maxmetrics
Management & IT Consulting

Measuring up

How to maximize performance metrics by deploying technology to enhance business decision making and management

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Introduction

What is new and different in today's decision making and management process is the use of technology. Traditionally, instinct, gut, or only qualitative analyses were used in making key business decisions. Today's decision-making and management business processes interjects technology as a key factor and tries to systematically provide useful data to the right people to facilitate informed decision making and management. Furthermore, data-driven decision-making and management methods provide insightful analysis on what could happen in the future, through various types of technological predictions and forecasts. With such information in hand, executives, managers and employees are better armed to make decisions and manage based upon carefully empirically solid analyses.

Figure 1 Technology in the Decision Making Management

In the quantitative decision making and management paradigm there is a technology platform which can be used to manipulate data and provide information. The information is used within an organization's business process for decision making and management.

Many different types of technologies – business intelligence, data warehousing, data mining, performance management – can form part of a technology platform. The technology platform is all about providing the solutions, tools, and techniques to support the information process.

The information process relies heavily on the use of data: historical data, predictive data, forecasted data, and descriptive data in structured and unstructured formats. Using the technology platform, data is collected from a variety of input sources, analyzed to address specific business topics, and then provided to the business process to support decision making and management.

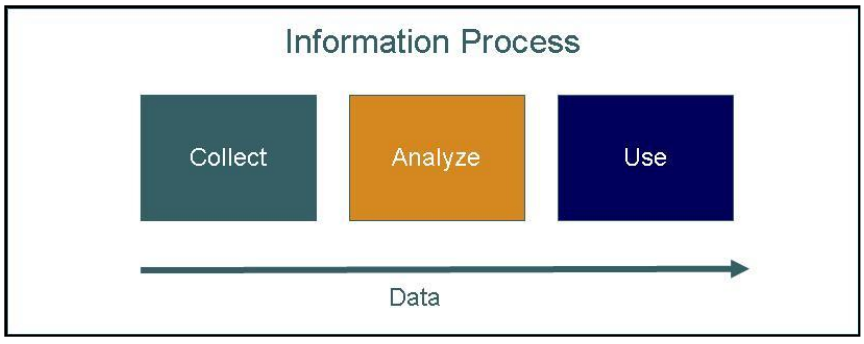

Figure 2 Information Process

The information process can be defined as the process for collecting data, transforming it from raw, unstructured data to business-use-ready data, deploying it, and then using it in the business.

There are a number of challenges in making the information process a reality.

- **Challenges related to the data itself.** Collecting data takes time, the data is not always available, the data is not consistent across departmental boundaries, there are quality issues with data, and the data requires giga-, tera-, and peta- bytes of storage space (or lots and lots of space).

- **Analyzing the data is not without problems**. Which techniques and methods are used to perform the analysis? Do people within the organization have the right skills and competencies for the analysis?

- **Competency.** The people that know about the data, understand it, and use it on a routine basis have to be identified and made available for the initiative. They have to participate in analyzing the business processes and must define the standards for the data.

- **Politics.** Often there are political challenges around establishing information processes. Data initiatives compete with other programs and the operational business for access to people and other resources. Decisions have to be made about what comes first and what takes priority. There are issues around ownership; who owns what data, and can it be used in new and different ways.

- **Credibility.** Using data in the decision making process means that the right people must know that it exists, have access to the data, have the skills to apply it to the business process, and can trust the data enough to use it.

While the challenges may seem daunting they are not insurmountable.

Interestingly enough, most of the challenges are not only technology challenges but can be manipulated with technology. For each challenge or topic along that information process there are one or more types of software to address that challenge (along with several corresponding buzz words). Software vendors are driving massive business transformations as companies implement their technology.

(Successfully) undertaking an initiative to transform the decision-making and management process into a quantitative method has to involve the business as well as the information technology (IT) departments. It will take a willful act of management to go through such a project and change the organization to use the results.

Benefits

Using an information process for decision-making and management can have positive financial benefits for an organization. It can compel an organization to the top of the market space, increase revenues, help to save or eliminate costs, meet regulatory requirements or improve corporate governance. An information process is applicable to and can bring benefit to every industry and most functional areas.

