



Business Intelligence for the Health Care Industry:

Actionable Insights for Business Decision Makers

by Don Tapscott

Executive Summary

HOSPITALS FROM ACROSS the world are facing increased pressure to improve operations from multiple directions. Legal requirements, an aging population in many developed countries, and an ever-increasing need to be service-oriented are forcing hospitals to do more with less. Even with recent investments in information technology, much of the data has not been coordinated, analyzed or deployed to improve operational performance. What is needed is a new generation of business intelligence (BI) tools and applications designed with the health care sector in mind, capable of integrating cross- and inter-departmental processes and information. The resulting intelligence would enable hospitals to make better operating decisions, increase transparency, change business processes, and drive better overall performance. Those that learn to effectively harness the information generated by their IT systems will enjoy substantial productivity improvements.

1.0 Value Proposition

Countries around the globe may have different approaches in funding their health care systems, but one thing remains clear and constant: it is in everyone's best interest to have them operate as efficiently as possible. And hospitals are a classic example of an operational excellence challenge: human and capital resource intensive, high levels of variation per case, and low levels of "automation" (inversely, a high level of human intervention) require a proactive management, where relevant data can improve decision making. Margins per case, capacity utilization, bed occupancy, referral patterns and more can help hospitals and clinic managers do more with less.

Mr. François Lemoyne knows the situation well. He is the CFO and CIO of l'Hôpital Sacré-Cœur of Montreal, Canada:

"Outside of specific budget or funding initiatives, the majority of management's efforts are invested in the optimal management of the resources at hand. Our main objective is, with the resources we have available, to provide the general population with as high of a quality of service as possible. In order to deliver on that goal, it's clear to me that we need to have the pulse of the organization."

Mr. Bernhard Wieser, CIO of Schön Kliniken, a private hospital group with 12 locations in Germany, agrees:

"On average for the last year we maintained 98 to 99.9% utilization, meaning all our beds are more or less occupied by patients. Hence the number one priority for us is to understand who is coming in our hospitals and occupying our beds, what services they need and which they receive, and how long they stay. We have to provide the best care possible while managing the bottom-line."

In this paper, we discuss how advances in business intelligence are enabling improved decision making in the health care industry across three broad axes: simplicity and relevance, agility and integration.

Specifically, new interfaces and approaches to technology and business intelligence are empowering a wider array of staff and decision makers by providing relevant data within a user- and context-friendly interface. Through various hardware solutions and/or Web interfaces, data can now be delivered beyond administrative offices and directly to clinical staff who can make the most use of it. In turn, this access to increasingly "real-time" data provides a finer level of insight into data, resulting in more precise decision making and optimization. Further, by integrating BI within business processes and distributing it more widely, decisions can be made at the point of impact. But to ensure that the data can be trusted, a solid data foundation must first be established.

2.0 Simplicity and Relevance

Effective business intelligence is both simple and relevant: simple to allow a large number of users to access the information through an interactive, user-friendly interface—regardless of the type or source of information—and relevant so that users can employ it to address immediate issues and support business decisions.

2.1 Simplicity

The end goal of business intelligence is to empower decisions "at the point of impact"—in other words, the person who is the most adept at making a decision should have access to the most relevant information to affect change—be it an operational clerk ordering supplies or a nurse making patient priority decisions. To achieve this

level, information must be delivered in a simple way, in a form that is consistent with the business decisions it supports.

This new level of simplicity is required as business intelligence in hospitals and most modern organizations is reaching a wider audience. Says Wieser:

“Today we have approximately 70 users on the business intelligence system, mostly from the administrative departments. With the various projects we have in place, we are looking at rapidly doubling that number and reaching 140 members of our organizations, all the way to doctors, who now have access to simple CRM to understand and manage where their patients are referred from.”

As a natural consequence, as BI reaches a larger number of staff and users, the objectives have to evolve, as shown by the progression of users at the l’Hôpital Sacré-Cœur of Montreal:

“Our first dashboard was designed for senior management, and had high level reporting. But rapidly, we’ve allowed them to customize their dashboard to have data that was most relevant to them, all based on a common back-end. Then we gave a number of middle managers access to the same data, but they are not power users, so we have to make it simpler for them, and deliver the right data. A manager might want to know how many beds are occupied and for how long, while a doctor wants to know how many patients are waiting for a consultation. Same goes for analysts in production, statistics and clientele groups.”

Mr. Lemoyne also highlights some of the preconceived notions about delivering data that is most relevant and helpful, not just data that is easy to deliver with current systems:

“I have to stay agnostic to technology. I don’t start with software limitations and optimize—I start with a white sheet of paper, establish what is the ideal information to deliver to each specific role in the organization. Then our role is to deliver technology against that ideal.”

One simple to use, next generation tool is Polestar, available from Business Objects, an SAP company. Whereas new reporting solutions once were only suitable for technically-savvy software developers, Polestar enables business users to explore data without prior knowledge of data structures or content. Polestar brings

together the simplicity and speed of search capabilities with the trust and analytical power of BI tools, giving immediate answers to business questions. Users employ familiar keyword searches to find information hidden in data sources, and then navigate and explore directly on data—no existing reports and metrics are necessary. By increasing self-service BI and maintaining IT control, this technology empowers business users to create their content thereby reducing IT report creation backlog. It reuses existing security, metadata, and other services from Business Objects Enterprise, meaning it’s easy to administer and quick to deploy, often in a matter of days, thereby abbreviating time to market and expediting decision making.

