

OPEN SOURCE DATA SOLUTIONS AND BUSINESS INTELLIGENCE

Amentra, a Red Hat Company

EXECUTIVE SUMMARY

In a recovering economy, corporate stakeholders – from investors to customers – are demanding transparency from their enterprises. Businesses struggle to provide accurate, complete data to regulators and shareholders alike. But the problem isn't a lack of information.

Throughout the enterprise, data is trapped in silos, inaccessible to most who would benefit from it. Customer records are logged in spreadsheets. Client survey results are entered into a desktop database, never to be shared with key decision-makers in another business unit. Data aggregation is spotty from one application to the next, and business decisions suffer as a result.

Yet data is a corporate asset with a virtually inexhaustible downstream value. Its limits are bound only by the capabilities of the people, processes, and tools chosen as its stewards. With access to the right information, at the right time, in the right format for each individual, enterprises mobilize the knowledge and experiences of every enterprise stakeholder.

Business intelligence solutions have brought unprecedented transparency, along with increased participation and collaboration to the enterprise. As industry veterans know, business intelligence demands new ways of thinking about information. To interconnect disparate sources of data, enterprises must employ a common language that describes business data, plus a common set of tools, processes, and skills that can be used to answer the questions of any investor or regulator. Without this level of insight and familiarity with business information, the operational business processes within an enterprise can only be managed by “best guess” analytics or risky, tactical responses to the “crises of the moment.”

Moreover, when the tools and processes in place enable easy and intuitive information access, the enterprise opens up to broad participation and collaboration: getting “every brain in the game.” Decision-makers throughout the enterprise reference the same data set of business information, which is accessible to anyone with minimal technical knowledge and appropriate permissions. Analyses and reports are assembled from a common data set, regardless of the business unit, improving accuracy and reducing risk.

Proprietary business intelligence solutions offer these benefits – at great cost. Instead of needed data management systems, non-essential services are bundled into proprietary business intelligence (largely to justify the extravagant license fees of these offerings.) This whitepaper explains how most enterprises can achieve the needed functionality and reliability of proprietary business intelligence at one-tenth the upfront cost and with seven times greater return on investment (ROI). We will present the specific cost advantages of open source business intelligence offerings, as well as their technical strengths and limitations. Last, we will discuss the advantages of choosing an implementation partner and make recommendations for selecting a firm.

FILL YOUR BUSINESS INTELLIGENCE TOOLBOX

There is a secret that proprietary vendors do not want you to know: business intelligence and data warehouse technologies are essentially commodities within the modern IT portfolio. There is little that differentiates open source offerings from their proprietary cousins—other than a ten-fold cost difference.

Because the core business intelligence functionality (e.g., query, reporting, and analysis) has matured, proprietary vendors have been forced to tie their tool suites to implementation models like Six Sigma, Balanced Score carding, or Top-Down/Bottom-Up planning. While this may be valuable for the top 1 - 5% of business intelligence and data integration users across the Fortune 100, for most business intelligence users the added cost is simply a waste of resources.

So what business intelligence capabilities do the remaining 95% of businesses need?

Managed reporting. These highly formatted, distributed reports can be sent via portal, email, or distribution list to a series of stakeholders. Plus, each report may be bursted into dozens of customized versions that reflect different security/access models.

Ad hoc query. Business end users can define and generate their own reports from a pure web client with a drag-and-drop interface, using data from the common semantic layer that the Managed Reports are generated from. These reports must include valuable components like prompting, filers, charts and graphs, calculations, and custom exception formatting.

Analysis or Online Analytical Processing (OLAP). From either a relational (star-schema) or multidimensional cube file, business users can “slice and dice,” drill down through multiple dimensional hierarchies, and change visual data displays. This capability is particularly important in finance, sales, marketing, and manufacturing/production.

Scheduling and distribution. For all business intelligence content (query, reporting, analysis), the content must have the ability to be scheduled and distributed through web, email, portal, etc.

Dashboards, mashups. End users need to be able to mix business intelligence content in a common portal screen with other content, so that business intelligence is just another component to the business analyst’s or user’s workstation or business day.

THE OPEN SOURCE ADVANTAGE

For all of the required core functionality listed above, open source business intelligence can provide these capabilities out of the box, with a purely web-based interface.