Examples we have seen:

- A semiconductor solutions manufacturer improved business processes and saved over $45 million in under three years.
- An energy supplier achieved a comprehensive profile of its customers and cut expenses by 20% within four years.
- A military group saved $423 million using planning and business intelligence.
- A professional services group reduced budgeting time from two weeks to 24 hours.
- A bank quadrupled the rate of customer response to direct-mail solicitations.
- A bank met regulatory reporting requirements and earned higher profit margins.

The following list indicates some areas where implementing a technology platform and information process could provide business improvements.

Sales & Marketing
- Conversion rates
- Cost of customer acquisition
- Marketing campaign effectiveness

Human Resources
- Staff retention rates
- Compensation and benefits

Call centers
- Telesales success rates
- Staffing optimization

Financial Management
- Consolidation & reporting
- Budgeting
- Performance monitoring

Risk Management
- Credit losses
- Loan default rate
- Statutory reporting

Supplier
- Inventory levels
- Lead times
- Supplier quality

Network operations
- Network traffic

Customer support
- Problem prevention
- Resource allocation

Considerations

The considerations for implementing an effective information process are many-fold, but can be broadly grouped into four categories: data, teams, technology platform, and deployment.

Data

Data used in the information process comes from many different sources, including internal operations systems or external sources. The operational systems are usually very diverse in what the data means, how the data is stored, and who has access to the data. An operational system may be an Enterprise Resource Planning (ERP) system, such as SAP® or Oracle®, or a personal productivity tool such as Microsoft® Excel spreadsheet.

The type of data that is needed to support the information process will depend heavily upon the business process and what information can support the decision making or management process. Typically source data comes from core business systems, systems that track data about customer interactions, and sales, financial, supplier, or staff transactions. In addition, external demographic, statistical, financial, and competitive data may also be required.

Bringing together data from different sources that were never meant to be used for any purpose other than what they originally stored, can present big issues with transforming the data. Also, as the data is studied quality issues with the content of the data will be uncovered, even within one system. Therefore establishing data governance will be a key step for ensuring the use of quality, consistent, reliable data.

Teams

To collect the data, analyze it and then make it available in a presentable format two teams will be required.

First is the team that builds the infrastructure needed for the information process. In fact, they will implement the technology platform and establish the information process that allows for continuing on-going use of the data. This implementation team and may consist of some of the organization's staff, the software vendor's consultants and system integrator's consultants. They work for a dedicated time period based upon a set of business requirements to put into place the technology platform and information process.

However, business is always evolving; the competitive landscape is constantly changing, and the organizational strategy and management team may change over time. Therefore, the data used in the decision making and management process will not be static. You will need an organizational unit to be continuously responsible for the use of the technology platform and information process over time. This will be the second team.

The second team is a dedicated organizational unit that consists of technological, business and analytically-minded people that will continually use, maintain, and adapt the technology platform. They will support the deployment of the information process, its maintenance over time, and introduce changes to the information process as the business situation and requirements evolve. (There will be more about deployment later.) This team is typically made up of the organization's staff, but some of its responsibilities may be outsourced or subcontracted to consulting companies or vendors.

Gartner Inc. (www.gartner.com) is the world's leading information technology research and advisory company. They have conducted a vast amount of research on the topic of business intelligence (BI) and using information for decision making. They first created the terminology and concept for a BI Competency Center (BICC). They advocate that companies need a BICC to develop and focus resources to be successful using business intelligence.

In short, a BICC is an organizational entity that coordinates the activities and resources to ensure a fact-based approach to decision making is systematically implemented throughout the organization. It has the responsible for the governance structure for BI & Analytical programs, projects, practices, software, and architecture. It is responsible for building the plans, priorities, infrastructure, and competencies that the organization needs to take forward-looking business decisions by using the BI & Analytical software capabilities that are available.

Therefore, setting up a BICC should be given strong consideration as a way to bridge the implementation and deployment teams and successfully change the way information is used within your organization.

Technology platform

The technology platform will be a combination of different software that is integrated to build a unique information process. The technology will consist of software from one or more vendors: Nevertheless it will consist of technologies to collect, analyze and present the data in a usable format. Typically, the software will be implemented across a number of different hardware environments and geographic sites according to business and IT requirements and IT standards.

