TREXIN INSIGHT PAPER

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ANALYTICS

Separating Signal from Noise to Get True Business Value

The word analytics conjures up many perspectives as the hyperbole around "big data" and the opportunities for unprecedented insights into human behavior continues to gather momentum. While it is true that analytic techniques, and the supporting computational power of machines, continue to improve, Trexin recognizes that the foundation of a successful analytics program is recognition of what insights are being sought, why they are valuable, and what actions to take given the results.

The word analytics simply means the systematic computational analysis of data or statistics. It does not, by itself, imply business utility or value from analysis. In fact, it is not uncommon for analytics to obscure rather than reveal value or, to paraphrase Mark Twain, be used "as a drunkard uses a lamp post – more for support than illumination." Business leaders who understand how to get real value and insights from analytics – illuminating the opportunities and capturing them through an integrated foundation that provides the capabilities, strategy, and actions to measurably improve business outcomes - will find significant new opportunities for revenue growth and margin expansion.

Analytic methods span a wide spectrum of techniques whose purposes range across forecasting outcomes (predictive analytics), identifying relationships and similarities (classification and clustering), and characterizing a population (descriptive statistics). Moreover, there are a vast array of methods, each of whose utility is confined to a domain based upon the structure of the underlying data and the type of response or insight to be elicited. These methods span both parametric and non-parametric methods which are distinguished by whether the analyst using the methods knows the form of the underlying model a priori (or at least has a hypothesis as to the form of the model). Methods also vary by whether they use directed or undirected search, based upon whether the analyst is seeking to understand a specific phenomenon or, alternatively, is looking for the data to reveal unknown patterns that could be of value, as is common in many data mining techniques.

Regardless of the approach, analytics is fundamentally the separation of signal (meaningful patterns) from noise (random and uncorrelated data). Quite often the vast majority of content in any given data set is noise – making the identification of interesting signals particularly challenging.

Experts, whether called statisticians or data scientists, specialize in addressing these challenges through the appropriate application of techniques to a particular problem or opportunity domain to separate signal from

noise. Statisticians and data scientists often have to perform multiple cycles of data hygiene and modeling techniques to extract the most valuable signals from a large and/or complex set of data. But business executives have key roles to play in successfully exploiting analytics that include:

- Articulating the purpose, objectives, and potential value justifying an investment in analytics (e.g., reducing fraud, improving investment performance, enhancing sales and customer response, improving health outcomes, eliminating waste)
- Identifying the insights or responses being sought (what must be known to capture the value)
- Developing an action plan to exploit insights gained from analytics
- Overseeing the acquisition, organization, cleansing, and structuring of a relevant set of data for analysis
- Directing the efforts of experts so they can bring the right methods to bear in revealing the insights being sought
- Implementing business strategies and actions based upon the results of the analytics to capture the revealed performance opportunities

Most importantly though, successful analytics requires that business executives instill and communicate the value of analytics as an investment in the business, not simply a cost of doing business. The former drives the capture of financial returns, whereas the latter simply results in additional reporting. Skilled analysts, backed by a well-structured analytics strategy, can usually gain the insights needed for business improvements – but only business leaders can ensure that the insights are exploited in the marketplace to gain competitive advantage and improved performance.

This TIP was written by John Elliott, who specializes in information management and analytic techniques.