

# Global electronics assignment



**ASSIGN  
BUSTER**

A case is designed to familiarize one with the behavioral and technical variables that can lead or impede successful BBC implementation. Andersen's (1995) factor-stage model provides a template to organize the discussion of BBC success factors. Students are cast in the role of a business consultant. They are asked to synthesize the case study's key change management insights into a report that could be shared with co-workers in an Intranet-based knowledge management system.

In addition, students may be expected to prepare a formal presentation of the report for their peers. Full text Translate Full text Headphone ABSTRACT: Descriptions of activity-based-costing (BBC) systems have become a standard part of managerial accounting texts. While BBC Implementation Issues are the focus of a number of articles. These issues are often not addressed in a typical textbook. This case is designed to familiarize you with the behavioral and technical variables that can aid or impede successful BBC implementation.

Andersen's (1995) factor-stage model provides a template to organize the discussion of BBC success factors. In this case, you will be cast in the role of a business consultant. You are asked to synthesize the case study's key "change management" insights into a report that could be shared with co-workers in an Intranet-based knowledge management system. In addition, you may be expected to prepare a formal presentation of the report for your peers. Implementing change in an organization is about ninety percent cultural and ten percent technical.

This is because the organization dynamics, politics, and search for a champion that go on are the real issues that make or break the project. One of the reasons we were able to implement BBC successfully was because the right people became champions. -Chris Richards, Director of MIS, Global Electronics, Inc. BACKGROUND manufactures, and markets discrete power semiconductors and analog, digital, axed-signal, and radiation-hardened integrated circuits for congressional and power-control applications.

Its products are used in such applications as antiknock braking systems, air-bag systems, computer keyboards, modems, disk drives, and cellular telephones. The company employs about 2, 300 people at its three U. S. Fabrication facilities (located in Huntsville, Alabama; Evansville, Indiana; and Reading, Pennsylvania), and has 4, 000 employees at its assembly and test facility in Koala Lump, Malaysia. Gee's manufacturing process consists of two primary phases. The fabrication phase is imprisoned of four main processing procedures: photomicrography, etch, diffusion, and circuit probe.

The assembly and test phase consists of six main processing procedures: wafer saw, die attach, wire bond, mold, solder dip, and final inspection. The entire manufacturing process had become more technologically diverse and intense with each passing year; accordingly, by 1999 direct labor represented less than 10 percent of total manufacturing cost. The company produces a variety of electronic goods ranging from power and logic commodity products to analog and digital specialty products, and the company's customer base exhibits a high level of arches volume diversity within any given product line.

In 1999, Gee's profitability spiraled downward with operating losses reaching \$100 million on sales of approximately \$650 million, causing management concern about the accuracy of the company's standard cost system. There was a feeling that the standard cost system could not truly identify which of the company's products were profitable and which were not. The lack of an understanding of product profitability, a flawed product mix, and poor marketing and pricing decisions could have contributed to Gee's financial problems.

A combination of internal problems and external threats in an industry characterized by increasing global competition, decreasing product life cycles, product proliferation, and exploding technological capability led to a shake-up of the company's top management in February 2000. As part of the shake-up, GEE installed a new president, Mike Alberta, and a new controller, Steve Shannon, for the express purpose of strengthening the company's position in the market and improving its financial performance. THE STANDARD COST SYSTEM Gee's standard cost system assigned manufacturing overhead costs to products based on direct labor dollars.

From 1994-1999, the predetermined manufacturing overhead rate had spiraled upward from 300 percent to more than 600 percent of direct labor. As the manufacturing process became more technologically, management worried that high-volume products and/or less complex products were being overcooked and that low-volume products and/or more complex products were being undercooked. Indeed, GEE seemed unable to compete with the low prices offered by its competitors on high-volume, commodity business. The inability to goods inventory.

Conversely, GEE consistently captured high- margin, low-volume peculiarly business opportunities. The comments of a product engineer sum it up: I think the labor-based cost system is fairly inaccurate and creates some misconceptions. For example, the logic product line, which is a mature high-volume product, is bearing a lot of the total factory costs, thereby making the new lower- volume specialty products look cheaper. The perception is that we are doing well on all sides, except for logic, which looks marginally unprofitable.

