LINEAR
PERSPECTIVE

A professional article series dedicated to extending the value of your SAP investments

IBM SOA in Action: Utilities and Energy

Learn how these fictitious utility and energy companies are breaking down barriers to create responsive operations using service oriented architecture and integration solutions from IBM

While these scenarios represent fictional organizations, the information is based on real discussions and observations obtained through interviews with unidentified utility and energy companies who achieved specific benefits associated with their IBM software implementation. There is no guarantee of comparable results and no attempt should be made to identify the results with a specific organization.

Business scenario one

Increasing efficiency and reducing operating costs are common goals for any organization. But, for older utility and energy companies that have diverse technologies in various states of maturity, modernizing business processes and automating the underlying IT infrastructure to achieve these goals can present unique challenges.

Disjointed business and IT systems make modifying systems and driving business-process innovation cost-prohibitive. In this scenario, the utility and energy company wanted to create a Web-based, self-service system that could provide customers with online payment options and account history. For this reason, the IT team had to develop custom interfaces from the Web site to each of the related back-end systems.

"Our business processes had become stratified in our IT infrastructure, and we lost flexibility. We could no longer make process improvements that involved upgrading or changing systems because the amount of work involved was cost-prohibitive."

–Chief architect, undisclosed utility company

With IBM's help, the utility company implemented a business-integration platform that allows it to more easily create new business processes and leverage existing processes cost-effectively.

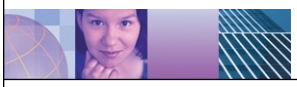
- **Business need:** Inflexible IT infrastructure prevented the creation of a cost-effective solution that could enable quick-and-efficient responses to the needs of a rapidly expanding market
- **Solution:** An industry-standards-based business integration infrastructure that can more quickly and easily connect systems and business processes
- **Benefits:** The ability to quickly create new business processes at lower costs enables the implementation of new solutions, such as a self-service customer Web portal, that help improve service and productivity

"These interfaces coupled applications together, making them difficult and expensive to modify or upgrade," states the chief architect. "In this scenario, altering one system meant all of the associated systems required changes, too. As a result, we could not offer self-service systems because of the high development and maintenance costs," explained the IT Director.

The situation was the same for internal business processes. For example, there was no central repository that contained key business data. The chief architect explains the impact of the rigid systems on internal processes: "The only way to access details for projects, such as pipeline and building construction projects, was through a report and analysis project, which could take weeks. By the time the report was available, the data was no longer useful." One of the company's goals was to provide management teams with real-time access to company data so they could quickly adjust project budgets and allocate resources as project and overall business requirements changed. They needed an integration application that could cost-effectively support business process updates.

Key business benefits:

- The ability to quickly and cost-effectively implement applications that were once cost-prohibitive, thanks to increased IT team productivity
- Improved customer service at a reduced cost, resulting from the ability to provide self-service solutions through the Internet
- The ability to provide management with a holistic view of company operations, enabling them to make better decisions and manage with better information
- A flexible business-process foundation that can easily adjust to support growth



Breaking down barriers to create responsive operations

The chief architect asserts that the inflexibility of and costs associated with their disparate systems and business processes reverberated across the organization, stunting the implementation of projects and solutions that could help the company make better use of resources and enhance customer service. The company reached a point where it could no longer consider implementing off-the-shelf applications, even if they closely addressed business requirements; the costs to integrate the disparate systems were simply too high.

The lack of flow across and beyond them threatened the company's efforts to maintain sustainable growth. To streamline processes and make the company more responsive to customer and employee needs, they needed to find a way to reduce the costs of implementing new business processes.

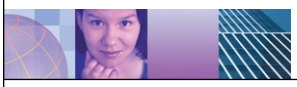
"We chose the IBM solution because of IBM's leadership in terms of the Java enterprise environment, and we also ended up benefiting from IBM's industry and technical expertise."

