*Information*
*Alliance, Inc.*
*Transforming data into decisions*

Supporting

Corporate Business Objectives

with

Strategic IT Planning:

A Brief Look at the Role of
Information Delivery Assessments

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# 1   Introduction

A key challenge for many companies in today's business environment is to create an effective information delivery solution that enables the leveraging of corporate data assets. Business environments have become extremely competitive, fast paced, and are unforgiving to even the slightest missteps in strategy or tactical decisions. Successful businesses base their decisions on timely information that is gathered, processed, and presented to the end-users with the specific purpose of enhancing the effectiveness of their decision making.

Organizations have discovered that changing the way they use information and deliver it to people across the enterprise can have a profound affect on their ability to compete successfully. Having a well-architected, robust information delivery system in place will increase an organization's ability to compete effectively, and respond more quickly to changing business conditions. Often times, however, information delivery processes are not at the forefront of management concerns.

Constructing an information delivery solution, or making changes to an existing system do not happen overnight. These solutions are best implemented by defining and following a well-planned, incremental roadmap. This paper describes a structured approach toward assessing the "as is" environment, and identifying opportunities for improvement that can serve as input for defining and establishing that roadmap.

# 2   Information Delivery

Information delivery is a process by which information is selected, standardized, and delivered to users throughout the company. It has the ability to transform traditional reporting into an efficient interaction between vendors, customers, partners, and employees. One of the primary goals of an information delivery solution is to provide key information to users without distracting them from the daily demands of conducting their business. Components of this solution include data warehouses, business intelligence tools, portals, dashboards, and decision support tools integrated into a homogeneous architecture with transaction systems to facilitate the timely acquisition, sharing, and flow of information across the enterprise.

Information delivery efforts frequently focus on capturing data from transactional systems to then use in supporting business decisions. Unfortunately, data present in these systems are difficult to leverage, as they are not readily available for use by the general user. Additionally, the complexity of the data and the lack of data integration create situations in which operational reporting and analyses by end-users require substantial expertise and effort. In fact, recent studies indicate the vast majority of data are not readily usable in the decision-making process today.

How does an organization obtain and make use of this data? Often times, due to economic conditions or human or financial constraints, companies are unable to devote sufficient energy toward understanding how to make better use of the vast amount of data they accumulate on a daily basis. The diagram shown below illustrates the transition of data to information to knowledge. Let's explore each of these briefly.
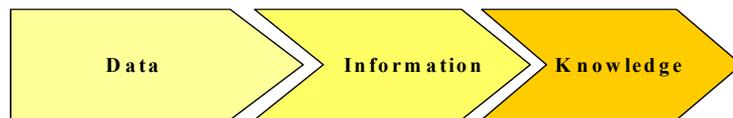


Figure 1

The process begins with company data that resides in numerous locations throughout the organization. The Human Resources Department has employee names, addresses, locations, job titles, hire dates,

termination dates, salaries, etc.  The Marketing Department has (or would like to have) a large amount of demographic data on the company's customer base, as well as sales projections and other data.  The Sales Department has product sales data on individual products and customers, as well as for entire product lines and business units.  The Accounting Department has data relating to revenue and expenses, and other data which ultimately feeds the company's financial statements.  These are just a few of the many examples of data that reside within a company.

Information delivery solutions (e.g. data warehouses, data marts, reporting and analytical applications, etc.) extract data from the source systems, cleanse, integrate, aggregate, and load it into repositories specifically designed for analysis and reporting.  The presentation of this data is where it is truly transformed into usable information, which supports decision-making within the enterprise.  Ultimately, these decisions drive the direction profitability of the company.

The final transformation from information to knowledge comes from the ability to learn from the analysis performed and the decisions that are made.  By retaining and sharing this knowledge, people are able to apply it to future decision making, and are able to enhance this knowledge over time.

