SearchDataManagement.com E-Book

Best practices for implementing BI in ERP centric environments

An original SearchDataManagement.com E-book offering advice and best practices specifically for IT professionals charged with creating or updating BI programs in ERP environments.

Business intelligence (BI) is a high priority for many organizations, promising enhanced visibility and improved efficiencies. But for those with existing ERP systems, implementing or updating a BI program raises especially interesting challenges. Should you source your BI technology from your ERP vendor – or choose a third party BI system? Will BI be based just on ERP data or will data from other source systems be integrated? How will data integration, data quality and data normalization be handled in the new system? Will your BI system scale to provide the performance and functionality required in the short and long term? How will implementation time and costs be affected by the strategy you select? And what's the best way to sort all of these issues out, build a business case, scope and plan the project effectively?

This original SearchDataManagement.com E-book is specifically written to address the unique challenges of IT and BI professionals in ERP-centric environments. This set of vendor-neutral articles offers best practices, strategic advice and long-term planning assistance for organizations seeking to create or optimize BI programs that effectively leverage existing ERP investments.

In this E-book, readers will learn:

- How to decide whether to use your ERP vendor or a third party BI system
- Tips for building a business case and project planning for integrated BI and ERP
- Expert advice for preparing data, systems and processes for integrated BI and ERP
- Key success factors, best practices and tips for BI and ERP integration projects

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Choosing BI software: Use your ERP vendor or go with third-party BI?

By Chris Maxcer, SearchDataManagement.com contributor

Organizations with enterprise resource planning (ERP) systems face a common question when implementing or upgrading business intelligence (BI) programs: Choose the existing ERP vendor's BI system -- often touted as a more straightforward implementation? Or look at third-party BI software, which may promise different or more specialized functionality?

The bad news is that there's no simple answer. The good news is that for organizations with encompassing investments in ERP, the BI options are better than ever. Most ERP systems now come with a variety of built-in, integrated and available BI solutions, and there are still reputable pure-play, third-party BI vendors finding success. There's been a lot of action over the last several years.

"Many of the largest standalone vendors have been acquired. Oracle kicked it off by buying Hyperion, SAP acquired Business Objects, and IBM followed with Cognos -- these moves attempted to consolidate BI within the ERP world," explained R. "Ray" Wang, a partner in enterprise strategy with Altimeter Group.

Despite all of this consolidation, however, there are still strong independent BI vendors out there, he added. And all the recent interest in BI has also meant that even the smallest ERP vendors have focused on expanding their BI capabilities. That adds up to lots of choices. The big question, though, is how do you make the choice between what your ERP vendor offers and third-party BI software?

"Clients who tend to have homogeneous environments with their ERP tend to go with an ERP provider's solution; however, that's only if they are comparable in capability. We see a lot more use of specialist solutions when the data is heterogeneous and when customers have advanced use cases that go beyond simple reporting."

- R. "Ray" Wang, partner, Altimeter Group.

ERP and BI software experts say, "Follow the data"

"Clients who tend to have homogeneous environments with their ERP tend to go with an ERP provider's solution; however, that's only if they are comparable in capability," Wang said. A more capable third-party solution can get the nod if the ERP vendors' solution is too limiting.

But what if there's a lot of data coming from mixed sources? Many ERP-focused companies have business processes that utilize non-ERP data. What then? In that case, Wang noted, "we see a lot more use of specialist solutions when the data is heterogeneous and when customers have advanced use cases that go beyond simple reporting."

Boris Evelson, principal analyst of BI with Cambridge, Mass.-based Forrester Research, voiced a similar sentiment. He's hearing more and more requests from companies that have a strong ERP presence. In many of those cases, he said, there is little reason to look elsewhere for BI -- unless you have very specific requirements. And many companies do.

"What if most of your reports require operations that SQL cannot do?" Evelson said. "Then you have to look at tools that have their own programming languages -- that are more powerful and flexible than SQL. Another example is in-memory analytics, which allow end users to explore without the limitations of a data model."

Indeed, in-memory analytics pose some interesting new opportunities. Where traditional RDBMS and OLAP architectures require the "pre-discovery" of data -- through data modeling, integration or warehouses -- in-memory models can cross-reference attributes, creating indexes in the form of a virtual data model on the fly, Evelson noted. Still, the data has to be reasonably clean: It's not a panacea for data quality initiatives. And the downside for ERP-focused companies is that the end results can be even less predictable than traditional BI.

