

WHITE PAPER

Ten Principles for Increasing the Business Value of your Data Warehouse and Business Intelligence Investments

Rick Sherman

Athena IT Solutions

Introduction

Are you ready to invest your money and resources in a project that has a 41-percent chance of failing? If you're planning a data warehouse (DW) or business intelligence (BI) project, those are your odds.

A recent study by the Cutter Consortium found that only 15-percent of firms surveyed considered their data warehousing efforts to date a major success. Despite the odds, most enterprises have or are planning to build a data warehouse, as it's virtually impossible to mine the value from corporate data without one.

A 41-percent failure rate is as unacceptable as it is unnecessary. While there are many reasons why projects fail, ranging from technology, to process, to people, there are steps companies can take to maximize the business value their data warehouse delivers.

1. Increase business sponsorship, participation and governance with IT.
2. Market your business intelligence and data warehouse efforts internally.
3. Associate business value with every project.
4. Operate an overall BI/DW program rather than a series of tactical projects.
5. Raise data-integration efforts to the enterprise level.
6. Always strive to get the most consistent, accurate, and timely data in your data warehouse.
7. Never assume that BI tool standardization will solve data consistency problems.
8. Build data quality processes into every step, from data creation to information consumption.
9. View data shadow systems as sources of business value rather than as competition.
10. Focus your BI efforts on the business logic of what users need to accomplish, not on how to use the tool.

1. Increase business sponsorship, participation, and governance with IT.

There are three organizational aspects to business and IT jointly working together for a successful BI and DW program: sponsorship, participation, and governance. First, there needs to be joint sponsorship of your projects. Second, the business needs to fully participate with the IT group in the entire project life-cycle including requirements-gathering, design, testing, deployment and feedback. This participation needs to involve representation from all those impacted by the change, not just the "power users." Finally, there needs to be a joint business and IT governance to manage, monitor, and oversee an overall BI and DW program. This governance lets you set priorities among projects. To the benefit of individual groups with limited funding, it also enables

the sharing of common architectural or infrastructure components across groups' BI and DW projects.

Figure 1: Business Governance, Sponsorship and Participation shows business involvement in the BI/DW project. Business strategy drives various business initiatives. These initiatives shape the BI/DW program that then creates projects to implement its objectives. Governance and sponsorship are used to fund, monitor and manage the overall program and individual projects. Business participation needs to occur at both levels.

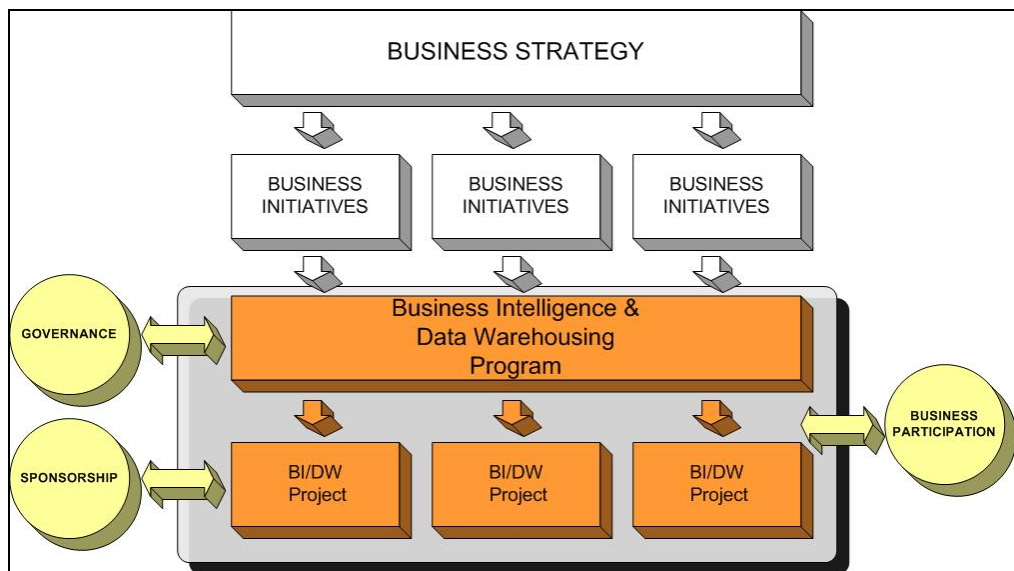


Figure 1: Business Governance, Sponsorship and Participation

Sponsorship

A BI project needs *both* business and IT sponsorship. Get sponsorship from the business that needs the BI solution the most. The stakeholder business unit could be a line of business (LOB), a business function (such as marketing, finance), or geography (in a multinational company). The IT group working on this project may be either a centralized IT group or the IT group assigned to that business unit. In either organizational model, IT is driven by the business sponsor's needs. The business sponsor needs to feel vested in the project and its outcome, and be committed enough to fund the project or recommend the expenditure from an overall IT budget. In addition, the business sponsor needs to be involved in the next two levels of commitment: participation and governance.

