

A BPM Partners White Paper

Situational Intelligence: The Key to Agile Decision Making

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February 2010

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Executive Summary

Business decision-makers, as a general rule, face only a handful of strategic choices each year, but they may need to make hundreds of small tactical decisions during that time. Often, the majority of these tactical decisions are imposed under time pressure, with great difficulty getting the relevant facts, yet they are important because they bear directly on the bottom line.

Raw transactional data and standard reports are usually not sufficient support for “agile” decision-making. More often than not, the intelligence that decision-makers need is hard to access or arrives too late. Commonly, it is summarized at too high a level to support the frequency and rapidity of tactical decisions that managers must make.

These decision-makers require rapid, flexible access to a large amount of data in combinations and sequences that tend to change with each new situation. They need the capability to quickly and easily ask the next question: to explore, sift, visualize and mine data, to discover anomalies and outliers and identify the connections between results and their drivers -- all within just a few moments.

They also need to adjust immediately as new factors come into play and different entities enter the picture. New circumstances need to be evaluated and different decisions have to be made. The business intelligence (BI) that decision-makers rely on needs to morph just as quickly.

Situational intelligence is a label applied to BI that comes with the ability to rapidly evaluate history and present circumstances, even as they are changing, with a focus on the data that is relevant to a particular decision. The latest generation of BI software can deliver situational intelligence and when that is joined with the ad hoc nature of human thinking, it creates a potent management capability for high-volume, fast-changing businesses.

Introduction: Situational Intelligence and Visual Data Mining

Enterprises that require a constant series of tactical decisions to adjust, react, fix, and take advantage of changing situations have one thing in common: they need situational intelligence.

As the name implies, this means that each decision-maker needs the details that play into each fresh problem. Rather than a corporate overview report, the manager who must figure out whether a specific supermarket should get a 5% discount this week on 16-oz. cola has to answer a whole group of questions: What is the history of past promotions of cola across all supermarkets in the same neighborhood? What results came from all 16-ounce beverage promotions in the city? What is the profitability history after promotions ended? What about during the promotions themselves? Did cola volume at surrounding competitors drop during the promo – was there more demand or did it simply switch between stores? Did sales of other beverages drop during the promo? What are current margins on this cola in 16-ounce versus other sizes? And so on.

The business intelligence that results from being able to rapidly evaluate history and present circumstances, even as they are changing, is called situational intelligence (SI). The ideal form of SI is to present the right facts to the right individual at the moment they are needed.

The latest generation of BI software can deliver situational intelligence and this capability meshes well with the ad hoc nature of human thinking. One approach is to present numbers. Another is to present pictures showing data and trends. This is referred to as visual data mining (VDM).

VDM can play an important role in situational intelligence by making it easier for decision-makers to detect structures, patterns, trends, exceptions and relationships.

The following excerpts are from a seminal paper about VDM by Pak Chung Wong of the Pacific Northwest National Laboratory*:

“... The (visual data mining) approach integrates the human mind’s exploration abilities with the enormous processing power of computers to form a powerful knowledge discovery environment that capitalizes on the best of both worlds...”

... The methodology is based on both functionality that characterizes structures and displays data and human capabilities that perceive patterns, exceptions, trends and relationships...

... Visualization supports humans in dealing with decisions that can no longer be automated. This results in a tightly coupled visual data mining environment that truly takes advantage of the strengths of all worlds...”

* Pak Chung Wong, “Visual Data Mining,” *IEEE Computer Graphics and Applications*, Vol. 19, No. 5, Sep 1999.



VDM is a core capability of business performance management (BPM). BPM systems that enable data discovery are effective in resolving two problems that managers commonly face: inadequate information, and too little time.

Current Information Needs and Trends

Executives in any modern organization in today's economy need to understand the linkages between business activity and added value, in the form of profit and volume growth, and time and /or money saved through more efficient execution.

As organizations grow, however, these connections become obscured by process segmentation and the sheer volume of transactions. Reduced visibility requires greater caution in decision making which, in turn, means sluggish response to change, more guesswork at decision time and lost productivity.

Let's consider the following example. An important customer is tapping her foot impatiently waiting for your field sales executive to decide on terms for an upcoming promotion. She wants a 10% discount, but will satisfying this buyer hurt your margins during the promotion and negatively impact profitability after the promotion is over?

