

**Resilient Business Intelligence**

**A Matter of Topology, Technology  
and Methodology**



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### Introduction

Commencing a business intelligence initiative is an expensive proposition. Not only in terms of hard dollars spent on infrastructure, technology and personnel, but also in terms of time, energy and attention that will be directed away from other corporate activities. While it may be expensive, good business intelligence can do more for the overall health of an organization than just about any other project that an executive board can commission. Good business intelligence is akin to a good physical exam by your doctor. When one knows what is right and, more importantly, what is wrong, one knows what adjustments and corrective actions need to be taken to avoid disaster at worst and at best what can be done to perform at one's peak.

So it is with the health of business organizations. Without good business intelligence, disaster can strike without notice. Without good business intelligence, the organization has no understanding of what adjustments it must direct to help it operate at peak performance.

Because of the importance of business intelligence (BI) to an organization's competitiveness and longevity in a market, organizations spend big money trying to do business intelligence right. Gartner, one of the leading Information Technology (IT) industry analysts, estimates that companies will spend 2 billion dollars annually on BI<sup>1</sup>. And that number will continue to climb.

To help organizations implement business intelligence, a number of vendors have come to market with tools promising productivity gains and ease-of-use to enable the masses. Empowering everyone in an organization with the capability to contribute to BI is the "brass ring" of this particular IT discipline. But despite the many promises, empowering the masses to engage and contribute to an organization's BI initiative remains elusive. Easy access to the data that drives an organization remains, for the most part, the express domain of a select few.

A number of vendors now compete to deliver tools on the promise of BI for the masses. They include Actuate, Cognos, Business Objects and Information Builders. Certainly, the elusiveness of good business intelligence has been due in part to the lack of features and functionality the in tools plied by BI vendors. But for the most part, today's BI implements are loaded with goodies, and further, there is great parity in feature and function across the wares offered by BI vendors.

While the attempt to deliver good business intelligence is solidly founded on a productivity-tool driven approach, an enormous amount of labor is still exacted from internal IT resources and/or systems integrators. And like the commonality of feature and function across BI tools, it is striking in how these tools are more or less consistent in their need for services – internal or external, to deliver applications into production.

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So, if there is consistency in feature and function, and there is consistency in the need for labor, the question becomes: How does an organization make the right decision with regards to a BI product and the requisite services to implement that technology?

To answer this question, we need to look below the superficial aspects of BI-ware that tend to grab our attention. We need to look beyond the window dressing of GUI panel design, calculator metaphors and the like. We need to examine and understand the foundation issues critical to the successful implementation of a business intelligence initiative, those being:

- Topology – The landscape or environment in which the BI application must operate
- Technology – The underlying components that make BI processing possible
- Methodology – The blueprint for success that guides development and deployment of the BI application

Finding success in each one of these areas is important, because a failure in any one of them will lead to less than desirable results.

The first foundation component, **Topology**, can be interpreted as “reach and range”. How many different information sources can I reach? Across what range of networks, platforms and security systems must I traverse? And while the term *data* has been used to describe the information source, we must look at the term *data* as all encompassing and going far beyond traditional information sources – that which is stored in legacy structures and relational databases. The data that drives a business today, the data that will shed light on the health of an organization, resides in numerous types of repositories: XML, message queues, Web services, application packages, to mention a few. And the sources of the data we need are ever-changing.

Topology also encompasses the distribution and the presentation of information to the masses . . . in many different forms . . . and possibly concurrently. When evaluating BI solutions, it is important to take careful stock of each interface currently being used by the organization, as well as each new interface that has potential for deployment. The rationale here is that if you can distribute and project information through existing interfaces (e.g. Excel spreadsheets), adoption and training issues are dramatically reduced. Of course, new interfaces such as dashboards and portals are important too, as are email-based applications. And projection to mobile devices, while still struggling to be embraced by the masses, absolutely must be considered.

After an organization understands its topology - past, present and future - it can begin to tackle the next component: **Technology**. Order is extremely important here. Be warned that IT can not begin to apply cycles to a technology evaluation without having first paid considerable attention to topology.