There is a limitation of sponsorship that, if not addressed, may lead to short-term solutions and data silos that will cost the enterprise and significantly reduce return on investment (ROI) in the long-run. Getting sponsorship from both business and IT works well for individual projects, but

the downside is that it can help create information silos, conflicting and redundant solutions, and overspending. How does this happen? A company is split into LOBs, corporate functions, or geographies for operations, management, and sometimes regulatory/legal purposes. These business units focus on improving their *own* performance and drive their *own* investments. Corporate management, on the other hand, focuses on *overall* company performance and uses various governance and cross- functional mechanisms to channel business units toward *overall* corporate goals. In many companies, IT investments in BI are buried in the details and are not visible to corporate management, or there is no entity examining these investments from a cross-functional perspective. The business unit is interested in solving its own business pain. Long-range BI architecture and strategy is not on their priority list, nor should it be. Many an IT manager has been frustrated when the business does not understand the long-term consequences of not following standards or building an architecture. In the economic climate of cost cutting, it's difficult to add costs even though the end result will be a better BI solution with more business value.

Participation

Require the involvement of business people using the information from your BI and DW projects, along with their management, throughout the entire project lifecycle. Business requirements and priorities need to drive projects. The design of the databases, ETL processes and BI reports or cubes are all driven within business context. There needs to be a feedback loop and iterations within the project so that as the inevitable changes occur, the deliverables, milestones, scope, or timeframe will be adjusted. Eliminate costly surprises by doing testing with business users as early on in the project as possible. Then you can adjust or accommodate the change early, reducing the likelihood of the project not meeting expectations or having costly overruns. Make business involvement in testing a formal part of the project plan in order to ensure involvement and elevate the visibility of this important responsibility. Project deployments and rollouts need to have adequate time and participation to uncover potential problems as soon as possible. Often, project slippages are made up for by shortchanging testing in these stages, which ultimately shortchanges everyone and compromises business success.

The most important comment is that you do not have adequate business participation if you only have business “power users” involved in the project. As influential and energetic as power users are in your project – and they are indispensable for success – they are also insufficient by themselves. The reason is they represent a niche business audience that is interested in learning new tools and data models because it's fun and exciting. But the appeal to most business users will be whether it provides business value and improves their productivity.

Governance

All these organizational mechanisms need overall governance to ensure that the performance measures are in place supporting an enterprise-wide view. *BI portfolio management* is an effective approach to provide this governance. It is the budgetary funding mechanism for all BI projects. It enables the transparency and governance that an enterprise needs in this type of IT investment. The portfolio needs to include all BI projects across an enterprise. But even more important is to recognize that BI incorporates all reporting and analysis projects funded in an enterprise. Often the reporting projects for enterprise resource planning (ERP) and other enterprise applications, such as customer relationship management (CRM) and supply chain management (SCM), are viewed and funded outside the overall BI framework. This approach leads to information stovepipes and more costly enterprise solutions than would result if those projects were part of the overall BI portfolio management effort.

Who gets involved in driving the BI portfolio management process? Let's start with the easier part of the organizational equation: the IT group. The CIO has to be enlisted to be your IT advocate for the BI program. The CIO, of all corporate executives, needs to be concerned with both the BI "what" and "how." The CIO's motto for BI has to be "think globally, act locally." The CIO is in the unique position to understand why long-term success – in terms of business value and cost effectiveness – comes from developing an overall architecture to guide the short-term BI solutions needed by the business.

On the business side, the driver is generally the CFO. CFOs are the natural candidates because they are responsible for the accuracy and transparency of corporate information (at least in regard to financial information) and overall costs of the enterprise. The CFO should be driving the budgetary process for the overall enterprise and, therefore, should be able to have the BI portfolio management integrated into it. Other business candidates may emerge based on who in your company is driving the need for information as a corporate asset. In financial services companies the senior vice president (SVP) of marketing may own the BI portfolio. In manufacturing firm it may be the SVP of operations. In all cases the prime driver is typically a senior level business executive with significant budgetary authority.

A BI program requires vision and strategy. It should be constructed with a disciplined architecture, built incrementally while delivering business solutions and benefits. But all the best-laid plans in the world won't matter unless you have the proper sponsorship and governance. Without it you won't have the support and funding needed to create a long-term BI strategy that is successful across the entire enterprise.

2. Market your business intelligence and data warehouse efforts internally.

Because IT knows that their projects will benefit the business users, they often feel that there's no need to market it to them. It's tempting to ignore this aspect of the project since it is more a people issue than a technical challenge. However, the business perception of creating business value is what gets a project staffed and implemented; therefore, an internal awareness and marketing campaign is essential. Even after the project is approved and budgeted, it's important to get business sponsors, users, and IT staff excited and involved. Your data warehouse might be viewed as successful, but the budgets can still be cut because of the business perception is that your existing data warehouse is "good enough" for their needs and they do not see the increased business value of the new projects.

Meet with your business users and sponsors to determine what their perception of your data warehouse program is and their future expectations. Find out how they are using your systems and, more importantly, what else are they using or doing to fulfill their data needs. In some companies, past failures and high costs have given DW such a negative connotation that the IT group can't even utter the words "data warehouse." In other companies you can leverage your success with past DW and BI projects. But as they say when talking about mutual funds, "past success is no guarantee of future performance." You still need to market that past success to ensure the success of your future efforts.