We can't just keep throwing money at the new products and let the more mature product lines take up the slack, actually covering their costs falsely. Gee's product engineers intuitively understood the shortcomings of the existing labor- based standard cost system. For example, they knew that producing low-volume, specialty orders added complexity to the manufacturing process that was not reflected in the cost system. Accordingly, in January 1999, the product engineers created an offline costing system called Product Unit Cost (PUC) in an attempt to rectify the company's product-cost-distortion problems.

The PUC system used time as a driver, in addition to labor, by looking at the elapsed time a product spent in FAA, probe, assembly, and test. This approach eliminated some of the distortion; however, rather than reconcile the difference between the PUC system and the direct labor- based standard cost system, both costs were tracked. With two sets of cost data available, managers could choose the figures that made their departments look best. Managers spent more time arguing about which costs were correct than focusing on the actual problems at hand.

The confusion created by the irreconcilable cost figures eventually led to the demise of the PUC system by January 2000. As a response to the PUC system failure that occurred immediately before his arrival, Mike Alberta decided to create an executive committee to formulate a solution (using just one set of cost numbers) that would alleviate the product- cost-distortion problems inherent in the direct labor-based standard cost system. Given Gee's declining financial performance, he wanted a solution to materialize as a quickly as possible.

**THE INTRODUCTION OF ACTIVITY-BASED COSTING** In May 2000, the executive committee decided to adopt an activity-based costing (BBC) system. BBC systems assign resource costs to activities, and they use volume and nouvelle-related cost drivers to assign activity costs to products. Chris Richards, Director of MIS, was asked to head the implementation process. An employee involved with the BBC implementation commented: I feel the reason BBC came about was because Chris Richards came to GEE with some BBC background and was a very good salesman, in a positive sense.... T was very important to have someone who could deliver the message to senior management in agreed... He just did a real good job of educating and bringing people together. Chris was very competent in BBC, and with the assistance of an academic consultant as well as an external consulting firm, he used his interpersonal skills and extensive knowledge to gain the support of top management. Of course, the other factor that helped the change process was Gee's operating performance at the time.

Ann Concerns, the Director of Manufacturing Finance put it this way: The number one thing we had going for us was an " urgency factor. " I truly

believe people would not have given us the time of day with respect to BBC if we were making 10 percent return on sales. Having operating losses of \$100 million causes people to listen. The executive committee formed a steering committee to oversee the BBC implementation, with Chris Richards serving as the chairman. Other members of the teetering committee came from finance, product engineering, operations management, marketing, plant management, and the external consulting firm.

In June 2000, the steering committee formed a project team of MIS and finance personnel from corporate headquarters to travel to each plant to define the activities, assign resource costs to those activities; select activity drivers and determine driver quantities, and calculate BBC rates. Ann Concerns was chosen as the director of the project team. The steering committee and project team both had the complete support of Mike Alberta, Steve Shannon, and the entire executive committee.

The clearly stated short-term objective of the initiative was to improve product cost accuracy and optimize the product mix as quickly as possible in order to help improve GEES unsatisfactory financial performance. The long-term objective was to evolve toward the practice of Activity-Based Management (BAM). More specifically, GEE anticipated that the BBC data could be used to help its product engineers project the cost impact of product design changes, and to help its process engineers and operations managers identify and prioritize process cost-reduction opportunities.

Before visiting the plants to begin the BBC data-gathering process, the project team had to make two important decisions related to the issue of

scale. First, GEE needed to decide if it would use a pilot-study approach or a worldwide “ blitz” approach. The project team originally favored conducting a pilot study at one of the front-end fabrication facilities, but the product line manager on the steering committee was quick to point out that knowing only half a product’s cost was useless. Ann Connors commented: At one point, we thought about only doing the Reading plant.

Then one of the product line managers said, “ That doesn’t do me any good. My product starts in Reading and ends up in Malaysia. ” So, we decided that doing it piecemeal was not going to support our main objective of improving “ front-to-back” product cost Furthermore, the pilot-study approach was much too slow for the project team given the sense of urgency communicated by Mike Alberta. Accordingly, the project team shifted its focus to calculating a complete “ front-to-back” BBC cost for each product line.