–Chief architect, undisclosed utility company

Process flexibility spurs effective service and collaboration projects

With IBM's help, the utility company implemented a business-integration platform that allows it to more easily create new business processes and leverage existing processes cost-effectively. Now, the IT team can quickly and easily connect systems and business processes. And given the IT team's significant productivity improvements, the company can focus on critical projects. For example, the solution enabled them to connect an off-the-shelf work-management system, which facilitates the management of large projects for the company's gas pipelines and building construction, to existing systems. It also implemented a self-service Web-based customer portal, where patrons can view up-to-the-minute account information. The solution helps reduce customer reliance on the call center and drives down associated costs.

The chief architect says that they will develop a corporate data warehouse for their next project. "The database will compile all of the events that are shared between business systems to create a holistic view of company operations," reports the architect. "This will give management an almost up-to-the-moment perspective of what's happening with projects, budgets and expenditures, enabling them to make better decisions and manage with better information," he says.



Fueling productivity and efficiency through integration

The utility company used industry-standards-based IBM WebSphere® Integration software to replace its existing point-to-point architecture with a hub-and-spoke brokered architecture.

The integration solution leverages IBM WebSphere Application Server Enterprise Edition, IBM WebSphere Message Broker and IBM WebSphere Adapters, all running on a highly scalable IBM p™ Series production platform. "The combination of tools simplifies integration work tremendously," says the chief architect. "We chose the Enterprise Edition for its support of Enterprise Java™ Beans and because it includes WebSphere MQ, which provides a robust queuing mechanism," he adds.

"The biggest benefit of the integration solution is the restoration of flexibility and the ability to manage and apply technology to automate business processes," declares the chief architect. "The other way that it gives flexibility back is by boosting the productivity of the IT development staff, enabling us to consider the execution of projects that otherwise would have been cost- prohibitive to even attempt," he says. And the ability to quickly create and implement more-effective processes at a reasonable cost will be instrumental to the company's long-term sustainable growth goals.

Business scenario two

The following one-on-one interview was derived from discussions with a leading energy and utility company whose focus is to efficiently operate its assets in order to provide wholesale customers with a reliable, low-cost source of power. The organization successfully implemented a solution that improved data access and availability by reengineering its enterprise resource planning infrastructure and integrating operations enterprise-wide with IBM Lotus®, IBM WebSphere and IBM Tivoli® software. As a result, they were able to strike a balance between economic growth, environmental health and social well-being — all of which are critical aspects of the organization's success and core business planning.

Linear Perspective: What's the importance of service oriented architecture (SOA) in the overall business-process management?

Response: The importance of SOA in business-process management is that it enables us to push the IT function further into the business and enables the business to be a more-active participant in the development and design and the life cycle of an application or system. It also enables us to be more flexible to react and move with what the business requires of IT systems.

Linear Perspective: Why do you think flexibility is so important to the enablement of an SOA?

Response: Before we implemented an SOA, just trying to keep all the integrated connections going when they were fairly non-standard was next to impossible. When you start thinking about all the different ways that you can integrate all these different systems together, it could be about half your job—It's massive. In that kind of environment, how can you be flexible enough to deal with the business needs? How is it possible to be flexible enough to not only deal with what the business users want today but in the future?

We needed to be flexible and adaptable to the business needs; we had to have a solution that was scalable. You have to plan to be successful because what happens is the business starts out saying, "Well, I don't really need IT to help me with this business process." But, once they start seeing the value, pretty quickly they become believers. And, before you know it, you have a snowball effect where there's exponential growth and suddenly, they just explode with all the things they need for you to do. Plan for success because it's how you handle that exponential growth, all the new requirements which have been driven out into the open, that will make or break you. If you don't have a good scaleable product, then you are in trouble. Combine that with the speed element—how quickly can you respond to their business needs. As these new requests come in, if you are unable to turn them around fairly quickly, you start losing that trust. They start going different ways trying to figure it out. So it's very important to build that initial trust, and from there, sustain that trust by keeping that momentum and pace up. I suppose it's like pushing a snowball downhill. You get that thing going and it's going to pick up speed. And yeah, it's hard to get started but after you get moving, the business really does catch on and from there things continue to move quickly with you.