You may need to raise awareness via presentations, workshops, articles, and training sessions that sell the business benefits of the data warehouse program in the context of your industry and company. Many companies have DW news on their portal — a good first step, but it does not reach future business audiences and in some cases business management. Your efforts need great public relations (PR) if they are to be successful in the long-term. Simply talking to the business power users will not suffice to get the message out to the business community. Treat these efforts just like software vendors trying to sell their products and services to your business.

3. Associate business value with every project.

Each BI or DW project needs to be associated with clear-cut business value. That value needs to be visible and understood by business sponsors and business users involved with the systems impacted by these projects. The amount of data in an enterprise is expanding greatly. Growing right along with it is the potential to use it to improve the bottom line. Too often we get wrapped up in the “how” of projects and not the “what” – the business deliverables. Business people are constantly asking for more data delivered more timely, accurately and consistently across the enterprise. If they’re not satisfied with BI/DW projects they will fill the void with data shadow systems and hundreds of spreadsheets. IT needs to recognize this, and despite the “more for less” credo in many corporations, continually expand the data and business value of their BI/DW offerings.

There are many projects, such as BI tool consolidation and data mart consolidations, that are helping to reduce costs, but they do not necessarily present business value to the individual business users. Remember, the business user whose BI tool is being replaced has to spend the time to learn it and use it to create new reports.— it’s seen as more cost and no added value. There may be good reasons to do these consolidation projects, but IT needs to recognize that overall business value is probably on hold during these projects.

Any technically-driven project, be it consolidation, upgrades, replacements, or infrastructure, needs to have associated business value attached to it. That business value has to be perceived by the business unit, not just IT. Business value needs to be increased and recognized with each project.

4. Operate an overall BI/DW program rather than a series of tactical projects.

Establishing information as an asset of the enterprise does not happen when projects are done randomly. There needs to be an overall framework and program plan to guide BI, DW, and analytic projects. Otherwise, the cost to develop, implement, and operate is much greater. In addition, the likely result is a set of data silos that cost the enterprise time and money to reconcile.

How do people make such a mess of things? First, IT systems are built on a project-by-project basis, self-contained and tactical. Project leaders start with a “green field” approach, selecting the “right” software and designing the “right” database. They assume they will do better than previous teams because they have picked the better technology. Since each team builds up its own product and technology knowledge, too much time is spent learning what their predecessors already did, rather than examining and understanding data integration.

Business strategy drives business initiatives that, in turn, shape the BI/DW program. This allows an overall set of goals and objectives for BI/DW in the enterprise. Individual projects are created to further the overall program in a coordinated and effective manner. *Figure 2: Program Management* illustrates both program and project management in this process, as well as business participation throughout.

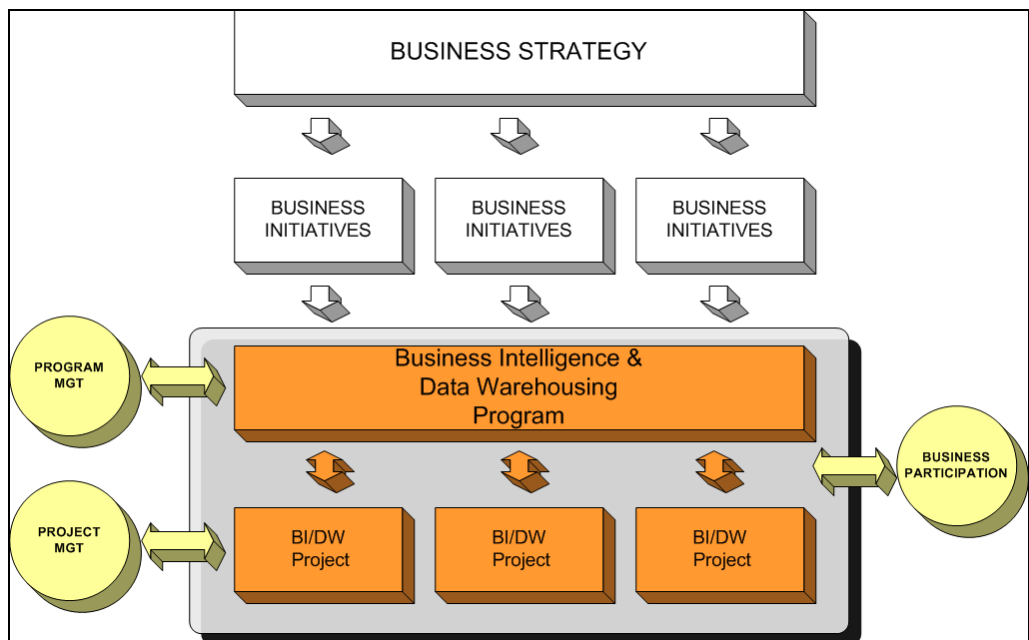


Figure 2: Program Management

5. Raise data-integration efforts to the enterprise level.

Create a business and IT case for approaching data integration from an enterprise perspective. Many times, an individual business sponsor may not see the value or want to pay the cost of a data-integration activity that supports an entire enterprise. In those cases, spreading the cost across the businesses make sense just as networking, e-mail, and other software implementations are managed enterprise-wide. Imagine the chaos if each group chose its own networking software. It's the same with data integration. *Figure 3: Tactical Projects* illustrates what happens if data integration is built within each tactical project – it becomes a silo unto itself.

