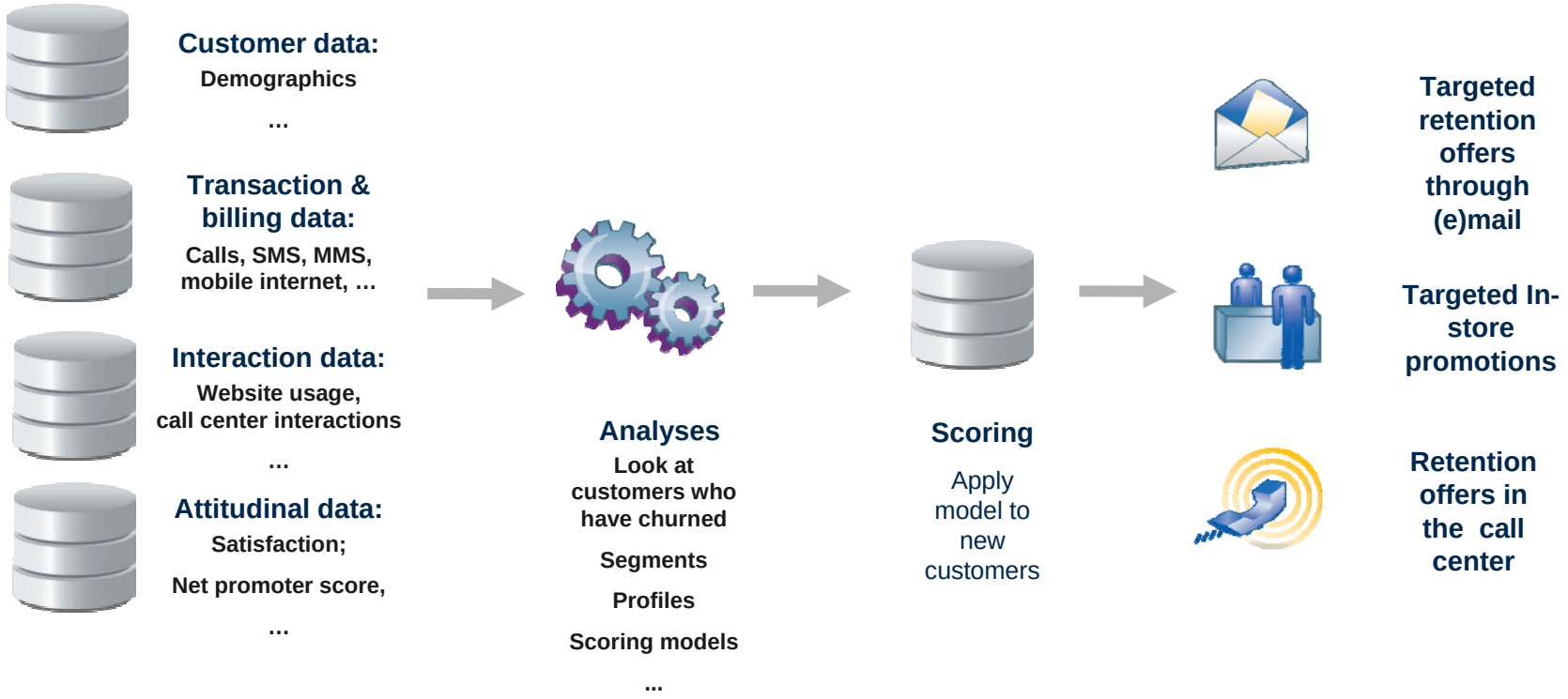
Example 2: Proactive Customer Retention



Results:

- **Reduction in churn due to proactive reach-out**
- **Maintain market share**
- **Proactive issue identification**

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What Makes IBM SPSS Modeler Unique?

- Industry-leading ease of use and analytical power makes it the tool of choice for both the business and expert user
- Comprehensive range of features and functions that help users get results fast
- Open and scalable architecture that minimizes IT investment and system disruption
- Multiple deployment options and integration with key IBM technologies such as IBM Cognos Business Intelligence and IBM InfoSphere Warehouse provides comprehensive and integrated solution with best in class data warehousing, data preparation, data mining, text analysis and deployment into business intelligence.