Linear Perspective: How important is IT flexibility to the business side of the organization?

Response: When our IT organization has the ability to be flexible, this enables our businesses to drive the IT systems more. It means that the businesses are more-active participants, they can partner with our IT departments. As a result, IT has assumed more of a consultancy role toward the business, rather than being just a set of order takers that provides a specific service to the business. What this really means is the IT guys can now deliver systems that are specifically tailored to the actual process. So, not only is our business receiving faster response times from the IT department because we are engaged earlier on in the process, our business sponsors are also much happier with the rate at which the systems are evolving, not to mention the actual performance of the business processes within those systems. The greatest benefit, as a result, is that the business side of the organization has direct control over how the business processes are really implemented.

Linear Perspective: How does flexibility help to enable the IT side of the business to be more innovative?

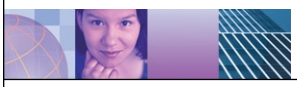
It is clear that flexibility is a principle benefit that you have been able to gain as a result of the SOA, WebSphere and various tools and components that you are applying.

Are you finding that your organization can take a more-proactive stance when it comes to business objectives and business direction?

Response: These tools and technologies enable us to become much more of a partner with the business. It has completely changed the dynamic between IT and the business users. In the past we tended to be order takers; we just waited for them to have a specific problem, and then we'd try to provide a solution. Our role has changed from that of a reactive service organization, to more of a change agent, a catalyst. Specifically, we are more immediately involved with our business clients, and as such, we engage earlier, and are able to express visions for them, partnering with them, discussing the strategy with them. We've evolved from order takers to leaders, and we're leading them toward where we see the future. Moreover, because we have such a strong toolset right now, we don't have an IT technology problem to solve. That means we can focus on core issues — the biggest of which are:

1. *Choosing from the array of technology options available to us*
2. *Selling the vision to the business*
3. *Actually bringing that vision to fruition for the business*

We now have the opportunity to take the time to identify best practices in our industry, as well as across other industries — to see what other organizations are doing to improve their process management, how they're evolving, and what kinds of benefits they're receiving as a result. As a consequence, we truly do gain the foresight that business consultants have. And through this perspective, we can apply our newly acquired understanding and knowledge of current trends to our own business; this has transformed us from order takers to innovators who are able to advise and guide with confidence.

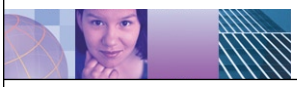


Linear Perspective: Could you describe some of the business challenges you were experiencing before you implemented WebSphere Portal Server and WebSphere Process Server?

Could you also elaborate a bit more about the specific software components you are using, those with which you are most familiar.

Response: Before we implemented WebSphere Portal and WebSphere Process Server, we were doing a lot of point-to-point solutions, and these tended to be specific domain solutions; they didn't integrate with multiple applications or back-end systems. In addition, they were very labor-intensive and we didn't get any reuse out of them. As a result, every time we needed a similar solution, we had to build it more or less from the ground up. Basically, we had to reinvent the wheel over and over again. The SOA approach — which for us has now evolved into business-process management — enables us to build once, and then to reuse that same piece of functionality many times. This has led to the increased speed of deployment and development of these applications. Moreover, it generates a much higher satisfaction within a business, not to mention greater flexibility for us at an IT level. As an example, we were able to mask back-end systems through portals, which enables us to change our back-end systems as an IT project, completely insulating our business users from any subsequent changes. Speaking as an IT person, this makes a huge difference for us.

Let's look at another example — using WebSphere Process Server. The business wanted a workflow standard. And because we spent quite a bit of time trying to understand exactly what having a workflow standard meant, we actually discovered that we had a workflow standard in every single tool we own — IBM Lotus Domino® does workflow, WebSphere MQ has a workflow engine, the content managers from IBM have a workflow engine. So, what we didn't need was more workflow; what we needed was a central processing engine that would bring all these workflow engines together, enabling us to produce a single source for a lot of the workflow activities that were happening already. WebSphere Process Server is the unifying force that brings together all the different sub-workflow engines and enables us to produce, for instance, a single notification box that has all the notifications from the subsystems brought into a standard interface.



