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How Fast and Flexible Do You Want Your Information, *Really*?

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How Fast and Flexible Do You Want Your Information, *Really*?

Almost all executives want more and faster information, and almost all companies are racing to provide it. What many of them overlook, though, is that the real aim should be not faster information but faster decision making — and those aren't the same things.

BY THOMAS H. DAVENPORT AND JIM HAGEMANN SNABE

IN AN ERA in which we can search the entire Internet in less than a second, expectations for the speed and flexibility of information retrieval within companies have risen dramatically. However, access to corporate data in organizations is rarely as rapid as an Internet search. "Why can't I get information on our sales just as quickly as I can search the Internet?" is a frequently overheard complaint. That frustration has led many organizations to try to speed up the delivery of data and analysis, particularly in the context of decision making (typically described as "business intelligence," or BI). But few organizations have reached an optimum with regard to how fast important information reaches in boxes, desks and brains.

Lack of information flexibility is another common problem. While standard reports can still be useful, as the amount of information in companies grows it becomes increasingly difficult to anticipate all information desires and delivery frequencies ahead of the need. Consulting companies that study information consumption routinely find that more than half of all standard reports aren't being used by anyone anymore. Inflexible standard reporting means not only that paper is wasted, but that an even more valuable resource — executive attention — is misdirected.

THE LEADING QUESTION

When aiming to speed up information flow, which kinds of information matter most?

FINDINGS

- The aim should be to enable faster decision making, not faster information. Focus on information speed and flexibility that facilitates that.
- Not all information is needed equally fast, nor in equally perfect condition.
- Executives often ask for more information than they use.

Slow and inflexible information formats aren't just minor annoyances. They can lead to major business problems. If organizations don't find out quickly that, for example, a decline in sales has occurred with respect to a particular product or geographic region, they can't address the problem quickly. If they don't know that they have an issue with manufacturing quality, they can't fix the production line. Slow information also can lead to issues of accountability and morale. As one European CEO told us, "If we have faster information we can make faster decisions. If we make faster decisions the performance increases — and it did in our company when we speeded up the information. But people lose interest when the lag time is long."

To understand the problem and some potential solutions to it, we conducted both in-depth interviews and a survey of senior executives. (See "About the Research.") Not surprisingly, many said they wanted their information faster. But there were major variations with regard to which specific types of information they wanted at a faster pace, and under what business conditions it was essential to have more speed. And because every executive interviewed had different needs and desires for information type and frequency, there is an obvious need for greater flexibility.

There is also, though, a need for better understanding of how information really gets used (and not used), an understanding that should shape how organizations aim to improve their information speed and flexibility. Decision makers can digest only so much information, and only so fast; still, executives tend to request much more information than they can actually use. Often, the cycle time of decision making itself, not the pace of information flow, is the real bottleneck that impedes improvements in strategic operating speed.

The real question when it comes to information delivery is how fast and flexibly to do it so that what ultimately gets faster and smarter is not the information supply, but the decision making that determines a business's performance.

Why Internal Information Can Be Slow and Inflexible

In order to understand how to speed up information — and to reduce some frustration — it's useful to review why internal information often takes much longer to be delivered than an Internet search, and why it's often delivered in inflexible formats. There are several reasons. First, there's the issue of creating high-quality data in the first place. Establishing consistency — of currencies, of geographic classifications, of customer IDs — around a large organization is difficult, for example. Doing so often requires reconciliation, sometimes manual. Avoiding "multiple versions of the truth" usually necessitates rigorous information governance approaches and standard reporting formats.

Generating a report from an organization's data usually demands intervention by IT professionals, which takes time — weeks or months in most cases. Producing anything other than standard reports requires query and analysis, which typically involves assistance from professional analysts and IT personnel. And because most organizations don't want end users and decision makers playing with core transaction data, someone must move data into a data warehouse for access and analysis. Even when executives themselves were able to access data in the recent past, it was usually because prefabricated "cubes" of data — such as sales by region by quarter — had been made available to them. The preparation of the cubes takes a fair amount of time and has to be done in advance of the need.

In organizations where certain information is delivered relatively quickly and flexibly to senior executives, it may have required considerable efforts to procure and massage it by assistants. Several of the CEOs we interviewed were careful about what information they asked for, because they knew it would set off a storm of activity behind the curtain.

From a broader perspective, information emerges from business processes that are structured on a fixed and well-defined cycle. Most financial information, for example, is produced on a monthly basis. A change from the monthly cycle time would require different budgets, P&L statements, accounting systems and so forth. As one former CEO who had been a controller put it, "Once we'd squeezed out some of the wasted time, I didn't continue to ask for the information to come faster because I knew all the processes involved in producing it."