This required calculating BBC costs at the “ front-end” fabrication facilities and linking those costs by product line to the BBC costs calculated at the offshore “ back- ND” assembly and test facility in Koala Lump. The second scale-related issue dealt with systems integration. The external consultants advocated an offline approach, whereby the BBC cost data would be maintained separately from the existing direct labor-based standard cost system and financial reporting system.

Conversely, Ann Connors steadfastly advocated an integrated approach because of the data integrity lessons learned from the previous PUC experience. Chris Richards eventually opted to support Ann.’s push for an



integrated BBC system, primarily due to the need to motivate employee behavior: The problem with a integrated approach, even though it is certainly a lot simpler and less risky, is how do you affect behavior?... For example, you can't run the marketing organization based upon achieving some desired gross margin when they are relying upon bogus costs to push the stuff that you don't want them to be pushing....

But, how do you motivate these people to go after the right set of products if you've got a bunch of accountants sitting over here who have knowledge derived from some offline system that nobody else is aware of? The project team concluded that an offline system would create data integrity robbers and behavior motivation problems, so the executive committee approved the use of an integrated approach. This integrated approach would interface with Gee's general ledger, standard cost, and financial reporting systems, as well as its production planning, factory control, bill of material, and materials management systems.

GEE created its own customized BBC software called ACCURATE to capture the data inputs, interface with the standard cost subsystem, and calculate product costs. In July 2000, the project team was given an entire week of BBC training by an outside insulting firm prior to starting the plant visits. Once trained, the project team created an BBC implementation timetable that allowed for just nine months to complete a worldwide BBC roll that would be integrated into Gee's financial and operational reporting systems.

Although this represented an ambitious timetable, with highly visible support from Mike Alberta and Steve Shannon, the project team considered it

feasible. Exhibit 1 summarizes the relevant events leading up the BBC implementation and the sequence of plant visits that were conducted in accordance with the nine-month timetable. The BBC implementation was completed in the nine-month time frame, as planned. Based on a total of 88 interview sessions, 674 activities and 254 activity drivers were identified across all five plants and entered into the standard cost subsystem that provided data for the financial reporting system.

The project team streamlined the implementation process by only including activities within the cost model that it believed could materially affect strategic product-pricing and mix decisions. In the forthcoming BAM phase of the implementation, the project team planned to do detailed activity analyses of high-cost activities that, based on the data obtained from the initial implementation, could be identified as the prime targets for continuous improvement. Chris Richards described this implementation strategy as follows: View Image- EXHIBIT 1 You have to know where to focus because you have only so many resources.

Therefore, the first thing you want to do is narrow your scope. So, first you go in at a macro level to identify your high-cost activities and your optimal product mix. Then, you take those high-cost activities and drive the analysis down to the micro level so you can truly understand what is driving your cost and what type of performance measures are appropriate. Notice, it is important to realize that you don't have time to analyze all of the activities.... ' think usually the first thing you have to address is where are the cost distortions? That is typically why people get into BBC.

The BBC model-building and data-gathering processes at each plant were managed by members of the centralized/functional project team. Plant-level employees were expected to provide activity definition in addition to resource driver and activity driver information, while the project team's role was to supervise the implementation across plants. Ann Connors commented on the strengths and weaknesses of relying upon a centralized and functional project team: In terms of centralization, having a core project team that coordinated everything helped ensure consistency across plants... E made the mistake of sending a whole new core team to Malaysia that really wasn't involved in the front end as much, and when we got to Malaysia, it was getting out of control.... In terms of our project team's functional orientation, we lost credibility in the eyes of many folks out on the manufacturing floor because we signaled to them that BBC was about accounting and not operational decision making. The training provided by the project team for the plant-level employees was negligible.