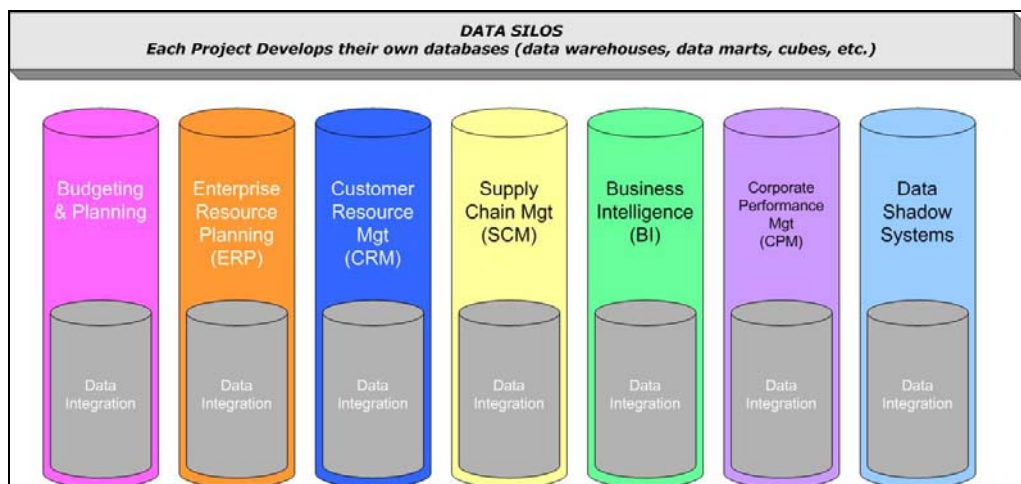


Figure 3: Tactical Projects

Enlist sponsorship from your CIO and CFO. IT management must be fully committed and sponsor this work, otherwise why should a business unit care? CFOs are often the key business sponsors of this type of infrastructure work because they have visibility to the enterprise as a whole. The CFO will find that managing data integration as an infrastructure program lowers overall costs by eliminating overlap. The CIO will find that more is done with less because data integration is done right once, rather than sub optimized many times over.

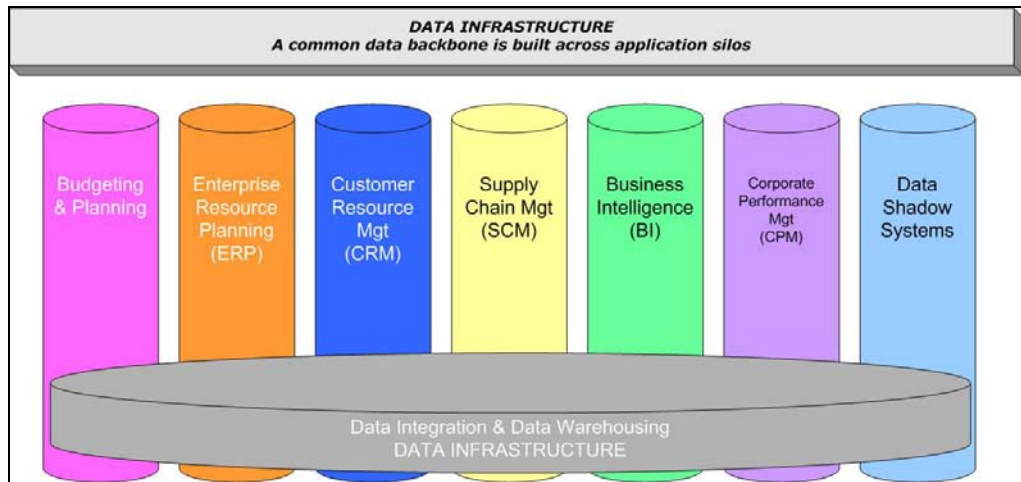


Figure 4: Data Integration as a Data Backbone or Infrastructure

Treat all data-integration projects (as depicted in *Figure 4: Data Integration as a Data Backbone or Infrastructure*) — anything that touches data from its creation in your transaction systems until information consumption through reports and analysis — as investment portfolios. These portfolios involve setting and selecting priorities, budgets, and projects.

6. Always strive to get the most consistent, accurate, and timely data in your data warehouse.

Nothing frustrates a data warehouse manager more than building a many-terabyte data warehouse, yet finding that business users are still not satisfied. Either the business users are clamoring for new BI initiatives because they say they do not have the information they need for decision making, or the number of "active" data warehouse users has been stalled for quite some time. These data warehouse managers feel they have all the data that the business users could use, and the business is not realizing what they have. They need to ask themselves:

- How do I know what they want?
- Have I examined where the business users are getting their data and what they do to it to transform it into information?
- Are they pulling my data, but then using Microsoft Access and Microsoft Excel to get the information they truly need?