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Business Analytics

Business Analytics delivers insights to drive better outcomes

Better
Outcomes

Smarter
Decisions

Actionable
Insights

Trusted
Information

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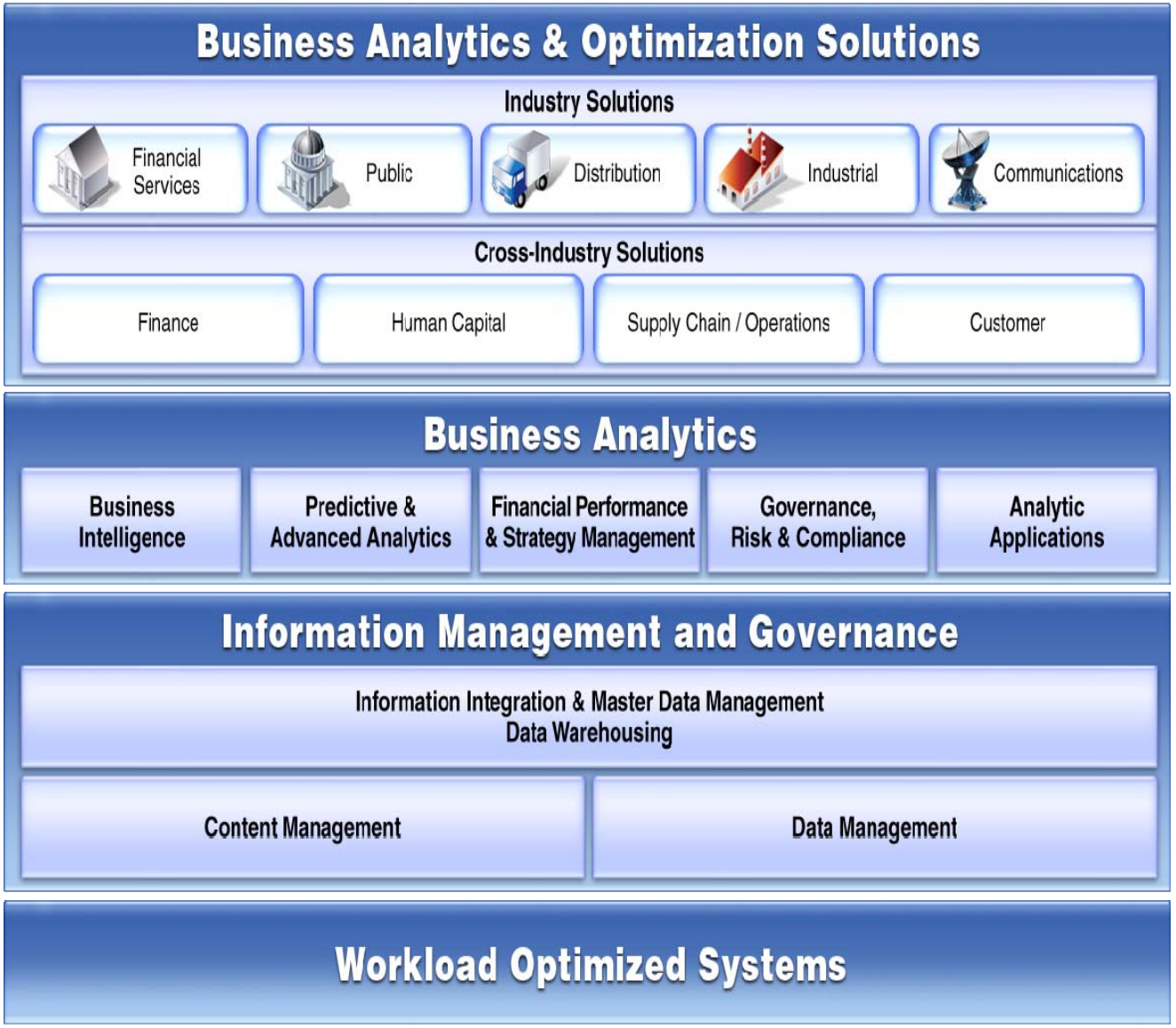
Business Analytics

IBM Business Analytics



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Introducing Cognos 10

Revolutionizes the experience

Expands traditional BI capabilities

Advances market-proven platform

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Cognos 10: Intelligence Unleashed

Smarter Decisions. Better Results.

Freedom to **Think**

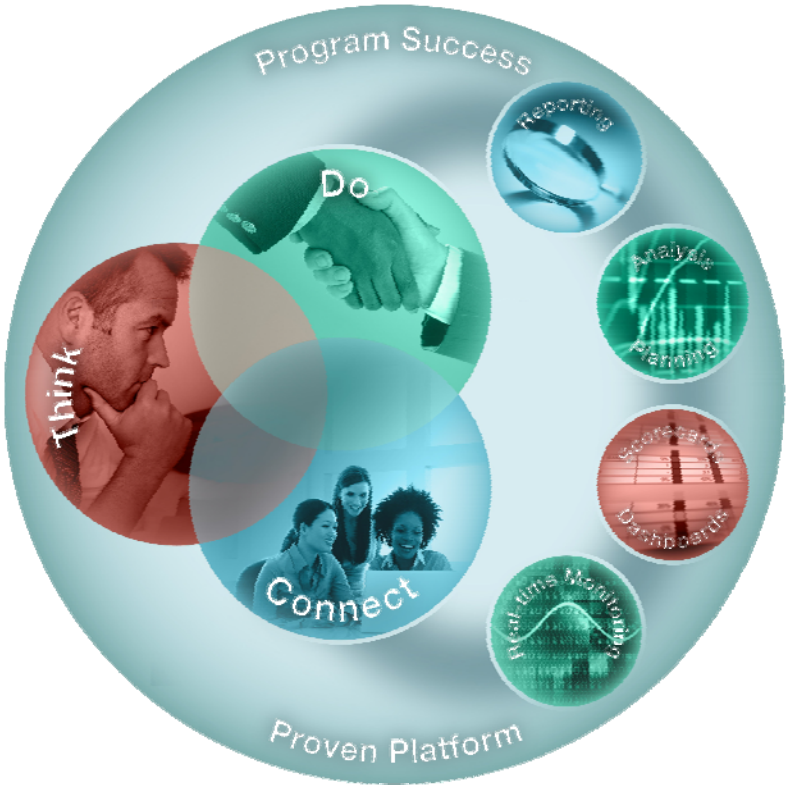
- Unified workspace
- All time horizons
- Progressive interaction

Connect with Others

- Decision networks
- Business context
- Accountability

and Simply **Do**

- Mobile and Disconnected
- Integrated
- Real-time



A revolutionary BI workspace delivered on a proven platform with seamless upgrade

