Journal of Management Excellence: The Value of Information
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Letter from the Editor

Welcome to the *Journal of Management Excellence*. In this issue, we tackle the topic of trying to understand the value of information (VOI). Our world is full of information, and more of it is being documented and made readily available every day. But, not all available information has value.

In this issue, our authors have done an outstanding job of exploring many facets of VOI. Robert Shimp discusses the shift in the economy from that of a services economy to an information management economy. Thomas Oestreich unveils part 1 of his series on VOI, which includes a framework to help you understand the sources of value. Frank Buytendijk discusses how to turn company information into a profit center (and, therefore, an asset on the balance sheet), while Dave Collins explains how VOI can be destroyed through the misuse of productivity tools. In his second article, Frank Buytendijk introduces the concept of the information value proposition, and Mark Conway provides some excellent references for additional information on VOI.

In addition to our regular articles, we are pleased to introduce an interview-style article with Dr. Raef Lawson from the Institute of Management Accountants, about his experiences and thoughts on VOI.

The theme for this issue was so popular that more articles were submitted than we could publish. We will, therefore, create a second issue on this topic, *Journal of Management Excellence: The Value of Information Part II*. If you are interested in contributing, please contact me at toby.hatch@oracle.com.

Toby


For more on thought leadership, visit [www.oracle.com/thoughtleadership](http://www.oracle.com/thoughtleadership).
The Information Management Economy

Information economics has always been central to growth and change in the IT industry. Today, it is becoming an increasingly important issue for every business, worker, and consumer.

We often hear in the news about society moving to a greener—or more sustainable—economy. I certainly look forward to that day, but I believe another truly important shift is getting much less notice—the move from a services economy to an information management economy.

Daniel Bell first predicted a postindustrial society in 1973 consisting of a services economy overtaking and virtually superseding the industrial economy that came before it. Bell rightly foresaw that this shift would be propelled by an information revolution. That revolution continues today and, if anything, it is accelerating.

However, there is a distinctly new stage in the information revolution underway—a change in emphasis from information processing to information management. This change will have a significant effect on our economy and society.

We have long talked about information workers in the services economy. Much of the information generated or used by those information workers today is incidental to a business process or service. With the advent of technologies such as business process management software based on a service-oriented architecture, many of these services are becoming more fully automated. This automation—what the IT industry calls straight-through processing—is displacing traditional information workers, such as order takers and bookkeepers.

As information flow becomes automated, information management will become the primary value-added activity of workers in many enterprises. In the future, information workers are going to shift from those who are merely information processors to those who are information creators or developers, analysts, and managers. This economic transition will spur a restructuring in society as a whole.

This economic transition does not mean that the services economy will fully disappear any more than the industrial economy before it, or the agrarian economy before that. It means that the center of gravity will move to jobs emphasizing analytical skills—statistics, game theory, information theory, cybernetics, and visualization. There are already signs that the shift in the economy is underway. Two examples include the creative destruction of media companies—newspapers, books, music—and the turmoil in the intellectual property legal arena. As we go through this transition to an information management economy, new business models are already appearing and more will come. Some companies will focus on data capture or collection, some will focus on information analysis or the assessment of information quality, others on...
information dissemination. Some existing manufacturing and services companies will transition to information management businesses and some will simply be automated nearly out of existence.

There are, of course, companies that have already made the transition or were completely built under this new economic model, such as Google and Craigslist—Google for information collection and analysis, Craigslist for information dissemination.

But many more information economy businesses are coming into existence, such as healthcare providers. We think of healthcare providers as quintessential service organizations—they cure sick people. However, better information management will enable healthcare providers to transition to primarily focusing on prevention rather than cure. Programs are underway to collect genetic and proteomic data across large populations that will form a baseline for personalized genetic medicine. Advanced data collection about a patient’s health and habits—entire life logs, predictive analytics, and refined biological models, as well as better public health systems—will make it possible to dramatically improve disease prevention. Not every illness can be prevented, but someday, actual drug administration or patient surgery (which, in the future, may be done using robotics) will be a relatively small part of the overall investment in the healthcare business.

What is the added value of information management to the economy? It is uncovering actionable intelligence, forecasting likely future states, using predictive modeling to find better alternatives, and reducing and/or managing risk along the way. Incredible efficiencies can be derived from the economy through the ability to take the right action at the right time and place.