ABOUT THE RESEARCH

To understand the problems and potential solutions involved in fixing slow and inflexible information flows, including how to prioritize information types and uses in order to target improvement efforts wisely, we interviewed both senior executives (15 current or former CEOs and business unit heads) as well as managers who are charged with information delivery. We also surveyed 302 senior executives at large U.S. companies about the speed with which they get the information they need, their desires for faster information delivery and their practices for integrating information into decision making.

Getting the Information That Matters at the Right Time

While it's not normally viewed as a time constraint by executives, the human ability to digest information is limited, and that digestion is a contributor to the cycle time of information management. Executives often want information faster, but they don't really think about their role in slowing the cycle time of decision making. The distinguished social scientist James March found in one study that executives tend to request much more information than they actually use in decision making. That suggests that executives should count their own deliberation time in any analyses of how long it takes to get information needed to make decisions.

Given these obstacles, it's highly unlikely that all information can be delivered instantaneously. However, some information can be sped up. Therefore, it's important for senior executives to identify the information they need more quickly and flexibly, and the time frame in which they need to receive it. Even if acquiring information required no effort and always took place in real time, consuming it would take time and attention — so making all information available all the time isn't a good idea even if it were possible.

Identifying the information needed quickly is particularly important now because technology for rapid information delivery has benefited from several recent advances. The underlying data for fact-based decisions is much more prevalent today, and the technologies for displaying and analyzing it have improved considerably. In many cases, the net result of these technologies is that executives can do more of their own query and analysis, and need not wait more than a second or two for the results. That leads to an entirely different perspective on and process for information delivery. Consumption of the information is made more likely by the very fact that the manager has requested it; the information has been pulled rather than pushed. Again, however, the underlying processes for information provision must also be addressed.

Human and organizational capabilities for information delivery are also advancing, but (as they usually do) at a slower pace. Information delivery to support decision making has been a "craft" activity, but it needs to become industrialized — with standard processes and measures of cycle time and quality. The first step is often organizational. Many companies, for example, have established internal groups to support business intelligence activities (known as business intelligence competency centers, or BICCs). Other organizations, such as Procter & Gamble, have re-oriented the primary purpose of their IT organizations to emphasize the provision of information and analysis for decision making. P&G now calls its IT organization Information and Decision Solutions, and is currently working on increasing the speed of information in specific areas of the business. Cisco Systems has defined and re-engineered the process for information delivery and analysis — including data preparation and reporting — and that has dramatically cut the time needed to enable a decision.

While we're not at the stage where all information is provided in "real time," we are able to provide some information at that speed. However, delivering information at a much higher frequency will require considerable resources. Therefore, it's important to identify the particular information that needs to be delivered rapidly. As one CEO we interviewed put it, "In the best of all possible worlds you'd have a timetable for each piece of information."

What Information Matters?

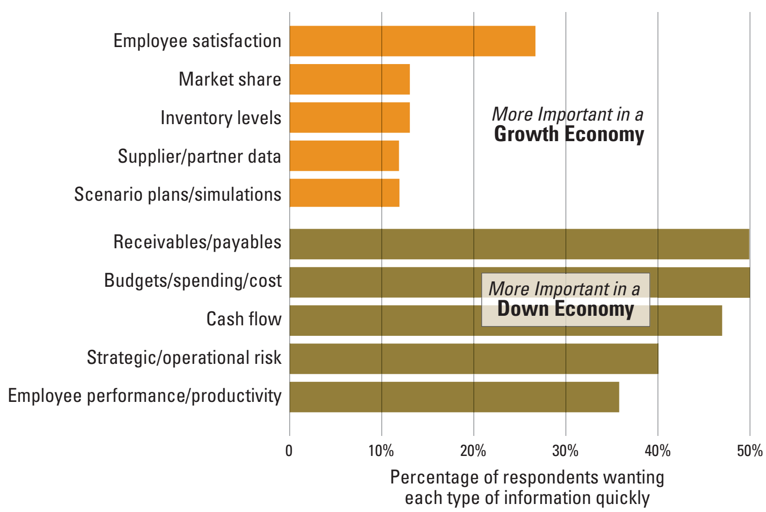
Most organizations have critical forms of information that are dictated by their business model or industry. The nature of operations in their businesses dictates that information on that entity be delivered as quickly as possible. For retailers, it might be in-stock inventory; for online companies, click-throughs and conversions; for engineering-oriented businesses, the new product development pipeline. At a retail clothing chain, for example, the type of information that was most critical was inventory levels in stores. That figure drove various other factors critical to performance and decision making, including avoidance of stockouts, the need for promotions and pricing changes, and reordering trends. Because of the distributed and constantly moving nature of inventory, however, it's difficult to have rapid and accurate information. The company worked for several years to get it right and make it easily accessible to managers.