Enabling staff and managers to make decisions based on accurate information is paramount to continued success.  The essential step in achieving this is ensuring the company has an effective information delivery system in place.  These systems must possess the following characteristics:

| | |
|---|---|
| **Responsivity** | The system must be able to respond and deliver information in a timely manner which is acceptable to the user.  This is a subjective characteristic and will vary from business to business.  Performance must support the company's needs. |
| **Quality** | The system must deliver correct, consistent, and repeatable information.  In other words, it must provide a "single version of the truth".  Users must have confidence in the data and trust that it is correct. |
| **Flexibility** | The system must have the ability to accommodate the various information needs of the company.  It must be robust and scalable, and be able to adapt to meet business growth, as well as growth of the user community. |
| **Ease of use** | User interfaces must be readily accessible, easy to use, and designed to meet user requirements.  Interfaces should deliver the required capability to end users, while minimizing the duration of the learning curve. |
| **Functionality** | The system must deliver information when needed, in a format that is readily usable, and have the ability to integrate with other components of the company infrastructure. |

A robust information delivery solution generates additional benefits that must be evaluated and factored into the equation for an organization to truly comprehend the total value of their investment.  These are often intangibles that cannot readily or easily be quantified.  Nonetheless, they are important factors.  Additional benefits may include:

- Gaining visibility into the business
- Minimized risk of interruption in information delivery
- Minimized exposure to unproven or sunset technologies
- Improved analytic capabilities
- Decreased customer service and support costs

# 3 The Information Delivery Assessment

A fundamental rule often violated is that "business should drive the technology, and not visa versa". Companies often spend huge amounts on information systems with the hopes that as they mature and evolve, they will "grow into" them, only to realize that their investment dollars would have been more wisely allocated elsewhere. An information delivery assessment can help prevent such occurrences by offering guidance on where money should (or should not) be spent.

When considering such an assessment, it is important to understand what the activity actually entails. It is not simply an inventory of hardware and software used to deliver information. Nor is it a Visio diagram showing the server topology. These things can be quickly obtained from key members of the IT staff. An assessment is an evaluation of the quality of a company's information delivery processes, infrastructure, and source systems, and is based on an understanding of the information needs of the user community.

The assessment is also a gap analysis, which highlights the difference between what users can currently do, and what they would like to be able to do. Related to this, the assessment should identify the particular types of information and/or reporting processes that would help them become more productive.

The assessment can be broad, and cover the complete spectrum of systems, applications, and processes. Or, it can have a more specific scope if certain areas for improvement have already been identified. But in either case, the assessments should concentrate on the areas that the client deems most important. Some specific areas of focus to be considered in developing an assessment for a client may include;

- People involved in the information lifecycle
- Speed and timing of information delivery
- Opportunities for improvement in data quality
- Redundant processing and storage
- Vulnerabilities in processing and storage
- Economic opportunities for improvement
- Security-related opportunities for improvement

*"Companies often spend huge amounts on information systems with the hopes that as they mature and evolve, they will "grow into" them, only to realize that their investment dollars would have been more wisely allocated elsewhere."*

A key activity of an effective information delivery assessment is the identification of the information that is important to your organization, how it must be presented (e.g. summary, details, graphics, etc.), and the timeliness by which it must be delivered. Examples of different types of information are;

- Customer information (e.g. demographics, sales)
- Internal business processes (controls, audit data)
- HR data (labor, compensation, training, etc.)
- Financial performance
- Usage statistics (e.g. frequency of usage or data access)

The information delivery "evaluation" must be performed with an understanding of industry best practices. It must offer a high-level comparison between what the organization is currently doing, and what industry leaders are doing, with regard to information delivery best practices. Is the organization a leader, a laggard, or somewhere in-between? In which areas? The consulting firm performing the assessment must have insight into these best practices.

The specific focus of an assessment may vary depending on the business sector in which the company operates. In logistics oriented companies, the analysis may focus on information delivery to decision

points that directly impact the next step in a critical process. In service oriented companies, efficiency is often constrained by a worker's ability to understand customer needs and quickly engineer a solution. In customer support organizations, the focus may be on information breadth and depth, and being able to effectively move through decision trees to reach a solution that is easily understood by the rest of the organization.

