Business Intelligence Project

Case Study

General Scenario

You and your team are employees of Supernova, LLC, a consulting firm specializing in Business Intelligence solutions. Recently, your firm was contracted to conduct a review of the business processes of Contoso, Ltd. and provide an analysis of potential Business Intelligence solutions that would address their issues.

Contoso is a global company that primarily uses a legacy system and supplements it with other technology and disparate systems. For example, if they cannot use features in their legacy system for various business processes, they rely heavily on spreadsheets and manual processes. They also use disparate contact management systems for sales tracking. Each global branch of the company has responded to its technology needs in a different fashion. The board of directors and senior management of Contoso would like to move away from the current legacy system and towards an integrated technology solution that enables them to continue to grow internationally and compete in a niche market.

The following information will help you, an employee of Supernova, LLC, prepare recommendations for Contoso, Ltd. The information was obtained primarily through interviews with key personnel, examination of their current legacy information system and observations while visiting their corporate headquarters in the US.

Company Profile

Contoso is a well-established organization that competes by differentiating itself in the niche market of designing and manufacturing specialized excavation equipment and replacement parts for excavation equipment. The company has global branches in Tokyo, Japan and Naples, Italy, in addition to several locations in the continental US. The corporate headquarters is located in Portland, Maine.

Now considered a leader in their field, Contoso is nearly a century old organization that grew from a small family business into approximately 300 employees with revenues of $87 million in 2008. Due to a downturn in the economy, Contoso has experienced a negative growth rate and is on track to achieve revenues of $82.5 million at the end of the current fiscal year, June 2010. Due to the current business forecast, Contoso is particularly concerned about maximizing potential with sales and marketing initiatives. They are also focused on gaining efficiencies and reducing costs in their accounting, payroll, and manufacturing processes.

The culture of Contoso would be described by many as traditional. Because the company has existed for many years, and originated as a family-run operation, some of these inherent values have permeated and remain part of the organization today. Contoso is a top-down organization with a generally autocratic management style. Directives originate from the board of directors and executive management level and trickle down through the organization. The average employee has worked at Contoso for 14 years, and it is not uncommon that employees stay with the company for the majority of their careers. Change management initiatives are difficult to implement in this environment, although the senior level management team recognizes that this will be a necessary challenge and they are preparing the culture for changes on the horizon.

After having experienced double-digit growth for a prolonged period in the late nineties,

Contoso launched a European branch in 2001 by acquiring existing companies. To cover the Asia market, it opened a new location in Tokyo in 2004. These foreign locations house a combined total of 21% of worldwide employees.

 Contoso customers are geographically diverse. Customers can be found in 62 different countries (Exhibit 1); however, the majority of customers are located in the US and Canada.

Exhibit 1 – Map of Contoso, Ltd. Locations and Customers

Sales Processes

Interview with Joe Healy, Vice President of Sales

Sales Leadership - Joe Healy has been the Vice President of Sales at Contoso for five years and he feels well established in his role. Before coming to Contoso, he was in a similar position with a much smaller competitor. Joe is somewhat familiar with the benefits of a Customer Relationship Management (CRM) solution, but he would like more information on how a CRM system can benefit Contoso. Following are specific system challenges that he explained during your interview with him.

Sales development/lead tracking processes - Currently, prospective sales (leads) are not tracked easily during the sales process. When a lead is converted into an actual proposal, it is entered into the system, but this is too late for effective monitoring of leads. Joe indicates that the sales managers would like to see the lead entered into the system much earlier in the process so that they can track how many leads do not develop into actual proposals.   He also would like to have a quick look view of sales performance against targets and other comparison points by the various organization hierarchies, i.e. product, geography, etc.

Process inconsistencies - Joe also has concerns with general inconsistencies regarding the basic process of handling leads. The process for leads from the first "touch-point" with a potential customer is not well documented. Salespersons do not have a clear understanding of all the steps that should be taken once a lead is generated. Joe is open to the idea of generating diagrams or some type of chart or map that illustrates the process of how a lead is turned into a sale. He is not clear on options or best practices for diagramming a sales process, and would like to see examples and learn how other organizations document processes. He would also like to have a better picture of the lead pipeline to understand the volume and value of existing leads and likelihood that they will be converted into sales.