ERP and BI software lines increasingly blurry

Making the choice also requires looking ahead for both long-term requirements and system innovation. Jeff Woods, managing vice president of ERP and SCM for Stamford, Conn.-based Gartner Inc., said that within a few years, the bigger trend will be components of ERP applications that you won't be able to purchase without buying the analytics environment as well -- the analytic environment will be integral to the execution of the applications.

"The BI components might remain standalone, but they'll become required runtime components of the ERP applications," Woods said.

So does this mean that integrated ERP BI has the advantage over third-party options?

Not necessarily.

"It depends on the degree to which the ERP vendor reengineers the ERP suite to take advantage of analytics. If they deliver presentation-level embedded analytics, then this is interesting, but not that interesting," Woods explained. "If they deliver a reengineering of business processes because of the presence of analytics functionality, then we're talking about something that is transformative, and it would be very difficult for someone to capture without using the embedded functionality of the ERP vendor."

The point? If employees can use embedded analytics within the course of their decision making process, they are more likely to put the company's data to work. If a question requiring human intervention arises, the human might not be able to track down the answer in a separate BI system, but if an employee can extract the answer through the ERP application, so much the better -- choices can made quickly, backed up by evidence delivered by data. Experts also say embedded analytics can help ignite the imaginations of business executives, which in turn helps make the business case for BI.

While embedded analytics are only currently available in bits and pieces, there's been a gradual inclusion of BI in ERP. "You increasingly see more and more components of their products relying on a BI point of view," said John Hagerty, vice president and research fellow of BI and EPM for Boston-based AMR Research. "They are delivering a lot more dashboards, more reporting, more analysis as part of their applications."

Still, ERP-based BI is not a slam-dunk proposition.

"The reason is that ERP isn't the be-all and end–all; it's that it's often part of an overall system -- companies have other business applications they built themselves or bought from other vendors, and they recognize that the data from all of these applications potentially has to be integrated together to make analysis more complete," Hagerty explained.

"At this point, folks are recognizing they have to step up and make BI investments beyond what ERP provides," he added. "ERP is important data, but it's not the only type of data in a business."

There's another interesting situation created by market consolidation, he said. A lot of BI solutions that ERP vendors have acquired were previously standalone solutions. The BI-ERP integration came later. Can't these previously standalone tools still connect to almost any form of data? To find the real answer, Hagerty recommends, look to how it's marketed.

"If a BI tool is sold built-in, it may be more limited," he said. "If it's marketed as an open-ended tool [also sold separately], it can probably look at most any data store."

How to build a BI business case in ERP environments

By Chris Maxcer, SearchDataManagement.com contributor

Building a business intelligence (BI) case is tough, especially in organizations with heavy investments in ERP. Challenges range from explaining why standard ERP reporting capabilities aren't enough to simply getting executives to sign off on yet another big-ticket IT purchase. In fact, building a BI business case is tough in any environment, with or without ERP. The return on investment is elusive, the implementation costs can ramp up beyond initial estimates, and business needs are constantly changing. And yet BI systems are getting increasingly intelligent, integrated and automated. There are plenty of successful BI case studies. Is signing off on the BI business case still really that big a leap?

"It's not a complete leap of faith," said R. "Ray" Wang, a partner in enterprise strategy with Altimeter Group. "You have to start by addressing the questions you are trying to answer. If you can figure out why your accounts receivable days are so long, you have answered a question with a huge dollar value. If you could identify the customers with the biggest credit risk or exposure, you could minimize your losses. It's key to use quantifiable answers to provide a directional guidance."

Even with that, it can be a tough road, another expert agrees. Building BI business cases is not easy, conceded Boris Evelson, principal analyst of BI for Forrester Research. Still, there are some excellent rules of thumb that can help drive a business forward. First, Evelson noted, don't even try to build an "all-encompassing, comprehensive, cross-functional, enterprise-wide" ROI business case for BI. Even if you manage to nail down every possible user's BI needs, by the time you can deliver on any of it, old needs will have changed and new, pressing matters will have exploded.

Instead, start with BI requirements gathering, before getting into the ERP vs. pure-play vendor decision. Evelson recommended organizing BI cases into distinct categories, then prioritizing them according to degree of complexity and difficulty. Promising quick wins can help get the project funded. If your plan starts with delivering on the easiest problems to solve, your BI implementation team will learn from it, but you'll also bring onside the business users who've experienced the success.