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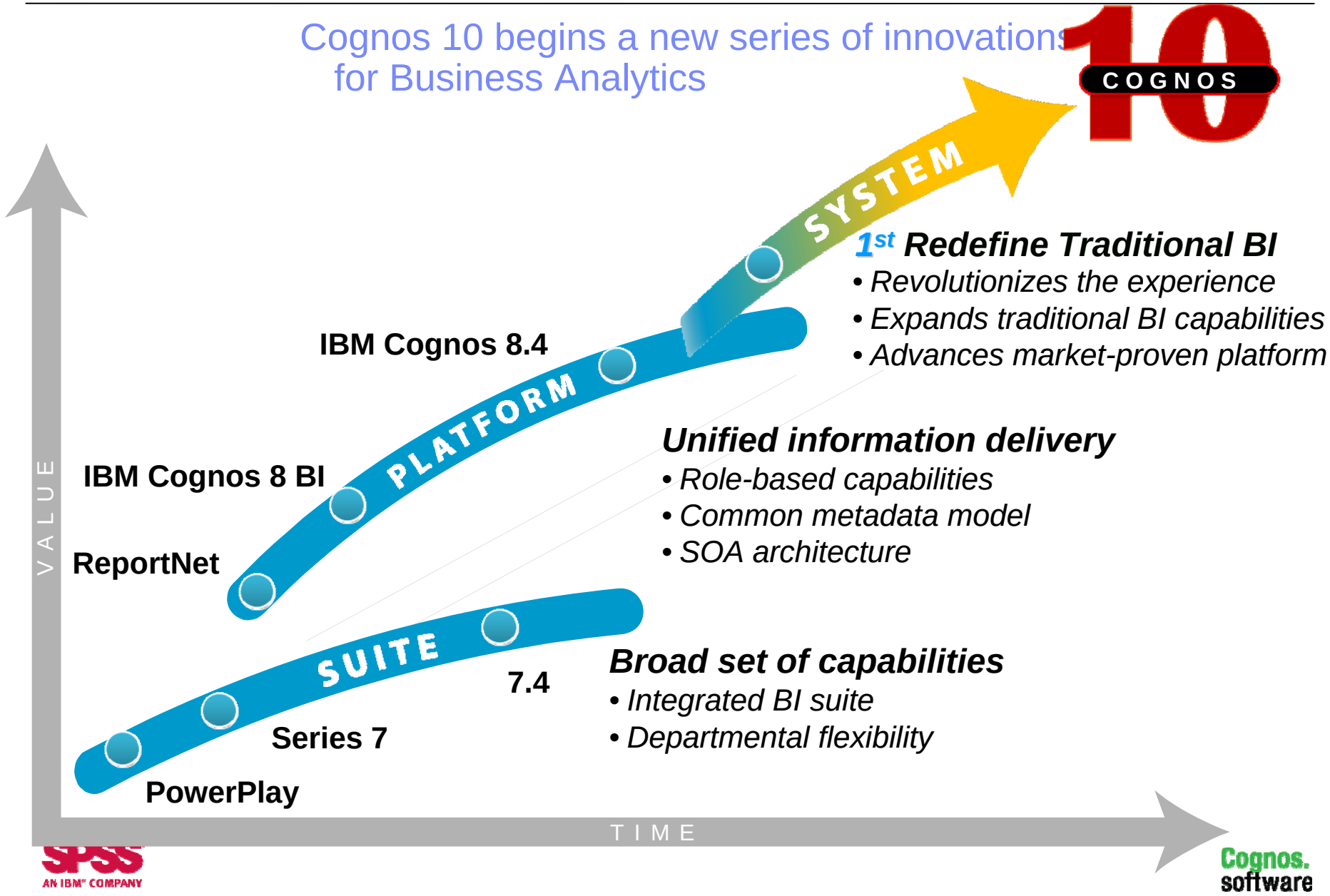
Business Analytics

Cognos 10 begins a new series of innovations for Business Analytics



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Cognos 10 redefines traditional BI

Meet the needs of an evolving workforce
- Analytics everyone can use in a BI workspace
- Sharpen individual skills to answer key business questions

Step up team decision making
- Collective intelligence with built-in collaboration and social networking
- Connect people and insights to gain alignment

Accelerate business impact
- Actionable insight everywhere in mobile, real-time and business processes
- Instantly respond at the point of impact

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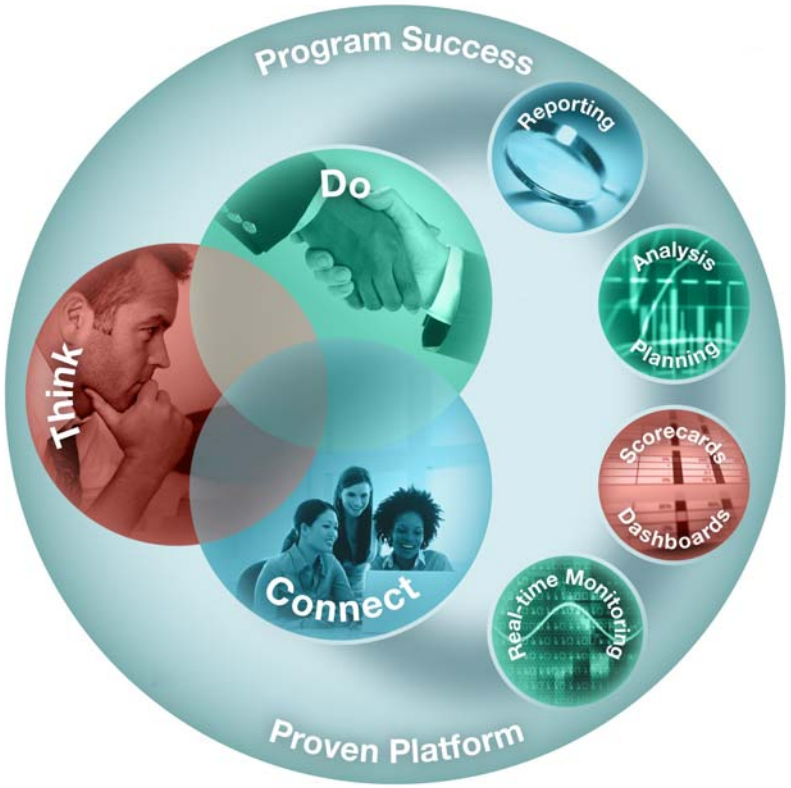
Cognos 10 advances the platform

- **Optimize performance**
  - in-memory processing
- **Accelerate model design**
  - guided workflow-driven modeling
- **Enhance system management**
  - more granular visibility and control
- **Streamline lifecycle management**
  - ability to seamlessly upgrade



3x faster query

** When compared against IBM Cognos 8 BI software. Based on selective results from tests conducted in the IBM Performance and Scalability Labs on pre-release Cognos 10 software*

Proven platform to cost-effectively scale for growing user communities and data volumes