Because open source business intelligence customers are largely migrating from proprietary offerings, they typically decommission one proprietary business intelligence license for each open source license added. To encourage this conversion, open source business intelligence vendors have accelerated release and development cycles, with typically one major release and six minor releases per year. As a result, most of the innovation in business intelligence is taking place within open source.

Some key areas of strength for open source business intelligence technology include:

- Traditional business intelligence: Query, reporting, and analysis (OLAP); business dashboards
- Data mining and statistical analysis
- Data integration/extract; transform and load
- Data services

But ease of deployment and cost efficiency are where open source really shines. Consider a typical deployment scenario using proprietary business intelligence compared with open source offerings, as shown in Table 1.

TABLE 1: ROI COMPARISON BETWEEN PROPRIETARY AND OPEN SOURCE BUSINESS INTELLIGENCE SOLUTIONS

RETURN ON INVESTMENT (ROI) COMPARISON: PROPIETARY VS. OPEN SOURCE
Users: 250
Discount Rate: 5%
Revenue Generation
Annual Cost Savings: \$500,000
Year 2 Support and Maintenance
Year 3 Support and Maintenance
Annual Revenue Generation: \$250,000

Table 1 continued

CLOSED PROPIETARY B1 TOOLSET		OPEN SOURCE B1 TOOLSET	
Discount Rate	5%	Discount Rate	5%
Cost Savings	\$500,000	Cost Savings	\$500,000
Revenue Generation	\$250,000	Revenue Generation	\$250,000
Initial Product Cost	\$774,900	Year 1 Subscription	\$70,000
Year 2 Support and Maintenance	\$165,460	Year 2 Subscription	\$70,000
Year 3 Support and Maintenance	\$165,460	Year 3 Subscription	\$70,000
Initial Product Services	\$115,200	Initial Product Services	\$115,200
Initial Training Costs	\$300,000	Initial Training Costs	\$300,000
NPV* Year 1	\$714,285.71	NPV* Year 1	\$714,285.71
NPV Year 2	\$680,272.11	NPV Year 2	\$680,272.11
NPV Year 3	\$647,878.20	NPV Year 3	\$647,878.20
Total NPV Benefit	\$2,042,436.02	Total NPV Benefit	\$2,042,436.02
Return on Investment (ROI)	37.09%	Return on Investment (ROI)	277.89%

The ROI of the open source option is 240% higher over three years. While partially due to lower operational costs – the open source setup costs less than half of the proprietary model – the main difference is the capital expense. The proprietary model's initial product license runs \$774,900, compared with the first year subscription cost (\$70,000) for the open source model.

You may well wonder why CIOs continue to spend greater than ten times the upfront cost for proprietary systems, if the open source versions are fully functional. This is a bit of a modern economic theory mystery. Most financial decision-makers know that basic business economics requires ignoring any sunk costs (i.e. any money already spent) and considering only money to be spent in the future when making an investment decision. But the field of behavioral economics has shown us that in the real world, humans tend to be naturally loss-averse, and past expensive financial mistakes alter our future decision-making even to the point of making further irrational and costly decisions. In other words, no CIO wants to be the cause of a three-quarters of a million dollar mistake, and proprietary firms know that by overcharging for their initial product, they actually reduce the potential for migration – mentally locking you in with their inflated pricing.

Conversely, in the open source model you pay a yearly subscription fee, guaranteeing compatibility and uptime, and providing peace of mind starting on day one. At the end of each year you are free to re-evaluate your company's needs. This freedom ensures continued support from your open source vendor.

OTHER BENEFITS TO OPEN SOURCE METHODOLOGY

Clearly, business intelligence is the key to moving away from data silos to knowledge sharing, and open source makes the prospect simple and affordable. But there are benefits to adopting open source solutions beyond those enumerated earlier.

CONTROL IS RETURNED TO THE CUSTOMER

Open source offerings are typically sold by subscription. This holds the vendor accountable for delivering value and service every day. If a customer is unhappy, they can easily move on.

Because the source code is open for anyone to view, issues are resolved more quickly, and modifications are included on a faster schedule. Clients can work directly with the project leaders to incorporate new ideas and improved features into future releases.

A VIBRANT ECOSYSTEM

There are excellent open source application choices for most areas of enterprise software. Each project has a community that exchanges ideas and plans for new features, modules, and enhancements every day. Red Hat and Amentra are at the center of this application ecosystem, adding infrastructure, services, and experience.