Data integrity - Another issue with the lead tracking process is that multiple individuals enter

lead information into the system in different places. For example, some branches enter their leads into Excel spreadsheets and others enter leads into a stand-alone contact database program. The European office has a heavy reliance on spreadsheets and Joe is concerned that the spreadsheets are full of errors and that the file versions are not tracked or managed properly. One of their branches recently lost a lot he is concerned about the lack of a formal, regular backup process. Joe suspects that the backup issue is company-wide, but he is particularly concerned with the locations outside of the U.S.

Lack of documentation and internal controls - Joe wants his sales team to have a well documented trail of all communication with current or prospective customers. The issue of poor documentation is really highlighted when it comes to the loss of a lead. Joe explained that if there is a lead loss, it is difficult for him to tell if it is a first time lead or a previous loss. He also mentioned that in the event a lead is not viable, it needs to be properly documented in the system. For example, if a prospective customer turns out to be a high credit risk, the system should document that the credit was checked, the date of the credit check, and the decision to not pursue the lead needs to be noted. At the current time, the sales staff is repeating the efforts on credit checks for leads that may have previously been verified. Another problem related to the credit verification process is that salespersons have the ability to change the credit limit on the customers without authorization of a credit manager. Joe wants to implement more internal controls for this process and would like to coordinate better with the accounting department or with the use of a credit clerk. This concern was included in the management letter of the last audit and the board routinely asks if this issue is being addressed.

Duplication of customer data - As leads become customers, there is the potential for a lead to be entered into the system more than once. If a customer has multiple addresses, the current system requires the customer information to be entered into the system separately for each address. It is extremely difficult for the majority of customer reports to be generated. The reports require a lot of "manual editing" for them to be meaningful as customers may be represented more than one time. The current reporting functionality does not allow for a comprehensive analysis of customer preferences, profitability, or retention. Joe mentioned he is basically dissatisfied with the

sales reporting process on most levels and he would like to know about best practices other organizations are using to maximize their customer relationships and manage sales.

Marketing

Interview with Maureen Magnotta, Marketing Manager

General Background - Maureen Magnotta joined Contoso about six months ago as the Marketing Manager, reporting to Joe Montgomery. Prior to her position at Contoso, she was a marketing associate at a large, publicly traded, U.S. based company. She brings a lot of marketing experience and knowledge of processes to Contoso; however, this is her first management position. She is also the first person to hold this newly created position at Contoso. She reports to Joe Montgomery and he hopes that she will bring a more strategic focus to the development of marketing initiatives. Prior to the addition of the marketing manager position, Contoso had some staff periodically assigned to market research, but the majority of the marketing needs were outsourced to firms and/or consultants. Two new marketing associates have been hired to support Maureen and she is in the process of hiring a third associate. Following are the process and systems concerns expressed by Maureen during the interview.

Marketing initiatives - In the past two months, Maureen and her team have been developing new marketing campaigns. The campaigns are linked with the overall strategy of Contoso and it is important to be able to track the effectiveness of each campaign. As leads are generated with each campaign, they need to be able to link the lead with the campaign and use that information to capture the return on investment (ROI) from the initiative. Some of the marketing campaigns are targeted by customer classification and some by industry or geographical region. Maureen is concerned about lack of knowledge in pricing, promotion and product needs of international groups as this information only seems to be somewhat available for U.S. customers.