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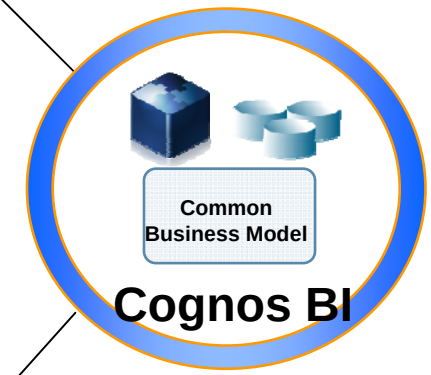
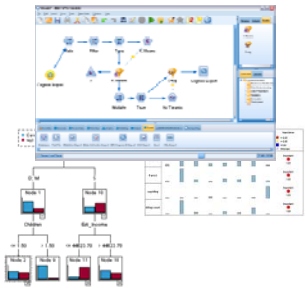
Infuse Business Intelligence with Predictive Analytics

1) Leveraging BI, identify problem or situation needing attention



2) Use SPSS predictive analytics & feed results back into the BI layer



3) Results widely distributed via BI for consumption by Business Users

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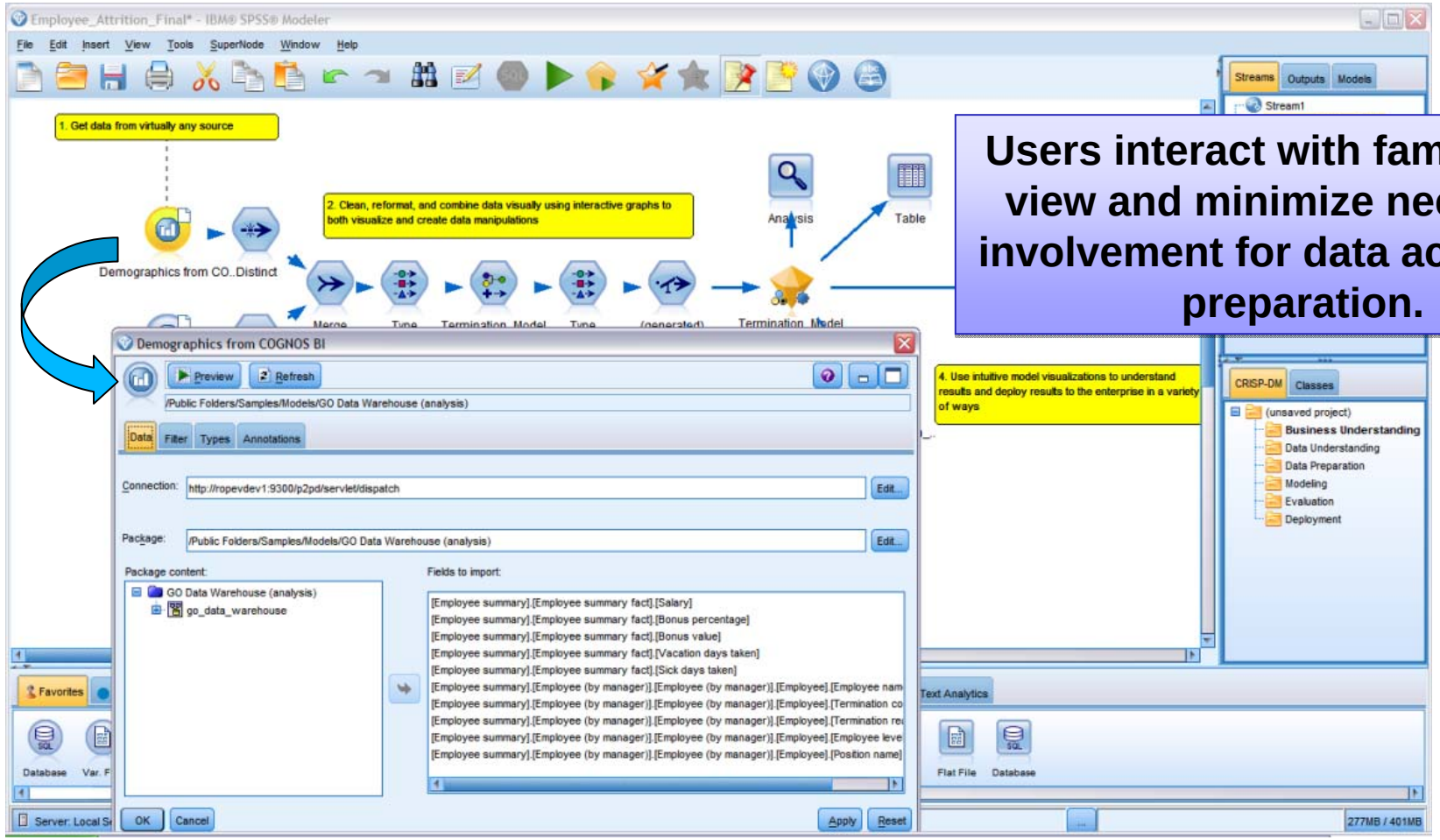
Access IBM Cognos Business Intelligence Data



Users interact with familiar data view and minimize need for IT involvement for data access and preparation.