2.2 Relevance

To improve health care managers’ decision making support, simple and modern business intelligence technology is a start; industry-savvy BI experts also bring significant value. Vendors, system integrators and third party consultants have established themselves in various industry verticals where they can contribute significantly to business performance. They know what it takes to be successful, and are familiar with typical user requests, challenges and issues. Given their understanding of the technology, they can also accelerate the implementation process significantly by linking those business requirements to specific functionality and existing content and templates.

These templates come in the form of pre-defined data models, queries and metrics, and save significant time and effort when launching a new BI implementation. Not only is the implementation smoother, but also implementations designed with best industry practices in mind are also more likely to deliver on the business needs, and hence to deliver on the premises of a BI endeavor. These implementations have shorter development cycles and by extension, lower costs. The business content can act as a foundational solution and can be extended by individual organizations to meet their specific requirements.

Business Objects customers that exploit the power of user focused tools can also access “business blueprint” templates. These data models and templates solutions include a bundle of technology and industry knowledge that leverages SAP’s and Business Object’s substantial business knowledge, which was developed over many years while delivering software solutions to the world’s

largest companies. By leveraging these “packaged” industry best practices, customers increase the likelihood of a successful BI deployment. At the same time, they shorten development cycles and lower costs. The business blueprint templates can act as a foundational solution that individual organizations can extend to meet their specific requirements. Specific components of business blueprint templates include: pre-defined “extractors,” large quantities of pre-defined data models, master data objects, authorization roles, query views and reports—all of which are delivered in the software.

The simplicity of business user oriented tools like Polestar and the enhanced relevance enabled by bundles such as business blueprint templates are enabling solutions for competitive advantage. The ease of use and enhanced relevance of these solutions build on the capabilities of existing BI systems, thus increasing their value to the organization.

In the health care world, Mr. Lemoyne sees an opportunity for a leader to emerge:

“We all recognize the need for industry-specific expertise, both from our vendor and their system integration partners. In health care, there is even a better opportunity to share and collaborate, since we don’t compete directly for the same business.”

3.0 Agility

While the staggering and growing quantity of data is a trend to monitor in industries such as retail or consumer goods, health care practitioners rely on BI to manage an increasing number of decisions, which all have repercussions on the rest of the organization and ultimately, on the bottom-line. Says Mr. Lemoyne:

“The system needs to be very agile. We track every patient and stretcher in the emergency unit minute by minute. We know how many patients are in and how long they’ve been there.”

But more granular information, even delivered just-in-time, is valuable only to the effect that it can impact change and improve actual management decisions.

“Our objective is to minimize the average emergency stay from 24 hours to 12 hours by next year. To achieve this lofty goal, we need to know everything about our resources down the treatment chain: how many beds are available now, which ones will be

available when, and what people occupying beds are waiting for—sometimes there may be bottlenecks further down the chain, and we need to know about them too in order to control our patient flow. We have dashboards with clear metrics for how many patients should be at each stage, and we meet every morning to discuss priorities based on this information.”

4.0 Integration

Business intelligence is moving beyond the reporting function to an integrated system embedded within business processes. In the past, users had to wait for the completion of multiple steps in order to review the data: transactions were entered, data was stored, consolidated, processed, extracted in various data warehouse and “cubes” for analysis, and finally delivered. Only then was the information ready for analysis and reporting. The new approach is to think of BI “in parallel” with business processes; thereby providing clients with more timely access to better information about critical business processes as decisions are made, not after the fact.

The ultimate benefit is derived from complete integration of the information across medical, clinical and financial systems and departments. Planning for day-to-day activities can be integrated across the organization. From the onset, the benefits of such integration include consistent and accurate information and patient management, and ultimately, substantial service and financial improvements.

But as business intelligence must be integrated within the business processes, it must also be integrated in a way that is consistent across the organization. The manner in which data is collected, processed and stored has an immense impact on the quality and value of business intelligence tools. Master data management (MDM) is the area which defines how data is managed from its initial collection to final use, a critical underpinning of successful BI implementations. This is especially true for the health care industry, where a significant number of software can be used simultaneously, and where mergers are becoming a more frequent occurrence. Notes Wieser:

“Partly because of our acquisition strategy, harmonizing the data continues to be one of our most significant challenges. All these systems and all the different codes within the database are growing in different directions. To get a conflict-free definition of

the different entities in the system was definitely the biggest challenge. And it took a whole lot of effort to get everything back into the source system. I would say that I used to spend at least a quarter of my time on the harmonization effort—both because it's crucial and because it's difficult.”