In my opinion, the shift to an information management economy is inevitable. But there are several factors affecting how and when this shift will occur. For example, it will be necessary to upgrade the national infrastructure to become more intelligent and to allow larger and more sophisticated forms of information sharing. Think of initiatives such as Smart Grids as a down payment toward this intelligent infrastructure. We will also have to drive analytics to all employees in an organization and allow continuous improvement of processes and underlying information. This means that more and better education for our work force is critical.

Another essential element will be the ability to measure the quantity, quality, and value of information. Measuring the value of information would be a complex undertaking in the best of circumstances. The exponential growth in data combined with the increasing complexity of that

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2 Smart Grids are electricity networks that can intelligently integrate the behavior and actions of all users connected to it—generators, consumers, and those that do both—to efficiently deliver sustainable, economic, and secure electricity supplies. European Technology Platform for the Electricity Networks of the Future, http://www.smartgrids.eu/?q=node/163.
data makes this a truly daunting task, and this edition of the Journal of Management Excellence is devoted to discussing the possibilities.

How challenging is the problem of measuring the value of information? Here’s some context: A few years ago, Judith Hurwitz\(^3\) noted that the IT industry created approximately 8,000 computer languages. That is an astounding figure, but all the more so, as Hurwitz points out, when one realizes there are only about 6,000 human languages. The number of human languages is decreasing, while the number of computer languages is increasing.

I can’t tell you how many data formats exist, but I am sure that the number is far larger and growing far faster than computer languages. Quantifying exactly what a piece of data represents is a difficult task, let alone determining valid measures of the amount, quality, and value of that information.

One approach is to measure the value of the human activities associated with a specific piece of data. I previously mentioned business process management software based on a service-oriented architecture. This technology offers new opportunities to tag data flows with relevant process metadata. By providing process context to the stored data in an automated manner, we can be much more descriptive about the value of that data.

Another important approach is the growing use of semantic technologies. The Linked Data Project is about “using the Web to connect related data that wasn’t previously linked, or using the Web to lower the barriers to linking data currently linked using other methods.”\(^4\) The Linked Data Project promises to create a rich reservoir of raw data sources to be exploited by information management businesses. It also provides a way to measure the relative value of data sources. This research will take years.

The information revolution is stronger than ever, and it will continue to drive broad changes in our economy. As the economy continues to evolve, the value of information will increase, and managing information assets will be crucial to the success of world-leading organizations.

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\(^3\) Carol Baroudi, Robin Bloor, Judith Hurwitz, and Marcia Kaufman, Service Oriented Architecture for Dummies (New Jersey: Wiley Publishing, 2007), 75.

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The Value of Information Part 1—The Framework

During the last several years it has been said that we are in the information age. Information Technology (IT) and information management have experienced tremendous growth. Digital information is available everywhere and anytime. For years consumers have clamored for more—and more useful—information. Are we now at the stage that we think there is too much? For businesses, many CIOs certainly agree with this statement. Roughly, the amount of data stored in his/her IT systems more than doubles every two years. Just processing transactions is no longer the challenge. The CIO today is the indispensable information provider of the enterprise.

Years ago, analogue information was bound to physical assets and remained under the control of the information provider. Two sectors in particular, media and communication, are in flux today and are desperately looking for new, profitable business models to help monetize information.

The Internet apparently devalued the price of information, while at the same time, new business models—based on meta-information, such as search engines—substituted existing market segments. For instance, digital marketing is the fastest growing advertisement segment in recent years, taking the market share from traditional advertisement segments, which have faced a steady decline for years. In general, business models built upon a premium payment are being replaced with business models based upon a freemium model. See figure 1.

The Puzzle

When analogue information is turned into digital information, you can see from the two lines in figure 1 that the price for information drops. This is truly a puzzle as it is the same information. But today, in order to achieve a premium price for analogue or digital information, free information must also be provided through digital channels. One example is newspapers. It is standard today that a newspaper publishes part of its information on its Website—free of charge—with the remaining information only available to subscribers of the newspaper who pay a premium. Adding to the puzzle, multiple newspapers now simultaneously publish (more or less) the same information on the internet, which decreases the value of the information. Meta-information providers, such as search engines, then capture this same digital information and provide it through their channels.
Is it Truly Free?

Much information, particularly on the internet, is considered to be free. But, is it really free? We either pay directly (to the internet provider), or indirectly (the internet provider charges a third party for access to the information exchange platform). We also pay by automatically delivering information back to the provider about how and what information we consume—delivering value to the internet provider by enabling consumer behavioral targeting.

What Is the Real Value of Information?