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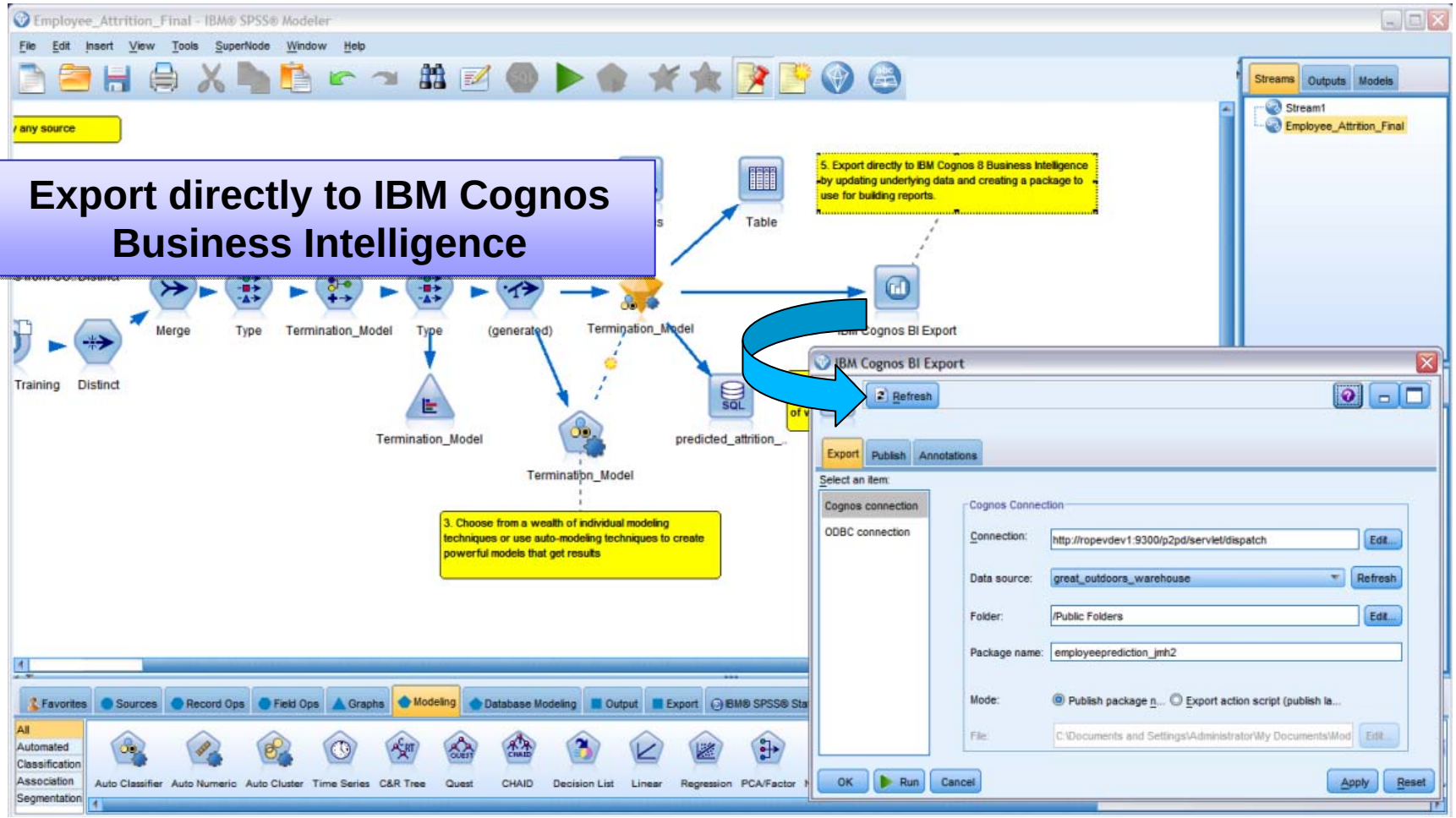
Export Predictive Intelligence to IBM Cognos Business Intelligence



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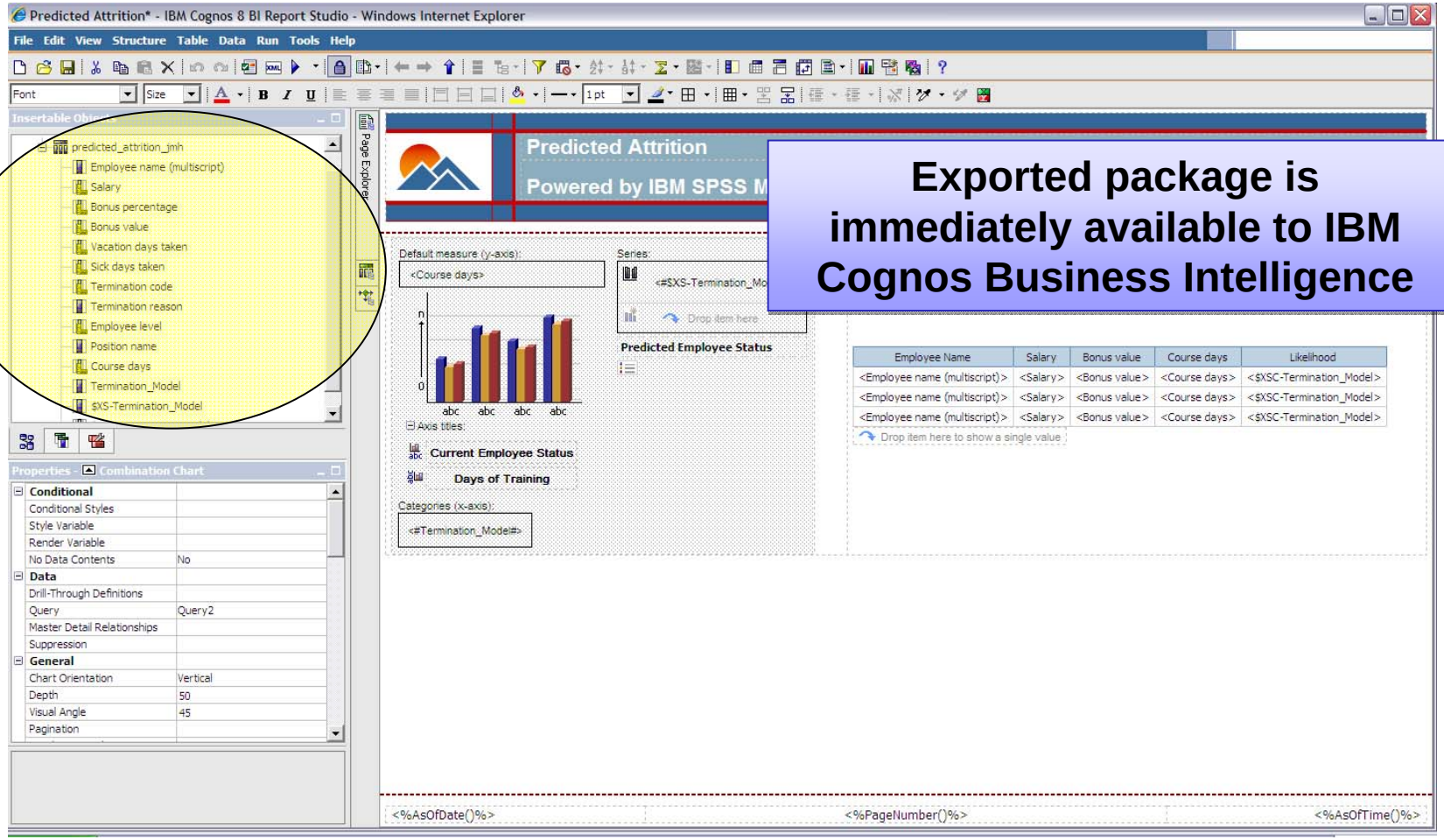
Add Predictive Intelligence to Business Intelligence Dashboards and Reports Using Familiar IBM Cognos BI Tools