The concept of MDM is fairly straightforward: without clean and properly aligned data across the organization, it's difficult to answer key business questions. And although it might appear straightforward to solve, MDM is hampered by the level of complexity of today's IT organizations such as l'Hôpital Sacré-Cœur of Montreal:

“This is an important challenge for us. We have built a best of breed system, focusing on the best solution to solve each problem. As a result, we now have 60 systems that are more or less integrated, each with different IDs and passwords. For example, the list of doctors exists in multiple instances, and we are in the process of eliminating redundancies and make sure everyone uses the same source. Without being overly aggressive, we have to remove a certain amount of creativity from our users in the way they use the system and enter data, to ensure a higher level of consistency and quality. Part of the solution is technology, part of the solution is training.”

operations, but also simulate and plan for various potential acquisition scenarios.”

Hospitals that enable business intelligence solutions built on the tenets of simplicity and relevance, agility and integration have the potential to sustain competitive advantage in a world where change is the only constant. Simple and relevant BI tools can empower administrators, doctors and nurses to make effective decisions with increasing speed and agility. By integrating real-time decision making with mission critical business processes, smart health care organizations can keep up with and even excel in the innovation-driven world of the 21st century.

Moving from legacy BI solutions to these next generation solutions represents a giant step forward and corporations will continue to face a choice: execute these best practices or fall by the wayside. Early adopters will see empowered employees, rapid execution and adjustments to plan, resulting in operational improvement required to deliver superior health care services to consumers.

5.0 The Payoff

The challenges faced by hospitals and the health care industry will only grow with time. Trends such as legal requirements, an aging population, and an ever-increasing need to be service-oriented, are here to stay. To maintain their competitive advantage, hospitals must leverage internal and external information into an accessible, usable medium and provide BI to a larger number of employees. Business intelligence solutions will continue to evolve as exciting new capabilities are adopted broadly within the marketplace.

Mr. Wieser offers a vision of the future:

“Beyond optimizing our current operations, we also have to look at our future objectives—and in that regard, business intelligence is more than a cost-cutting device: it's really a strategic tool. We need to plan ahead and model scenarios based on our current

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DON TAPSCOTT, one of the world's leading authorities on business strategy, is the founder and chairman of international think tank New Paradigm. Established in 1993, New Paradigm produces ground-breaking research on the role of technology in innovation, competitiveness and society. The company was acquired by BSG Alliance in November of 2007, and is expanding its syndicated research programs globally. Currently four multi million dollar efforts—The Enterprise 2.0, Talent 2.0, Marketing 2.0 and Government 2.0—investigate strategies for winning through next generation enterprises.

Tapscott is the author of 11 widely read books about information technology in business and society, including *Paradigm Shift*, *The Digital Economy*, *Growing Up Digital* and *The Naked Corporation*. His most recent book, *Wikinomics: How Mass Collaboration Changes Everything* is an international best seller in 20 languages. It was a finalist for the prestigious *Financial Times*/Goldman Sachs Best Business Book award and has been chosen by many publications including *The Economist* as one of the best books of the year. He is also adjunct professor of management at the Joseph L. Rotman School of Management, University of Toronto. His clients include top executives of many of the world's largest corporations, and government leaders from many countries. He holds a master's degree in Research Methodology and two Doctor of Laws (Hon).

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Today's competitive environment is fast and fierce, marked by complex supply networks and increased consumer power. In order to succeed, companies in the health care industry need to fully leverage the power of information to their advantage. No longer is it enough to leave information access to a select few; every business person needs to be empowered to access, analyze and act on trusted information, wherever and whenever needed, and in the context of the relevant business activities.

That is why leading companies worldwide rely on solutions from Business Objects and SAP to provide end-to-end solutions for better business intelligence (BI). The business user is in the focal point, with an intuitive and system-agnostic solution set that delivers on even the most demanding needs. Embedded into the context of business activities and work environments, information is immediately relevant and actionable. At the same time, IT can focus on being an enabler of innovation, rather than just working overtime to just "keep the lights" on.

With solutions from Business Objects and SAP, companies in the health care industry get:

- **More effective business decision making.** Simple and intuitive user interfaces foster broad adoption, while reducing IT backlog. Business users quickly access any type of information, regardless of its source. And with BI accelerator technology, response times are consistently fast, independent of data volumes analyzed or question asked, allowing IT to meet the increasing demand for real-time BI embedded into business operations.
- **More efficient IT, freeing up resources for innovation.** The broadest solution set in the industry, combined with best-in-class capabilities, dramatically reduces the need to deal with multiple vendors. Due to inter-operability with any systems, applications or databases, investments are protected and don't require expensive custom-integration. And by providing the right level of controls with an agile infrastructure, IT can focus on managing service levels, and does not need to manage individual users.
- **Faster realization of value from IT investments.** Out-of-the box content and templates, across both SAP and non-SAP data sources fosters accelerated deployments of BI solutions while significantly increasing the chance to "get it right" from the beginning, as compared to pure custom-built approaches. And alternative delivery models (e.g. on-demand, appliances) provide drastically reduced setup time and lower maintenance.

The result is that IT is better able to meet the information needs of business users thus becoming a strategic partner to the business.

To learn more about how solutions from SAP and Business Objects can help you empower your employees to make the best-informed business decisions, visit www.sap.com/businessobjects.

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