CASE STUDY

Boeing Commercial Airplane Group Wichita Division
(Boeing Co.)

Employing Activity Based Costing and Management Practices Within the Aerospace Industry: Sustaining the Drive for Lean

Summary

Who: Boeing Commercial Airplane Group Wichita Division

Where: Wichita, Kansas, Boeing Commercial Airplane Group

When: First Visit: Rocco Paduano and Wesley Harris, November 1999; Second Visit: Rocco Paduano, Wesley Harris and Joel Cutcher-Gershenfeld, May 2000

Why: Completion of Activity Based Costing and Management pilot

What: Assessment of lessons learned and economic benefits gained

Introduction

Activity Based Costing and Management (ABCM) is one of many new financial and accounting tools aimed at providing more complete, better-aligned data on economic performance. It is important to explore early experiences with this concept since it represents a new set of "rules" that can have implications for all stakeholders in an aerospace enterprise.

ABCM is of particular interest with respect to lean practices and principles since it links the cost of production or services to the relevant support activities, which is helpful in targeting continuous improvement efforts. For example, time spent in training will be differentiated from time spent on production of a given product. This leads to a more accurate allocation of overhead charges. Formerly such costs may have been allocated in ways that obscured their source.

ABCM…links the cost of production or services to the relevant support activities.

Companies who are focusing resources on organizational learning initiatives will also find that ABCM processes add value to these efforts. Employees engaged in operational improvement and activity measurement are also becoming more informed and aware of potentially valuable organizational detail.[1] For example, the true costs of efforts such as cycle time reduction and quality improvement can be clarified with the addition of activity-based costing techniques.

The motivation for ABCM lies in the value of recognizing true costs, which will assist managers and other leaders in making critical choices, such as the decision to manufacture goods internally, rather than involve an external contractor. It will also help managers understand how their decisions can impact bottom line shareholder value. In principle, ABCM is designed to help firms shift their priorities from individual products to the overall manufacturing environment.

[1] Kaplan, R. S. and R. Cooper 91998). Cost & Effect: Using Integrated Cost Systems to Drive Profitability and Performance. Boston, Harvard Business School Press.

A recent national study of aerospace facilities suggests that ABCM practices are more common among suppliers.[2] The study also found ABCM to be more common in smaller facilities, producing multiple distinct products, in medium to high manufacturing volume. In one sample of 196 aerospace facilities, less than 5% of the facilities reported high-level usage of ABCM principles.

This case study hopes to deepen understanding of ABCM principles by looking beyond the survey data and tracing early experience in an aerospace setting. Note that these are just pilot demonstration initiatives and do not represent full-scale implementation. In presenting this study, we are not advocating for or against this particular approach to financial accounting – just seeking to better understand its implications.

The study is located in a large final assembly operation: The Boeing Commercial Airplane Group (BCAG) Wichita Division of the Boeing Company (hereafter referred to as BCAG Wichita). BCAG Wichita is a cost center that has introduced ABCM. It is designed to support a comprehensive lean production strategy encompassing everything from asset management, to design for manufacturability, to cost of quality.

This case study contains two examples of ABCM modeling, which include tracking the benefits that can be gained through effective ABCM implementation. The overarching metric for both examples is cost savings through activity analysis designed to uncover non-value added processes that depress value creation capabilities. Middle management originated and championed both of these ABCM initiatives. The study describes a number of barriers and enablers to widespread adoption of ABCM at the facility level. The most critical element in the success of these implementation projects was the ability to change ingrained elements of organizational culture.

Background: The Cost Management Strategy

BCAG is the world's largest manufacturer of commercial airplanes. It comprises approximately 60% of Boeing's total revenues. BCAG Wichita is a cost center manufacturing plant producing fuselages, noses, struts, nacelles, and thrust reversers for 737, 747, 757, 767, and 777 airplane models. In May 1999, the plant employed approximately 16,835 employees directly, and was responsible for indirect employment of 53,100 workers within the state of Kansas. It averaged

[2] MIT/LARA National Survey of the Aerospace Industry, 2000.