When you examine these questions you can then determine if you indeed have the data they need and, if not, what the gap is between demand (what they want) and supply (what you have).

Even if you have all the data the business needs, you still need publicity and packaging. You need publicity because the business users will only access the data if they know it is available. Not only do you need to say *what* you have but also have to *explain* it. The business needs to understand what the data represents, such as where it was obtained and how it was transformed. Next, you need to package the data into information that can be consumed by the business. Having all the data is great, but if the business users still have to transform the data through multiple steps of using extracts, Microsoft Access, and Microsoft Excel, then they are going to be frustrated with your BI environment. Often times, a small amount of dimension data that is specific to a business function is all that is necessary to significantly increase the business value of the data warehouse and improve business productivity.

7. Never assume that BI tool standardization will solve data consistency problems.

Standardizing on BI tools can save money and may be a worthwhile project. But, don't lose sight of the fact that the use of different BI tools is a symptom of a data quality problem, not the cause. If you pull the same data and implement the same transformations (formulas) in different BI tools you get the same results. The report, chart, or dashboard may look a little different, but the numbers would be the same. The problem, therefore, is not that different BI tools are being used, but that each project implementing these tools built a different data mart or cube and then applied different formulas in their reports or analysis. Using the same BI tool in different projects that use different data with different transformations is still going to yield different results – and hence the data quality issues still remain. The cause of the data quality issues is the lack of consistency between the data used and data transformations, not the use of different BI tools.