It is more difficult now than ever to assess the real value of information. For quite some time, I have been trying to identify a framework that could help in the assessment and following is the culmination of my research. To understand the real value of information, we need to look at four factors (see figure 2):

- Relevance (to the consumer)
- Exclusivity (by the provider)
- Processing (IT systems’ capabilities)
- Channel (information distribution)

No matter what type of information is concerned, the value is based upon a combination of the four factors.
All types of information carry associated costs for processing or producing it: the value depends on the relevance the information has to the information consumer, the information provider decides on the exclusivity by limiting its distribution, and the channel of distribution changes the value.

**Processing**—Processing and producing information constitutes what I call the intrinsic value of information, because, in this aspect, the meaning or context of the information is not relevant to its value. However, many different capabilities together build an information value chain. Roughly, this value chain consists of providing access to information, storing and structuring it, processing it, visualizing it, and providing capabilities to enhance it, combine it, or to collaborate on it. For example, although they each have a very different purpose, producing a movie or using an enterprise resource planning (ERP) system introduces an information value chain. In each case, the cost of sales must be covered by the price the information consumers are willing to pay. If we take newspapers as an example, this issue is of concern because newspaper publishers have a higher cost of sales today than in the past. Today, publishers have to print the information on paper and publish it again on digital channels, yet they cannot charge a higher premium.

**Relevance**—Information needs to be relevant to the consumer to create value. Relevance is determined by the quality and the contextual criteria of the information by the consumer. Relevance is mainly related to the meaning of information in a specific context, and there are a number of criteria to describe or qualify different levels of relevance.

Quality criteria consist of appeal, accuracy, reliability, and completeness of the information. Another criterion of relevance is the *significance* of the information for decisions we have to make. In these aspects, there is no substantial difference between analogue and digital information. This changes, however, when we look at the relevance criteria of the information being *urgent* and *recent*. Here, digital information often wins with respect to availability, accessibility, timeliness, reach, or combinability. With digitalized information, these aspects of relevance are significantly enhanced. For example, the internet has turned into the world’s largest library, and Information Technology now processes information with global reach and in real-time.

**Exclusivity**—While relevance determines the value of information from the perspective of the information consumer, exclusivity looks at it from the perspective of the information provider. Information, by nature, is not exclusive in that it is not limited like some tangible goods. A diamond, for instance, is exclusive because the number of (natural) diamonds available is limited. In contrast, an infinite amount of information can be produced, and many different sources can produce the same information. A more fundamental problem for information markets is introduced by the idea of information as a good. Unlike products or services, a specific
information unit can be sold by many and bought by many at the same time. There is no scarcity. In classic markets, only one consumer can buy a specific product at a time.

Exclusivity of information today depends on questions such as: What alternatives are at hand from which consumers can get the information? What effort is necessary to produce the information by himself/herself? Another key aspect of exclusivity is the brand image of the information provider. With the same information available only a mouse-click away, information consumers will only show some loyalty if the brand image of the provider is strong enough. The search engine we use is a good example, if you consider that the search results are most likely identical among the leading providers. But, most of us show a high loyalty to one brand.

Channel—Finally, the distribution channel has an impact on the value of the information. The value changes with the different channels chosen, as well as by the number of channels from which it is available (for example, book, newspaper, magazine, television, internet, etc.). Depending on the type of information (by utilization or purpose) the value increases or decreases. A good example of the channel value being different is the fact that people are willing to pay more for a printed book than for an e-book—even though the content is literally identical.

The channel also correlates with relevance and exclusivity. For example, information that is available through multiple channels, such as news, can’t be highly exclusive—a problem classic print media companies now face. Or, if information is provided through the right channel(s), it increases the relevance. To be relevant to Generation Y, for instance, information has to come through digital channels.

What Has Changed

The Internet as the main representation of a digital channel has astoundingly extended the capabilities of information consumers in a previously unmatched way. When looking back to the criteria of relevance, it is obvious that the quality criteria have not changed; arguably, some say the quality has diminished. But the contextual and comparability criteria changed significantly now that information is distributed over the internet. Today, we collaborate on and contribute to information we consume. These capabilities, offered only by digital channels, add value to the information consumption process. The paradox is, however, that the price consumers are willing to pay for information through digital channels dropped despite the amazing value that adding capabilities introduced. The main reason is, in my opinion, that the information provider lost control over the information, which was then taken over by the channel providers.