$1.1 billion in annual payroll, purchased $900 million yearly in raw materials and purchased parts, boasted 100,000+ part numbers, occupied an area equivalent to 1,300 acres, and its manufacturing facility covered 13.4 million square feet. As part of its overall drive to gain and retain world-class aerospace manufacturing status, BCAG Wichita is focused on developing a lean, efficient design and production system supported by an effective cost management strategy.

The cost management strategy supports initiatives designed to link the manufacturing process and support activities so as to simplify the whole production process, while maximizing benefits from the use of lean business practices. Cost management strategy initiatives include simplifying production, shortening flow and cycle times, increasing quality and inventory turnover, identifying core products and processes, and linking the design and manufacturing process to decrease product time-to-market. ABCM links and supports the manufacturing process. It provides information to tailor business streams and material management, costs of activity and processes, value added versus non-value added analysis and profitability analysis used to improve the make versus buy decision-making process. ABCM also provides analysis of set-up and run costs, costs of scheduled and unscheduled maintenance, costs of asset failure, and costs of manufacturing capacity, thereby allowing manufacturing managers to manage the assets under their control more effectively. Finally, ABCM provides analysis on the costs of design changes in configuration as impacted on the manufacturing floor, costs of incorporating complexity into a configuration design, and the costs of quality.

The highest hurdle in achieving [ABCM implementation] lies in moving the…financial department from its classic accounting role of scorekeeper or policeman to the role of business partner.

The highest hurdle in achieving this type of cost management architecture lies in moving the corporate financial department from its classic accounting role as scorekeeper or policeman to the role of business partner. In a business partner role, the corporate financial department can support strategic decisions relevant to the company's continued competitive advantage by providing financial data that highlights the impact of these decisions. BCAG Wichita views a successful implementation of ABCM as one that fulfills three major roles:

- Addresses the size, complexity, and diversity of the manufacturing process,
- Facilitates the integration of financial decision makers into a more supportive business partnership role, and
- Implements effective cost management strategy initiatives.

The initial introduction of ABCM began without the full backing of upper management. However, the finance and operations departments, which championed the introduction of ABCM practices, contracted with management consulting firms and academicians possessing know-how on ABCM implementations and value-based management. In time, this effort has achieved higher-level recognition and support from management. Positive support for the ABCM initiatives was also expressed by shareholder representatives such as R.J. Glasebrook II; Managing Director, Senior Equity Portfolio Manager, and Analyst at Oppenheimer Capital, Boeing Company's largest investor:

> On the factory floor, it's been clear for several years that [Boeing Co.] was handicapped in not having robust and sufficient ABC systems. I understand now [that] those are being deployed, hopefully rapidly, and will give [Boeing Co.] a huge leg up, because it's crucial to know where [the company is] making money. [Boeing Co. has] got to eliminate the bleeders; [the company has] got to pump assets and money where [its] best opportunities are, but first [it] need[s] to identify where value is created or lost.[3]

From the onset, activity analysis was seen as the only viable analysis methodology to pursue in order to support and achieve the goals set in the cost management strategy. Attention to detail was critical as BCAG Wichita shifted its culture from a primarily product oriented focus, where delivery schedules were the important performance metric, to a process oriented focus, where cost management and activity analysis were equally as important.

Putting an ABCM System in Place

Due to the unique characteristics of activity-based cost accounting, BCAG Wichita was able to design an ABCM system to meet its unique requirements. The ABCM model organizes activities in terms of their relationship to final cost objects (i.e.: the different products produced at BCAG Wichita). This system breaks down activity costs

[3] Glasebrook, R.J., Boeing Co. Senior Manager's Meeting, May 4th, 1999.

into three categories and links these activity costs to cost objects. The three activity cost categories are defined as:

- Primary costs – the activity's cost can be assigned directly to the cost object.
- Secondary costs – the activity has a cause and effect relationship to the cost object, even though there might be no direct relationship. These secondary activities are first driven to the primary activity center through location drivers, and subsequently to the cost object through activity drivers.
- Tertiary costs – the activities have little or no cause and effect relationship to the cost object and costs are driven to the cost object using volume drivers such as labor hours or labor dollars.