The information process will be the organization's proprietary decision-making and management platform. Therefore the specifications for establishing the information process have to reflect the organization's distinctive competency and allow for innovations to adapt the future business strategy.

Typically, there is no standard software solution for the information process that will 100% out-of-the box fit any organization. There are, however, a typical set of questions that businesses in the same industry will have. From these, most software vendors and consulting companies have created reusable reference models, including data, analytical, and reporting models.

The big differences between organizations are usually the data content and data sources, the management and decision making strategy, how the data is interpreted and presented into the organization, and of course, how it is used in executing the business strategy. These differences will derive the kinds of customizations, calibrations, and custom software development needed to establish the information process.

Deployment

The next critical aspect is having a deployment and usage strategy. It will be critical to ensure that the proprietary information process is deployed to the people that need it to make decisions or that it is integrated into the relevant operational systems. The deployment strategy has to ensure that the end-users understand the information that is provided to them and they are able to interpret and use it as part of their routine job responsibilities. Essentially the information process has to be made operational in the business process.

Related to the deployment strategy, a deployment team will be needed (the second team referred to earlier). This can be a department, division, shared service center or a competency center. Its size, structure, and mandate can, and probably will, change over time.

No matter what the team is called, it must actively support or use the new platform and processes in decision-making and management. It will also be responsible for adapting the technology and processes over time according to the business needs.

Challenges

There are of course some challenges, limitations, and issues with implementing an information process. Here we identify some of challenges and attempt to make some recommendations.

Timing

The biggest challenge to using data in the information process is having the data needed in the right format at the right time -- when it is needed to make a decision. This needs to be addressed by having a prepared platform (such as a data warehouse) that addresses the core, critical business questions and at the same time have having an adaptable, flexible technology platform that allows for new and different questions to be addressed at any time.

The project owner will need to describe their information requirements. Based upon the information requirements, there should be an assessment to determine if the information and required data already exist within the organization. Most likely, there has already been a data warehousing, business intelligence or information management project in the organization. Perhaps that existing technology platform could be used. In that case, the first step may be an awareness exercise to determine how it could be used to support a new information process. Otherwise, the initiative will need to establish a new technology platform and a new information process.

If the organization has implemented a balanced scorecard or lean six sigma process, then the performance metrics and their relationship to the business process are mostly likely well defined and documented. This information would be extremely beneficial in planning the information process and building the business case as to how this initiative will benefit the organization.

If the organization does not have such information at hand, the following simplified methodology may be used in an iterative fashion to support defining the information process and build the business case

For each key performance indicator (KPI):

- identify the business actions needed to modify the performance against that metric.
- identify the key decisions required to select the appropriate actions.
- for each decision, identify what business questions that must be answered.
- determine the data inputs needed to make the decision.

For each performance indicator:

- how and how much does improved performance of that indicator impact the business (e.g., reducing costs, increasing revenues - high, medium, impact)?

For each data input:

- identify when and how often the data is needed (e.g., daily, monthly, annually).
- determine how many people does it currently take, and for how long, to collect or prepare that data.

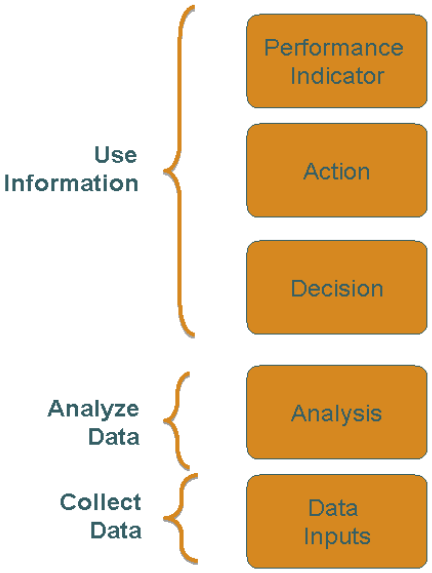

Figure 3 Defining the Data Requirements

This process may be needed per line of business or business function. This will provide input for determining the information and data requirements. Furthermore, it provides support in defining the business case for such an undertaking.