First, try looking for a way you can automate a manual process. If you've got full-time workers consolidating and reconciling statements each month, then pouring that information into spreadsheets for distribution to managers and executives, and all of this takes four full days, then you've got hard numbers to work with and clear results. Nail down a list of similar future projects, which can lead to justifying initial BI investments by showing how it can deliver top-line business results.

Of course, every organization is unique. CEOs, CIOs and line-of-business managers all need different things and react to plans in unexpected ways, which means a BI business case is sometimes about long-term education.

"You have to create a business awareness of the value of information," said Jeff Woods, managing vice president of ERP and SCM for Gartner Inc., a Stamford, Conn-based analyst firm.

"Many business users feel they do not have the information they need to make decisions, and at some point the business has to connect that need with the absence or quality of the BI strategy -- that's the trick," Woods said. "If people feel they don't have the information because the BI systems don't work or, say, they are waiting on SAP to provide this, they are never going to connect those two things together. It's up to the IT department to make that connection for the business and create the urgency behind the need for a BI strategy."

Once your business owners understand the need, finding the right hot-button areas can lead to a green light for investments in BI.

"You want to be focusing on your strategic business processes, and that's a discussion every IT department needs to have with the business. They need to be asking, 'What are our strategic business processes?' not, 'What are our important processes? What creates competitive differentiation for us in the marketplace?'" Woods said.

"That's where you want to focus innovation -- that's where you want to focus analytics. There are other answers, but that's one possible way to do this," he added.

Another way to turn on the light bulbs for ERP-focused business users is to look at embedded analytics, which is when an ERP organization has integrated BI features into transactional-based ERP processes. Organizations running ERP have been doing this for years without realizing it, through custom application and process enhancements. ERP vendors, though, are increasingly looking to embed analytics into processes that can empower users to make decisions based on the analysis of data. Awareness of embedded analytics is fairly low, Woods said, and these options are still fairly rare and new. Of course, it should be noted that embedded analytics can be more difficult if a customer chooses a third-party BI system, giving ERP vendor BI a bit of an edge in meeting that type of requirement.

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Building a BI case not always about ROI

"In a lot of cases, people will look at investments seriously when they save money, and a lot of investment justification in BI is in insight and value -- and that's hard to pin a dollar amount on," noted John Hagerty, vice president and research fellow of BI and EPM for AMR Research.

"A lot of BI programs are not justified on ROI; they are based on, 'If I don't do this, will we miss big things?'" he said. "In a lot of cases, if a businessperson feels exposed, that's a justification regardless of whether it's going to save money. In the past, BI has largely been in the realm of the IT group. Now businesspeople are more savvy and adept at figuring out how to use it, and before when the IT folks were scratching their heads trying to get a justifi-

cation, the business can now put together a business justification rather than a financial one, so a lot of these projects are moving forward because the business execs are driving it."

Lesson? Using all of the tactics above, you can often find a business executive to kick-start BI projects.

Martin Murgatroyd, director of IT for Brunner Mond, a manufacturing-focused organization in the U.K., boils down the lesson to its elemental essence. “If someone involved in the business shows any kind of willingness to be involved in this project,” he said, “exploit it.”

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Integrating BI with ERP systems: Plan for data quality and MDM

By Chris Maxcer, SearchDataManagement.com contributor

The big money question is this: If a company opts for getting business intelligence (BI) from its ERP vendor, can it avoid the time-consuming and expensive data prep work of integrating BI with ERP? The notion is, of course, that if you're looking to tap BI with an ERP-based system, shouldn't that data be clean and ready to go?

"You'd like to think that, but this only works in a homogenous environment," said R. "Ray" Wang, a partner in enterprise strategy with Altimeter Group. "Data quality and governance will be minimized, but most [BI] systems will be augmented by many sources of data. In some cases, these will be unstructured as well."

That said, in terms of prepping systems and processes, ERP vendors can often offer a leg-up.

"There is a key advantage, and it's easy to understand: When an ERP provider has done a lot of the work, the customer doesn't have to worry about it if there is prebuilt and predesigned reporting and analytics as part of their ERP applications," said John Hagerty, vice president and research fellow of BI and EPM for AMR Research.

"Years ago, that was something that everyone had to build on their own, and now they don't have to," he explained.

"A secondary benefit is that companies used to implement ERP and then, toward the end of the implementation, realize that they needed reporting, which was a separate cycle. But now that it's embedded, reporting isn't an afterthought," Hagerty added. "They are part and parcel, and you need to implement these together going forward."