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Once underway, the technology study should not be overly concerned with the myriad of bells and whistles that are paraded in front of us by the various BI vendors. Why? Well, for the most part, a great parity exists in look-and-feel and features across the available BI products. But the parity across products found in the presentation layer is not found in the underlying processing layer. Processing is purely a matter of scalability. Scalability in terms of (a) the amount of data that can be handled, (b) the number of queries that can be supported in a given timeframe, and (c) the number of users that can be supported. After 27 years in the business, I remain amazed at how often these three considerations are ignored. The attention from technology evaluation teams is largely focused on eye candy (product bells and whistles).

While countless hours of deliberation are paid to the superficial aspects of BI tools that make it to the IT's short-list, it is startling how many product evaluation teams outright ignore the need to choose a BI technology that can address the extremely heavy volume demands that production applications will exhibit once deployed at the enterprise level. You know the kind of volumes that COBOL programs were once written (and still are!) to process.

Once ample consideration has been given to an organization's topology and technology issues and a suitable BI product chosen, the BI application must be designed, developed, implemented and deployed. Here *methodology* enters the discussion. A methodology is analogous to a blueprint or a planned way of execution. A methodology is derived from experience, and therefore, a methodology is expected to deliver consistent results. And as you might now guess, the methodology should not only contain a map to follow for the development through deployment phases of the project, but it must also embody the topology and technology studies previously discussed.

In the following sections, we'll discuss in greater detail how the achievement of resilient, enterprise business intelligence is a matter of paying homage to topology, technology and methodology.

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### Topology

Unlike the early days of BI, business intelligence pilots rarely fail. Unfortunately however, many production BI applications attempted at the enterprise level still do. The reason is simple. BI software evaluations, pilots and even successful work group or departmental applications are blind to the topology of the enterprise. They are implemented without consideration for the full amount of data that will have to be processed in enterprise deployment, they reflect only a microcosm of the entire platform mix that actually supports the enterprise, and they rarely engage the breadth and depth of users that are the enterprise. They simply do not account for the topology of real-world business.

The first step to ensure resilient business intelligence is to account for the topology of the organization. This means taking stock of the complete range of platforms, network protocols, security packages, data stores (and the magnitude of data in each), desktop tools and user groups (and their populations) that prevail throughout the organization. Once inventory has been taken, you can be sure of one thing. The topology will change.

Change occurs when a pilot application is moved to production. Change occurs when a business grows around a production application, and the current environment or portions of it are swapped out in favor of new hardware, software, networks, etc. Change occurs when new technology standards are applied (e.g. HIPAA) and/or new rules and regulations are forced on a business (e.g. Sarbanes-Oxley). And change can be forced on organizations, literally overnight, through the acquisition of other organizations. While in each of these cases the change may be *dramatic*, a resilient business intelligence solution dictates that the change will not be *traumatic* to the BI application.

To deal with change in topology with respect to the amount of data processed and the number of users engaged, resilient business intelligence solutions must be scalable. While every BI vendor you invite in the door will tell you with a resounding “Yes!” that their product is scalable, it will not be the case. Look for proof, such as independent vendor comparisons and public benchmarks. Seek references that point to “started small, grew to be large” implementations. Check these references by making phone calls and even taking site visits. It is quite common for vendor references to be sought and then never interrogated. It is also disturbing that for some reason, perhaps expense control, evaluation teams seem not to embark on the site visits of yesteryear. But for the sake of a few dollars, one of the most beneficial experiences of the product evaluation phase is not being exercised. Should the evaluation team decide not to make the site visit a part of the vendor evaluation process, the team should at a minimum ask for three to five references, and the team should call ALL of the reference organizations.

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When it comes to deploying an application enterprise-wide, IT needs to be able to do just that. If the application needs to project information to a base of 100,000 users or more, there needs to be evidence that IT's BI favorite can really perform. The evaluation team needs to understand the peak usage periods of the organization and what that means in terms of concurrent users and current queries. With this information, the team can ensure that the "platform" (BI product, computing hardware, database) identified to host the application can handle the load.

And don't underestimate the data issue. If the production application will need to process the amount of data that IT used to crunch with a 10,000 line COBOL program on a mainframe, be sure to find hard evidence that IT's BI favorite can do it. The number of data rows, columns in a row, number of joins in a likely query, complexity of transformations (and more) all exact huge demands on the BI engine. As best can be done, find examples where the BI tool under deliberation is performing in a topology similar to yours.

To handle the change in topology with respect to physical infrastructure, resilient business intelligence solutions must be portable. It is quite surprising that portability, once a top RFI check-off item, is almost forgotten today. The predominance and economics of NT and mid-tier processors have seemingly made portability a non-issue. But looking past the need for portability in your BI solution is a recipe for disaster.