The framework introduced here is useful in evaluating and assessing the value of information. It can be used by anyone who is concerned with information management to identify how it creates value for the information systems or information customers. The CIO can also use the framework to shape strategy and maximize the value of his/her IT systems. Using the relevance criteria, for instance, can help address the information overload issue and the growing cost for managing astronomic amounts of data, which might not be as relevant as expected.
Turn Your Information into a Profit Center

Information management is a cost of doing business. This, at least, is the traditional view. Information is needed to complete transactions, optimize the supply chain, make decisions, and support all kinds of business and management processes. This view on information is based on accounting principles that were defined in the early twentieth century, reflecting the industrial economy. Goods were defined as the primary flow within an organization, money as the secondary flow, and information as the tertiary flow. Accountants and auditors are tasked to check if these three flows are aligned.

Today, in many cases, information has become the primary flow within organizations. Financial services institutions do not supply goods, and even the flow of money is merely information exchange. Manufacturers often produce goods to order after the order is specified and the money is (partly) paid. Some organizations in the service industry specialize in offering an "experience". It’s the information that drives the value, not the product. Many business models offer the opportunity to turn information into a profit center. There are multiple ways in which information can be used as a competitive differentiator.

Service Bundling

Instead of using information to support your own business processes or decision support, it can also be used for the business processes and decision support of your customers—information as a service, or business intelligence as a service, if you will. This is not a new idea. The local butcher and grocer have always been willing to give you instructions on how to prepare the products you’ve just bought, or have even offered complete recipes.

However, since the advent of the Web, sharing information with customers has become a common practice for many businesses. Some utility and telecom companies provide personal pages on their Websites that give you information on how much energy you use or outline your calling behavior. Retailers provide their franchisers with benchmark information on business performance at comparable outlets (or, as a noncustomer example, sell the point-of-sale information to their suppliers). Logistics firms are offering track-and-tracing information to their customers. Travel firms offer office managers reports on the travel costs of employees that book their travel online. The list of examples is endless. What they all have in common is that customers get the relevant information they need to manage and improve their relationship with you, or make better decisions regarding their own business or lives.

At first glance, these examples may seem dangerous, as you are basically giving customers information that will help them pay you less money. However, the business case for these
initiatives should show that these short-term costs are compensated for by long-term customer loyalty and increased switching costs.

Community

You can act as the facilitator of information sharing as well. Other stakeholders may also be willing to share with each other. A lot of value can come from turning your customer base into a community. An important success factor is to link a community to an existing business process. One healthcare insurance company I am familiar with has turned one of its simple business processes into a community experience: the process of moving a household. Instead of simply taking note of the new address, the insurance company also offers to transfer its customer to a new general practitioner, dentist, and other specialists, based on the ratings of other customers. Or, if you need more information before making a decision, the insurance company provides a Website that contains all the ratings for you to review. What is especially interesting about this example is that this business process may have a higher cost than the straightforward one (take note); however, it saves a multitude in extra costs related to the claims process. Bundling customers and making use of less doctors and specialists leads to economies of scale.

Another business process that can lead to community sharing is something as straightforward as a registry. Registering the use of products and services usually is not a value-add process from a customer’s perspective. The best it can be is easy, unless you introduce downloads, games, or something else of value on the registry Website, or hints and tips contributed by another customer and rated by other users. This creates value. Any process that is linked to the use of a product or service can benefit from a community program, unleashing the creativity of the users.

Adding Value

Of course, multiple models can be mixed. This is where you add value to existing information and share it. Adding value is done, for instance, by filtering the information to make sure only relevant information is shared, or through certification, where you guarantee the accuracy of information. Another way of adding value is by offering your interpretation of or opinion about the information so others benefit from your expertise. Banks often employ financial analysts who write reports on the health of certain industries. Access to this information may assist you in making better investment decisions. IT analyst firms have built their entire business model by adding value to information and selling it. In fact, you can argue that the Journal of Management Excellence is based on this model.

Show Me the Money

It is clear there are many ways to share information, but somehow these methods need to contribute to business performance. There are multiple ways to price information. First of all, you may decide to give it away for free, because you believe sharing the information drives traffic to your Website, is good for your public relations, or is connected to generating more or better
business in another indirect way. This is fine, as long as you measure that this is indeed the case. This can be done through a simple survey that asks users how the information has influenced their purchasing decision or the use of your products and services.

The business model of most internet-based companies is to charge nothing for the service (like searching with Google, watching YouTube videos, or using Facebook), and instead finance the operations (and your profit) through the sale of advertisements. Again, this is not a new idea. Many professional magazines based on controlled distribution are funded by advertisements.