Linear Perspective: What were some of the barriers to system and information integration that you were experiencing before you deployed the WebSphere components?

And, in your opinion, what were some of the inhibitors to enterprise-wide information integration between your SAP implementation and some of the other legacy systems you had onsite?

Response: Really, the biggest barrier we had to integrating with SAP and the other systems, including Tibco, was dealing with proprietary systems. SAP was really well integrated across the modules of R3, but we struggled to find a good solution for getting anything else to talk to SAP, or for making SAP talk to anything other than SAP. We faced the same problem with our Tibco systems. To meet this requirement, we implemented a trader's portal, and although it was exceptionally good at being a discrete trader's portal, it wasn't an enterprise solution. So we had to find technologies that would enable us to bring all these solutions together into a single system, especially through the portal.

Linear Perspective: Could you describe how the lack of a single access point for users of SAP and other legacy systems impeded IT's ability to support your business goals?

Response: We were struggling with the training aspect and keeping our users up to speed on how to use subsystems, especially the SAP environments. For casual users, SAP environments are not that easy to use. The power users, they love it, they get used to it. They are really good at using it. But, it was the casual users who really struggled. To help, we had a whole schedule of training cycles that were held throughout the corporation at regular intervals just to try and bring the casual users up to speed. The training routine was not only a resource drain, but it also represented significant cost to the business because of the business disruption associated with the participants. So, one of the challenges we set out to overcome as we evolved our existing portal was to find a technology that didn't have such a large training requirement. We were looking for a technology that would allow us to place that commitment and complexity on the back-end systems — and that's really where WebSphere Portal has solved the problem for us.

Some of the other solutions we looked at included Microsoft®, Oracle and SAP. We also explored some of the more best-in-class solutions for specific areas, like Tibco. But what we were looking for was a technology that would enable us to integrate right across all the horizontal systems. It was really this requirement that helped to narrow the choice of recommended solutions. When it came right down to it, it was either going to be Microsoft, SAP or IBM. At the end of the day, given our technology set and the direction we were headed with our technology solutions, it was IBM that we selected.

Simultaneously, we were starting to look at strategies for application development and systems development, and we were getting very, very interested in service oriented architecture. It was because of our interest in SOA that we started to evaluate IBM as a strong contender—IBM seemed to have the best strategy around SOA, they were clearly committed to it, and we had made the decision to go with IBM technologies by that point.

Linear Perspective: So what changed? What were you unable to do before you implemented a WebSphere and SOA solution?

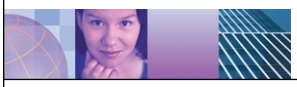
Response: Well the big thing was we weren't really able to bring in new entities in a very cost-effective or speedy manner. We had architectures that weren't built around the business, and what we were looking for were solutions and a capability set within our IT to enable us to usher in new entities. So if we acquired a new business unit we would be able to bring those guys right in and turn the migration of technologies, the legacy technologies these entities had, into our corporate standards, turn them into an IT project that didn't impact the business in any way.

The best value proposition that IBM had given us was business-centric SOA where the architecture is built around what the business needs to do. That's the stuff we have been trying to really leverage since we implemented it.

Linear Perspective: Why did you choose WebSphere Portal Server and WebSphere Process Server? What was the environment like, and, could you also offer us a bit of insight into how the dual-portal proof of concept was conceived and implemented?

Response: Well, you see, that is an amusing story for us IT guys because IT guys don't generally have a good sense of humor. We had a dinner where we signed the enterprise software-license agreement with IBM on Friday evening, and I mentioned to some of the guys who were there that I was going on a three-week vacation, and as part of the deal I wanted to see a portal when I returned from holiday. That was kind of the gauntlet we threw down to IBM. And, you know what? I came back from my three weeks of holiday, and they had that portal up and running.