This also means that now, for some companies, analytics can be included within some ERP upgrade cycles, which helps spread out the implementation work -- as well as the cost.

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However, even companies with a strong ERP presence can run into data issues, according to Boris Evelson, principal analyst of BI for Cambridge, Mass.-based Forrester Research.

ERP-focused companies can sometimes save on data quality efforts, Evelson said, but "this is only if the ERP applications are mostly used as-is, without major customizations -- and that's not typically the case in larger enterprises where they heavily modify their ERP apps. Also, few large enterprises have one ERP solution. Most have several or one off-the-shelf ERP plus many custom-built apps."

In most cases, you can't get away from integration and prep work, Evelson said, even if you're using BI from your ERP vendor.

Preparing data for using BI with ERP

Ideally, an organization will have a master data management (MDM) plan in place or, at the very least, some basic efforts to ensure consistent data definitions and quality. Still, belief in ERP as the be-all and end-all answer to data management persists, making some think they can skip this step if they have ERP in place.

"Transactional master data management -- the ERP vendors went through this phase -- was that the way you solve MDM is just deploying more and more on their technology, and we all know that that's not feasible," said Jeff Woods, managing vice president of ERP and SCM for Gartner. "The ERP vendors are attacking the MDM problem, but more from a transactional point of view."

That, of course, leaves out plenty of data for most organizations, hence the need for a more overarching approach to data quality and to a BI strategy in a greater context than just ERP.

"One of the things we advise is to make sure you have a BI strategy. Just using whatever the ERP provides is not always the best analytics strategy -- you need to make a conscious decision about how you're going to use BI and analytics," Woods said. This should also account for and clear up data quality preparation and potential pitfalls.

AMR's Hagerty agrees that even in ERP-focused organizations, data cleanliness is critical.

"A lot of folks get enamored by the looks of the [BI] solutions for the end user, and they don't pay enough attention to the data," he said. "IT is responsible for the architecture to support BI over time, and data quality is almost always the first area they have to tackle. And business people don't generally recognize how complicated the data really is."

People forget that data is problematic -- even in the best-run companies.

"Even data that's coming out of an ERP system might not be pristine because you might have different codes for the same thing," he said. "For instance, you may have different customer codes, so if you're not aware of that, you can't do enterprise customer data analysis."

That's why more experts are touting the importance of MDM as part of BI initiatives, even in ERP environments.

How does MDM fit into using BI with ERP?

While an ERP-focused organization may not need a full-blown MDM plan in place to squeeze value out of BI, you've got to remember the old phrase GIGO -- garbage in, garbage out.

"The MDM discussion has to begin with a business need to manage data, and where we advise clients to start on how to do this is, first, you have to create the business awareness of it, but then recognize that an MDM solution starts by tracing the sources and uses of data, as well as defining the governance around the data. It doesn't start with the technology solution," Woods said. "You've got to understand where the information is, where it flows, who uses it, before you can solve the MDM problem."

"Lots of people jump to the technology first and say, 'Oh, it's just an integration problem.' No, it's a governance problem, an information mapping problem, first and foremost, and you can't skip that critical step," he added.

Making the ERP vs. pure-play BI choice

These days, it seems as if most BI technology worth the label can connect to multiple, if not most, possible databases. But is the touted ability to connect to any database true -- and what does that really mean to ERP-focused companies?

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Hagerty said it is largely true and that while some BI components are going to be more closely linked to certain ERP or application data, BI technology is very versatile now.

"BI is a category where its main value is being able to glom onto most anything -- anything categorized as pure BI can do that, and most can accept data from other places," he said.

To make the choice of ERP vs. pureplay BI technology, experts agree that it’s key to look first at the scope and future of BI throughout the organization. Be aware of any tool's true abilities -- and outright limitations. Ironically enough, most limitations these days still come from bad data and poor governance.

"If there's good discipline,” Hagerty said, “a lot of problems tend to fall away.”

Key success factors and tips for BI and ERP integration projects

By Chris Maxcer, SearchDataManagement.com contributor

Business intelligence (BI) and ERP integration has challenges regardless of the vendor choice -- challenges that are both political and technical. BI initiatives often come to an organization from many different angles, supported by company players with different needs and different levels of understanding. There are also the costs, the strategic investments in ERP, the best-of-breed BI silos that are delivering focused value for one department but failing miserably for another. So how does an ERP-focused organization regroup and start making sense of all the nuts and bolts that must come together for a cohesive BI strategy?