Manufacturing

Manufacturing Managers – Interview Summary

Overview - As mentioned previously, Contoso competes by differentiating itself in the niche market of designing and manufacturing specialized excavation equipment and replacement parts for excavation equipment. Each type of equipment sold by Contoso typically requires several different specifications/customizations. Contoso manufactures some of the parts used with the equipment and they also rely on vendors for manufacturing of parts. The specifications are unique to each type of equipment sold, and they are not easily captured in a standard database. One manufacturing manager, Brad Sutton, provided the following example:

A recent customer wanted an electrical outlet placed on the right side of their equipment, rather than the left side where it is typically placed. As the equipment was designed, this particular "customization feature" is captured in an open "field" in our current system, without a lot of detail regarding the specification. As we go back and reference each equipment sale, it is difficult to determine the extent and level of specification as the information is general and not clearly documented. This in turn increases our risk that the customization will be overlooked when the piece of equipment is manufactured.

Issues with current system - Contoso currently uses a manufacturing software solution that is not integrated with their current legacy system. The managers in the manufacturing division are somewhat satisfied with the current system and they are open to the option of continued use, but they would like to explore additional functionality in the areas of manufacturing design changes. Their biggest concern is that the system does not allow them to track equipment design changes. Each time a design is modified, it is difficult to communicate the change to vendors and customers. The vendors need to understand the change as quickly as possible because they may be providing specialized parts for the equipment. Customers need to be informed during the manufacturing process so that they can appropriately plan and/or adjust their own operations as they prepare

for the equipment to arrive. It is also difficult to locate the documents associated with just about any manufacturing design change. The manufacturing managers would like a central repository for all manufacturing design changes that can easily be obtained and potentially shared with customers and vendors.

Document sharing – the manufacturing design team currently uses an AutoCAD system that they are pleased with. The only challenge that they have with the output (drawings) from the system is that it is cumbersome to share them with the various branches of the company. They would like to explore a central storage solution or document sharing solution.   They would also like to be able to see which documents are used most frequently by the employees.

Quality reports – an increasing number of customers are becoming more sophisticated with their quality controls and quality assurance processes. If a customer has to fix a quality issue with a piece of equipment or a part themselves (as opposed to Contoso doing the repair), they charge Contoso for the cost of the repair. Both Contoso and the customers who are affected would like to have summaries of quality issues on a regular basis. Contoso could like to gain more expertise in capturing cost of quality and this aspect has been difficult to track.

Accounting related concerns- Another challenge mentioned by the manufacturing managers relates to accounting issues. The company uses job costing to gather costs and analyze profitability associated with machine sales. Each manager expressed concern with the difficulty associated with measuring and tracking profitability of machine sales. They also explained that the accounting department has been working hard to overcome this challenge. They believe that the issue is largely attributed to the difficulty of tracking all job-related costs and following or tracing those costs with the respective job (machine).

Accounting and Internal Control Challenges

Interviews with Chief Financial Officer, Susan Burk and Corporate Controller,
Jack Richins

The Chief Financial Officer (CFO), Susan Burk and Corporate Controller, Jack Richins, have each been with the company for over five years. They each travel at least a couple of times per year to the US and global branches to have a clear understanding of key business processes and procedures used in each branch. They primarily use the legacy system for accounting processes, but are becoming increasingly dependent on spreadsheets as the accounting system infrastructure has become more complex with company growth and as they try to prepare meaningful internal reports useful for decision support, planning and control. They feel comfortable with their current system's ability to prepare GAAP-based financial statements. Internal or management accounting reports are a challenge primarily because they want to be flexible and adaptable to the needs of key decision makers who rely on the accounting information. Other key concerns expressed by both Susan and Jack are explained below.

Costing system – Susan wants to move to a standard costing system for equipment sub-assemblies and parts. Currently, a hybrid system that utilizes both actual and standard costing is in place. The legacy system has very simplistic functionalities in place and she is waiting to make the change in costing practice until an improved system is implemented. It currently takes her about five working days each month to review costs and analyze the quality of the costing data.

Shipping costs – Shipping costs are significant and Jack explained a few different areas of concern. Currently, shipping costs are treated as a unit variable cost and both Susan and Jack believe that they should be treated as direct costs. It is also very difficult to determine the best way to ship a piece of equipment and/or the parts. A great deal of time is spent determining which shipping vendor is the best for each order. Once the shipping vendor is selected, it also takes significant time to make sure that the correct or optimal procedures prescribed by the vendor are being followed to take advantage of the lowest available cost. Jack would like you to explain

technology trends for identifying optimal shipping solutions and include this with your recommendation.