## 3.1 Benefits to the Client

The benefits of pursuing an assessment vary depending on the client's situation. In some cases, an organization or department is faced with tough financial decisions which will limit the capital work that can be undertaken, so they will need to ensure the right projects are being funded. In other cases, a business may recognize risks that they wish to mitigate. In other cases, a project has already been initiated and circumstances have changed rendering a previous objective or assumption invalid.

Analysis may reveal a strong need for an adhoc or online analytical processing (OLAP) solution, and less focus on standardized or "canned" reporting. This, in and of itself, may not present direct cost savings to the company, but will provide the incentive to shift its focus of information delivery. Again, this is a case of "business driving the technology", which is the desired process.

### 3.1.1 Opportunities for Tactical Improvements

Companies can quickly leverage the results of an assessment by evaluating and implementing some of the tactical recommendations that come out of the activity. It is important to recognize that tactical decisions should ultimately fit into a larger overall strategy. Given this, the assessment may identify opportunities to implement "quick wins" that can provide an immediate benefit. When implementing tactical solutions, care must be taken during planning activities to minimize the possibility of unnecessary rework in the future.

### 3.1.2 Alignment with Strategic Initiatives

Organizations need to be confident that the existing information delivery systems, methodologies, processes, and projects built around them, are sufficient to properly support the strategic business objectives of the company. If they are simply configured to provide a short-term, tactical solution to satisfying basic information needs, then problems may be on the horizon. Care must be taken to ensure the tools and processes will support a planned business expansion, or perhaps a change in business direction.

### 3.1.3 Identification of Potential Problems with Planned Projects

As companies grow (either internally or through acquisitions), it becomes more likely that there will be planned projects which, when viewed from a strategic perspective, may use conflicting or incompatible technologies, or are planning to create duplicate data because neither project is aware of the scope and objectives of the other. There may be opportunities for them to share a set of common business definitions and data, or possibly even leverage a common set of information delivery tools.

### 3.1.4 Identify Opportunities for Increased Efficiency

The assessment exercise can provide insight into the efficiency in which information technology resources are being used (personnel, as well as hardware and software resources). An assessment with the proper focus can also identify opportunities for an organization to reallocate or "balance" their IT resources and/or software licensing.

### 3.1.5 Highlight Areas of Needed Education or Increased Awareness

An information delivery assessment provides enterprises with expert guidance in addressing a wide variety of difficult challenges, and provides an objective perspective that facilitates a reduction in risk,

improves planning, and may dramatically improve financial and/or performance results. An exercise in assessing the delivery processes and the information itself may identify a need for learning opportunities such as;

- Educate technology staff on architecture, products, and data issues
- Educate employees on user interfaces, data, applications, and techniques
- Custom or tailored training on specific tools

### 3.1.6 Opportunities to Implement Best Practices

Successful companies devote part of their planning activities toward identifying approaches, processes, and methodologies that have become common denominators among industry leaders. These are often referred to as "best practices". Best practice assessments can help meet the needs of information technology managers in balancing technology investment with business benefits.

Performing a high-level assessment of best practices requires staying abreast of industry trends, vendor initiatives and positioning, and recent IT research. However, it does not necessarily mean recommending or implementing the "latest and greatest" version of an application or technology. The assessment may span the client's inventory of information delivery applications, processes, and underlying IT architecture. Although best practices evolve over time, here are some key focal points;

| Project Management / Planning | ➢ Ensure strategic business alignment<br>➢ Build end-user confidence in solution<br>➢ Obtain executive sponsorship<br>➢ Develop an incremental roadmap<br>➢ Allocate sufficient resources<br>➢ Design for scalability<br>➢ Utilize proven methodologies |
| --- | --- |
| Data Management | ➢ Centralize data<br>➢ Eliminate data redundancy<br>➢ Develop a metadata strategy<br>➢ Develop a disaster recovery plan<br>➢ Implement data validation rules<br>➢ Identify data stewards |
| Information Delivery | ➢ Implement reporting standards<br>➢ Utilize efficient s/w licensing policies<br>➢ Zero footprint / web delivery<br>➢ Match the tool with the need<br>➢ Strive for report optimization<br>➢ Understand user demographics |

Figure 2

## 3.2 Assessment Scope

The scope and depth of the assessment should be driven by the needs of the client. Subject matter could span source systems to user desktops, or it could be tailored to concentrate on a particular area. Likewise, the assessment could be a birds-eye view, or it could delve into specific details and

requirements, if the client prefers. Again, time and budget constraints may dictate how broad or narrow the assessment needs to be.