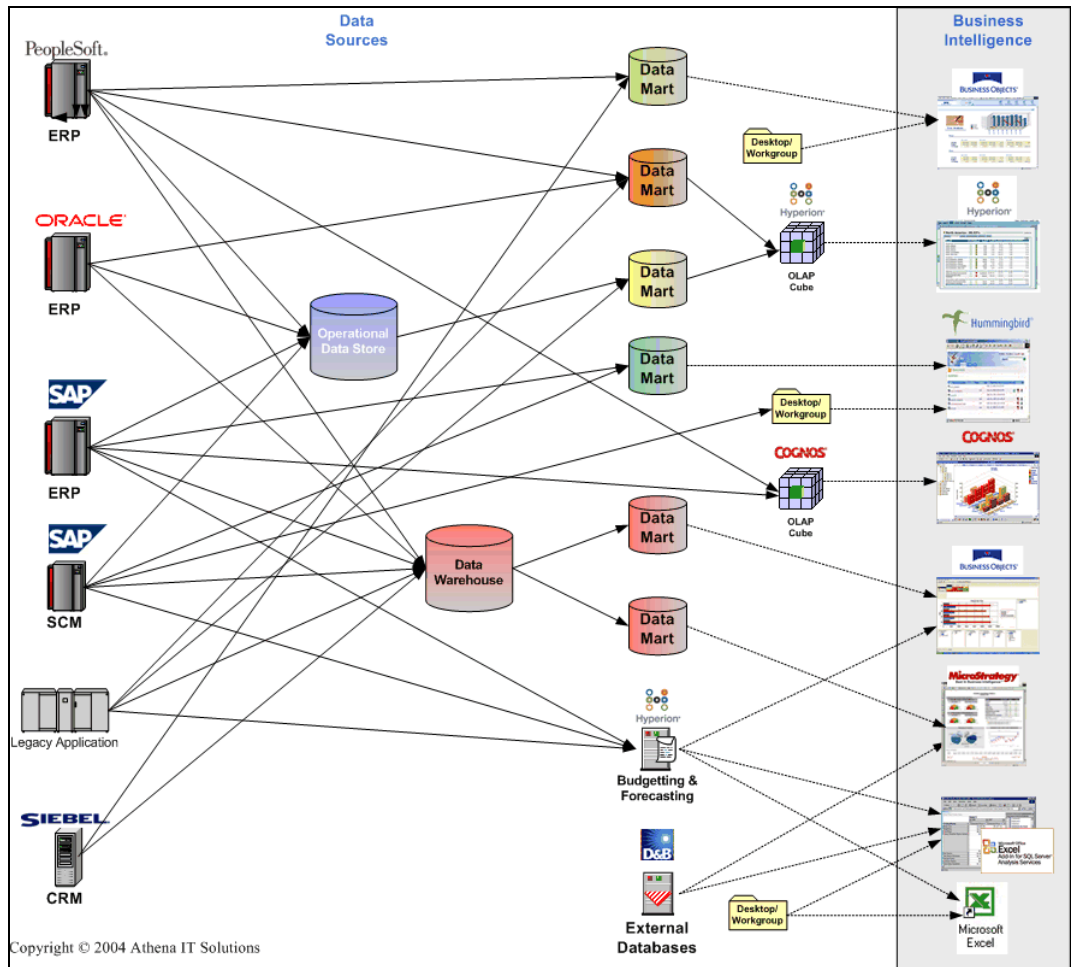


Figure 5: Multiple BI Tools Along with "Spider Network" of Data Sources

Most companies have purchased and deployed multiple BI tools during various projects over the last decade as illustrated in *Figure 5: Multiple BI Tools Along with "Spider Network" of Data Sources*. Each BI project selected a BI tool that, at that time, was perceived to be the best for its business users. As companies examine the effectiveness and use of their business-intelligence efforts and review IT costs, they are finding too many different BI tools spread out through their organization. Many companies juggle more than six BI tools without even counting Microsoft Excel and Microsoft Access. It appears to be a no-brainer for the IT group to initiate a BI tool consolidation project to reduce IT support and vendor software maintenance costs. In addition, if there is an initiative to expand the use of BI tools, consolidation can result in better licensing terms from a single software vendor.

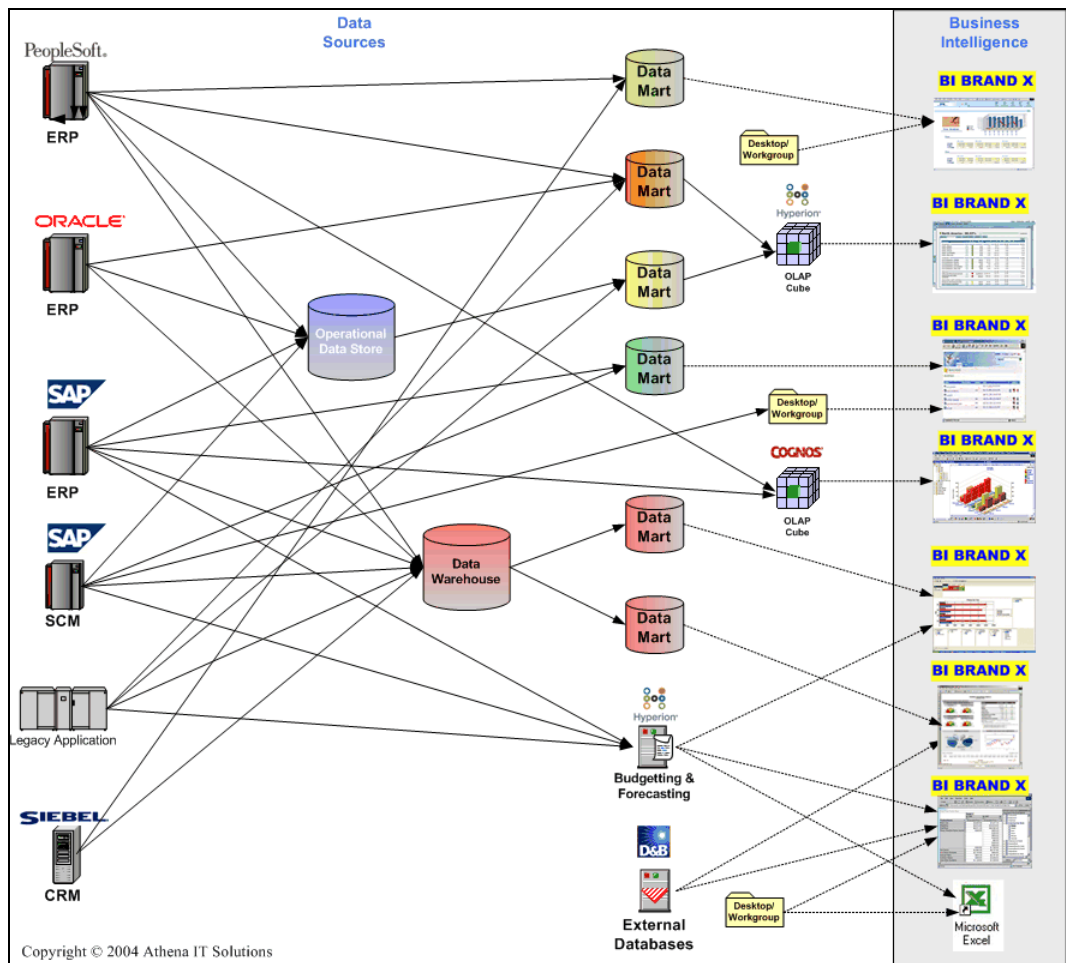


Figure 6: BI Tool Standardization with "Spider Network" of Data Sources

Two considerations: first, perform a total cost of ownership (TCO) analysis and examine the hidden costs of replacing existing applications, retraining, and migration. Second, keep in mind that this is a project that saves IT costs but does not directly benefit business users — especially those that may lose their familiar BI tools during the consolidation.

If business users do not perceive a significant benefit to them other than reducing costs, they are not going to embrace the consolidation. In addition, change management always adds more costs and time to projects than planned. Even if the business users say they are not satisfied with their existing BI tools, they still won't be happy about having to learn a new BI tool, even if it is better. Chances are, they are already working long hours and won't appreciate having to learn a new BI tool on top of their existing workloads.

