COMPETING ON ANALYTICS

Biggest Challenges: What are the biggest challenges your firm will face. How can you collect data so that you can have greater information and compete better than your competitors.

Data is Not Always Numbers: Data analysis doesn’t just apply to numbers and spreadsheets. Data is any type of quantative or qualitive information to benefit your business.

Rational Expectations: It is difficult to profit from widely anticipated or predictable, events, since rational actors would already have taken the actin necessary to arbitrage any such opportunities.

Public Enemies: Perfect competition and perfect information are a business’s greatest enemies. Look for industries, firms, and products that are tough to replicate and gather information.

Throttling: Regulating the flow of traffic or service, which may be unfair to customer but provides economic value to company. Ex: Netflix prioritizes shipping to infrequent customers because they are more likely to terminate service than frequent customers.

Analytical Competitors: Anheuser-Busch, Mars, P&G, CEMEX, John Deer, Spring, O2, Bouygues Telecom, Barclays Bank, Capital One, Royal Bank of Canada, Progress Casualty, WellPoint, AstraZeneca, Solvay, Vertex, FedEx, Schneider National, UPS, Harrah’s Entertainment, Marriott, Amazon, JCPenny, Wal-Mart, Google, Netflix, Yahoo!

Decision Support Systems: Analytical systems that provide insight to re-occurring business decisions. Key personnel should always have the power to override the decision if they have sound reason that wouldn’t have been factored into the analytical work.

Successful Traits of Analytical Companies: clear and consistent strategy, enterprise wide, adopted by senior management, company made a serious commitment/gamble on analytical approached business.

Customer Goal: Data analysis should enable companies to discover, target, and serve the most profitable customers while leaving the less profitable customers to their competition.

Successful Analytics Strategy: should be hard to duplicate, unique, adaptable to many situations, better than the competition, renewable.

Chief Objection to Analytics: Lack of understanding on what it can do and the difficulty to implement the systems.

Activity Based Costing: Allocating costs by different objects of the business.

Bayesian Inference: Predicting revenues.

Optimization: Determining the efficient allocation of limited resources.

Constraint Analysis: Using constraints to test feasible solutions.

Experimental Design – A/B Testing: Using two groups to test two different variations of an object to see which is preferred.

Monte-Carlo: Assess the probability of certain outcomes or risks.

Multiple Regression Analysis: How one variable affects another variable.

Neural Network Analysis: System is trained until it can identify one object from another object.

Textual Analysis: Analysis of the frequency, semantic relationship, and relative importance of terms, phrases, and documents in online text.

Source Mining: Reading books, websites, and articles and extracting sources to gain additional insight.

Surveying: Sending humans out to collect data manually.

Dashboards/Scorecards: Used to keep track of certain metrics in a company.

Implementing Analytics: Identify the questions you would want to know in order to best grow and develop your company, then institute programs and collect data to answer those questions.

Chi-Square Automatic Interaction Detection: Segments customers based on creating a tree based on statistically significant variables and continuing that tree.

Conjoint Analysis: Used to determine the main factors (such as price, time, quality) for a purchase.

Lifetime Value Analysis: Used to assess the profitability of a customer.

Market Experiments: Reaching out to customers via different channels and assessing which channel gains the most response.

Graph Modeling/Clustering: Mapping the relationships among objects.

Face-to-Face Meetings: Meeting with clients and competitors and listening to their problems, projects, etc.

Shadowing: Inserting yourself into your customers or competitors lives to see how they do things and what their real problems are.

Time Series Experiments: Follows a population for a period of time to determine how a variable affected them.

Skimming the Cream off the Garbage: Finding the profitable clients in a mess of risky customers.

Last Step Data Collection: Require customers, employees, or vendors to answer data analysis question immediately prior to receiving their payment or product.

Touch Point Management: Making sure you reach out to customers and employees in a way that provide them the most value in the least annoying way.

Capacity Planning: Identifying capacity and bottlenecks of an operation.

Data Mining: Using large information sources such as the internet to extract relevant data.

Demand-Supply Matching: Ways to insure that supply will equal demand and the point of shipment.

Location Analysis: Optimization of locations for stores, distribution centers, manufacturing, office, etc.

Modeling: Tool to help simulate events.

Routing: Finding the best path for transporation.

Scheduling: Creating the best flow of resources for work.

Strategic Focus: Most organizations focus on one or two areas for analytical competition.

Pitfalls of Analytical Competition: 1.Focusing too much on one dimension of analytics (ex: only using technology), 2. Attempting to do everything at once, 3. Investing in analytics that don’t drive business goals, 4. Investing too little in analytics, 5. Choosing the wrong problem, 6. Automated decision applications without careful supervision and human oversight.

Spreadsheets: 20% of spreadsheets have errors and 5% of cells are incorrect.

Online Analytical Processors (OLAP): Multidimensional array-based problem solving tools (spreadsheets with up to seven dimensions). Work with Data Cubes. Business Objects and Cognos are among the leading vendors in this category.

Swarm Intelligence: Observance of complex societies to create real-world simulations to understand system behavior.