Technology

For establishing the technology platform, there are many different types of software required from many different software vendors. The technology will be needed to collect the data, store it in a usable format, analyze the data, and then present it in a way that supports decision making and management. The presentation of the information can be in many different forms, including reports, graphs, dashboards or, being integrated into the operational systems.

Collect	Analyze	Use
Data warehousing	Data mining	Query and Reporting
Extract-Transform-Load, ETL	Online-Analytical-Process, OLAP	Online-Analytical-Process, OLAP
Database	Statistics	Performance management
Operational Datastore	Text mining	Analytical solutions
Operational system	Forecasting	Dashboard
Master data management	Excel	Portals
Data quality		Operational Systems integration
Data Modeling		

In his paper "A Brief History of Decision Support Systems", D. J. Powers defines business intelligence (BI): "BI describes a set of concepts and methods to improve business decision making by using fact-based support systems."[1]

Using this definition, the entire information process of collecting, using, and analyzing data would be defined as business intelligence. However, this whole technology area is rife with buzz words and the terminology is made cluttered and confusing by the numerous software offerings in this area.

To cut through all of that, the suggestion is to first find an experienced Program Manager and Technical Architect. Give the Program Manager an objective tied to realizing improvements in specific business KPIs with a clear target timeframe. Give the Architect the task of selecting a technical architecture that maximizes the expected business benefit with the quickest implementation period and the lowest cost. This ensures that the key project team members are targeted with delivering business results at a good price. These team members should be part of the BICC.

Cost

Consider the total cost of ownership (TCO) as well as the cost of acquisition. The key consideration in establishing the information process is using the technology platform to provide the required information to the business process. In this respect, expect between 60% and 80% of the implementation efforts to be around preparing the data.

[1] Source: Power, D.J. A Brief History of Decision Support Systems. DSSResources.COM, World Wide Web, http://DSSResources.COM/history/dsshistory.html, version 2.8, May 31, 2003.

Based upon the information requirements, there should be a rough understanding of the data required and its relative value to the business.

- **Quick Wins** Data requirements that have a high value to the business and a low relative cost to prepare will provide the business with valuable information that can be used within relatively low timeframes. Such a situation offers a quick win to the business. The quick wins for the business should be attempted first and foremost by the project team. Quick wins deliver demonstrable benefits that make it easier to obtain sponsorship. The team will also become proficient in delivering results before attempting a larger, more complex initiative.

- **Change Programs** Data requirements that have a high value to the business and a relatively high cost to prepare may require an expensive change program. In this case the business processes and related operational systems may need to be changed to capture the data in a different method. The IT department may be required to undertake a large data management and data quality project. Therefore, such engagements should only be undertaken after there are some quick wins where the business sees the business value of such an initiative.

- **Ad Hoc Reports** Data requirements that have a low relative preparation cost and a low value to the business should be considered for establishing some kind of self-service or ad-hoc reporting environment.