However, you can also choose to establish a direct link by charging for the information. If the information supports large, once-in-a-while decisions in a market offering a lot of choices, usually you sell the information once. If, however, the information flow is repetitive, changes all the time based on market circumstances, and supports similar decisions over time, a subscription model may be more suitable. Increasingly, subscription-based information is moving to the Web and away from sending out physical carriers.

Sometimes decision support needs to be tailored and more than one person might be needed to provide that tailored information. One way of charging for that is by the hour. This is the business model of many consulting companies. Increasingly, intermediaries in the financial services industry and real-estate agents move away from commission-based earning models and adopt the idea of charging customers directly.

Of course, all kinds of hybrid structures are possible, too. For instance, offer information for free first, and start charging for it later (like the online newspapers try to do). Or differentiate your service between a light version that is free, and a full-access version for which you charge. Offer a subscription to provide discounts on pay-per-view, offer personalized services on a fixed-price basis, and so forth. In the end, deciding how to charge for information is no different than charging for other types of services. It, too, is a business.

In Conclusion

Information is an asset and should be used that way. In almost every industry, there are examples of how sharing information with customers—or other stakeholders, for that matter—can lead to more profit, higher customer loyalty, and competitive differentiation. However, to turn information into a profit center usually requires a cultural shift. Information should not be hoarded and used for political reasons, but should be shared as much as possible. It also requires more robust technologies that are able to handle around-the-clock uptime and have scalability beyond the classical constituents—the managers within the company. Look at the information you have that can strengthen the customer relationship by sharing it. Identify which business process can benefit from community building. See what value you can add yourself, and figure out how to price it. This is how you can turn information management into a profit center.
Destroying the Value of Information

Strange as it may seem, data is no longer the issue. We have loads and loads of data and it comes in all shapes, sizes, and formats. We have data in warehouses and data in marts. We have data in our enterprise resource planning (ERP) system and data in our GL. The real issue is our lack of information and our ability to properly process and distribute the information quickly. If we cannot properly process and distribute information quickly, we run the risk of destroying the value of the information we are striving so hard to attain.

Left to their own devices, business users will fend for themselves. More times than not, we see a chasm between data and information; a chasm filled by books and books full of spreadsheets. On their own, spreadsheets are not the issue. We rely far too much on spreadsheets as a form of Swiss army knife. Though it may work in the short-term, calling this approach a “process” seems to be a stretch, at best.

Spreadsheets are fantastic personal productivity tools; unfortunately, we overuse them. More to the point, we are not using spreadsheets properly. Time and time again, I see user analysts creating massive workbooks, filled with dozens—if not hundreds—of sheets and calling them “applications.” Recently, I met with a CIO who dubbed spreadsheet workbooks “spread-marts”; for example, a data mart built using a spreadsheet workbook.

Typically, spread-mart–based applications have very little to do with process and, therefore, the value of the information therein is suspect. The vast majority of these applications are cobbled together using features such as cut, copy, and paste, or worse yet, by retyping data from reports. In my mind, neither approach qualifies as a proper process. In the end, well-meaning users are actually destroying the value of the information contained in the spread-marts because of a lack of process and, ultimately, questionable content.

Why Are Spread-Marts Proliferating?

First, in many organizations, IT controls the data needed to provide the required business analyses. Data may be found in an enterprise data warehouse (EDW) or similar storage device. Standard reports and dashboards are used to access the data and provide appropriate information. Query mechanisms may be established to allow business analysts more ad hoc access.

Unfortunately, these methods are often incomplete or the views of data have become outdated. Additionally, the means by which users access data are often complex and perceived as difficult to use, especially when compared to spreadsheets.
Second, when faced with the challenges outlined above, analysts adapt by obtaining data and storing it away in spreadsheets. At first glance, a spreadsheet is simply a calculator, enabling one to enter, store, and format data. Analysts love the ease of use and control! However, a deeper examination reveals a few key challenges:

- **Spreadsheets are personal.** If others want to see the data, copies must be distributed. Furthermore, as changes occur, revised copies must be distributed to replace previous versions. Version control is very difficult to manage.

- **Formulae are cryptic.** For example, let us assume that Profit = Income - Total Expenses. In spreadsheets, you might find B4 = B2 - B3. See figure 1.


![](figure1.png)

**Figure 1: Spread Sheet Formulae**

- **Formulae are cell-based.** Reviewing figure 1, January is found in column B. To calculate the remaining months and Quarter 1, adjustments must be made in each formula. Granted, one may generate these changes easily enough using the copy and paste tools in a spreadsheet, but a simple mistake can have huge implications.

To reinforce the above points, let’s look at a case study.