Without the ability to instantly visualize the history behind this situation – this customer, product offerings, discount levels – the sales executive is stuck between the proverbial rock and a hard place: too low a price without offsetting growth will hurt profits. Too much discounted growth may hurt future profitability. Too stingy a discount may cost the customer relationship and competitive position. What to do?

The key difference between traditional BI and VDM is that, with visual data mining, both the substance and form of intelligence is determined by the end user, in real time. BI software with VDM capability allows the executive to immediately call out the complete history of this unique customer, product set, and event terms. Managers can visualize the growth and profitability patterns of different product and price combinations, customer buying behavior, consumer demand and product price elasticity for this and other similar customers.

The result is a faster and more precise calculation of likely outcomes and decisions with greater odds for success.

Examples of Achievable Results

Golden Flake Snack Foods of Alabama is one of the larger snack food makers in the US, with over 170 SKUs and 1,000 employees spread across twelve states. A classic high-volume enterprise, its managers face a never-ending stream of rapid-fire decisions.

The company implemented a BPM system to track sales, returns, and the effectiveness of promotions and new products. This software is effective in allowing managers to search for pockets of new opportunity.

The same system serves up reports that Golden Flake's customers request, such as unit volumes and revenues by SKU. In other words, it allows customers to analyze the same information and search for their best product mix. To those who would ask if such detailed scrutiny is a good thing, the answer is probably in this question: would you prefer that your customers spend time examining your offering, or that of your competitors?

As one example of how Golden Flake benefits from this solution, it uses it to track the penetration and profitability of new product introductions, and to evaluate trials and retrials of new products.

Visual data mining is particularly effective in forensic applications, such as detecting fraudulent or abusive billing and wasteful usage. More than ten counties in New York State currently use the same VDM application to spot Medicaid fraud or abuse. This system draws on multiple data sources, allows extremely rapid queries, scales to billions of data rows, and allows interrogation of transactional history from any dimension. The Chief Fiscal Officer of one county noted, "Because the system is so flexible, it allows the operator to go off in directions that maybe weren't expected when the day began...it allows, even encourages, normal human inquisitiveness."

That inquisitiveness is the key ingredient in outfoxing criminals and finding system abusers, but it needs to be unleashed with effective tools. Data mining software magnifies the human ability to detect patterns and anomalies. This is key to solving tactical problems and spotting opportunities.

Conclusion

There is little doubt that companies with improved analytic capabilities can better weather the sharp slowdowns in some industries, and be better positioned for the upturns that follow. Agile, fast decision-making is needed to handle a nonstop stream of situations that cannot be precisely anticipated. This is the hallmark of high-volume, fast-moving businesses. Decision-making under these conditions requires situational intelligence, for rapid understanding of specific scenarios involving multiple factors.

BPM and BI systems are available today which can support performance management in near real-time, with access by non-technical users across the company and at both senior and line management levels. The best-suited of these solutions open up the capability for data discovery, or free exploration of data across multiple dimensions to find root causes, explain variances, and detect patterns and opportunities. Visual data mining, or VDM, is one way to carry out data exploration and exploit situational intelligence.

While SI is applicable across many kinds of businesses, a software vendor's familiarity with a specific industry or vertical market should be a significant priority in the evaluation and selection of BI / BPM systems, if a software vendor has built industry best practices into its solutions. Packaged best practices can help decision-makers to dramatically improve their ongoing performance management. Vertical market knowledge, built into a BI system, is a strong complement to situational intelligence.

Unpredictable learning is made possible by robust data discovery. Situational intelligence, gained through flexible reporting and analysis and/or visual data mining, can bring major improvements in profitability by supporting the thousands of small, daily tactical decisions that managers make.



About Salient

Salient Management Company offers business and government a new solution for efficient management. Drawing on diverse data from multiple sources, our technology measures how business activity creates value, quality, financial efficiency, productivity, while its user interface eliminates barriers to the use of this knowledge for continuous process improvement.

Salient's technology platform is a super scalable in-memory OLAP system for activity based value scoring. Its user interface is a graphical toolbox for interactive, stream-of-thought data mining, visualization and root cause analysis. Overall, the technology enables non technical knowledge workers to evaluate process behaviors rapidly, eliminate waste and optimize outcomes continuously.

Founded in 1986, Salient today serves more than 35,000 users in 53 countries. For more information, visit www.salient.com.