Not only that, but they had solved a lot of the problems with which we had struggled for two years, for example, using the SAP portal server, integrating the IBM Lotus Domino collaboration technologies, showing the Web Content Management system to the business, and really making the portal reach out far beyond just the HR function. So over the course of just three weeks, they were able to produce something that we have been struggling with for two years. The team that produced that included some of the IBM local resources here, IBM Global Services, the Software Labs from IBM, as well as an IBM Business Partner.



Linear Perspective: Would you say that the experience you had with IBM Global Services and IBM Software Services was positive?

Response: We still work very closely with IBM Software Services and IBM Global Services. IBM Global Services tend to be here on project-specific work, so they do a lot of project management, offering the consulting resources we need for major initiatives. We have a standing arrangement with the IBM Software Services team where we have three other resources on site throughout the year now. One real advantage of this arrangement is the access we have to the IBM labs. With more or less direct access into the labs in IBM, we are able to swiftly resolve any issues, challenges, fix bugs that arise.

Having an established relationship with the labs also offers our business more of a partnership; the software labs talk to us pretty regularly about where the future direction of the products are going, about issues that have become apparent in other businesses, and how we can work around them or solve them.

Linear Perspective: So what was the migration process like? Did it go as planned?

Response: The migration was very smooth, and the big thing for us was that we were able to preserve the existing functionality that we had with the SAP portal during the migration. This was another performance bar that we had set for IBM; they would have to preserve the existing portal as whole from a functional viewpoint. This is what we called the dual-portal.

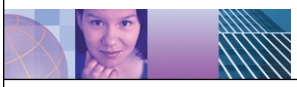
In addition to that, we were able to provide all those extra services that we had been struggling for a long time to produce through the SAP portal — services such as collaboration and Web content management. So the actual project to move from SAP portal as a single portal to the dual-portal strategy with the IBM portal being front and center started in September. We completed it in January and because of various business considerations at the time, we didn't go live until June. It took about three months for us to migrate our entire portal from one technology to the other, and we didn't lose any functionality through the migration we gained.

Linear Perspective: Could you describe the business scenario you set out to achieve, providing us, at a very high level, what the project is in a nutshell in terms of going from the SAP portal to the dual-portal, and elaborate a little about why you had to do it?

Response: We had evolved along with the portal technologies of the world. So the first portal we actually had here originally was a Plumtree portal. Then we got involved in other portals. Several years ago, when we were implementing the typical portal specifically for the traders, we took a good hard look at portals and realized this was something we wanted to do on an enterprise level.

The main business driver behind the SAP portal (which is what we went with initially) was HR. We wanted to give both employees and managers self-service up to the business-end SAP functionality because our three HR systems are a SAP product. The SAP functionality that was delivered was more than adequate for delivering that piece. But, for the next two years, we had been trying to extend the capability and the reach of that SAP portal with varying degrees of success. What we ended up with was a portal that had seventy percent of its solution derived from Lotus Domino, while only thirty percent of it came from the SAP core systems.

It was about that time that we put our heads together and decided what we really needed was a broad portal that could bring in different functionalities like collaboration and document management. Basically, we really needed to start to deliver on the promise of the other functionalities that we had used to gain buy-in for the initial portal. Yet, what we found was that while the SAP portal was a strong vertical portal for integrating with SAP, it wasn't very flexible or capable of integrating with anything broader. So out of that exercise, we started to take a close look at the IBM WebSphere Portal. From there, we signed the software license agreement and the IBM portal project kicked off with the mandate that it was to produce a single-source location for all information, and all processes, while also delivering business-process automation.

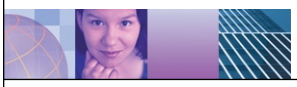


Linear Perspective: Can you describe how your business has benefited from the implementation of WebSphere?