In a primarily online business, such as an online gifts company we interviewed, the overall cycle time is much faster than most other businesses, and the online behaviors of customers are the most critical type of information. Unique visitors, time spent on pages, click-throughs, conversions and abandoned orders are all critical pieces of information. They are needed quickly because they inform managers of the implications of changes in Web page designs, promotions, prices and technology function. Information on customer behavior was once considered rapid if it could be delivered daily, but now it is expected hourly or even more frequently.

However, the type of information needed most quickly is not static and varies with several conditions. The state of the economy, for example, is a major determining factor. Our survey suggested that the type of information most wanted quickly varies widely in a growth economy versus a down economic environment (see "Most Important Information Types by State of Economy"). Note that information of all types (except employee satisfaction) was viewed as more important in a down economy than a growth economy — in some cases, dramatically more so. With information such as quality, market share and competitor news, the differences across economic conditions were substantially less.

MOST IMPORTANT INFORMATION TYPES BY STATE OF ECONOMY

Economic conditions determine not just how badly managers want information fast (information is at premium when competition is tough), they determine what kinds of information managers want fast.



The importance of information also varies based on whether an organization is experiencing a crisis versus normal operations. As in a down economy, fast delivery of information is considered much more important overall in crisis mode than in normal daily operations. In a crisis, the most important information types involve cash flow, risk, budgets and scenarios/simulations. In normal operating environments, the most important information types involve quality, employee satisfaction and employee performance/productivity.

What's the Right Time?

The right cycle time for a particular type of information will vary by a variety of criteria. Survey respondents clearly stated that some types of information are both received and required more quickly than others. In terms of what information people currently receive, the fastest to arrive (again combining real time and daily frequencies) are sales, competitor news and customer news. The slowest to arrive (the information received annually or quarterly) are employee satisfaction, market share, customer satisfaction and planning scenarios or simulations. Some of these — employee and customer satisfaction, for example — are probably slow to arrive because they are based on surveys at defined intervals, and may be conducted by external survey organizations.

In terms of the information that survey respondents wanted, the information desired at the highest frequency is competitor news, sales and customer news. The information needed least quickly is market share, employee satisfaction, planning simulations or scenarios, and employee productivity and performance.

These results suggest that it is not desirable — even if it were feasible — to make all information available in real time.

One reason that managers may not feel a need for faster information in some cases is that their reference group — colleagues and competitors — gets it at the same pace. Several of the chief executives we interviewed commented that they didn't feel a strong need for quicker information because "nobody else got it any faster." Managers may also have an intuitive feel for how rapidly some information items vary. If a particular metric changes monthly, for example, there is little point in receiving it weekly. Some information (employee and customer satisfaction) comes through surveys, and it is clearly infeasible to survey these audiences beyond a certain frequency.

Not surprisingly, specific organizations have accelerated certain types of information during the recent economic crisis. Michelin, for example, has moved to weekly reporting of inventory from its plants and warehouses. Office Depot has changed from quarterly monitoring of budgets to monthly. Air Products and Chemicals has employed new technologies to speed up several types of financial reports. We expect that many companies have accelerated information reporting frequencies to get a better handle on their businesses in difficult times.

The Trade-off Between Accuracy and Time

There is generally a trade-off between the accuracy and timeliness of delivered information. Getting information more rapidly may mean that time hasn't been taken to verify or correct it. Several executives we interviewed said that they were often willing to sacrifice some accuracy or granularity for information that they received on a real-time or daily basis. One prominent former CEO noted that "Speed is often more important than accuracy."

In our survey, however, respondents didn't want to give up much accuracy for faster delivery in the information they use for decision making, at least when it came to financial information. (See "Does Information Have to Be Perfect to Be Useful?") For information such as cash and cash flow, receivables and payables, and budgets, spending and costs, substantial majorities of respondents felt they needed 100% confirmed information for it to be useful.

However, when it came to news, rumors and insights on external parties — customers, suppliers and partners, and competitors — the survey respondents were willing to accept a much lower level of confirmation. In other words, for some types of information, a degree of imprecision does not mean that the information can't be useful. For all information types, however, virtually no surveyed managers found information that was "100% rumor, nothing confirmed" to be useful.