Rather than spending time on explanations and training, the focus at the plant level of this top-down implementation was on making people participate in the BBC process regardless of their personal beliefs. The decision to implement BBC had been made at headquarters. Plant-level personnel were not consulted prior to the decision, but were subsequently expected to accommodate the demands of the hat the plant-level training her team provided was inadequate by saying: When we went to the plants to do training, it was like a whirlwind tour; we just showed them some charts and said, now sit down and we are going to ask you some questions.... Don't think we put ourselves in our internal customers' shoes. We paid very little

attention to their constructive concerns or their need to truly understand BBC. The Benefits of BBC There was a strong consensus across the plants that the BBC system resulted in both improved product-cost accuracy and greater product-cost visibility relative to the erect labor-based system. In spite of the lack of training, announcing personnel intuitively believed that BBC captured the economics of the business better than the labor-based system.

At a strategic level, this contributed to better marketing and product-mix decisions, and at the plant level, BBC improved relations with GEE customers. A product engineer commented: We get a lot of telephone calls from customers asking, " What does this cost? " or " Why is this so expensive? " In the past, we did not have the capability to answer these types of questions with any data-based knowledge. We did not have access to any ATA that would validate our claims of why it cost what it did. Heck, we had a hard time Justifying to ourselves why a product cost what it did using our old cost system.

The whole price Justification process was very confusing to our customers and very frustrating for us. Now, when someone calls, I can say this is what the flow is, this is what those activities cost, and this is how much your product is going to cost. This has been extremely helpful for our customers and us. Maintaining the BBC System To keep the BBC system's resource-driver and activity-rate information current, Gee's accounting department initiated what was termed the " revaluation process" in September 2001 (as shown in Exhibit 1). Initially, the plan was to conduct revaluations every six months.

However, this practice was viewed as being too expensive, thus the revaluation time frame was extended to one year. The accounting department was charged with updating the BBC system and supervising the revaluation process. This was viewed favorably by one operations manager: The more you go involving manufacturing personnel with BBC, the more you make them seem like accountants. We don't want them to be accountants. We want them to go out there and make products the most efficient way they know how, with the highest yield and the best cycle time... That is why we are here, right?

So, I think what is important here is that the accountants need to be the accountants and the manufacturing people need to be the manufacturing people, and where they need to ever want a manufacturing person to be an BBC expert. From the finance side, there was agreement with this observation: There is a real fine line regarding the level of involvement that operations people want in creating and maintaining the data. They want usage of the data if it is going to help them, but if you start getting them in too deep, the immediate comment is hey-that's an accounting issue, we make products....

There is no doubt that if you involve them too much, it is going to alienate them because they don't want to do what the accountants are supposed to do. THE MIGRATION TO BAM The long-term objective of Gee's BBC initiative was to evolve from BBC to BAM. BAM focuses upon proactively using activity-based information to optimize product- and process-design costs. The first phase of the implementation was completed in March 001 in the sense that the BBC model had been built, thereby enabling Mike Alberta and his senior

management team to rely upon the output from the model to optimize the product mix.

The second phase of the BBC initiative, due to kick off in January 2002 (as shown in Exhibit 1), involved training employees to use process analysis tools and relational databases in conjunction with BBC data to enable them to compute real-time product reengineering cost projections, and to prioritize and realize process cost reduction opportunities. The response to these BAM-oriented applications of the BBC data was less than enthusiastic. The top-level management support that existed for BBC did not exist for BAM.

While Mike Alberta appreciated the product line profitability “ snapshot” that BBC provided, he did not rally behind the use of BAM to improve the business. Furthermore, Chris Richards, steering committee chairman and BBC champion, suddenly left the company. Without extensive and visible top-management support, BAM was not able to influence the behavior of many GEE employees, primarily due to the overall workload. A plant accountant from Reading commented: When we take a look at strategic and operational planning, some of the assignments r goals should revolve around activities.

This would require the manufacturing and engineering functions to be educated on BAM, which would allow them to become more involved. At GEE, you don't find resistance to people using BAM. The problem is that everybody has so much to do that if their job does not demand that they become totally conversant in BAM, they will simply skirt around it. The lack of top management support created additional problems that hindered the

infusion of BAM throughout the organization. Not only was training at the “kickoff stage of the BBC implementation minimal, but the commitment of resources to training during the BAM stage was virtually nonexistent.

