

CHAPTER 9

Business Analytics in the Future

Business analytics will be everywhere, all the time.

Business analytics is not just moving fast, it's also in the process of developing from conventional BA to pervasive business analytics, which equips everyone in the organization and in the private sphere at all levels with real-time analyses, alerts, and feedback mechanisms. It's a paradigm shift with potentially huge advantages and far-reaching cultural significance. And it's happening already.

Instead of just measuring business results, after they've been achieved, which is the primary role of business analytics today, the next generation of pervasive business analytics will advise and drive the business forward with an arsenal of analyses and tools for real-time decision making. These will be delivered with a view to improving earning power and efficiency, and they will be delivered to people in all corners of the organization and even outside it.

Pervasive business analytics can be explained as omnipresent IT. And that means that IT will circle, inform, and advise everyone at all times, wherever people are. And we won't always realize when it's happening.

One example is General Motors' OnStar system. Here the typical GPS navigation system for cars is extended with an information and convenience service in a "pervasive" way. The customer

service center at General Motors knows the real-time location of the car and can perform cross-reference searches in an underlying database to interesting places along the way such as hotels, restaurants, and so forth. Would you like to be directed from your current position to the nearest cash point, airport, or a room at your preferred hotel chain? OnStar's underlying data warehouse has the information and can deliver this in real-time to your car as a service. And this scenario isn't even the future.

In the Introduction, we defined business analytics (BA) as: *Delivering the right decision support to the right people at the right time*. We believe this definition will continue to be true into the future and that BA will continue to develop on all three dimensions that are part of the concept.

As far as the delivery of the *right decision support* is concerned, there's hardly any doubt that the quality of the decision support delivered by BA will become increasingly complex and precise. We anticipate, for instance, that BA solutions will not just identify which customers are going to leave when and why, but that these solutions will also be suggesting the best way to enter into a dialogue with these customers. We expect that when a key performance indicator (KPI) is below its defined standard, the user will not only be alerted to this fact, but will also receive recommendations on what to do about it—preferably as early as when the system is forecasting foreseeable problems. Similarly, we anticipate that employees will be receiving not just emails in the course of their working day, but that these emails will be prioritized in relation to the tasks that must be performed on a given day.

With regard to the *right people*, we'll be seeing some major changes in the near future, to some extent because BA solutions must include users' preferred way of making decisions when information is distributed. Is it, for instance, a team of specialists who make decentralized decisions, or is it a consensus-driven decision culture surrounding the business process we're informing? An even more important trend will be that BA information will not only be supporting the optimization of business processes, but also be supporting the optimization of individual behavior in the organization. Employees thereby become business processes in themselves, since

their behavior will now be the target for optimization. The previous example about when to read which emails illustrates this perfectly. If the local network registers that an employee arrives at his office and there's an important meeting in five minutes, the employee should be informed of important emails only. The rest must wait till the 20-minute break after the meeting. Similarly, a truck driver with an upcoming meal break may be advised about where to find a good place that serves well-made and healthful food at a reasonable price, so that he can stick to both his budget and his diet. Finally, let's imagine a busy businessman who, regardless of when he emerges from his meeting, is informed of which flight or train connection is the fastest in relation to his preferred way of traveling—allowing for the time he needs to buy a wedding anniversary bouquet for his wife on his way home. The ordering of ticket and flowers happens automatically, of course.

The third element in our definition of BA is the *right time*. Here we anticipate that BA solutions will increasingly send information to users whenever it's relevant, rather than storing information for when users choose to read the reports. This means that BA solutions in connection with the monitoring of business processes will be sending alerts to the people who are responsible the minute these processes deviate from their defined standards. The advantage of this form of real-time advice in terms of process deviations is that decision makers can focus on the processes that need correcting on short notice. However, this will reduce the waste represented by a process that is more or less run off the track and on the other hand, it delivers scope for possible savings in connection with the number of employees needed to monitor processes, since they no longer need to spend time looking out for problems. When problems need solving, the problems will go to the employees.

In the future, we'll therefore see the information wheel used not only for business processes, but also for the individuals in the organization, too, as illustrated by Exhibit 9.1. We'll also see information wheels turning faster—that is, the time between a new information need presenting itself and the delivery of new information will be reduced. It's perfectly realistic to imagine that every time a user accepts an action suggested by a BA solution, the underlying information