TRANSPARENCY

When source code is laid bare for all to see, rather than locked away from (most) eyes, bugs are out in the open and can be resolved more quickly.

WHY OPEN STANDARDS MATTER

Of course, most IT professionals are already aware of the reliable and cost-efficient nature of open source software. But the value of open standards is less understood.

Open standards are published standards that are possessed by no one and can be used by anyone. Unlike proprietary standards, which are typically owned by a corporation and whose use is controlled by change-at-will licensing, your ability to use an open standard can never be altered or revoked.

Using open standards ensures that your investment in technology and process is not tied to any particular platform or vendor. With proprietary standards, CIOs often find that an investment in a technology that solves one set of business problems creates another problem: vendor lock-in. Vendor lock-in and proprietary standards are deliberately engineered inefficiencies that increase transaction costs. Meanwhile open standards allow for the migration of good ideas and winning processes from one technology stack to another, with minimal costs. When you choose open standards, you protect your future choice of vendor, technology, and platform.

IMPLEMENT A BUSINESS INTELLIGENCE SOLUTION

The goal for a business intelligence implementation is simple: achieve corporate goals for transparency, participation, and collaboration while limiting capital and operational expenses. This is the story of how one major Pennsylvania-based business did just that.

Sheetz, Inc. is a \$4 billion convenience store and gasoline retailer based in Altoona, PA. When the company grew to 400+ stores, business leaders found it increasingly difficult to make confident, informed decisions. The company had no way to tie transaction-level store sales data from their many locations to other operational information from finance, marketing, sales, or HR. Sheetz's initial objective was to make available simple, self-service query tools for non-technical business leaders in any department to use for planning and management.

Sheetz used the Pentaho Business Intelligence suite to quickly and easily implement a series of standard on-demand finance and marketing reports. As part of this phase I roll-out, Sheetz also activated an ad hoc self-service query capability within the Pentaho suite. Operating from the shared Pentaho semantic meta layer, business users can dynamically build their own reports from a common set of data.

Sheetz used this business intelligence solution to gain a common view of store sales data and use that data at the reporting level with other operation data. The company has found the new information to be an asset to both strategic and operational planning. Thus the next phase of the project includes plans to roll out dashboard-style reports for regional and corporate managers.

During the product selection process, Sheetz also evaluated Cognos8 BI, a proprietary solution with nearly 10 times the upfront cost (after applicable Cognos discounts) of Pentaho BI, which is open source. As Pentaho offered all of the necessary business intelligence capabilities, including query, reporting, and analysis, at one tenth of the capital expenditure and with lower operating costs, the decision was elementary.

EVALUATE A POTENTIAL MIGRATION

As we see in the Sheetz scenario, when comparing proprietary business intelligence solutions to open source offerings, costs vary greatly.

So when the U.S. Navy's Safety Center in Norfolk, VA needed to provide transparency into safety-related data for Safety Center leadership, fleet officers, safety experts, and sailors, they chose JasperServer BI.

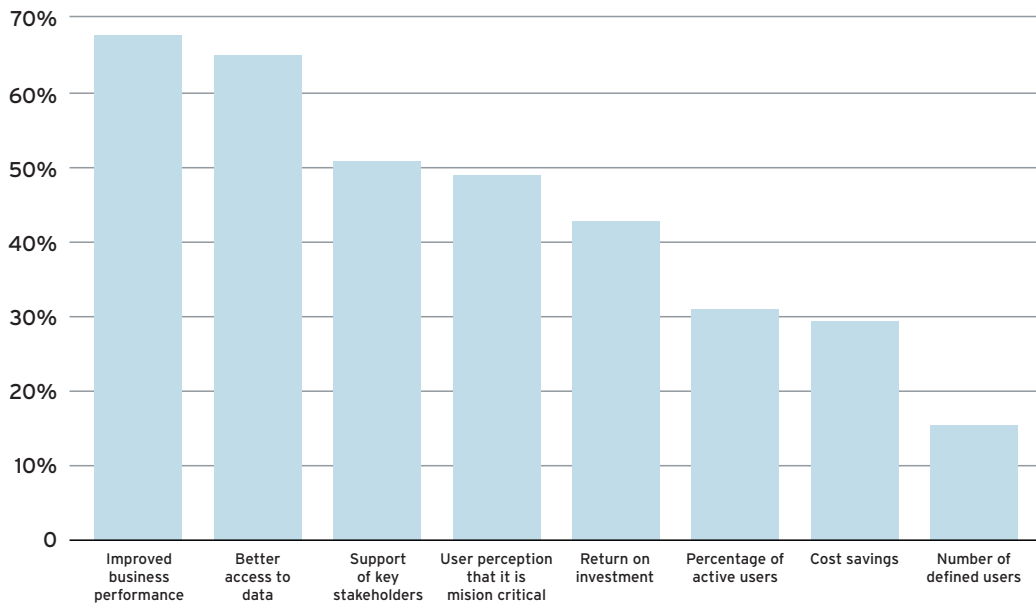
Although the Safety Center had an existing business intelligence infrastructure through Cognos, a proprietary vendor, they found open source JasperServer to be equivalent in practical functionality and far more economical. The cost of a JasperServer subscription and setup of a new business intelligence environment was less than adding more licenses with Cognos.