An ABCM model is designed to accommodate each of the facility's major business units, including support, engineering, tooling, fabrication, and assembly. Resources map to activities via the primary, secondary, or tertiary activity costs, which subsequently map to end items or parts produced in each of the major business units. Throughout the implementation, maintenance, and update of the model, the ABCM implementation team focuses on a set of guidelines that encourage them to:

- Understand the strategic nature of the business.
- Obtain top management support.
- Clearly define goals and objectives.
- Form cross-functional teams.
- Build internal expertise, and not rely exclusively on complex software and external consultants.
- Empower team members.
- Focus on changing behavior.
- Focus on long term continuous improvements.

ABCM enables managers to view labor, overtime, and support as they are "absorbed" by the different manufacturing activities. Activities that absorb labor, overtime, and support can be categorized as value added or non-value added. In principle, ABCM will point to the elimination of "non-value add" activities, rather than unilateral head-count reductions as a cost saving strategy. For example, ABCM might help identify a rework area as the site of non-valued added activities and then, utilizing the same workforce, focus effort on eliminating rework. It is this logic that makes ABCM a potentially important subject of study for labor and management leaders.

As the following example illustrates, ABCM gives the manufacturing manager the power to target processes for elimination or improvement. Thus, the manufacturing manager can identify specific activities with lean initiatives designed to reduce the cost of the non-value added activity. Ultimately, ABCM could tie together the whole organization and begin to nurture a culture based on waste elimination, response time reduction, product and process design simplification, and quality improvement.

BCAG Wichita began its ABCM efforts by working to analyze and strengthen its own process accounting system. Some areas that needed improvement are identified below.

- Costs were not allocated based on a cause and effect relationship. In fact, the system generally overemphasized direct labor costs while not accounting for the impact of manufacturing volume and product complexity. Using ABCM tools, the division introduced activities as metrics for determining the true ownership cost of a product by determining the amount of resources absorbed by particular production activities.

- The current accounting system was limited to production costs and did not account for general or administrative costs. Additionally, customer and supplier costs were also not easily identified using information contained within the process accounting system. For example, using ABCM production managers can identify the true ownership of costs in situations such as when parts are offloaded to vendors, which might introduce potential delays or quality issues.

- The current accounting system contained information primarily designed to satisfy the needs and requirements of outside customers (i.e.: shareholders, SEC, IRS, etc.) and did not focus on the collection of data that facilitates operational analysis. ABCM rectified this problem by providing cost data on a timely basis that is useful from operational decision-making purposes.

A manager at BCAG summarizes the division's hopes for widespread implementation of ABCM practices as the ability to:

> Identify, reduce, or eliminate non-value added costs (including those activities that are essential, but non-

value added) without deterioration to product quality value, or performance.

Boeing Wichita believes that the above goal is achievable because it firmly believes that ABCM enables the facility to accomplish the following:

- Form an understanding of the cause and effect relationship between cost and behavior.
- Create a cost effective means to identify opportunities for improvement.
- Prioritize and track the progress of continuous improvement initiatives.
- Establish what-if and sensitivity analysis of business processes.
- Reduce inefficiencies and estimate future activity and process costs.
- Allow a cost view that will influence product design and development decisions.
- Increase capacity.

With these changes, BCAG Wichita feels that the implementation of ABCM will enhance its ability to compete for future Boeing Company Work. Additionally ABCM can increase the division's ability to meet future accounting and economic profit goals that will return value to shareholders and the company as whole. The following examples illustrate how ABCM was implemented at BCAG Wichita. These are actual documented events from different areas of the division, Light Structures and Structural Bond, where specific goals were achieved through activity based costing processes.

Phase I (Light Structures)

Phase I, or Light Structures, represents the first stage in a manufacturing process designed to transport and process fuselage parts (outside panels and brackets) through a series of pre-assembly chemical treatment baths. Both the large parts, which consist of the outer panels and brackets, and small parts are mounted on hoods prior to treatment. Hoods are specially designed devices that support the parts as they move in and out of the chemical tanks throughout the treatment process.