Exported package is immediately available to IBM Cognos Business Intelligence

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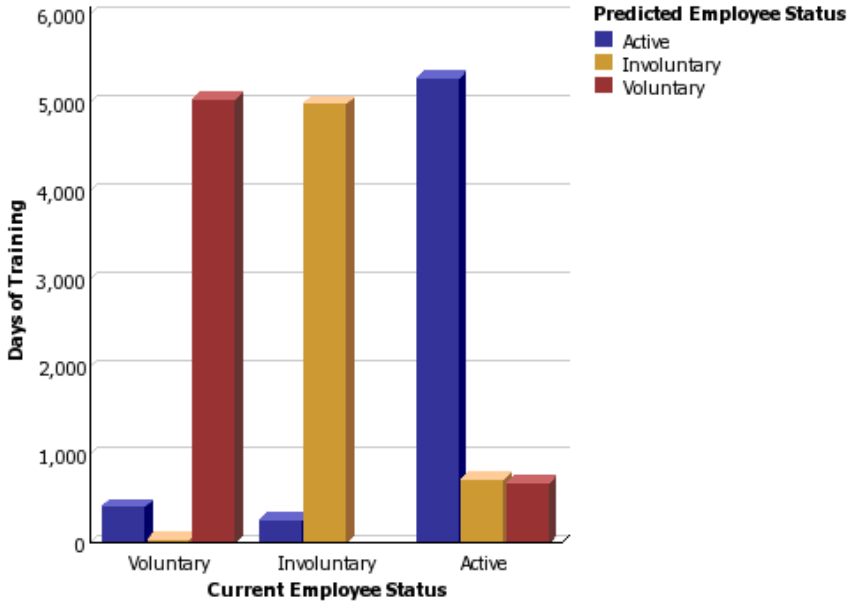
Business Intelligence Infused With Predictive Analytics

Predicted Attrition

Powered by IBM SPSS Modeler



Employee Name	Salary	Bonus value	Course days	Likelihood
Adrien Martin	$26,695	$2,086	7	76.7%
Anouk Petit	$23,538	$1,412	6	71.6%
木村 大地	$27,530	$1,585	3	68.7%
木村 康平	$38,769	$3,702	1	67.1%
Katharina Hoenike	$46,654	$0	16	67.1%
윤 라산	$28,769	$0	15	63.4%
Ernst Aaldenberg	$31,731	$1,862	6	58.6%
斎藤 文子	$27,530	$4,206	4	58.6%
Betje Coeman	$26,846	$3,028	4	53.7%
Johan Bakker	$57,692	$0	18	53.7%
Alice Walter	$49,846	$0	22	52.7%
Rémy Mallorquin	$44,231	$2,592	10	52.4%
Chris Parston	$29,191	$2,819	3	52.0%
Fytje Aaij	$26,846	$3,028	6	51.9%
Anna Valdez	$29,615	$0	21	50.8%
Denys Brinkerhoff	$25,231	$2,458	8	49.9%
Georg Schmuker	$38,077	$0	17	49.8%
Otto Kunstler	$32,500	$1,250	2	49.5%
Diane Sheppard	$33,846	$0	16	49.0%
高 武	$36,000	$3,420	8	48.9%

Aug 11, 2010 3:12:53 PM

Top Page up

Compare current state to predicted result and measure by effect of key factors on predicted outcome. Focus efforts around the future – anticipate, rather than react.

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Integration Modeler 14.1 – Cognos BI

Demonstration

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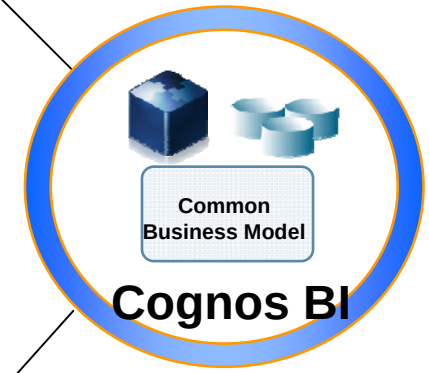

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Business Drivers for IBM Cognos 10 Statistics

Business Analysts and Specialists are looking to…

- See proof that proper statistical evidence is being used to support decision making
  - Example: Identify the impact of demand generation marketing programs on in quarter buying patterns

Subset of Commonly Used Statistics from SPSS Stats

- Visualize statistical results to more easily identify patterns and outliers
  - Example: Histogram charts to understand profiles of where employee performance is deviating outside of means

New SPSS Statistical Chart Types

- Incorporate statistical results with business reporting
  - Example: Distribute and share information around operational quality that correlates operational quality with different shifts and products

