GIVING ANALYTICS MEANING AGAIN

CLARKSTON CONSULTING

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When you hear the word analytics what do you think? If it conjures up a **litany of buzzwords** and software vendors, this is for good reason. Software vendors are eager to capture some of the expected $170 billion that companies are projected to spend on analytics this year. Through 2020 corporate spending on analytics is expected grow about 12% per year and exceed $210 billion.

Traditional consumer packaged goods (CPG) companies are at real competitive risk by the growth of digital first competitors and the effects of disruption in the retail channel. Increased analytical capabilities are no longer just a wish list item but have become the new strategic arms race. The battle cry of analytics has been sounded so loudly and often that the word itself has lost its meaning. Can you articulate what analytics means for your business?

In this two-part series, we first explain how CPG companies can grow their analytical capabilities and provide an organizational foundation to achieve real business benefits. To help your organization improve your analytics skills, we define the different analytical capabilities and the associated technical and business skills and techniques required to achieve maturity in the area.

In part two of our series, *Don't Ignore the Hard Stuff in Analytics*, we discuss the real, hard work of analytics. If it were as simple as deploying capabilities, organizations would already be reaping the benefits. A recent survey of executives finds that over 85% have taken the steps to create a **data-driven culture** but only 37% say that the efforts have been successful. Companies must also look at the governance, organizational structure, and process capabilities that an analytics-centric organization must employ. By now, CPG companies should have learned their lessons from Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Trade Promotion Management (TPM) projects. Deploying capabilities without the correct underlying foundation provides sub-par results with a higher long-term cost.

DEFINITION OF ANALYTICS CAPABILITIES FOR CPG COMPANIES

Most CPG companies have been using advanced analytics for at least the past decade. We enhance **Gartner's Analytical Capability Model** on the levels of analytical capabilities, by providing specific business and

technical capabilities necessary to optimize your business. We also provide context on how those capabilities are used within CPG.

DESCRIPTIVE ANALYTICS

Gartner describes this initial analytical capability as the examination of data or content to answer the question *"What happened?"* Descriptive analytics is an ornamental way to say reporting. The CPG industry has spent a lot of time and money over the last few years to improve reporting capabilities.

Companies have focused on descriptive analytics by building daily sales reports, monthly manager reports, balanced scorecards, KPIs, dashboards, or studying retail data. Capabilities around descriptive analytics can also be found in data warehouse projects, visualization tools like Tableau, and real-time analytics reporting initiatives. Focusing on key analytics competencies is substantially important to grow the business and technical capabilities to support advanced analytics. Several of the critical abilities for a CPG organization looking to implement advanced analytics are defined below:

- **Metric and Goal** - Capabilities around developing metrics to achieve a goal is a business skill that determines the most important information for the organization or particular function or particular process.
- **Business Intelligence (BI)** - Business intelligence is an umbrella term that encompasses the processes and platforms that perform the collection, integration, display, and distribution of data and information.
- **Data Management** - Data management includes practices and procedures that manage data through its lifecycle. Some organizations may include higher level data governance structures and activities in their definition of data management capabilities.

DIAGNOSTIC **ANALYTICS**

Gartner describes this next level analytical capability as the examination of data or content to answer the question *"Why did it happen?"* Most CPG organizations are metric-driven with many processes and functions managed by exception. When those exceptions occur, special analysis is initiated to understand root cause or drivers. Over the past few decades, as more business intelligence platforms have begun to integrate diagnostic capabilities into their core offering, it has become standard to have capabilities like drill down or drill through.

However, diagnostic analytics has seen so much growth because of the rise of the business analyst role. Business analysts have moved beyond the finance organization and into a variety of functions including supply chain, sales, and IT. Initially, responsibilities may have included reporting but with modern BI automation capabilities analysts have been freed up to perform more detailed analysis. This also marks the initial shift of control of analytical capabilities away from IT and into the functional business units. The business and technical capabilities list below, along with those from descriptive analytics, are required to have capabilities in diagnostic analytics.