Response: The best example is around an application we built for revenues and receivables. We used the SOA to build this application, and right now we are upgrading our back-end R/3 system where the billing actually happens from 46 to 47. The net result of that was that the SOA enabled us to decouple all the systems. The only piece of code we had to change in order for revenues and receivables to still work was the in the three weeks of work, and ninety percent of that was testing. If we had taken another approach, and not used SOA to do this, we would have had to rebuild our application from start to finish, and that application took us up to two years to build the first time. So we have seen real benefit around the speed and flexibility with our back-end systems from an IT perspective.

Linear Perspective: How do WebSphere Portal Server and WebSphere Process Server allow you to integrate across all the different kinds of information and applications that you are using?

Response: So the WebSphere Portal Server, and now WebSphere Process Server, are helping us integrate back-end systems such as SAP R/3 to various modules that we run. The legacy of dominant applications that we have is pretty extensive — for example, maintaining data such as people's e-mail accounts, and policies procedures and manuals for the workers. We integrate Oracle back-end systems from the trading floor, or we scrape down in real-time the information about markets and weather (in real integrated SQL server databases that are integrated with the IBM document-management system). And right now we are implementing a Portal Single Sign-On using IBM Tivoli solutions. So these technologies have enabled us very quickly and very seamlessly to bring all these things together, allowing us to import transparently to the user. When we talk about this, we often refer to the swan effect — for users, it looks like a swan above water — everything is moving in line, in a very controlled and pretty fashion while, underneath the water, IT has done a lot of heavy paddling to make sure that all this stuff sticks together. That paddling that the IT organization does is enabled by the WebSphere Portal Server and WebSphere Process Servers.



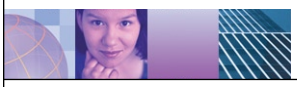
Linear Perspective: A lot of companies have obviously made a huge investment in SAP, and their investments are serving them very well. Like you, many of these organizations are in a similar position and they are looking for some way to extend their SAP systems' reach, to exploit their SAP applications even more than they already are. Can you describe how WebSphere Portal Server and WebSphere Process Server help you to do that?

Response: The WebSphere Portal Server and WebSphere Process Server are helping us to extend the use of SAP significantly. The biggest problem we had with SAP was this whole user interface, the issue we had with training people to use it. We have removed people from that complexity now so they don't have to worry about training up on how to use specific transactions.

The other thing we have been able to do is embed transactions in larger business processes. So you don't realize you are using a requisition from SAP when you are ordering something, or a vendor doesn't realize he is using various transactions within SAP when he is checking the status on his invoice or submitting an invoice. This functionality enables us to achieve a couple of things.

The first thing is our guys are more productive. They are using these systems. They don't have to spend copious amounts of time learning to use the systems. For example, when we produced the requisition system in the portal, our mandate was no training required at all for that system. And all the guided processes we are delivering here are built around this mandate of no training required. So we have been very, very successful in rolling out pretty complex processes to people without having to train them at all.

The second big aspect is that we are cleaning the data as it goes in because we are simplifying the interface. People are making fewer mistakes, which results in lower levels of frustration, with no shortcuts being taken. We are able to filter the data to make sure it's correct going into the system, which in turn means we are able to use SAP and really leverage it for what it's meant to do—just the financial reporting and the output reports of an enterprise system.



Linear Perspective: Can you describe the process of identifying a situation, modeling it, building a solution and then implementing that process? What approach do you use, in terms of this incremental approach, based on the four-step SOA life cycle?

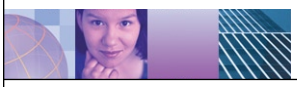
Response: We have kind of evolved to SOA, and without having IBM there to advise us as we went through this process, we wouldn't have been able to get to where we are right now. We are embarking now into the areas of sustainment of some of the SOA that we implemented, and this is really getting us into the larger strategy, looking at how you implement a life cycle around SOA in any organization. This is a relatively new field. The company that seemed to have the most-complete strategy around, the most-well-thought-out strategy, was IBM. That's why we have partnered extensively with IBM. Without IBM's help we wouldn't be successful doing our SOA within the company. We have passed certain stages of SOA adoption, and we are only getting into the sustainment parts of this architecture at this point.