During a presentation on the value of analytics, I encouraged attendees to watch for runaway spreadsheets. Afterward, one attendee called to ask if I would meet with one of his clients, a very large consumer package goods (CPG) company.

In the meeting, the CFO said that spreadsheets were over-used and that the analysts were over-taxed. He feared that if this continued, stress levels would escalate. The CIO told me that they were looking for a better solution for self-service querying and reporting. Their legacy ERP system was used to run all core transaction processes and that a data warehouse (DW) was implemented using the legacy ERP system in an effort to provide ready access to data. Eventually, IT became a service bureau for the majority of report requests, as analysts found the DW difficult to use. Per the value chain presented above, IT was providing access to information and storing, structuring, and processing it, but the presentation and access methods were lacking. Information is only valuable if it is accurate and you can access it.

With the volume of requests increasing, IT became frustrated with the analysts. Providing information on a timely basis became problematic. Soon, analysts grew tired of waiting and began developing their own database using spreadsheets. Instead of making a series of individual requests, the analysts requested huge volumes of data per the current set of questions. The data was imported into dozens of sheets in a spreadsheet workbook, then hundreds of additional
sheets were created by referencing the imported data. It seemed like such a quick and elegant solution that also provided more timely access to data. These new sheets were used for creating simple-to-complex calculations and for providing formatted views that were later printed. Now, analysts could visualize, enhance, combine, and collaborate. Seemingly, the value chain was now complete. Instead, the analysts had actually destroyed a once solid integration process and degraded the value of the information they were seeking.

Analysts soon learned what it took to administer and maintain a system. Data was imported monthly and sometimes, due to organizational changes, the new data did not fit. As new products, markets, channels, customers, etc., were introduced, the number of rows imported into the sheets changed and formulae became suspect. Spreadsheet formulae are cell-based, so the sheets used to calculate and present the information needed validation. The 28 MB+ workbook was distributed to over 300 users via e-mail each month, putting pressure on infrastructure.

As months passed, the time required to validate the information increased and shortcuts were taken. Their monthly system was taking nearly three weeks each month to maintain, further degrading the value of the information as it was no longer timely. Additionally, the shortcuts used to decrease maintenance time were disastrous to the accuracy of the data.

Months later, they discovered a loss associated with a divestiture. The asking price they projected was based on a calculation that was incorrect. Several formulae in the spread-mart had not been adjusted after a product category restructure due to a lack of process. For one brand, this meant consolidating just five of the now six categories. The summary of brands was less than reality. Unfortunately, the asking price for this brand for the divestiture had been negotiated using data from the spread-mart, creating a gap (loss) of millions of dollars. They had destroyed the value of the information by replacing the old, accurate-but-slow process with the spread-mart application.

After this mistake, they were officially ready for a change.

With their very large workbook in hand, I created a proper multi-dimensional database. The principal difference in my approach: one—and only one—formula per metric! This means that your change management problems are virtually gone. Also, post-implementation of the model, the customer enjoys access to the information as soon as it is available from the legacy ERP DW, or roughly two-and-a-half weeks faster. Plus, instead of using e-mail to send a large workbook to hundreds of users, the users simply use spreadsheets directly against the multidimensional database. So, while they still use spreadsheets, they are using a more database-centric approach.

Best yet, the analysts are still responsible for maintaining the application. This makes both the users and IT very happy—self-service reporting and analysis for the users with a safer approach, sanctioned by IT. The value of the information created remains high. Everyone wins.

In Thomas Oestreich’s article, “The Value of Information Part 1—The Framework,” he discusses the four factors that increase the value of information: relevance, channel, exclusivity, and processing. Using spread-marts inappropriately can easily abuse the processing and channel factors, destroying the value of information you have strived so hard to attain.
Culture and the Value of Information

By Toby Hatch

I had the pleasure of interviewing Dr. Raef Lawson, Vice President of Research and Professor in Residence, Institute of Management Accountants, about his opinions on and experiences with VOI.

JME: Dr. Lawson, how do you define the value of information?

Lawson: That is a tough question as it can mean different things to different people. In general, I subscribe to the “information theory” definition of information: information is that which will provide a reduction of uncertainty. The value of information is what you would be willing to pay for that reduction of uncertainty (in money, time, or other resources). In other words, if the information provided (or found) will help reduce or eliminate high uncertainty, you would likely value it more and be willing to pay a lot for it.

JME: Do you believe the value of information is changing?