A resilient solution will run on Windows, NT, UNIX, AS/4000, MVS, USS, Linux and more. Elements of the solution, if not the whole thing, must at least provide for a future direction that accounts for mobile computing. Ensuring that a BI application and its supporting technology are portable is an absolute key to the success of any BI initiative, because it is guaranteed that the environment the pilot executes on will not reflect the real world. It is guaranteed that the enterprise topology known today will be significantly different tomorrow due to factors such as growth, acquisition, and evolution. It is guaranteed that the presentation device in favor day-one of production will quickly change and/or diversify over the life of the application. Only portability of the application can truly protect your investment from the effects of change in topology.

Now do you see the importance that topology plays?

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### Technology

If we can agree that, more or less, there is parity across the BI vendors when it comes to features, eye-candy, styling and what-not, we can focus our attention to real, substantial BI solution differentiators: Plug-n-play access, provisions for data warehousing and true reporting capabilities.

Plug-n-play access to data stores needed to source BI applications is now provided through a commodity technology known as *adapters*. Adapters are used to forward a request in real-time to a source and then return a reply to the requesting client application/process/tool without having to write any code to negotiate the conversation between two points (the requesting client and the data source).

If in accordance with our lesson on topology, a site takes inventory of the data sources it must reach today and those it may desire to reach in the future (as best can be done), then a gap analysis can be performed between the information assets listed on the inventory sheet and the adapters provided by each BI vendor up for consideration. If you want more than burgers when it comes to fast food, you have to “Think Outside the Bun”. To expand your view of what adapters can provide access to, you have to “Think Outside the Drum”.

Imagine reporting against a message queue, or interrogating an XML document, even issuing a query against a Web service. Adapters can be provided by a BI vendor either directly or indirectly, i.e. through a partnership. Least gap wins, because if you can't reach your data without writing code, your BI project will fail at worst. At best, it will dramatically increase in cost and complexity due to the requisite data migration initiative and/or hand-rolled data access routines required to bring the data to the tool rather than taking the tool to the data.

Logic follows then, that the most resilient BI solution incorporates an adapter strategy to help connect the BI tool to an organization's data. A build versus buy study that reveals the problems with hand-rolled integration was performed by The Standish Group, a consultancy based in West Yarmouth, Massachusetts, who has been studying IT management since 1994: “Nearly half of the projects in their population of 30,000 IT projects did not deliver the value that was originally promised. In 2000, the study found that the average cost overrun for internal IT projects was 45% over the original estimate. Average time overrun was 63%, and only 67% of the required features promised to end users were delivered.”<sup>2</sup> With figures like that, do you need anything else to convince you to consider a COTS (Common Off The Shelf) approach to connecting to your enterprise data? Adding to the pain, Gartner estimates it is almost twice as expensive to maintain a custom solution as a COTS solution<sup>3</sup>.

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As desirable as adapter driven real-time access and connectivity may be, it still may prove impractical. The performance of operational systems can be negatively impacted by the rush of queries issued by end-users. In other cases, there may not be sufficient additional capacity on the operational platform to support new demands exacted by a BI application. In many cases, operational data may be so raw and fragmented as to have little meaning to end-users. For these reasons and more (I have only covered a sampling of them), it is important that every BI initiative includes a strategy for data warehousing.

There are many derivatives of the data warehouse: Enterprise Data Warehouse, Data Mart, Operational Data Store, Micro-Mart, among others. Building the data structures and ETL (Extract, Transform and Load) processes to populate these structures is one level of effort, but maintaining them is quite another. Perhaps surprisingly, most DW projects are still built and maintained by hand. Gartner estimates that nearly 75% of all data warehouses are still built and maintained with home grown solutions<sup>4</sup> (e.g. COBOL extract, FTP move, SQL load). Understanding that a good BI demands a strategy that includes a provision for data warehousing, and knowing that building and maintaining the DW by hand is time consuming, expensive and risky, it seems incomprehensible that an organization would take on a BI tools study and NOT consider compatible tools for the warehouse effort. But they do. And this fateful decision is a major contributing factor to the failure of BI initiatives.