The overall assessment process should begin by obtaining an understanding of the information needs within the company. Not a detailed requirements-gathering activity – that will come later, when the organization makes a decision on how to proceed. But, before one can truly "assess" the information delivery processes and components, there must be an adequate understanding of the business objectives and environment, the internal business processes, and the information needs of the decision-makers within the company.
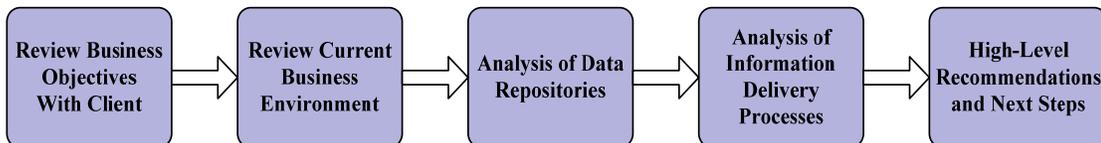


Figure 3

Finally, the assessment would be of little help to an organization without providing some high-level alternatives to closing the gap between where they are and where they want to be. This does not mean providing a detailed project plan for each possible solution. Rather, it means providing a high-level framework that describes an incremental approach to closing the gap.

### 3.2.1 Review of Business Objectives

The underlying IT and information delivery infrastructure must be designed to support the company's business activities. That being said, any assessment or evaluation of the effectiveness of a company's information delivery systems and processes cannot be undertaken without an understanding of the business objectives and strategies of the company. This is an important prerequisite, and must be well documented and reviewed with the client.

### 3.2.2 Overview of Current Business Environment

A high-level analysis of the current business environment is helpful in understanding business decisions that affect company direction, and provides the necessary context in which the information delivery systems operate. The primary subject areas of this component would be forces on the business such as competition, regulation, outdated systems, and economic trends that impact the decision to change. If the assessment is a component of an overall corporate strategy or tactical objective, it must identify the related corporate strategies or projects. Information required for this section of the deliverable can be obtained from interviews with senior management, and those dealing with external agents.

**Identification of Primary User Groups**
Identify the primary information user groups within the company. This may follow the organizational structure of the company, or it may require analyzing at a more granular level. Document a high-level understanding of their information needs (e.g. summary, detail, monthly, daily, real time, visual graphics), including where their information needs overlap, and how they differ.

**External Agents**
Document the outside influences (e.g. competitors, regulators, customers, suppliers, taxing authorities, and economic cycles) that impact business direction and decision making, and therefore information needs. Information needs may be driven by state or federal compliance requirements, or by any regulatory monitoring agency. Public companies also have SEC, GAAP, and Sarbanes Oxley requirements to consider. It is important to understand the extent of any information exchange with these outside entities.

**Regulatory Factors**

Many businesses operate in regulated industries (e.g. utility, telecommunications, insurance). If so, identify compliance issues that may impact the way information is delivered, managed, and retained. This will lead to the identification of compliance risks that may necessitate process or technology changes.

**Competition**

Identify the primary competitors in the client's industry. A follow-on activity will be to identify opportunities where an improvement in information delivery might increase the client's competitive advantage. While it would be impractical to obtain a detailed understanding of information available to competitors, it would be a worthwhile exercise to speculate as to what competitors may be using that the client lacks.

**Internal Divisions / Organizational Structures**

Within the company, determine if there are divisions and/or organizational processes and policies that impact the way information is interpreted, delivered and managed. Determine if they are owners of the data they use, or if they access data owned by another department. Security concerns driven by data sensitivity or internal politics may be fueling the proliferation of data silos or unnecessary restrictions to certain data.