- **Business Analysts** - Data and business experts within a given domain or function are business analysts. Charged with identifying root causes and drivers to business performance within a function, they most likely also have duties that align them to data management and governance.
- **Data Self-Service and Access** - Expanding the BI platform from only exposing metrics and reports it is now necessary to expose the underlying raw data so additional and detailed analysis can be performed. This transition of data being freely available to business groups for independent analysis is a major shift in an organization's analytics maturity.
- **Correlations** - Correlations are conducted to identify mutual relationships or connections between two or more measures or metrics.
- **Data Mining / Data Discovery** - The process of discovering meaningful correlations, patterns and trends by sifting through large amounts of data stored in repositories is called Data Mining or Data Discovery.

- **Drill Down / Drill Through** - Provides a method of exploring multidimensional data by moving from one level of detail to next. Drill-down levels depends on data granularity. Drill through providing instant access to reference or associated data like being able to easily move from invoice information to sales order information.
- **Data Governance** - Strategies, policies, accountability and framework to govern various forms of data. Data governance often extends beyond data management and includes data quality, data architecture, and security.

PREDICTIVE ANALYTICS

Gartner describes this advanced analytical capability as examination of data or content to answer the question *"What is going to happen?"* or more precisely, *"What is likely to happen?"* In the CPG industry, most predictive modeling tools are held within specific tools sets and functions like A/B analysis in marketing tools, sales, and financial analysis in Financial Planning and Analysis (FP&A) tools, or even through MRP within your ERP applications.

The simplest form of predictive analytics is forecasting but it should include more robust analytical forecast techniques than simply adding/subtracting a few percentage points. Within CPG, most predictive analytics, outside of specialty tools, focus on predicting or forecasting operational metrics and then verifying them later with reports. However, most CPG companies under-utilize predictive analytics as a means to optimize operations today. Trade promotion optimization, marketing optimization, and supply chain optimization all have specialized tools but the predictive analytics capability can be applied to all operational and support functions.

There are different levels of predictive analytics capabilities that can be achieved by CPG companies. Basic forecasting can be achieved with only some of the skills below, but comprehensive insights and optimization capabilities require all of the skills and techniques mentioned.

- **Forecasting** - Forecasting is the process of making predictions of the future based on past and present data and most commonly by analysis of trends data.
- **Regression Analysis** - Process that helps understand how the typical value of the dependent variable changes when any one of the independent variables is varied. For example, regression analysis looks at a dependent variable such as the factor you are trying to predict (ex. monthly sales) and compares to an independent variable such as factors you suspect have an impact on the dependent variable.
- **Data Science** - Data science is an analytical and decision modeling skill required for discovering relationships within data and detecting patterns. Data management skills

are required to build the relevant dataset used for advanced analysis.

- **Predictive Modeling -** To predict future or past events based on various analytical methods to establish the probability of an outcome.
- **Pattern Matching -** The act of checking a given sequence of tokens for the presence of the constituents of some pattern is pattern matching. In contrast to pattern recognition, the match usually must be exact.
- **Data-to-Insight -** The process of creating potential insights that answers complex business questions, and working backwards to identify the required datasets, is called data-to-insight. The most complex business challenges require cross-functional collaboration to create an analysis plan that identifies and integrates datasets, builds and cleanses models, and iteratively tests the results to answer the business question. Organizational collaboration and team work are required as it is most likely to be working across multiple business stakeholders and analytical functions.

PRESCRIPTIVE **ANALYTICS**

Gartner describes this analytical capability as the examination of data or content to which examines data or content to answer the question *"What should be done?"* or *"What can we do to make something happen?"* Currently, only about 10% of all companies are using prescriptive analytics. Very few of these companies are in CPG, as prescriptive analytics are more commonly leveraged in healthcare, banking, or digital first companies.

Larger and more sophisticated CPG companies have been toying with predictive analytics for years. Many CPG companies have enormous amounts of customer, consumer, competitive data and insights but the industry has gained very little from this information so far. This is largely because the organizational skills, structure, and analytical processes are lacking in CPG organizations. We cover how to fix these issues in the second part of this series, Don't Ignore the Hard Stuff in Analytics.

There are 3 levels of prescriptive skills and analytics that

can be achieved. The first and most important for CPG companies is focusing on how to transition from insights to actions. This is the current stumbling block for most analytical initiatives but it also the most important to providing business benefit. The second level of skills and techniques can be developed in prescriptive analytics is from machine learning to heuristics. These techniques and skills can help with providing more complex actions and refining the business outcomes. The third and final level pulls components from all analytical capabilities and skills to provide complex variable and decision automation.