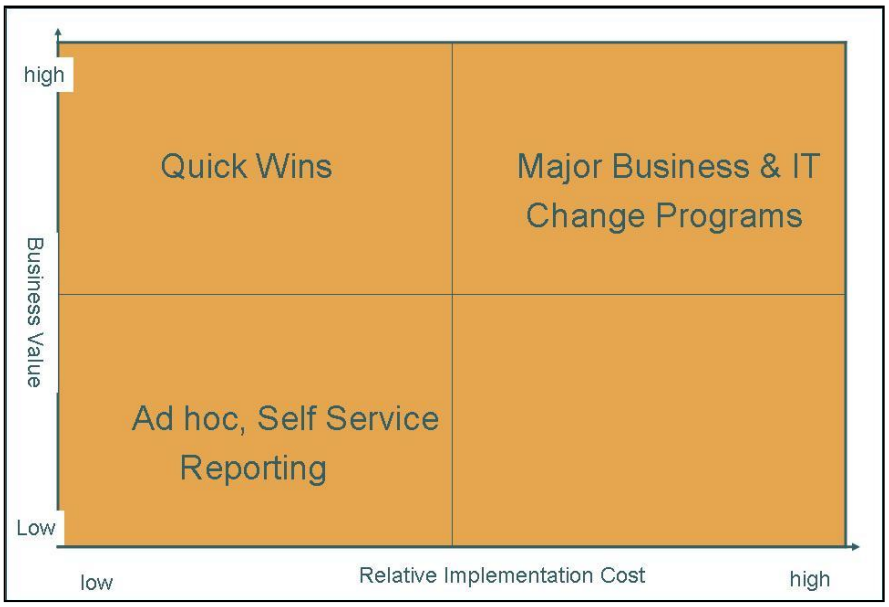

Figure 4 Data Preparation Value -vs- Cost Recommendations

Organization

To implement the information process into the organization there needs to be a program that changes the way different organizational units share information, that ensures consistent terminology and definitions are used across different organizational units, and that ensures that the new information process is really used as part of the business process.

If the program manager is tasked with proving business value, then a program should not be signed off until the organization adapts to its usage. A number of interesting performance metrics can be defined and measured (i.e. by business user surveys) to ensure that the deployment is taking effect. For example:

- Changes in performance of specific business metrics (e.g., marketing costs, retention rates)
- Increase in the number of users
- Changes in business users' behavior
- Changes in decision-making speed or accuracy

Ideally, the performance metrics are determined at the beginning of the initiative. A benchmark for each metric should be established at the project initiation. Methods for evaluating performance changes should also be identified and agreed. There should then be a post-implementation evaluation to identify changes in the metric. It is highly advisable to establish a control group or a test case to test changes in performance before a full roll-out.

The post-project performance should be evaluated at different intervals: immediately post-implementation, 6-8 months post-implementation, and 18-24 month post-implementation. With each evaluation, remediation actions should be undertaken if necessary. Also, successes and benefits should be widely published throughout the organization.

People

Finally, having a true information process depends upon having people with the right competency in the organization. This includes having the data and analytical competencies in house to be able to use and interpret the data and its meaning to the business. These competencies need to be made generally available to staff and management alike and building such competencies is a significant challenge in most organizations.

To combat such challenges, there should be a comprehensive information awareness, competency management and training program undertaken. For this it is suggested to ensure that there is an "owner" for the Education and Professional Development topics included as a team member of the change program. This is another key responsibility for the BICC.

Throughout the implementation and deployment the Program Manager and Architect are two key staff members. These individuals will be entrusted with the resources to deliver the expected business benefits. The following are some considerations in looking for the profile of these specialists.

Program Manager Responsibilities

- acts as the liaison between the executive team, business unit managers, and project teams
- collaborates with the project managers to ensure project plans are aligned with business expectations
- monitors the progress of the project and manages risks and issues
- ensures the program delivers business value
- ensures the program is delivered on-time and on budget

Knowledge, skills

- project management processes and practices, especially project control, issue and risk management
- understanding of internal organizational networks
- understanding of business goals, strategy and processes
- overview of best-practice program structures run by other organizations

Architect Responsibilities

- acts as the liaison between the executive team, IT operations, and project teams
- takes technical decisions about the initiative set-up
- collaborates with vendors, internal IT operations, data stewards/managers
- establishes overall landscape for how the technology with deliver business value
- ensures the program has acceptable timeline and cost relative to business requirements

Knowledge, skills

- overview of database management systems, data warehousing, business intelligence, analytical software, operating systems and networking, security and back-up technologies
- understanding of business goals, strategy, and functions
- overview of best-practice architectures used by other organizations

Conclusions

The effective use of technology in the decision making and management process can bring clear, measurable business value to organizations in every industry.

In essence, it requires the establishment of a technology platform and an information process for decision making and management.

It also requires organizational change to introduce the technology platform and make the information process as part of the business process.

Organizations that have been effective in implementing such programs boast measurable revenue or market share increases, or effective cost reductions or eliminations.

Nevertheless, undertaking such a project is not without its challenges. The bigger the organization the more complex it is likely to be to get agreements on common terminology and the sharing of data and information for effective decision making.

Understanding the software to use, when to use it, how to use it can consume a great deal of time and cost.