**Context Diagrams**

A visual depiction of the environment in which the business operates can be a useful medium to summarize the findings of this activity and to communicate these findings to others. It is also helpful as a training aide for new employees, to help them quickly understand the company's position in the market.

### 3.2.3 High-Level Analysis of Data Repositories

A typical company has data stored in multiple locations. What compounds this problem is that companies are dealing with an exponential growth in data. These are increasingly being referred to as "data landfills" – everything gets stored, but nothing can be found when needed. Moreover, these data sets cannot be simultaneously accessed by any of their reporting tools. Yet, there is tremendous value in being able to do this.

**Identification of Data Sources**

One of the initial activities must be to identify the specific repositories which house key business data. Once these sources are identified, determine the format in which the data is being stored. This will be required information when identifying opportunities for data movement or consolidation. Document the specific information which describes where this information resides (e.g. file servers, relational databases, document management systems, user desktops, various archiving media, offsite repositories, etc.). Often times critical business data, and even the official "system" of record can end up being a file or small database on an employee's computer.

**Data Redundancy**

Data redundancy issues are quite common and problematic, and ultimately raise questions about which repository should be used. These issues also increase maintenance and support costs because both repositories require supporting hardware and software and must be routinely backed up and maintained by IT staff. Gaining insight into the degree of data redundancy will assist in developing a plan to alleviate these burdens. Determine if the data sources store duplicate data, or perhaps different views of the same data. If there are cases where redundant data sources are providing different answers to the same question, the analyst must investigate further and determine which version of the truth is correct. Only one should serve as the official "system of record".

**Data Accuracy**

This refers to the correctness of the business data. Business users must be interviewed to identify any concerns or reservations regarding the accuracy of the data. If present, they will erode the confidence

of those required to make decisions based on the data. Any issues or problems regarding the precision of the data must also be documented. Small rounding errors at the detail level can result in huge numerical differences at the aggregate level. There are typically several points between source systems and user desktops where logic is applied (e.g. aggregations, merging, averaging, etc.). It is important to ensure no mistakes are being made. Points of human intervention along this data movement path are of particular concern.

### Information Latency / Refresh Rate

Information can be highly accurate, but if is not delivered to users in time to support their decision making, its value becomes diluted. For example, a particular manager may be required to make sales projections on the 3$^{rd}$ of each month, which are based on actual sales figures from the previous month. However, if the month-end closing process does not deliver actual sales figures until the 5$^{th}$ or 6$^{th}$ business day, the manager will be forced to make decisions based on partial information (or perhaps estimates). Ensure the data repositories which deliver information to management are being updated at the proper frequency (e.g. daily, weekly, monthly, etc.).

### Failover and Backup Repositories

Businesses must fully understand their exposure risk should something catastrophic happen to the systems which house critical data. Reliable backup and failover repositories must in place to accommodate backup and archive data, and must facilitate the quick recovery of data, when needed. Businesses must also understand how long a recovery would take, and what the impact would be to business operations during any downtime.

### Ongoing Maintenance and Support Costs

Determine the ongoing maintenance, support, and licensing costs associated with each data source. Companies must understand their total cost of ownership (TCO). Data repositories reside on servers, which require periodic hardware upgrades and replacements. Operating systems must also be upgraded, patched, and maintained. Other supporting software is also required for usage monitoring, security, and user access. In addition, when multiple repositories exist across various technology platforms, this increases support costs significantly, because multiple licenses and support agreements must be purchased.

### Required Skill Sets for Ongoing Support

If the data sources require that support and development staff maintain proficiency in specific or proprietary technologies, this may represent an opportunity for change. For example, if a company stores data in a mixture of Oracle, DB2, mainframe, and SQL Server databases, these are all skill sets that the company must acquire and maintain. Quantify the costs associated with each, and make comparisons, where possible.