Integration with Report Studio for broad and enterprise distribution

Broad distribution of statistical results off of trusted data

Differences between Statistics and Data Mining

Statistical Analysis	Data Mining
To draw conclusions or insights & determine cause-and-effect patterns between events from a sample of data. ▪ Based on sample poll, predict election winner ▪ Which advertising medium drives better sales ▪ How does the use of cell phones vary by age	Uncovers relationships & patterns within large volumes of data that can be used to predict behaviour and events ▪ What customers are likely to leave? ▪ Which files should be investigated for fraud? ▪ Which products sell best together?
Small data sets (thousands)	Large data sets (millions)

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Differences between Cognos Statistics and SPSS Statistics

IBM Cognos Statistics	SPSS Statistics Workbench
For LOB Analysts & Prof. Report Authors	For the specialist Statistical Analyst
Seamlessly integrated within Report Studio	Stand alone disconnected workbench
Subset of commonly used statistical functions	Full range of statistical functions
Supports all IBM Cognos platform data sources	Limited data source support

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SPSS: Predictive Analytics Software (PASW)

4 Key Categories

IBM Cognos Statistics – Exposes a subset of commonly used Statistical functions from SPSS in C10

Data Collection *Delivers an accura*
- PASW Data Collection

Statistics *Drives confidence in your results & decisions*
- PASW Statistics

Modeling *Brings repeatability to ongoing decision making*
- PASW Modeler
- PASW Text Mining

Deployment *Maximizes the impact of analytics in your operation*
- PASW Decision Management
- PASW Collaboration & Deployment Services

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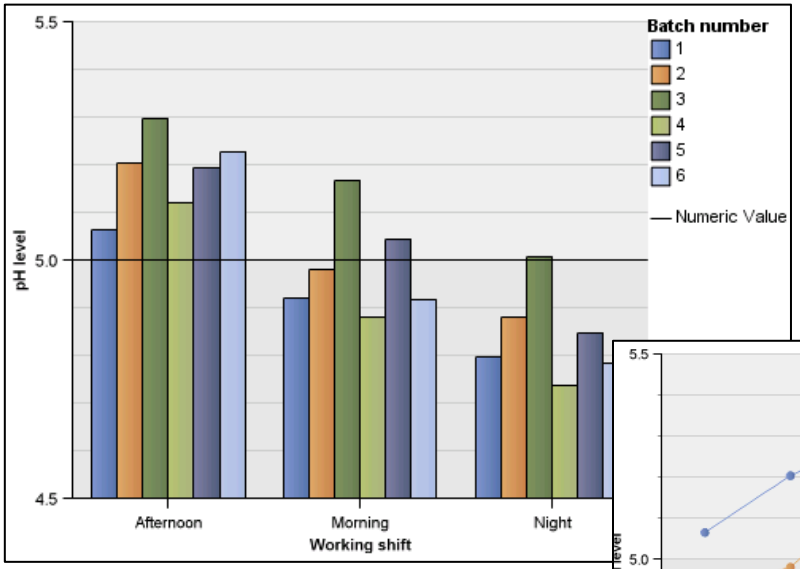
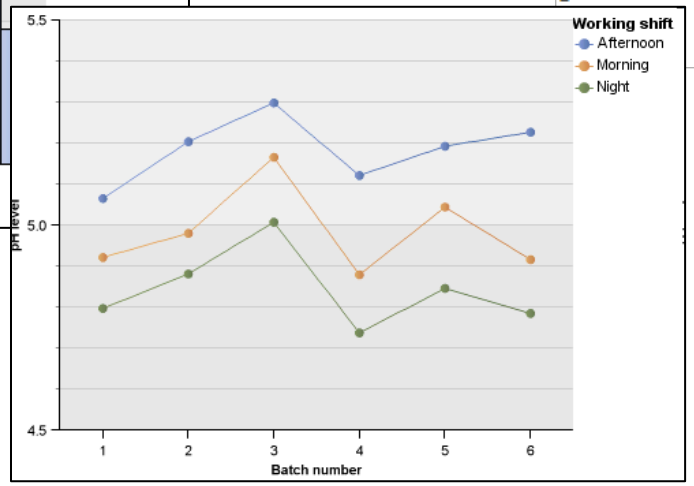
When Might Statistics Help?

BI can answer many questions, but is not well suited to some

"What manufacturing shifts cause products to fall outside of acceptable quality standards?"





Time of measurement	ID	Working shift	Batch number	pH level
1	1	Night	1	4.98
	2	Night	2	4.65
	3	Night	3	4.91
	4	Night	4	4.62
	5	Night	5	4.84
	6	Night	6	4.69
1 - Summary				4.78
2	7	Night	1	4.52
	8	Night	2	4.73