The small parts treatment operation of Phase 1 became an ABCM pilot designed to analyze process capacity. Phase I activities were identified as value added parts of the overall fuselage manufacturing process.

Daily production rates averaged 30 hoods through the tank line. Under ideal conditions, the existing equipment was designed to handle 60 hoods per day. The ABCM implementation team calculated that even after factoring in normal delays such as personnel shift changes and lunch breaks, 54 fully loaded hoods could pass through the tank line every day. Thus, the current production rate of 30 hoods per day was only a 55% utilization rate of existing assets. To make matters worse, treatment work was also being offloaded to external contractors. The ABCM implementation team estimated that by bringing asset utilization up to 100% would mean that BCAG Wichita could bring an additional 175,500 outsourced parts back in house. Even if the asset utilization level was set at a conservative 80%, the Division could bring 135,000 parts back into the facility.

Accurate analysis of the impact of bringing 135,000 parts back into the manufacturing plant required the ABCM implementation team to calculate the correct cost of this action. The total cost to the BCAG Wichita was broken down as follows:

- The initial cost of offloading the part to outside vendors.
- The cost of idle labor while outside vendors process the order.
- Any "in-house" rework that has to be done on offloaded parts coming back into the facility.
- Cost of facility fixed and variable assets associated with vendor procurement, contract, and other negotiations, in addition to any offload expenses paid to vendors.
- Cost of available capacity labor that could be processing parts, i.e.: foregone ROA.

The analysis meant following 12,000 part sample process batches through processing internally and with the outside vendor. On the surface it was a straightforward choice since the outside vendor charged $4.00 per part for the 12,000 part batch, as opposed to the $7.00 per part it cost to process the parts "in-house". However, the ABCM analysis showed that since the facility was working under capacity, and could increase the parts processed by approximately 50%, BCAG Wichita could process 24,000 parts, or 2 batches, without any increase in the cost per part. Therefore, doing the work internally would cost $3.50 per part as opposed to $7.00, and would represent a $0.50 per part savings over the outside vendor's rate. In addition, the ABCM implementation team did not feel that the increase in capacity would require additional staffing.

Further analysis was done to estimate the monthly savings incurred by reversing the cycle of offloading parts to vendors and under utilizing the facility's assets. Breaking down the facility's average monthly output by product line, the ABCM implementation team could estimate which product line would contribute the most to the savings. The team argued that just the use of under utilized asset capacity, would save the facility approximately $1,579,500 over 12 months.

Returns-on-assets for Phase I would also increase significantly without increasing operational cost. With the preliminary analysis completed, the ABCM implementation team began more in-depth activity analysis of Phase I by beginning to study the activities associated with each of the work processes performed. The ABCM implementation team's goal was to ascertain if the asset utilization argument was valid for each of the work processes contained within Phase I.

This in-depth analysis revealed that the rates used to calculate the costs for each work process per part were inaccurate and unrealistic. Of greater concern was the fact that manufacturing managers were using these inaccurate costs in decision-making processes. Use of the more accurate ABCM estimates greatly enhances the manager's ability to decide what is the best course of action based on the true cost of a work process.

Use of ABCM enhances the manager's ability to decide the best course of action based on the true cost of a work process.

Of real importance in this example are the barriers that the ABCM implementation team encountered within the organizational culture of the BCAG Wichita, which resisted change despite the significant cost savings available through appropriate utilization of assets. Although various members of manufacturing support, such as Quality Assurance, were "on board" with the notion of increasing the number of parts that could be processed "in-house," other support organizations were not so keen on the idea. Specifically, several internal organizations objected to the change based on the amount of paper work that needed to be cleared in order to bring the offloaded parts back into the facility. Capacity planners were also not fully convinced that there would be no impact on Phase I labor if the offloaded parts were brought back into the plant.