Lawson: I believe that the use and availability of information is changing, which, under certain circumstances, can increase the value of information. Value exists if the information is relevant and can be used to reduce uncertainty. If uncertainty can be reduced in a more timely manner to save time or money, prevent mishap, gain competitive advantage, improve quality, etc., this can increase value. For example, in the past, line workers in many western cultures have often not been provided with information that is valuable to them in the performance of their job. However, in many eastern cultures, which tend to be more collaborative, this is less the case.

I had the opportunity to travel throughout China to study management accounting practices and learn whether and how they differ from western practices. This country has a culture in which information is considered essential and valued at all levels. Similarly, Japanese companies like Toyota that provide useful information to their workers on a real-time basis are more efficient and effective than those that don’t. For example, knowing what my defect rate is in the last 15 minutes is valuable as I can immediately act on it. Knowing the defect rate from last week is not as valuable because I can no longer act on it. Toyota’s production system has up-to-the-minute control charts and every employee is empowered to stop the production line if there is a problem. The information provided to the workers is extremely important to the efficiency and effectiveness of production, and the employees understand this when they are given the authority to act on it. The information is now relevant to them and, therefore, important.

JME: Why do you think the eastern and western cultures differ in this respect?

Lawson: The West has traditionally had a more top-down approach to management, and information often did not (and currently does not) make its way down to front-line workers,
although this is changing. Valuable information often does not reach organizational levels where it can be properly used to reduce uncertainty. Some managers even withhold information as a source of power. Chinese culture, on the other hand, is more communally oriented, and providing information at the front-line level is generally considered important to enabling workers to do a better job.

An important aspect of cultures such as China’s is working for the common good. These cultures understand —more than many in the West—that the sharing of information at lower organizational levels is essential to better handling organizational work.

Even though their society was largely isolated from the rest of the world for nearly 30 years, Chinese organizations faced similar planning and control issues as their western counterparts, and they also had similar information needs with regard to these issues. To address these challenges, Chinese companies developed management tools and techniques, such as mass line accounting, based on their own practices that were remarkably similar to many of those developed in the West.

For example, during the 1950s, Chinese firms pushed the country’s economic accountability system down to the lower organizational levels. Given the focus on maximizing production (or at least achieving production quotas) under the planned economy, it is not surprising that a diverse set of performance metrics was employed (including measures of production, efficiency, quality, cost, and safety, among others), rather than just profitability. More diverse data provided more relevant information that they could use to reduce the uncertainty in their manufacturing plants.

The use of a diverse set of performance metrics by many Chinese companies carries on to this day. Each company I visited evaluated its workers’ performance using this type of diverse scorecard. Understandably, with the transition to a socialist market economy, the importance of the various performance metrics has changed; cost and profit, often disregarded or of little importance in the past, are now key measures.

**JME:** Interesting. So, the culture of the East has had an impact on how they value information?

**Lawson:** Most definitely.

**JME:** What have you learned from Chinese enterprises that would help the West?

**Lawson:** We were given unprecedented access to Chinese companies in order to conduct our research. We had the opportunity to interview executives, managers, and line workers from companies in diverse industries—diverse in terms of industry, type of industry, and geography—during our visits. Our research regarding the practices of Chinese companies has validated the idea that having relevant, reliable, and timely information is critical to organizations succeeding, especially at the appropriate level of the organization. Adopting incentive programs that reward more balanced behavior—when output benefits the entire organization and not just one person, department, or single part of a value chain—go a long way.

**JME:** Do you believe the channel through which you get information also affects the value of it?
Lawson: Yes. The channel through which you get information can affect its perceived validity, and hence its value. Often, we go to multiple channels (books, television, Internet, and authorities) to find the most reliable source of information for the intended purpose, and only when the information is relevant, timely, and from a reputable source do we consider the information valuable. It is also possible to find information that is accurate and should be considered valuable, but if it came from a channel that has a questionable reputation, the perceived value can be questionable. Wikipedia is falling into this category for some professionals.

JME: So, in general, do you think anything has changed with respect to VOI?

Lawson: Availability of information has changed greatly over the last 20 years. Now, vast amounts of information can be retrieved much more quickly through multiple channels. Information is often much more up-to-date, and often more relevant. Historic information can also be retrieved more readily (scientific studies and theories), which often contributes to the value of information we use today.

JME: What do you see happening in the future with respect to VOI?

Lawson: I am hopeful that Western companies will increasingly understand and continue to adopt the idea that information can be a valuable tool, not just for reporting and control, but for improving our society. It should be shared with all levels of an organization for which it is relevant. Reducing uncertainty, where economically feasible, makes sense at every business level. We must also be careful of the opposite problem as well. Bombarding people with too much information can have a negative effect. People can spend so much time analyzing volumes of information, which may or may not have value, that they may become ineffectual at their jobs.