So in terms of the SOA life-cycle support, we are seeing support from IBM as a partner that is growing with us as we pass through the maturity process, where they are able to guide us through from beginner's level right through to where we are going into a mature stage (like now). At each part we have been able to tap into the IBM resources and get the advice and the expertise we need to get our skill set up, increase our understanding and get a better landscape of where we are going with SOA. There is one area of our project that is an important part of our International Transaction Log (ITL) initiative: the unification of this project under the service oriented umbrella is a major strategic achievement for our IT organization, and something that is a real priority for us. It is in areas like ITL that IBM's experience and thought processes are really vital.

Linear Perspective: How does SOA help you innovate your business and reach new business opportunities?

Response: Let me give you an example of where we were actually able to work with the Global Solution Center in Dallas to help solve an external business issue that needed to be addressed by organizations within our industry. In this instance, we solved a real business problem, using our existing technologies in a new way.

We know that there are huge environmental changes happening in our industry — in this instance, activity and changes with auto-protocol and the Environmental Clean Air Act. One of the things that we were able to highlight to our business was the need to monitor our systems. But we didn't have anybody who was ready to look at this yet, or anyone who was ready to take any action on this, as we had no alerting system built behind it.



This was a problem that we shared with the Dallas center experts who worked with us to develop an SOA that was built on top of our production database system, effectively our historian. This was a significant step for us, because as we approach new areas of our business that we haven't addressed before, our IT is able to point out the requirements that are out on the horizon, and now we have the technology that can enable solutions to address these new requirements. So, by partnering with people in IBM we were able to build an industry-specific solution in Dallas that can be reused by IBM and multiple industries such as petrochemicals and the pulp mills industry, really any sector that is involved in emissions. At the same time we are getting a business-specific solution that maps to the immediate needs we have. SOA enables us to put in the foundations for event-driven plan some [sic] systems, which also enables us to get real value out of the plumbing work we have been doing with the integration layers.

We are lucky enough that we have access to so many experts within IBM—through Global Services, the Software Services Group onsite, as well as the labs. For instance, there is one enterprise architect for service oriented architecture that has been teaching us a lot of the information and equipping us with the knowledge of how to implement. This architect is regarded as a trusted adviser for us here. On the sales side, our local account reps are very efficient at helping us find the right people at the right time, which expedites responses to our questions considerably.

Linear Perspective: How does SOA improve your employees' productivity?

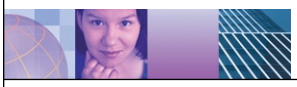
Response: SOA helps employees to be more productive by enabling them to, from a business perspective, drive how IT systems are developed and also drive which systems or which processes need to be systemized. This ability enables them to interact with processes in a much more user friendly manner, not to mention in a timely manner. The area of improvement is the result of the WebSphere Portal Server—specifically, we are bringing information to one source and we are also able to answer questions through one source. An example of this is where we passed an Environment, Health and Safety Audit at one of our plants about two years ago based solely on the answer to one question: "How do you know if one of your staff is safety-certified to drive a piece of equipment or to operate a piece of machinery?" The answer is that we look in the portal. You can put anybody's employee number in and pull up the entire safety skills and qualifications information for that person, on the spot. So being able to provide that answer alone enabled us to pass an audit that had financial implications for the business. Again, the interesting thing is we actually built those functions for other reasons, but we were able to reuse that same functionality—of course this is good for the business financially, as I've illustrated, but also as far as the IT organization is concerned, it enables our guys to be more productive.

Linear Perspective: What, in your opinion, is the importance of governance in your SOA strategy, and how difficult is it to develop and implement a governance model?