Order processing – Orders typically have many different types and the process for tracking orders is complex and prone to errors. Both Susan and Jack would like to be able to produce more effective reports for the VP of sales and his team. For example, an order may have the following types: back order, manufactured order, drop ship order, or stocked part order. If an order has more than one type associated with it, the current system requires it to be split into multiple orders and it is not possible to properly record the freight on an order with multiple types. Jack would like a system that can accommodate a complex order with multiple types in a single event and a clear way of tracking back orders.

Quote processing – Jack is concerned about being able to monitor quotes and provide meaningful reports to the sales team regarding quote outcomes. One of the key problems they are experiencing is that quotes are often discussed verbally by the sale person with the customer and they are not entered into the system. When the customer accepts a quote and the sales order process begins, there is a lot of information gathering that takes place and it is an inefficient process.

Processing return transactions – When defective parts or damaged equipment are returned by the customer, they are charged to an expense account and not linked to the customer or specific job. Contoso gives the customers a three week deadline to return the parts/equipment. The cost of each return is about $10,000, so the transactions are not minimal in nature. Susan would like to be able to give the manufacturing managers reports indicating returns by customer and by equipment type. They would also like to see the costs linked with the specific job order.

Purchasing and vendor issues – The controller explained that in many instances, they have difficulty selecting vendors based on lowest price or fulfillment efficiency. They would like to be able to track the quote history of all of their vendors and they are currently unable to do this. They also have a problem with their master vendor files as each vendor may have several identification

numbers in the system if they have multiple addresses. There have also been some problems with vendors being paid before the accounting department actually receives a purchase order. Both Susan and Jack would like to see an improvement in controls related to payment and purchase order processing.

Warranty contracts – Susan would like to be able to more efficiently track warranty contracts sold to customers. Most warranty contracts are sold for a two to four year period and they have not been matching the revenue on the warranty contract with the life of the warranty. They have tried to develop a system with a spreadsheet that they can use for the basis of an annual adjusting entry to warranty contract revenue; however, it is too time-consuming and they would like to explore alternative solutions.

Accounts receivable tracking – although their legacy system has an accounts receivable module, they have grown away from using it on a consistent basis due to the difficulty in integrating the non-US branches into the system. Accounts receivable from US customers is maintained in the legacy system and a spreadsheet is used to combine the non-US branches with the US customers in an effort to track company-wide receivables.

Payroll and human resources – Payroll is currently outsourced by each branch, and it poses few challenges. The company is having a great deal of difficulty monitoring vacation requests, particularly in the locations where their service personnel are unionized. They would also like to be able to share training materials across locations and monitor training programs completed.

International Growth Issues

Based on Multiple Interviews in Several Functional Areas

Following are problems specifically related to the globalization of the company:

- Inconsistent language used in business processes. A few examples: in Europe a debtor is a customer, the term creditor is used instead of vendor, and enquiry is used instead of inquiry. They would like to consider how to achieve consistency with translation issues in the overall system.

- The need to invoice in three languages (Italian, English, and German) creates barriers for analysis and synthesis in reporting.

- There is no repository to store knowledge gained in dealing with service problems. More specifically, all branches cannot benefit from each other's learning curve or efficiencies. This issue is particularly highlighted when it comes to training new employees.

- All branches have difficulties locating the right vendor for shipping because of duplicate or incomplete records.

- The European and Asian branches do not have the visibility to see the US inventory levels and this makes production planning difficult between locations.

- Purchase orders are not tracked properly in any location and many remain "open" in the system even after the items have been received and paid for.

- Worldwide service calls are managed with spreadsheets. As a result, there is poor data integrity and it is difficult to monitor performance and outcomes of service calls.

- All locations indicate forecasting and production scheduling as a key problem. More specifically, it is very difficult to do and it takes a significant amount of time.