## 3.2.4 High-Level Analysis of Information Delivery Processes

### Data Extraction Processes

Identify the tools currently used to extract data and move it to staging or permanent reporting databases. Determine if commercial tools are in use, or if custom programming (e.g. COBOL, ABAP, stored procedures, etc.) plays a role. If custom programs and scripts currently in use, make sure there is documentation which identifies what their purposes are, and where they reside. Identify whether they are scheduled, event driven, or manually invoked. Manually launched jobs should be strong candidates for automation.

### Failover and Backup Processes

Although automated backups and archives may be run on a scheduled basis, it is important to ensure recovery times are in line with any existing service level agreements (SLAs). If not, perform a gap analysis to determine the level of improvements that must be implemented. It is also important to ensure the company has the appropriate processes in place, and is not incurring costs over and above what is actually required. Over-engineering a solution typically brings little to no incremental benefits.

### Summarization and Aggregation Processes

It is a common requirement that data be presented to end users in a summarized format. Daily information is often summarized to provide weekly, monthly, quarterly, and annualized figures. This aspect of the analysis focuses on where this aggregation takes place (e.g. in the database, on the application server, or on the client desktop). Any manual processes here would be strong candidates for automation. When large volumes of data are involved, aggregations performed by the reporting application or on the client desktop often result in performance degradation. Companies should look for opportunities to perform this function in the database during the load cycle.

### Security Management Processes

This refers to the manner in which users are either granted access to information, or prevented access. Determine if there is a centralized list of users, or if access lists are either fragmented or duplicated across different servers and/or business units. In addition, ensure there are consistent procedures in place to update access lists when employees are hired or when people leave the company. When multiple databases and reporting applications are employed by a single company, it can lead to inconsistencies in the way security is managed. In some cases this can lead to compliance violations or unnecessary liabilities.

### Data Movement Paths

Between the source systems and end user desktops, the data flow must be documented and reviewed. Assess whether interim repositories or staging areas are exposed, either in terms of security or in terms of vulnerability, should the repository experience an outage. Look for opportunities for data movement paths to be streamlined to reduce risk, redundancy, or latency. Again, any points of manual intervention in the movement of data should be automated to eliminate opportunities for error.

### Reporting Standards

Companies should strive for standardization in the way reports are delivered and presented to users. Web-based (i.e. zero footprint) reporting applications centralize the task of report administration and reduce maintenance efforts on client desktops. Common header, footer, and logo information can assist in ensuring common interpretation and ease of use across the enterprise. Minimizing the number of reporting and analytical tools will reduce the training required for end users, and will reduce the possibility of different reports presenting conflicting information.

### System Scalability

The scalability of an information delivery system will be of greater importance to businesses in a high-growth period, or companies that are involved in a merger, acquisition, or other type of consolidation effort where the user base or data is expected to grow rapidly. Companies must estimate the growth in data and usage patterns to ensure that additional performance or capacity can be obtained through an expansion of the existing infrastructure, or if new infrastructure components will need to be added. The system may supply performance information, allowing administrators to change configuration to enhance performance for increased demand.

### Information Flow Diagrams

Basic information flow diagrams are often the best way to provide management and end users with an understanding of the overall process, and of their role in the process. These diagrams can also be used as a learning tool for new employees and consultants.

## 3.2.5  High-Level Alternatives and Next Steps

One of the primary outcomes of performing an in-depth analysis is a determination of what to do next. By better understanding the bottlenecks, or "pain points" in the information flow, management can better identify practical alternatives for resolving them. It is not only important that projects be defined and scoped to address these problems, but it is important that they be done in the right order so as to minimize rework in the future. The order in which these projects take place should follow an incremental roadmap that will take a company from where they are to where the want to be.

Manageable scopes of work should be built around this roadmap, and must be aligned with strategic business objectives.

## 3.3  Types of Questions the Assessment Should Answer

The results from the assessment should offer some direction on what to do next, and which areas warrant the most attention. While the assessment itself is not intended to provide specific solutions (these are identified during the analysis and design phases of the individual projects), it should provide sufficient insight to addressing the following types of questions.