Response: Again, this is an area where we are turning to IBM for help. We realize that we have Sarbanes-Oxley requirements, as well as ITL standards and policies that we must implement. At the same time we are developing an SOA, and this goes back to the life cycle of an SOA. We have spent a lot of time in the build side, figuring out what it is, getting the knowledge we needed, putting the infrastructure in place, putting the services in place and starting to get toward building with the SOA. Now we are into sustainment. A major part of the sustainment is the governance around how these things are maintained, how they are managed, and this may feed back a little bit into rebuild, to make sure we have built them right in the first place. The main gist of governance for us is that we are able to review what we have done, to bring it up for scrutiny with the auditors, and to explain or demonstrate that we have the appropriate level of documentation, the appropriate level of control around systems, and how our systems are developed. In theory, and hopefully in practice, it will lead us to a point where our governance is easier because the services that are defined will not have to be rebuilt by every developer (to his own standard). And also the business-process models that we are using to build these things will end up being based on standard services. So once those services are passed by the Sarbanes-Oxley group, and the internal audit group, then there is no need to reorder them every time we roll out a new processor.

Linear Perspective: Could you describe your relationship with IBM, and do you consider it a partnership?

Response: The relationship we have with IBM is definitely one of partnership. I've already alluded to the fact that we have got a couple of strategic partners, with IBM being our primary partner. How would I define this relationship? It's definitely a case of partnership rather than a customer and a vendor relationship. IBM has been there with us through a lot of the ups and downs of implementing the technologies. They have assisted us to sell the concepts at times. They have assisted us in proof of concepts and proof of technologies. In some cases they have been right with us in the support and maintenance areas of new implementations. We have looked to IBM to help scale the organization's staff up and assist with the knowledge transfer. And we have grown with their assistance and we were able to align better with the technical strategies that IBM is laying out. We also feel we are heavily influencing SOA strategies, as we bring a customer perspective to some of the product teams within IBM, which has really been fundamental to some of the things we have managed to achieve here.



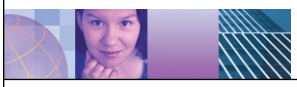
Linear Perspective: How would you classify IBM, in terms of SOA and the vision that IBM brings to the table?

Response: Up to this point IBM has acted as a trusted adviser for our SOA, and we don't see that arrangement changing. We will continue to look to IBM to help guide us through the evolution and the sustainment of what we have implemented. And we will look to IBM to help and bring us to speed, especially on the business-process execution language and how we are going to roll it out across the environment and make sure that our business analysts are at speed with what's going on as far as SOA and business-process management. So, definitely for us IBM is a trusted adviser in the SOA area.

We have worked with two gentlemen in IBM who have really been instrumental in helping to ensure that we are implementing solutions in a very simple or as simple a manner as possible. The sheer capability of the systems is kind of mind-boggling at times. But the bottom line for us is we have been able to extract the complexity, and siphon this off into the IT layer, well away from the business. In a company like ours, we are definitely signed up to accept a bit more IT complexity in order to make it simpler for our business people. But, the way that IBM is rolling out the SOA technologies, how they are taking a modular approach will make it easier for our IT guys to manage what's going on. SOA is evolving within organizations like ours, it is evolving with IBM and as a result, it is getting more and more simple to deliver these kinds of solutions.

Linear Perspective: As far as SOA is concerned, open standards is one of the key cornerstones. IBM is a clear advocate and leader in open standards, and is involved in over 50 committees. Can you comment about IBM's investment and commitment to open standards?

Response: When we were embarking on this route and evaluating the alternatives in the marketplace, the fact that IBM was adhering to an open-standards model was definitely a major influence for us. We had to look at some of the other vendors, and some of them were open to various degrees, but a lot of them were very proprietary in nature. We went with IBM solely for the ability to tap into the open-standards marketplace.



Now, as a result of the sort of architecture we have implemented and the strategy we have implemented, we are able to leverage new technologies and new systems inside our organization in a relatively seamless manner. An example of that is where we bought some specific plant-related software. In this instance, the only question we have to ask potential vendors during our negotiations is this: Do they comply to open standards? It makes it a lot easier for us now to buy off the shelf when that's the right thing to do, or to build it custom, when that's the right thing to do. As a result, we have a very high degree of confidence that we can make all of our applications and systems integrate, regardless of the source.