Finally, let's turn our attention to the BI engine itself. The term *business intelligence* has become very encompassing, and that is dangerous because it draws into the center, tools which are really on the fringes of BI, thus confusing the decision making. For example, Cognos, Actuate and Information Builders offer tools in the sweet spot of BI. SAS is not a BI tool. Some may think it is, but I respectfully disagree. SAS is a tool whose sweet spot is statistical analysis. Hyperion plays on the fringe of BI, too. It is not a generalized BI tool, but rather a suite of products centered on financial reporting and management. Tools on the fringe should be considered supplements to the BI solution. While IT still may need to buy these tools for the IT toolbox, they are not the solution in and of themselves.

BI tools in the sweet-spot must be easily applied, both horizontally and vertically (via templates) to a wide range of solutions. Resilient business intelligence is founded on processing lots of data and then generating relevant output . . . Quickly. From the output of the processing engine, styling and formatting are applied to project the information to the audience. Make no mistake; formulating an answer set is a precursor to projection, which includes presentation types such as graphing, PDF creation, Excel, HTML, paper, and many others. It follows then that generalized business intelligence tools must have a robust processing engine under the covers, and subsequently, IT needs to review BI tools on this basis first. Unfortunately, BI vendors promote eye-candy and user interfaces, and IT product evaluators naturally find themselves spending considerable time on the visual aspects of competing products as opposed to what really counts.

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Beware then: The best intentioned business intelligence initiative will fail if it can't process *volume* (volume of data, volume of requests and volume of users). The tool with the best graphical user interface will fail if the engine behind it can't process the *volume* needed to satisfy the enterprise.

## Methodology

When companies want to buy software, they often submit an RFI (Request For Information) to be responded to by software vendors. When companies post for application development, they often submit an RFP (Request For Proposal) to be responded to by systems integrators. Certainly the goal of the RFI and RFP is to gather information, but perhaps as important, the document invests all of the participants in the process. This is because considerable time and energy is expended by the respective parties to develop the questionnaire and respond to it. In many cases, the RFI/RFP author learns much about their own needs during the process of composing the document. Likewise, the product vendor or systems integrator use the RFI/RFP document to qualify their interest in pursuing the prospect's business.

Realizing the commitment from the parties that the RFI/RFP process generates, ResiliEnt Business Solutions turns this process upside-down, submitting to the prospect if you will, an integrator-driven Request For Information. Our methodology for success is dependant on the client thoroughly defining the problem and fully gathering all relevant information before any billable time is engaged. The information that is gathered between the client and our delivery team aids in a better understanding of the client's business, the problem at hand and the solution requirements (Remember topology?). From this ResiliEnt Business Solutions can accurately scope the project, bring the right people in, and control costs.

As the RFI is known to eliminate vendors from the competition just by virtue of the effort required to complete the document, so our unique process weeds out prospects that are not truly serious in solving their business intelligence problem. A prospect that will not commit time and resources to even identifying their own problem is a project disaster waiting to happen. Conversely, a prospect that willingly and excitedly comes to the table has taken the first step in delivering a successful application.

Our methodology extends well beyond the requirements definition phase, aiding and guiding the design, development, implementation and deployment phases as well. While structure is good (structure may be forgiven on small projects, while enforcement is advisable on large projects) our methodology accounts for the productivity gains inherent in today's BI tools. Hence, we produce results as quickly as possible so that users and management can see and experience their application. The feedback provided is then engineered into the next revision. This is an iterative process that continues until everyone involved is completely satisfied with the deliverable. We do this because our

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experience tells us that the most successful applications are the ones that have engaged their users and sponsors throughout the complete application development life-cycle.

Experience really counts when it comes to delivering applications to production. ResiliEnt Business Solutions is staffed with business intelligence experts, because delivering information systems for others is all we do. Our management team has over 100 years of practical business intelligence expertise gained at some of the largest nameplates in corporate America, government and around the world. Each of our senior developers has a minimum of 8 years of BI development behind them. New developers are put through a rigid screening process to ensure they have a background and base skills relevant to the business intelligence discipline. Once selected, new-hires are teamed with a mentor to quickly hone their skill-set. While our people represent one of our greatest competitive advantages . . . It is the concept of leveraging these highly-skilled resources through a synergistic relationship involving a proven methodology and RAD (Rapid Application Development) tools that sets ResiliEnt Business Solutions apart.