### 3.3.1  Effectiveness of Information Delivery

- Identify the additional tools and/or information users would like to have (that they currently do not) to help them be more productive. This can be thought of as a user "wish list" that must be evaluated in terms of the ROI it delivers. In many instances, there is a desire by management to place more analysis capabilities at the hands of end users. Perhaps there is a particular slice of the data they need, but don't have a way of obtaining it. Or, they may need a graphical representation of a report. If so, it is important to know what enhancements are being targeted and for what reasons.

- Identify opportunities for more timely and cost-effective methods of delivery. If users have indicated they need information sooner to support their decision making, options for accomplishing this need to be identified. Related to this, if there are opportunities to replace manual processes with automated ones, these warrant the appropriate visibility.

- Determine whether the current suite of end-user reporting tools allow users to gain sufficient visibility into the business. If not, the assessment should identify the areas that are lacking. Often times, a better understanding of a business problem can be obtained from a more granular view of the data, or from being able to view data from a different business dimension. Time must have been spent with the users to determine their needs.

### 3.3.2  Tools and Technologies

- The assessment should determine if the organization is dependent any "sunset" products. If so, those products should be identified, and plans for phasing them out should be discussed. For example, the analysis should identify reporting systems that are currently unsupported, or are scheduled to be unsupported in the near future. Companies may not be fully aware of the risks associated with products no longer supported by the vendor. If the application fails or a problem is encountered, the company may be faced with extended down time, not to mention having to seek specific (and expensive) expertise in the outdated technology.

- If there are potential opportunities to reduce or eliminate ongoing support costs with redundant reporting systems, these should be documented and reviewed with the client.

- The software industry undergoes constant change. New companies are created, while others fail. Acquisition activity is commonplace. Businesses should not be expected to keep up with what takes place in this volatile industry. Instead, they should engage consultants who have a closer pulse on this industry. Any potential vendor conflicts (i.e. using tools from competing vendors) should be documented and reviewed. In addition, if a company is heavily reliant on a single vendor, the vendor's financial stability should be analyzed.

### 3.3.3  Other Business Processes

- The final assessment deliverable should identify steps that can be taken to help ensure a common interpretation of critical business data. For example, different departments may require access to the same set of company sales data, yet they will have different definitions on what constitutes a "sale". To mitigate the possibility of multiple interpretations of data, larger

companies often designate data stewards who are tasked with ensuring standard business definitions, naming conventions, and calculations.

- Identify and document opportunities to automate manual data cleansing and data manipulation currently being performed by end-users and IT support personnel. In other words, if users are taking extractions / downloads from source systems and manually massaging the data (e.g. via Access or Excel) in order to obtain the "view" they need, this presents opportunities for error, and an automated solution should be considered.

- If support personnel are being weighed down with a backlog of report requests, some of this burden could be alleviated in a couple of ways; (a) transfer some of this responsibility back to the end users by providing them with an enhanced user interface, or (b) evaluate opportunities for scheduling and publishing commonly used reports. High-level alternatives should be included in the assessment deliverable.

- If there are there security gaps where proprietary information might be accessible by unauthorized users, this must be documented and brought to management's attention. Similarly, if there are inconsistencies in the way information security is being managed, then specific instances need to be highlighted.

# 4   Conclusion

Sustaining a competitive edge in today's business environment often hinges on a company's ability to leverage their information assets to the greatest extent possible. This requires an understanding of the available data, and how to transform that data into useful information to enhance decision-making capabilities. Typically, the data required to facilitate this is already available or can be derived. The challenge lies in taking this data, transforming it into usable information, and distributing it in an efficient and timely fashion to those who need it.

Before undertaking significant changes with your company's information systems, ensure there is a logical series of projects or activities (i.e. the roadmap) defined to achieve a specific set of goals. These goals must me measurable and achievable, and must support the strategic business objectives of the company. Spending time with your management and your business users can bring a fresh perspective to your information delivery processes, and will expose you to the honest and objective feedback which can lead to improvements in efficiency and effectiveness of the processes that deliver information to the end users across your enterprise.