Figure 6: BI Tool Standardization with "Spider Network" of Data Sources illustrates what happens if you standardize on BI tools but do not address data integration and the existing data silos. If you

use the same BI tool against each data silo without an accompanying data-integration initiative, then the business users still get different answers and have data-quality issues even with one BI tool. It's the data not the BI tool causing the data quality problems.

It makes sense to standardize on a suite of BI tools both for IT and the business users. Realize that you will need multiple types of tools in your BI portfolio, so plan accordingly. In addition, you should incorporate Microsoft Excel in your BI tool portfolio. Excel is a strong candidate because 1) every business person uses it, 2) it has the functionality for the business users to be much more self-sufficient than with other BI tools, and 3) every business person has it, so you can decrease the overall investment needed to deploy BI across your corporation.

8. Build data quality processes into every step, from data creation to information consumption.

The narrow definition of data quality is that it's about bad data — data that is missing or incorrect. A broader definition is that data quality is achieved when a business uses data that is comprehensive, consistent, relevant, and timely. If you focus only on the narrow data definition you may be lulled into a false security when, in fact, your efforts fall short. We will address several more misconceptions about data quality.

Data entry or operational systems are often blamed for data-quality problems. Although incorrectly entered or missing data is a problem, it is far from the only data-quality problem. Also, everyone blames their data-quality problems on the systems from which they sourced the data. Although some of that may be true, a large part of the data-quality issue is the consistency, relevancy, and timeliness of the data. If two divisions are using different customer identifiers or product numbers, does it mean that one of them has the wrong numbers? Or is the problem one of consistency between the divisions? If the problem is consistency, then it is an *enterprise* issue, not a *divisional* issue. The long-term solution may be for all divisions to use the same codes, but that has to be an enterprise decision.

The larger issue is that you need to manage data from its creation all the way to information consumption. You need to be able to trace its flow from data entry, transactional systems, data warehouse, data marts, and cubes all the way to the report or spreadsheet used for the business analysis. Data quality requires tracking, checking, and monitoring data throughout the entire information ecosystem. To make this happen you need data responsibility (people), data metrics (processes) and metadata management (technology).

9. View data shadow systems as sources of business value rather than competition.

It's important not to overlook the value of data shadow systems — the “duplicate” systems that reside in individual business units. The business users and the IT group need to discuss what role they should play as the organization moves to increase its business data ROI. Some compromise may be called for.

The business is using the data shadow system to do its analysis today, and will continue to use it and expand it if nothing better comes along. A big-bang/big-bucks/big-direction project is probably not going to offer the business value or ROI regardless of how great the architecture is or what standards are followed. Too many IT groups propose an all-or-nothing solution — either the business users do it the "right" way or it won't get done. Then the project doesn't get approved, the users go back to the expanding data shadow system, and the IT group feels it stopped the business users from implementing an "incorrect" solution. The reality is that without an alternative, the business group will continue to use a shadow system that neither group wants. That scenario, repeated time and time again, costs companies millions of dollars and undermines business productivity.

The business group and IT need to explore three scenarios:

1. The IT group architects and develops the "right" solution.
2. The business group continues to use and expand the data shadow system.
3. Together, they agree on a more cost-effective and timely solution.

In option #3 the groups examine a scaled-down version of the data shadow system replacement. This is the time to think outside of the box. Build a business unit database, e.g., data mart, to replace all the Microsoft Access databases. Include the data initially extracted from the data warehouse as well as the additional lookup tables and external data that business users incorporated in the existing data shadow system.

Use an extract, transform and loading (ETL) tool to systematically pull data into the business unit's data mart and distribute the data to tools that the business users are using today, such as SAS. Often, the company's standard ETL tool may cost too much (in terms of license or resource costs) or would be overkill for this application. In this scenario, it may be better to examine the use of an ETL tool that more closely matches the project's needs. Many IT people balk at this

suggestion, but they need to ask if it is better for departments to continue to use Microsoft Access as the default ETL or use a real ETL tool, even if it is not the corporate IT standard. Compromise may be better for the business and produce more business value. This is often the single breaking point for many projects, i.e., the all-or-nothing scenario. If the project is too costly, it ends up being a lose/lose situation.

Microsoft Excel is most likely the final BI tool used in the analysis food chain. Another BI tool may be included in the environment to pull data from the data mart, but that tool needs to get the data into the spreadsheet for the business users to complete their analysis.

Keep the project team small and make the deliverables quick. The business users need to drive the project. A working proof of concept is often a great way to present the initial deliverables.

Replacing data shadow systems lets business users increase their productivity by focusing on their work, rather than the mechanics of how it gets done. Once you stop viewing it as yet another IT project, it is really just a simple, smart business decision.

10. Focus your BI efforts on the business logic of what users need to accomplish, not on how to use the tool.

Focus on business users who are interested in results, not just power users who are more interested in features.

Your IT staff partners with the business on most BI projects in order to learn what the business needs, and gets buy-in and participation in the development and deployment. That's great in theory, but often the business-user representatives are what we call power users – the ones who use the BI systems the most. On one hand, this makes sense because other business users depend on power users to get data and reports. Relying on power users, however, may lead *you* in the wrong direction. Here's why:

- Power users are closet geeks who like BI tools for the joy of using new technology. Your average business user, on the other hand, has no interest in learning and using yet another tool. That's true no matter how feature-packed the BI tool is or how easy it is to use. If you have to go to training, it's not that easy to use.