As much as we are focused on delivery, we are focused on customer service as well. Our methodology involves a layered approach, applying a customer care representative to each account to ensure total satisfaction with our personnel and our deliverables. ResiliEnt Business Solutions clients experience courteous and professional service that is unparalleled in the services industry. Our customer care philosophy is grounded on the belief that the client/integrator relationship is symbiotic in nature. It is in our interest to ensure that both parties benefit from the liaison, because in the services industry, failure breeds where one side exploits the other.

Another differentiator is found in our company culture. We pride ourselves on running one of the leanest organizations in the professional services industry. Running an efficient organization avoids costs that would otherwise have to be passed on to our clientele and directly contributes to our ability to charge fair rates for the best talent and expertise.

We provide solutions that result in tangible, quantifiable ROI to meet the business needs of our customers. We are committed to fast, efficient, and courteous professional services of the highest quality for our clientele. Our mission is to exceed client expectations, thus promoting a long-term strategic partnership.

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### Conclusion

The concept of resilient business intelligence is centered on the idea that once implemented, a business intelligence application must be able to adapt and cope with an ever changing environment. In so many cases, business intelligence projects are launched on a small scale and appear to be a huge success. The data is accessed, the data is processed, and good information is projected back to the user. But successful pilot projects, even successful production projects, are not resilient when put to the enterprise test. They falter and ultimately fail.

Resilience encompasses attributes such as pliability, flexibility and scalability. Once a BI project is implemented, it **MUST** be able to withstand the pressures of growth that success will ultimately bring. Once a BI project is implemented, it **MUST** be able to cope and adapt to an ever-changing landscape of technologies and standards that evolution of the business and the IT industry will ultimately bring. Organizations in general, and IT specifically, simply can not afford to go back to the well to redevelop solutions. Once in place, the delivered application and its sustaining BI-ware must be resilient to the point that the only change demanded to deal with change, might be physical infrastructure (e.g. hardware).

ResiliEnt Business Solutions can build resilient enterprise BI applications because:

- We have a unique and proven **methodology** for application delivery that embodies process, customer care, experienced personnel and cost control.
- We carefully choose the business intelligence platform for each client to accommodate the diverse **topology** found in and across organizations of any size while providing each of the essential **technology** components required execute business intelligence at the enterprise level.

Want to know more about how ResiliEnt Business Solutions can help you put your decision makers, business analysts and end-users in touch with the data that drives your business?

Want to know more about how you can get moving **NOW** on a new initiative for problem detection, opportunity discovery, and inter and intra organization collaboration?

Give us a call us.

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**Footnotes:**

1

Gartner Delivers Business Intelligence Vendor Ratings for IT Buyers and Technology Investors, Research Note, Gartner January 2003

2&3

Build or Buy a Content Delivery System, Whitepaper, Fastwater LLP, 2002

3.

ETL Magic Quadrant Update, Research Note, Gartner, May 2002

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## ResiliEnt Business Solutions Company Overview

### ResiliEnt Business Solutions, LLC

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ResiliEnt Business Solutions specializes in the delivery of strategic enterprise business solutions ranging from high level enterprise strategic planning and alignment, to the delivery of enterprise technology solutions. These solutions often include high-value business intelligence applications and data warehouses.

Through our unparalleled attention to customer care, we strive to attain the highest degree of customer satisfaction in the professional services industry. **We build ResiliEnt partnerships and solutions that ensure success.**

### Services Overview

#### Business Planning

- Strategic Planning and Alignment
- Enterprise Assessments
- Vendor and Asset Management
- Organizational/Infrastructure Design
- Tactical and Strategic Solutions Design
- Global IT Infrastructure Operations Assessment
- Business Impact Analysis
- Cost Reduction Assessment
- ROI (Return on Investment) & TCO (Total Cost of Ownership), Quantification, and Optimization

#### Information System Delivery

- Development of New Business Intelligence Applications Including Dashboards and Scorecards
- Enterprise Report Writing
- Legacy Conversion to New Technologies
- Design and development of Data Warehouses, Data Marts and Operational Data Stores
- Enterprise Application Integration
- System/Application/Product Configuration Review and Performance Tuning

#### IT Assistance

- Assessment Services to Precede Business Intelligence, Data Warehousing and Enterprise Application Integration Initiatives
- Full Project Outsourcing
- Product Assessment, Review and Selection
- Project Management
- Staff Supplementation & Mentoring
- Training and Education
- Managed IT Infrastructure (MITI)