The Safety Center uses JasperServer BI, including JasperReports, JasperAnalysis, and iReport to measure the frequency and severity of safety-related incidents. Individual officers report safety issues as they happen, using a submission system. The data is then aggregated and presented with JasperServer to find trends and devise remediation methods such as additional training or new equipment. Using a common semantic meta model and the robust reporting, analysis, and dashboard capabilities within the Jasper product suite, the Navy can measure incidents by rank, age, aircraft type, ship type, and more.

ASSESS THE SUCCESS OF AN IMPLEMENTATION

Whether proprietary or open source, there are a number of ways to determine the success of a business intelligence implementation. Table 2 shows some common metrics used by enterprises to evaluate their projects.

TABLE 2: TYPICAL MEASURES OF SUCCESS FOR BUSINESS INTELLIGENCE (OPEN OR PROPRIETARY)



ACHIEVE THE GREATEST TCO SAVINGS

There are several steps that, if taken, will dramatically improve total cost of ownership (TCO) for business intelligence and data warehouse solutions:

1. For each project, make a list of the business intelligence capabilities needed. Map these capabilities to vendor offers (both proprietary and open source). Use a consulting partner, like Amentra, to help guide this process.
2. Once you have selected open source business intelligence and data integration, invest in your team. Amentra's signature mentoring model was designed to make our clients' staff IT resources contributing members of the development and implementation from the very first day.
3. Use the initial open source business intelligence or data warehouse implementation as a showcase for the potentials of open source technology within your organization. Open source implementation typically begins with a coexistence strategy: open source applications supplement proprietary offerings. As cost savings are realized and business value is generated from the open source investment, coexistence gives way to replacement of proprietary technologies and standardization on open source offerings.

SELECT AN IMPLEMENTATION PARTNER

Unlike application development, business intelligence is not isolated to any particular area of business operations. Business intelligence cuts across all functional areas of a firm. Sales data is analyzed by product (Manufacturing, Inventory), by sales representative (HR), and by discount percentage and customer profitability (Finance).

Accordingly, an implementation partner must be more than just a technical expert in the given toolset. A thorough knowledge of open source technologies is critical. In addition to end-to-end technical and open source skills, the right partner must have proven business intelligence experience to implement the technology in a way that maximizes organizational impact and value.

The right partner can help you achieve your business goals around transparency, participation, and collaboration by implementing a business intelligence solution that provides deep knowledge of your data while controlling costs. Together, you can provide your stakeholders with the information they need to make informed business decisions across the enterprise.

CHOOSE AMENTRA

Amentra is a recognized leader in producing successful solutions through standardized processes and strong client partnerships. Amentra engagements are 100% deliverables-based and transform the three critical areas of success: people, process, and technology. The approach actively engages in-house teams and assures new systems can be maintained for the long term.

Amentra's signature mentoring model delivers results through an integrated development process that increases client knowledge retention through on-the-job mentoring within the context of each project. Our unique mentoring engagement model has been the key to Amentra's history of winning Fortune 100 projects that would typically be passed on to the "big name" firms. Over the years, we've applied the same mentoring philosophy to outsourced projects as well, assuring a smooth knowledge transfer with systems and staff that's fully up-to-speed.

Industry analysts say Amentra is "unique in the industry." CIO Magazine says we have an "unorthodox approach." And that's exactly how we want to be known. Unlike the plethora of consulting firms vying for your trust, Amentra truly is different. We actually deliver on time and on budget, every time. That's why 95% of our business comes from repeat customers.

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