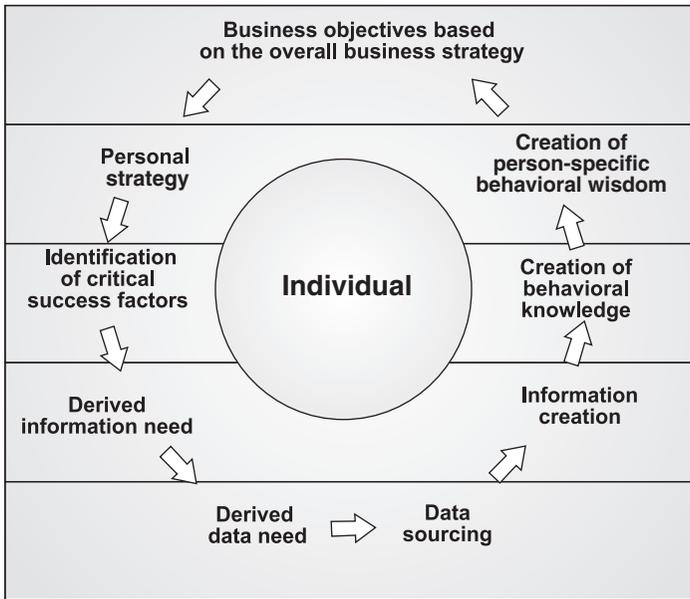


EXHIBIT 9.1 The Information Wheel with the Individual at Its Center

wheel will pick this up. Similarly, if a user dismisses information as irrelevant, this would mean the information is automatically downgraded accordingly in the information wheel. This scenario is actually not new; this is exactly the thinking behind the development of neural networks decades ago. *Neural networks* are self-learning systems, which continually adapt to the environment they're in, just like the human brain—thus the name. The new thing here is that the user of the network is not forced to sit next to a supercomputer, but can move about freely, and interactively train his or her own information wheel on dimensions such as preferred way of traveling, email behavior, meeting behavior, eating behavior, coffee behavior, leisure time behavior—dimensions that we imagine users to begin with might turn on and off, but that they will later have turned on all the time, because the information wheel efficiently supports and creates the user's lifestyle. This progression in thinking is on par with our use of the mobile phone, which we no longer turn off at night or when we're off work, even if we all used to swear that that's what we would be doing. Or even, for

that matter, with our use of the automobile, which stank and was noisy and which my grandmother used to refuse the right to overtake her when she walked down the street, arguing that “the drivers of automobiles did not have the authorization to run her over.” This the same vehicle that we now look at as an opportunity, which both creates and supports our contemporary lifestyle.

Just as the industrial era changed people’s daily behavior, the information age will change ours. At first we will object, then hesitate, and then adopt the changes without noticing it. If you question this, just remember that a majority was opposed to building the Eiffel Tower in Paris. In the same way, the information age will offer us a freedom that we will feel uncomfortable with at first, but which we will come to adopt and allow to shape our lives.

You can buy books online on Amazon.com. If you inquire about books that have been discontinued or are not in stock, the system will suggest other books on the same topic, which might be of interest to you. The “pervasive” element is present here in the shape of an intelligent search and guidance as you navigate the Web site.

In the near future, you’ll be on your way to the airport in a taxi. You’ll receive an alert on your mobile phone saying that you will be late for your flight, but there is another departure at 8:20 PM with an available seat on Economy Flex. Do you want to be booked in? Alternatively, a train departing at 7:30 PM has one available seat on Business. Do you want to be booked in? The system recommends the train option at 7:30 PM, because it suits your profile as registered with the mobile phone company better. No doubt, some people will not like the idea of a future with IT information and guidance interfering with their lives all the time. Many might say that such a future is scary and will add stress to our everyday life. But is this true? Is it not less stressful to avoid arriving at the airport to find that you’ve missed your flight, than to be advised in advance and have time to change your travel plans?

A classic example of pervasive business analytics, which we may experience in the near future, is the computer HAL 9000 in Stanley Kubrick’s film *2001: A Space Odyssey*. The intelligent computer sees everything, monitors everything, analyzes everything, and controls everything onboard the expedition and is “omnipresent.” The

astronauts are being fed with lead and lag information about potential problems and are advised on big as well as small things.

Pervasive business analytics now challenges BA systems with a demand on real-time data access to data warehouses and access from many different types of interfaces. In recent years, BA systems have moved toward Web interfaces or Web portal interfaces because of the need for global access. In the future, BA systems will be pushed further toward mobile entities such as handheld personal computers or mobile phones or something entirely different. If you need real-time information, these alternative gadgets become necessary interfaces, because we cannot guarantee that the user will always be sitting in front of a conventional personal computer with network access.

Real-time updated data warehouses at group level, also called enterprise data warehouses with service-oriented architectures (SOA), are not just possible; they already exist today in organizations around the world. It is increasingly acknowledged that business analytics initiatives must run on real-time data at the group level. It is often difficult to justify the investment to get BA up to speed, but it is essential for business users to have the latest information, preferably with a delay of zero seconds.

When the user interface changes, the real driver is the need for real-time information. And this need will always be there. People who are not interested in pervasive BA right now may still have time. But the inevitable development is taking place. We still have not seen one single consultancy firm in the world offering guidance on pervasive BA, and this could be due to the current limited market or due to customers' maturity, or rather lack thereof. However, the first companies are already out there on the cutting edge, and many will follow, if not all.

Referring to our information wheel in Chapter 7, the role of pervasive BA is, so to speak, to make all these wheels turn faster and smoother in a fully automated way as well as to deliver real-time information and knowledge at all levels in the organization. Many organizations are realizing that they have more or less the same products and services as their competitors, and it's increasingly difficult to create a unique competitive advantage via product differentiation. The final way of surviving is thus to squeeze the last drop out of the business's

operational processes via improved decision making and, in this indirect way, to adopt a new kind of operational excellence strategy.

Obstacles to pervasive BA in individual organizations are that most major companies may have between 5 and 15 different BA solutions running. And often these solutions are nothing but a number of independent platforms and tools. This fragmented scenario makes it difficult for even expert users to learn about the many different tools. And what makes this challenge even bigger is that data is spread over so many source systems across the organization. So this is a matter of major data integration problems getting in the way.

The recognition is that everyone in the organization can improve their performance if they make decisions and act based on factual information rather than best guess, or how we did this last year. Historical data will be replaced by real-time data and predictions. The fragmented perspective will fade and be replaced by a more holistic perspective that stretches across the entire organization. We will move away from the static retrospective reporting results toward factual real-time information and analytical knowledge to drive individuals and business processes.

If you think this seems unrealistic, just try to imagine all the behavioral information that Internet sites like Facebook already have about their users.

It seems to us that the source data Facebook picks up is a tidbit for all businesses in the upcoming era of analytics.