"Begin with the end in mind. Start with the KPIs," said R. "Ray" Wang, a partner in enterprise strategy with Altimeter Group. "[Next] follow the information supply chain. Find out which processes touch which people, when and why. Invest in good data governance and processes before buying the technology."

Building a foundation for BI and ERP integration

"We have to understand the process today and what's the process you want to move to," said Jeff Woods, managing vice president of ERP and SCM for Gartner. For instance, "We can't install a system and magically fix master data management [MDM] problems -- we have to understand if there is dysfunctional use of data. Most of the time, there is no formalized governance, and this can be a problem when you're trying to manage data."

To put that into perspective, it helps to distinguish among the kinds of uses of information you have inside your business because the type of analytics you want will drive your implementation direction.

"If your primary use is reporting capability, you still have a lot of flexibility in terms of what kinds of BI you select," Woods explained. "The ERP vendors are trying to bundle these solutions together to make reporting and analytics information easier to access, and this is what we call integrated analytics."

"The value of integrated analytics is there, but it doesn't necessarily represent transformational business value to an enterprise," he said. "Integrated analytics makes it cheaper to access the analytics you want but doesn't really make the analytics any better or more useful. It's really an IT cost-savings you're getting with integrated analytics."

Another kind of more forward-thinking analytics for ERP-focused organizations is embedded analytics.

"This is the use of analytics information inside business processes," Woods said. "For example, let's say I have one piece of inventory and two customers who want it, and I have to make an allocation decision. Today, the way I make that decision, I might look at, for example, a table that lists whether I'm deciding between an A, B or C kind of customer, to see how the customers rank. I've got some crude rules to help me decide.

"But with embedded analytics within the business process, I might ask more sophisticated questions, say things like, 'Which customer is more profitable? Which customer is least likely to defect if I don't give them the inventory?'" he said.

"Today, it's possible to ask those kinds of questions, but I have to drop out of the transactional application, and I've got to have a really dedicated employee to go over to the OLAP system, run the right report and collect the right information, then go back to the transactional system and make the right decision," Woods said. "What embedded analytics does is engineer that analytical information into the business process. And that is transformative value -- tying together analytic systems with traditional ERP transactional systems."

How data warehouses work with BI in ERP environments

BI systems are getting increasingly nimble in how they tap information, and ERP systems already store data somewhere, raising the question: Do BI implementations in ERP environments still need a separate data warehouse?

"I think there is a need for some form and shape of data warehouse in virtually every environment, primarily because data is coming in from multiple places and that data needs to be commingled," said John Hagerty, vice president and research fellow of BI and EPM for AMR Research. "Unless a business has all its data in a single system, you might not need a data warehouse, but I have yet to see a company that has all of [its] data in a single system."

"So you need some sort of data store, but it could be a small subject-matter data mart," Hagerty said, noting that focused data marts are generally less intimidating to smaller organizations and their IT departments. Either way, the core takeaway is that you have to get to a consistent view of the data, whether it's in a common system or in a data mart that's been cleansed ahead of time.

"Traditional 'waterfall' project methodology does not work well for BI. Agile does. So favor interactions over documentation. React versus plan. Think quick, tangible prototypes and deliverables versus long strung-out milestones."

- Boris Evelson, principal analyst, Forrester Research

For BI in ERP integration success, think rapid, agile project planning

Building a skyscraper requires a massive set of blueprints that detail every aspect of construction, which may span years. A good BI plan might seem similar, but reality has the tendency to change the basic rules of the game midway through the project. And that happens with skyscrapers, too -- most people just don't see how floors and plans are altered on the fly. Sure, there are ongoing inspections and budget tweaks, and people getting fired or moving to different jobs. Yet somehow, someway, these amazing things get built.

So for project planning and architecting integration, Boris Evelson, principal analyst with Forrester Research, has some recommendations that might make for queasy stomachs for some IT pros.

"Traditional 'waterfall' project methodology does not work well for BI. Agile does," Evelson said. "So favor

interactions over documentation. React versus plan. Think quick, tangible prototypes and deliverables versus long-strung-out milestones."

This means face-to-face business participation rather than working with IT liaisons; personal ad hoc interactions instead of highly defined processes; real-time prototypes versus long specification lists; reacting to change instead of planning in advance.

Obviously, Evelson isn't recommending that organizations throw out their blueprints. Rather, if a company can infuse the BI efforts with a sense of quick deliverables and action, they'll be more likely to create a sense of action, acceptance and excitement.

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