- Power users know where the data is, or will learn it, while most business users don't feel they need to master data architecture to get the information needed to do their jobs. The power user's job has become to find, get, and deliver the data.
- Power users are the very people who developed the IT shadow systems that compete with the BI system you're developing. Power users just need the data and not necessarily the BI tools because they have Microsoft Access and Excel to deliver information to business users. If your BI system does not meet expectations, the shadow IT system stays in business. This is a conflict of interest.
- Sometimes power users are more like IT than business users. They may not be as in touch with business needs because they have been spending their time on technology.

This does not mean that you should stop partnering with business power users. The reality is that they are key influencers for the other business users' acceptance of your BI system. However, don't let them become gatekeepers. You need direct access to mainstream business users not only to understand their needs and discuss the technology, but also to sell them on your BI system.

Figure 7: Business Users' View illustrates how typical business users want to do their jobs – get their reports and information for analysis – without having to know the details of the data nor learn yet another BI tool to perform that analysis.

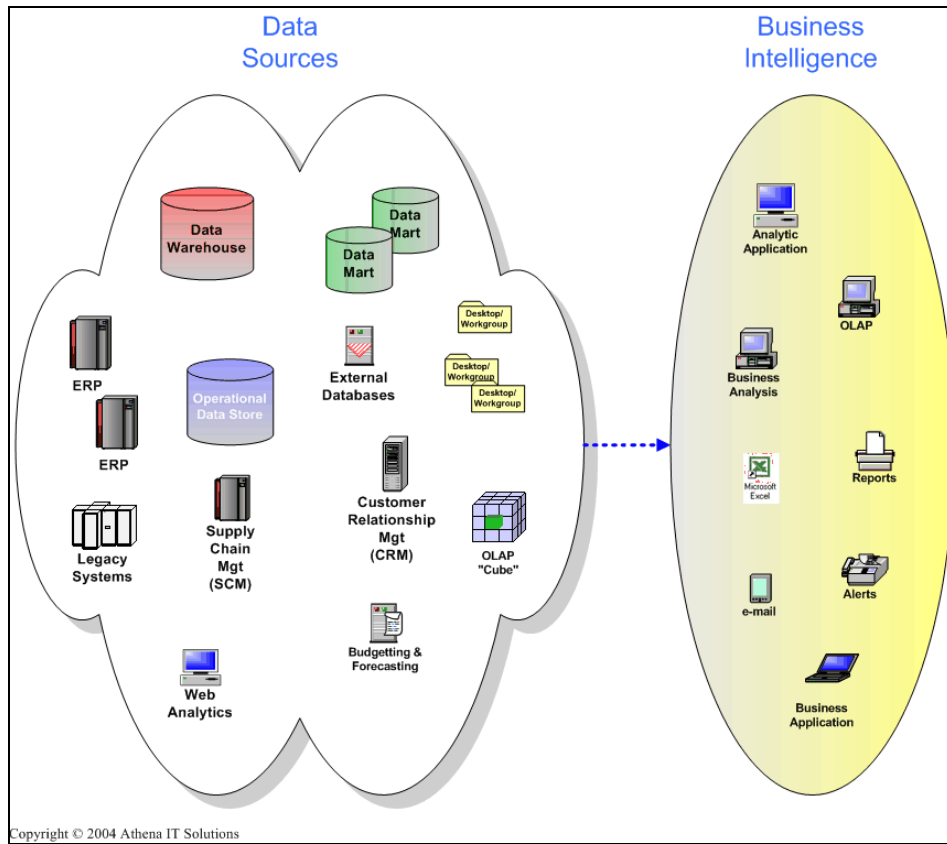


Figure 7: Business Users' View

Conclusions

Business intelligence and data warehousing projects need to be driven by business value. These projects no longer succeed by merely having the most data or functionality. There are many non-technical aspects to these projects that determine their success or failure from a business perspective. These ten reasons are some of the prime considerations to either turn a BI program into a success or expand an already successful program into a much greater business value for an enterprise.

This white paper, in whole or in part, may not be photocopied, reproduced, or translated into another language without prior written consent from Athena IT Solutions.

This edition published June 2004

Athena IT Solutions provides data warehousing and business intelligence consulting services to help businesses increase the return on investment of their corporate data. Athena IT Solutions founder Rick Sherman has more than 17 years of business intelligence and data warehousing experience, having worked on more than 50 implementations as an independent consultant and as a director/practice leader at a Big Five firm. He founded Athena IT Solutions, a Boston-based business intelligence and data warehousing consulting firm and is a published author, industry speaker, instructor and consultant. He can be reached at rsherman@athena-solutions.com or (617) 835-0546.



PO Box 178
Stow, Massachusetts 01775
978-897-3322 Phone
978-461-0809 Fax
www.athena-solutions.com