Running the implementation team and then ensuring deployment, or better yet *effective* deployment, will require careful planning.

One critical success factor is to establish a Business Intelligence Competency Center and carefully choose the Program Manager and Technical Architect. Ensure the BICC team is measured on the delivering measurable business value in a timely fashion for the best price.

The benefits of such an undertaking will be measurable for the organization and career making for the executive sponsor.

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Additional Resources

Competing on Analytics: the new science of winning
ISBN-13: 978-1-4221-0332-6
Thomas H. Davenport and Jeanne G. Harris
Published by Harvard School Publishing Corporation, Boston, MA

This book defines what it means to be an organization that uses data for competitive advantage and provides a roadmap and plan for building analytical capabilities. It contains lots of cases of organizations that have made that transition, along with the hows and whys.

Business Intelligence Competency Centers: A Team Approach to Maximizing Competitive Advantage
ISBN 0-470-04447-0
Gloria J. Miller, Dagmar Bräutigam, and Stefanie V. Gerlach.
Published by John Wiley & Sons, Inc. Hoboken, NJ

This book describes how to put in place a team that is focused on the deployment aspects of the decision-making platform. It contains a methodology and check lists for establishing a Business Intelligence Competency Center.

Alignment
ISBN 1-4221-0379-X
Robert S. Kaplan and David P. Norton
Published by Harvard School Publishing Corporation, Boston, MA

This book outlines the Balanced Scorecard system to set, coordinate, and oversee implementation of high-level corporate strategy. It offers case studies, actionable frameworks, and sample strategy maps and scorecards to support organizations that wish to use this method to align the company, its board of directors, investors, customers and suppliers and create synergies between business units.

About MaxMetrics

MaxMetrics is a Management and Information Technology Consulting Company specialized around providing expert advice and guidance during complex projects and engagements based upon many years of international experience.

MaxMetrics professionals have vast amounts of experience about how organizations are using software for decision making and management. That experience includes consulting with and training customers on planning their technology landscape and then planning and managing implementations and deployments.

MaxMetrics is well placed to provide vendor facilitation in establishing the technology platform, IT and business consulting in supporting the establishment of the information process, and management and business consulting in supporting the change management for the decision-making and management business processes.

Figure 5 MaxMetrics Capability

Each MaxMetrics consultant has a university education, a minimum of twelve years professional experience in their competency area, and has worked internationally. Throughout the group, there is a diverse set of competencies and skills.

Competency Matrix

Industry	Technical	Functional
Banking & Financial Services	Data Warehousing	Program/Project Management
Telecommunications	Business Intelligence	Global Sourcing, Contract Negotiation
Government	Performance Management	Marketing, Brand Management
Insurance	Data Mining	Professional Development, Education, Competency Development
Software, Consultancy	Analytics	IT Leadership

MaxMetrics consultants can be engaged as consultants or through out-sourcing arrangements (interim positions). In a consulting role, MaxMetrics consultants can provide hands-on advice, guidance or assistance. They can be used to make recommendations on using corporate resources or in deploying technology solutions.

Alternatively MaxMetrics consultants can be engaged in an outsourcing role (interim staffing) acting as part of an organization for a fixed period of time. In such a role, MaxMetrics can help in the implementation or deployment of the solutions.

Given the seniority of the MaxMetrics professionals, they are best engaged in complex or strategic engagements. They can be very helpful in crisis management around troubled engagements or in the vendor selection and negotiation process. Regardless of the stage or state of the engagement, if the desire is to use technology to improve or change the decision making or management process, MaxMetrics can help.

If organizations that are not sure where to start on the way to maximizing business results by using technology in the decision-making and management process, there is a discovery workshop. The discovery workshop is a one day session. During the session questions are asked to understand the organization's goals, objectives and current state. Some potential next steps are discussed on how to proceed in achieving the stated goals.

No matter the method of engagement with MaxMetrics, each assignment has a carefully agreed scope, consistent follow-up and monitoring of the performance of MaxMetrics and its professionals according to the agreed scope, and then agreement of acceptance upon completion of the engagement. Clients should always feel comfortable that they know what they are getting when they engage MaxMetrics and that quality and value are delivered every time.

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