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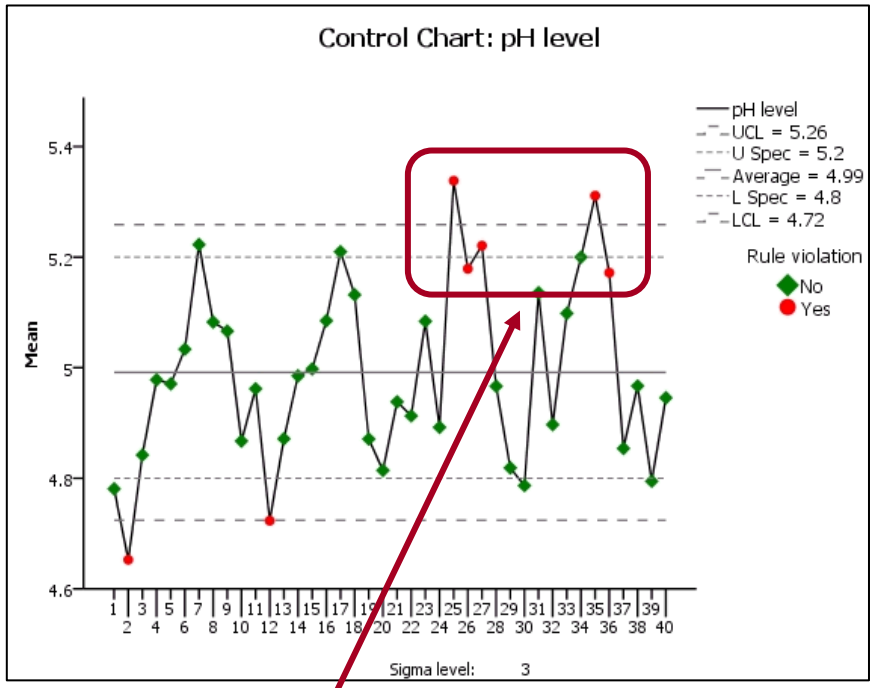
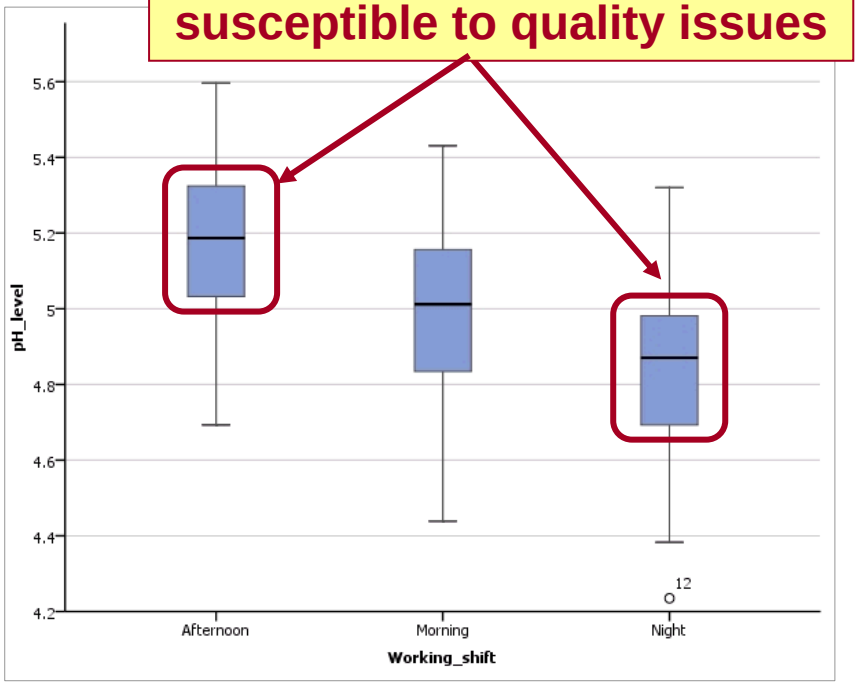
Extra Value through Statistics



Night and morning shifts are susceptible to quality issues



Quality standard were outside of their acceptable means on these occasions

Rule Violations

7 points violate control rules.

Time of measurement	Violations for Points
2	Less than -3 sigma
2	2 points out of the last 3 below -2 sigma
12	Less than -3 sigma
25	Greater than +3 sigma
26	2 points out of the last 3 above +2 sigma
27	2 points out of the last 3 above +2 sigma

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Use Cases – Where Statistical Reporting can help to better answer business questions?

Finance

- How accurate and reliable is our current forecast and targets based on historical trends?

Human Resources

- What is our distribution on employees nearing retirement? What's the month-over-month trend?

Sales and Marketing

- What is the correlation between marketing activity and same quarter sales? Which activities are more effective in leading to higher sales opportunities?

Operations

- What products and shifts are 3 sigmas outside of our quality control standards? What is the month-over-month trend?

IBM Cognos 10 Statistics

Demonstration

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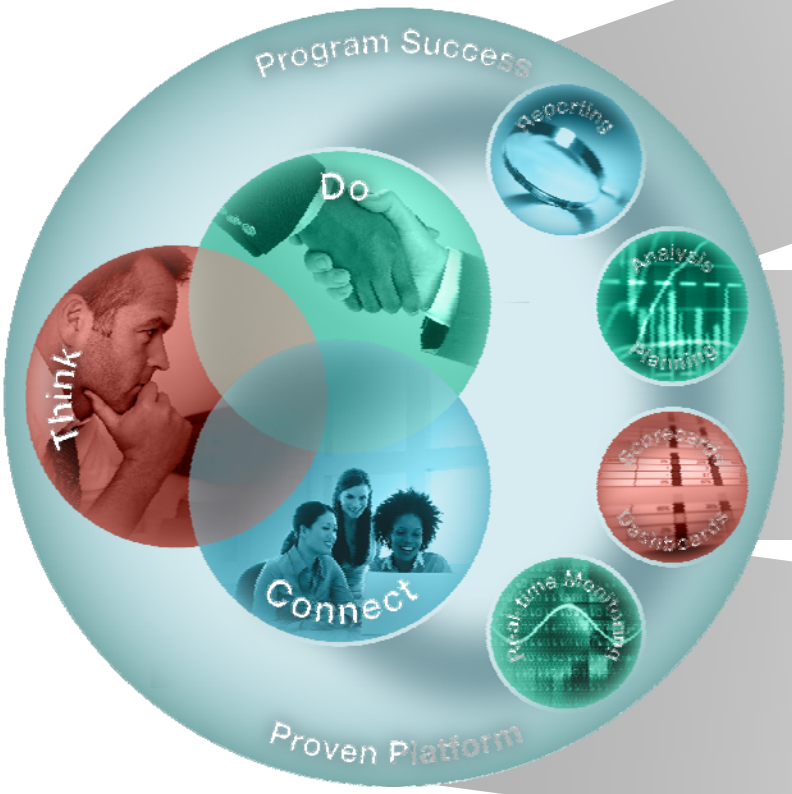
Cognos 10: Intelligence Unleashed

Smarter Decisions. Better Results



Meet the needs of an evolving workforce

Step up team decision making

Accelerate business impact

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