An operations manager from I think we need to train people how to use BAM because currently we are only crunching data. The people who need to use BAM are the operations people on the floor. I mean, if I know how to use it, but 1,300 of my people do not know how to use it, I can't do much. So, the managers and supervisors on the shop floor must learn how to look at BBC data and use it to lower costs. Beyond training, resources were not committed to building the technology capability needed to support BAM.

This created frustration on the part of potential BAM users and accounting personnel who each had to deal with the lack of symmetry between the desired pace of system refinement and reality. A product engineer commented: I would like to have a relational database with all the activities and rates in it.... The way I see BAM is that all your costs should be available in such a way that you can slice and dice them to look at any cross-section you want.... You know, let me Parent chart our test-activity rates by site or by sector. Then, I could look at these types of data and say, how come this tester costs twice as much as another?

Also, I need what-if” capability to look at changes in cost flows.... If I change three yields-the test yield, probe yield, and assembly yield-what is the revised cost? Right now, I have to grind through these calculations line by line. A plant accountant from Huntsville expressed some frustration as well: I have never seen a management team yet that truly understood the

complexities of a cost system.... They are always very aggressive and they want it done immediately, like an overnight-type thing... L's our system being implemented as fast as management would like? Probably not. Is it being done as fast as humanly possible?

Yeah, everybody is doing what is humanly possible. I just think expectations that have been set are too aggressive given the complexities of what we are dealing with.... Let's like going to a candy store-you want everything, and you want it now. People are going to have to be patient. The frustration surrounding the lack of technology resources was exacerbated during the kickoff stage of the BBC implementation. In an effort to generate interest at the plant level, the project team masterfully marketed the BAM-oriented benefits that would eventually be realized by engineers and operations managers.

However, the amount of time needed to create an integrated and fully relational BBC system to provide these benefits was not satisfactorily discussed. The steering committee and project team did not truly understand the complexity associated with creating an integrated BBC system, and the steering committee did not anticipate that the resources needed to upgrade the system to provide relational-data-analysis capability would disappear. The end result of the marketing campaign was an unintentional overselling of the pace at which the capability of the activity-based system would evolve.

Ann Concerns observed: a high penalty stroke to keep up as much as we could. For example, we had to bring in four IBM experts to make the “ front-



to-back” system work... The complexity and volume were more than we dreamed of... ‘ think we initially had good intentions, but then it became apparent that this was a lot bigger than we had envisioned. Top-level management was also responsible for establishing organizational structure, managing employee access to corporate data sources, and granting decision-making rights. At GEE, 60 out of the 6, 300 employees at its four plants had familiarity with the

BBC system. While the vast majority of the 6, 300 employees actually worked on the “ front lines” fabricating or assembling and testing products, none of these employees had any familiarity with the BBC system. An operations manager from Malaysia voiced concern about how this approach to granting data access and decision- making rights would limit the potential application of BAM at the process level: Most employees are good employees. They would like to help improve the bottom line. However, because of old conventions, we are still constantly saying this is confidential or that is confidential... Obviously, we were unable to provide front-line workers with information they would really appreciate since it was organized by functional department rather than process. So, previously these people weren’t able to see the cost of activities such as solder dip; now, thanks to the BBC system it is clearer. Nonetheless, activity- based cost information is still not being made available to our front-line workers. While many factors impeded the widespread adoption of BAM principles, there were “ pockets” of BAM advocates across the plants.

These people appreciated that the BBC yester presented cost information in a language that was intuitive to them. For example, a product engineer from <https://assignbuster.com/global-electronics-assignment/>

Huntsville commented on using BAM to support product-design and process-cost-reduction efforts: The strategic marketing people go out and talk to customers to see what they want and what they are willing to pay. Based on target pricing, they simply work backward to determine what the cost needs to be to make the desired profit. The strategic marketing people come to me and say we have to sell this part for \$3. 00. With BBC, I'll say, you have several problems here.

One is you want to sell multiple grades of the art, which means you have to have multiple test insertions, and if you want to test these particular parameters, you have to use this tester and that currently costs \$1. 47 per insertion. So, I can quickly see here that without any die cost or anything else, you already have a couple of dollars of test insertions, which will put you over your mark. That means we need to develop an alternate solution before we proceed. Before BBC, we would not have been able to make a knowledge-based decision on whether to accept this type of business.