BearingPoint and HyperCube: Taking Analytics beyond Statistics with Asset-led Consulting

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European business consulting firm BearingPoint announced it has acquired 51% of French analytics vendor effiScience. effiScience's software product, HyperCube, helps organizations identify causal links between different factors as represented in a dataset, and presents these links as business rules in a simple format to an end user. HyperCube is based on 15 years of research in the applied mathematics department of the Ecole Polytechnique, Paris, and effiScience has engaged with around 170 clients, the majority of which are in Europe.

How Does HyperCube Work?

HyperCube is a mathematical algorithm and rule generation technology that offers an explanation of the driving factors behind a complex mathematical issue or a scientific phenomenon, by identifying the sets of simultaneous conditions that yield a higher frequency of a specific occurrence. The output is a set of rules that are expressed in terms of the variables or dimensions in the dataset, and are easily understandable by end users.

HyperCube's customers are in financial services, insurance, retail, and healthcare. An example of using HyperCube in insurance: the customer wanted to find out the factors that affected attrition of life coverage. The factors were found to be customer age, number of children, number of bank accounts, marketing segment, and gender.

Another example comes from retail: HyperCube's customer wanted to discover which factors affected the sales performance of their retail stores. HyperCube found the affecting factors to be the location (which all retailers know is important) and a more surprising one — the length of shelves accessible to and holding products aimed at children.

The use-cases for HyperCube in healthcare are focused on clinical trials and diagnostics.

In addition to the algorithm, HyperCube's IP is in the form of industry-specific business rules developed for customers and productized.

The technology is non-statistical, meaning it does not take a sample and use algorithms to extrapolate in order to validate a hypothesis. Instead, it takes input from a large volume of data and outputs the results from the data. This means that all data is taken into account, in contrast to statistical techniques where outliers may only have minimal effects on the results. Conversely, this can be a disadvantage, as if an occurrence is not represented in the data, then this occurrence will not form part of the output rules, so it is important to input as complete a dataset as possible.

The lack of need for a hypothesis is another advantage of HyperCube over statistics. HyperCube exposes the rules and dependencies that are indicated by the data, and is not tied to any previously held view. Statistics, on the other hand, test data to see whether it proves a specified scenario.

HyperCube is delivered via the cloud and BearingPoint will deliver it as a product-based service. The full service will encompass defining the business issue, process mapping, and data collection, all prior to the HyperCube design and results generation, and impact analysis afterwards.

IDC Analysis

Now is the Time for Statistics… But Are We Ready to Go Beyond Them?

At first sight, the name HyperCube looks like old-style OLAP (cube-based) technology. However, this technology is postmodern — performing one of the functions of statistics while being based on a full dataset, and additionally being able to analyze without a hypothesis, is very powerful. Although "beyond statistics" is something of a challenging marketing message for non-statisticians — they need to know what statistics is to some extent before they understand what lies beyond it — the benefits of HyperCube over statistics are easy to understand and can be said to cancel this out. To understand statistics, users need to understand uncertainty; to understand Hypercube they only need to understand the data.

Data is a point that could also be a challenge, as many organizations that could make use of HyperCube may not have the data readily available. This is a key area where consultants can add value to analysis projects: defining and extracting the data that the tool needs to work from.

BearingPoint Acquires a Valuable Reusable Software Asset

In *BearingPoint Opens a New Chapter* (IDC #lcUK23067611, September 2011) we described BearingPoint as "a "good old-fashioned" consulting firm, focusing on local customer intimacy and selling customized services on a personal basis; it is thus positioned against "asset-based" consultancies that supposedly push pre-built solutions onto clients regardless of how well the solution fits the customers' needs. We followed this with: "While BearingPoint acknowledges a role for repeatable assets, we think it should embrace this more fully and make more of capabilities here." HyperCube definitely fits the role of a reusable asset and is thus a step towards implementing this recommendation. The ability to load and analyze data fits in the center of the consulting process and delivers a genuine value-add.

Finding the Sweet Spot for Business Analytics in the Cloud

As we explained in our recent *European Software Predictions 2012*, for business analytics, the cloud is not a panacea, because it does not solve the core challenges of business analytics implementations, which are to extract, transform and load data, and to achieve end-user adoption as a key element of decision-making processes. Where the cloud helps is to provide tools and storage capacity for short-lived projects or "analytic sandboxing", and high-scale processing power for data-intensive applications. HyperCube is one such application. Acquiring such processing power on an on-premises basis would be more complex, often more costly, and would typically require upfront ROI calculations. However, the ROI from analytics is often hard to predict in advance, although it becomes considerably easier once the system is deployed. The cloud significantly simplifies this.

Another benefit is the ability to prototype or "try before you buy". Increasingly, organizations using business analytics need demonstrable value from these systems before they pay significant amounts of money. The cloud will allow BearingPoint plenty of flexibility to use HyperCube for prototyping, presales and pilots; however, the company should evaluate how to deliver each option without giving the core value away for free. This means targeting use cases where the answer changes over time and as more data is added.

There Is Still Room for New Business Analytics Technology

Despite the relative maturity of many business analytics technologies, numerous new technologies are emerging and advanced analytics has a broad spread of these. In the past, statistical tools have been cumbersome to use, and the context in which to use the results has been hard for end users to fathom.

Vendors have wanted to push the use of statistical tools beyond the core data scientist audience for some time. However, the tools are time-consuming to use and it can take time to build and refresh data models, which leads to cognitive disassociation in multitasking end users (more so than in data scientists who are

only focused on data). Another challenge is how to explain the context of statistical data and how it should be used, where validity is constrained and when data cannot be taken as reliable. Generally, if end users can see data they want to use it. HyperCube is a better fit for many end users than traditional statistical tools. Added to BearingPoint's consulting expertise, the "two heads" could be considerably better than one. This is a great synergistic acquisition.