The Five Types Of Analytics

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Session Agenda

- Why business analytics?
- Review the different types of analytics & common misconceptions
- Review the delivery methods for the operational users
- Propose holistic approach to expand enterprise analytics
- Value of integration and data quality to analytics
- Discussion
In 1900 W.S. Gossett, an analyst at Guinness invented a distribution to analyze production processes and employment problems.

- Guinness decided to keep it a trade secret.
- He published it under the pseudonym Student. Hence the name of this popular analytic method became Student’s t-test.
Analytic Quiz
Who made a killing by applying it on a massive scale?

Quality Management: Six Sigma
Case in Point: Impact of Six Sigma Implementation at GE

"We want to change the competitive landscape by being not just better than our competitors, but by taking quality to a whole new level."
— Jack Welch

Results achieved over the first two years (1996-1998)

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<td>Earning per share increased</td>
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<td>Operating margins increased</td>
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Four Types of Analytics

Information, Analysis And Decisions: The Basics

- Diagnostic Analytics: Why Did it Happen?
- Descriptive Analytics: What is Happening?
- Predictive Analytics: What is Likely To Happen?
- Prescriptive Analytics: What Should I Do About It?

Analytic Excellence Leads to Better Decisions
Information Builders’ View
The Five Types of Analytics

- Descriptive
- Diagnostic
- Foresight
- Insight
- Predictive
- Prescriptive

Skills Levels vs. Value

- Information: Hindsight
- Insight: Optimization
- Predictive: Foresight
- Prescriptive: Optimize
The Five Types of Analytics
It is not about more data! It is about deeper look!

- Core Analytics
- Advanced Analytics
The Five Types of Analytics
Descriptive: What Happened?

- Total Sales: $5,087
- Operating Cost: $5,580
- Issues: 7
- Processes Affected: 621
The Five Types of Analytics
Descriptive: What Happened?

- Too many reports in the enterprise
- Too many ad hoc requests to analysts and IT
- Why?
- Once you see, you crave understanding
- What? leads to Why?
- Static reports are the primary cause for this.
Descriptive Needs To Merge With Diagnostic
Information on Demand with Greater Interactivity
The Five Types of Analytics
Diagnostic: Why did it happen?
The Five Types of Analytics
Diagnostic: Why did it happen?

Getting to the root cause with OLAP
The Five Types of Analytics
Diagnostic: Why did it happen?

“I think I speak for all of us when I say what in God’s name are you talking about?”
Diagnostic Analytics
Needs To Be Extended To Operational Employees
Many business analysts feel this way when learning from the data!

WHY?
The Five Types of Analytics

Discovery: Learning from the data

Very often analysts have the wrong approach and tool!
Insurance Claims Analysis
Interactive Data Visual Analysis

Canadian Insurance Claims Frequency Analysis

### Claim Frequency per Term Name
- New
- Renewal

### Claim Frequency per Policy Type
- Medical
- Liability
- Comprehensive
- Home
- Injury

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The Five Types of Analytics
Predictive: What is likely to happen?

“Lies, damned lies, and statistics.”
Mark Twain

Organizations are skeptical and suspicious of the statistician!
The Five Types of Analytics
Predictive: What is likely to happen?

“Data don’t make any sense,
we will have to resort to statistics.”

- Bad statistics can cause the data look good!
- 50% of scientific articles use wrong methods!
The Five Types of Analytics
Predictive: What is likely to happen?

- No gut feelings anymore
  - Rain starting at 3:45 PM

- Admireable accuracy
  - Finishes at 4:12 PM

- Analyst hedging
  - Either today or tomorrow

Researchers cannot often explain the probability of things happening and resort to explanations that do not make sense.
Discovery & Predictive Analytics Simplified
They have different objectives, but the concepts are the same

- Detect trends
- Detect clusters
- Detect exceptions
The Five Types of Analytics
Prescriptive: What is the best course of action?

With too many choices, which one is the best?
The Five Types of Analytics
Prescriptive: What is the best course of action?

Can we simulate various outcomes to choose the best?
The Five Types of Analytics
Delivering Analytics to Operational Users

1. There are five discrete types of analytics
2. Each type has various analytic methods
3. Analysts buy tools
4. Advance analysts buy more specialized tools
5. Tools perform each type of analytics in a separate discrete step
6. But many decisions require a combination of different types and methods
7. Hence, the need of operational analytic applications

This pricing app includes:
- Descriptive
- Diagnostic
- Predictive
Building Enterprise Analytics Strategy
Holistic Approach: Match Data Types, Tools, Skills, & Delivery

Depth of Analytics

Unstructured Data

Structured Data

Search based Applications

Search Query

Text/Word Analytics

Sentiment Analysis

Predictive Analysis

Data Discovery

Ad Hoc Query & Analysis

Performance Metrics

Dashboards

InfoApps

Report & InfoDocuments

Breadth of Analytics
Data Discovery
Combining Machine Learning with Visualization
Data Discovery
Combining Machine Learning with Visualization
Data Discovery
Combining Machine Learning with Visualization
The Role of Integration & Integrity in Analytics
Cost, Insights, Accuracy

Data Source Integration and Quality Automation

Insights, Accuracy, Timeliness

Cost

Value

Integration

Integrity

Information Builders

Intelligence
Thank you