Dr. Lawson will be returning to China for follow-up visits. Now that the lines of communication are open, and the Institute of Management Accountants has signed research agreements with various universities, he hopes to provide guidance to Chinese organizations on Western best practices, as well as learn from Chinese counterparts regarding practices and methods used in the East.
The Information Value Proposition

Value is in the eye of the beholder, to paraphrase a well-known saying. If the value of information is not perceived, then there is none. All the more peculiar is that there is no such thing as an information value proposition. A value proposition is a promise of what something will do for you. In many cases, the implied information value proposition is that you will make better decisions. But how can that be promised? Isn’t it up to the user to make decisions for himself/herself? Even if information is perfect, it can still be misunderstood or undervalued, and the decision-making process, therefore, will be very poor. And for whom are the decisions better? If we make decisions in isolation, we are sub-optimizing our own goals.

Increasingly, information is being used for stakeholder management. We outsource activities, but need to manage them. We co-create with partners, and need to monitor that. We make our value chain lean by connecting information systems. We attract capital and avoid regulatory issues by being transparent. The information we produce is increasingly meant for stakeholders outside our organization.

Most people are familiar with the term customer value proposition—what you promise to achieve for your customers. We could extend the concept of the value proposition to all stakeholders, such as an investor value proposition. A less-commonly accepted term would be supplier value proposition, stating what the organization promises to achieve for its suppliers. However, there is logic to this concept. If an organization requires the contribution of its suppliers to match the customer value proposition, it needs to reciprocate. Unless the switching cost to another supplier is negligible, firms need to mind the requirements of the supplier for sustainable success.

In a transparent world, the promise made to customers to be reliable, while at the same time treating suppliers badly, impacts the firm’s image and authenticity. Promising the shareholders high returns, while the margin on the core business doesn’t support that, leads to dysfunctional organizational behavior. Stakeholder value propositions need to be aligned to provide a common purpose. That is the information value proposition, which can be expressed through a stakeholder alignment map.

To see how a stakeholder alignment map might look and how it is built, let us consider the example of a food-processing firm (FPF).
The value proposition of FPF is very customer-centric, to avoid commoditization. Utmost attention is paid to the consistent quality of its products. The customer value proposition of FPF is a safe bet for its customers.

For the suppliers to FPF, the company promises to pay a fair price on time, but they can do even more. Some firms in the agricultural/foods markets are known to help their suppliers (farmers) when there are crop issues due to unforeseen weather circumstances. This can be in the form of financial aid or other services, helping farmers improve productivity and efficiency. FPF’s supplier value proposition can be summarized as being a safe bet.

- The investor value proposition is usually very straightforward to provide a competitive shareholder return. The shareholder return of the food-processing company may not be as high as in other industries, but instead the return may be relatively stable. In other words, it could be a safe bet in the portfolio of investors.

Companies are part of society as well and they need to show they are responsible citizens. One way is investing in sustainable technology and encouraging their suppliers to do the same. Having products that help customers be more sustainable can create a high level of societal approval for the company, and the company will likely be viewed as a safe bet. Investors and customers also appreciate the society value proposition—sustainability and stability.

Regulators can also be affected by the company’s value proposition. The regulators value proposition is consistency in reporting and behaving in a responsible manner. If FPF is in control of its value chain, does not have a lot of volatility

Figure 1: Stakeholder Alignment Map, Part 1

Figure 2: Stakeholder Alignment Map, Part 2
coming from investors and shareholders, and treats its environment with care, regulators will not be as inclined to scrutinize its every move. This leads to a consistent press image, which is appreciated by customers, suppliers, investors, and society. Regulators also see the company as a safe bet.

Once all stakeholders have a common purpose—in our example, creating a safe bet—there can be a more-uniform understanding and interpretation of information.

Common goals and objectives do not bind the stakeholders of an organization, as each stakeholder has its own requirements. That much is clear. Information creates business value if it supports a common understanding of the purpose of the relationship, such as serving a customer, creating joint profitability, or creating jobs. The moment there is no common understanding of that purpose, the stakeholder relationships, and, consequently, the long-term success of the organization, are in danger. It is the task of each organization to manage its stakeholder relationships, and the alignment of the overall value proposition. This is the information value proposition.

Having an information value proposition is an excellent way to ensure that the needs of the stakeholders are satisfied (by providing information about their requirements), and that their ongoing contributions are aligned with the organization.