Consider these key capabilities definitions required to achieve the benefits from predictive analytics.

- **Insight-to-Action** - A defined process and method that starts with insights that have been gained with predicative capabilities and converts them into actions to drive real business benefit.
- **Machine Learning** - Machine Learning is a branch of artificial intelligence based on the idea that machines should be able to learn and adapt through experience. There are several common applications of machine learning including web search, spam filters, ad placements, and credit scoring.
- **Neural Networks** - This artificial intelligence mimics the learning process of the brain in order to extract patterns from historical data technology to work for you.
- **Graph Analysis** - By mapping relationships among high volumes of highly connected data, graph analysis unlocks more insightful questions and produces more accurate outcomes.
- **Heuristics** - Heuristics is an approach to analysis that accounts for the randomness of business and the competitive marketplace, creating a model that more accurately reflects the scenario at hand.
- **Complex Event Processing (CEP)** - CEP is event processing that combines data from multiple sources to infer events or patterns that suggest more complicated circumstances. The goal of complex event processing is to identify events such as opportunities or threats and respond to them as quickly as possible.
- **Decision Automation** - An extension and combination of most prescriptive capabilities that automates complex decision making within a process for optimized results is the definition of decision automation.

THE WORD ANALYTICS DOES HAVE MEANING

A clear understanding of the core analytical capabilities and the underlying techniques and skills is essential for building a mature analytics organization. Time is ticking. Your competitors and industry disruptors won't wait for you to catch up. CPG organizations have spent the last 50 years perfecting Descriptive Analytics but it is time to fast-forward and update skills, processes, and your organization to deploy these new capabilities. Stay tuned for our next post, Don't Ignore the Hard Stuff in Analytics, for the how-to guide to realizing the business benefits from analytics.

About the Author

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Tim Plummer has been with Clarkston Consulting since 2003 and is a leading contributor to the governance and analytics practice. He works with clients in the consumer products and life sciences industries designing approaches to better align IT capabilities to the broader business strategy. Tim has a strong passion for helping companies intelligently use information and preparing IT organizations for the future.

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ANALYTICS BUZZWORDS

BUZZWORD	CATEGORY	DEFINITION
Advanced Analytics	Predictive, Prescriptive	Applying sophisticated mathematics to the right subset of data in order to make predictions about what is likely to happen next (encompasses predictive and prescriptive)
Big Data	Diagnostic, Predictive, Prescriptive	High-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation
Clickstream Analytics	Descriptive, Diagnostic	The process of collecting and analyzing data about which pages website visitors visit, and what order they visit them in. Clickstream analysis is split into two levels: traffic analysis and e-commerce analysis.
Data Lake	All	An information storage concept that is used to house disparate forms of data in its native format.
Data Science	Predictive, Prescriptive	An array of analytics and statistical skills with clear entrepreneurial thinking and vision
Geospatial Analysis	Descriptive	Overlay of data on geographical maps to help users better understand the results of big data analysis
Intelligent Decision Automation	Prescriptive	The combination of AI and automation to take aboard analytics information and make decisions based on KPIs
Internet of Things (IoT)	Diagnostic, Predictive, Prescriptive	The network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment
Real-Time Data	All	Access to analytics within moments of their occurrence, allowing almost instant reactions from organizations to their customers and events
Sentiment Analysis	Prescriptive - Heuristic, Machine Learning	The process of computationally identifying and categorizing opinions expressed in a piece of text, especially in order to determine whether the writer's attitude towards a particular topic, product, etc., is

		positive, negative, or neutral.
Social Media Listening	Descriptive, Diagnostic, Predicitive	Identify and assess external mentions of your company, employees, and brand by instituting a processes to scan social media platforms.
Supply Chain Visibility	Descriptive, Diagnostic, Predictive	The capability for a manufacturer to track and trace all parts, components, or products in transit through to their final destination.
Uplift or Persuasion Modeling	Predictive	The process of conducting comparisons and predictive modeling (A/B analysis) to evaluate which subject responds best to certain treatments.
360 View of (Market, Customer, Consumer, Partner)	Descriptive, Diagnostic, Predictive	A holistic approach to capture and display all available information on a subject. Advanced options could combine in segmentation, social media listening, and behavioral analysis