How to Speed Up the Right Information

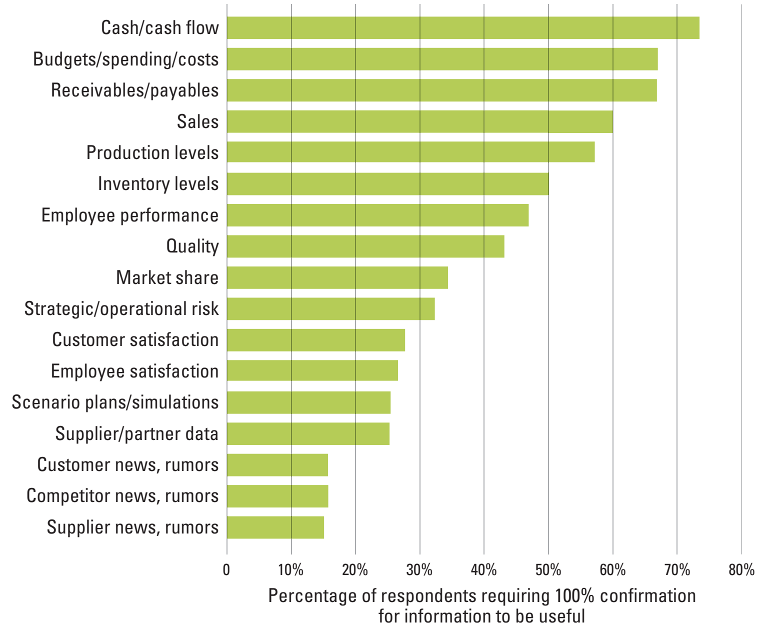
While the survey provided no guidelines for how to speed up important classes of information, our interviews with executives and information managers did. They suggested, for example, that it's important to identify key decisions at the strategic and operational level, and what information is necessary to make them. As one CEO put it, every manager should have a well-defined question and follow-up question in mind during every performance discussion. A former president of a large telecom equipment company noted, "[When you] get to the crux of the matter of what you have to decide on — it's a big change and this is very important: You speed up this process in finding out what is the problem and focus your energy in resolving the problem."

If the needed information doesn't exist, the organization will have to create it. A large retail chain's president noted, "It almost killed us to get real-time inventory availability information for all our stores, but all of our plans for improving processes and decision making relied on it."

Some organizations even invent their own metrics for particularly important measures. A hotel chain, for example, created a metric of the fraction of the optimum revenue achieved by a particular property. A gaming company that was highly focused on customer service developed a metric of

DOES INFORMATION HAVE TO BE PERFECT TO BE USEFUL?

Not all information is created equal, in terms of how fully "confirmed" managers need it to be. Here, for each type of information, is the percentage of respondents who said they required the information to be "100% confirmed" before finding it useful.



employee smile frequency, because smiles are closely associated with customer satisfaction. Of course, if a company develops its own information entity, it will then have to decide how frequently it needs to be reported and updated.

Once the needed information has been identified and delivered, look at the cycle time and flexibility for producing it. Are there unnecessary delays or lags built in? One of the CEOs we interviewed was able to reduce the time for reporting monthly financial information from the 20th day of the next month (when some of it would be up to 50 days old) to the fifth day. The CEO wondered, "How do you ask a question about what happened in the past and reward or correct an event that could have happened 50 days earlier?" Even that dramatic reduction was still slower than desired, but the company's decentralized organizational structure required time for reporting and reconciliation.

For each of these major information types, it's useful to ask how flexibly it is produced. Should the information be pushed — issued in standard reports with a standard frequency — or is it better pulled — made available for online access when needed? Certainly there should be a decreased number of standard paper reports in most organizations, to save trees, storage space and distribution costs. But even when standard reports are distributed electronically, they may languish in boxes. Because managers want information when they want it, it's better to employ "pull" approaches whenever possible. Alerts — not full reports, but warnings that certain information parameters have gone outside expected boundaries — are often more useful to circulate, and they help to create demand in pull-oriented processes. Eliminating unneeded reports may also allow companies to slim down their portfolios of IT applications if they are no longer using the data they create.

Once process changes have been made, get your IT organization working on faster and more flexible delivery capabilities for the information that really matters. That may involve both human and technical capabilities. On the human side, executives can work with trusted analysts to identify what information is most needed quickly, and then create alerts, query and reporting formats, and analyses that truly inform decisions. The next step should be to explore what can be done to make the information available at the time of need. Analysts and user-focused IT professionals can help to train executives to use the needed tools. IT executives and professionals will need to work hard to ensure adequate data governance, integration and currency for the information that really matters to decisions.

In terms of technical innovations, making information faster and more flexible may mean any of the following:

- "In memory" applications that allow rapid query and interactive analysis;
- Moving larger amounts of information into "data warehouses," where it can be accessed directly by users and employed in analyses;
- New types of databases (one form of which stores data in columns) that are optimized for query and reporting, rather than transaction processing;
- Faster microprocessors in PCs and servers that have been created for the purpose of data analysis;
- Easy-to-use software that allows executives to do their own queries and analyses with a few clicks of a mouse.

None of these steps in itself will solve the information timeliness and flexibility problem. Together, however, they can speed cycles of business monitoring and decision making, and can yield a more responsive, flexible management approach. As the surveyed executives suggest, that's particularly important in preparing for the next recession or business crisis. But the time to speed up important information is before it's needed, not after. By the time you're in the crisis, it's too late — and slow, inflexible information will undoubtedly have contributed to your problems.

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