Phase II (Structural Bond)

Phase II continues the chemical treatment of parts. The Phase II pilot is an example of how the BCAG Wichita used ABCM to control its

cost of quality. Cost of quality is defined as the total cost of prevention, appraisal, and failures. When the pilot project began, the total cost of quality represented 16% of the total expenses incurred in Phase II. The remaining 84% were costs associated with the regular processing of non-defective parts. The first step the ABCM implementation team took to analyze the cost of quality was to breakdown the process in a rough cause and effect analysis.

Rework was identified as the single largest contributor to failure costs, totaling $1.3 million per quarter. The implementation team then segmented the different activities that make up rework. These included activities such as laminate, wheat starch, anodize, laser scribe, trim and cut, assemble, chemically mill, load, paint, and hand work. Hand working parts was the largest contributor to rework costs, comprising more than $350,000 per quarter of the original $1.3 million per quarter total rework costs.

Next the ABCM implementation team identified which shops incurred the highest handwork costs. Each shop number represents the physical location within the Phase II workspace where workers performed rework. Data analysis from this perspective allowed the ABCM implementation team to pinpoint which shop performed the most handwork rework. Further investigation was done to determine why the work had to be done and in this way follow the trail back to the origin of the problem.

The data showed that Shop 3162 was performing more than 50% of the handwork rework activity. Individual activities included: load batch, hand work, spray adhesive, anodize, hand paint, and machine paint. This detailed information gathering made it clear that the parts being reworked in Shop 3162 had defects "inherited" from two potential sources: one is a part that enters Phase I undamaged but exits damaged and the second is a part that enters Phase I damaged and gets passed to Phase II despite its condition. These two problems caused the accumulation of such volumes of rework in shop 3162 that eventually some had to be offloaded to outside vendors. Therefore, Shop 3162 was expending resources to correct quality problems that were not even originating from its normal operations, but were "inherited" from upstream processes.

The ABCM implementation team's activity analysis survey was able to quantify the cost of the rework activity and identify the original problem. In addition the subjective nature of the defect was discovered. For example, the different shops feeding processed parts into Shop 3162 performed the "scratch test" to determine whether the part needs to be reworked differently.

The ABCM implementation team worked closely with quality assurance personnel and shop leads to come up with a set of standardized quality criteria that could be used universally in Phase I and Phase II to determine whether or not a part needed to be reworked.

The work of the ABCM team proved valuable to BCAG Wichita several ways:

- A standard metric was developed to determine if parts needed to be reworked in Phases I and II.
- The metric was developed through a participatory process that helped share valuable information across several parts of the organization.
- Phase II realized a 20% reduction in the parts that needed to be reworked. Shop 3162 alone experienced a savings in rework costs of approximately $900,000 per year.
- Costs savings were created due to the reduction of offloaded rework.
- The training module developed could be used to address similar problems in other shops of other manufacturing areas.
- There was a significant reduction in overtime hours due to the reduction of the rework activities.

Lessons Learned

The two pilots presented here provide good examples of the benefits that can be reaped from ABCM implementations within a complex manufacturing environment. Although these examples do not describe the use of ABCM throughout a whole facility, it is clear from the results derived even through selected implementation, that ABCM has practical and beneficial application for commercial and military aerospace organizations. Not only did the ABCM team at BCAG Wichita learn the process of ABCM, they also uncovered some of the barriers and enablers that might impact the widespread usage of this management practice within the industry.

The single largest barrier to widespread implementation of ABCM is culture. In fact, the BCAG Wichita ABCM team argues that culture represents 80% of the difficulties surrounding ABCM implementation, leaving the remaining 20% to technological barriers. The team also argues that the limited involvement by upper management and the finance communities stems from a lack of understanding of the mechanics of ABCM and the benefits that can be gained, as well as

from the natural organizational resistance to changing current business practices.[4]

The pilots serve as a proving ground where the ABCM team can practice implementations on "bite-size" projects. In this way, workers can practice the problem-solving skills needed for problems that may arise later on larger implementation projects. Additionally the teams can also extend the educational benefits of the pilots by presenting the resulting cost savings to upper management. Thus, the benefits created through the pilot projects can help provide resources for expansion of ABCM implementations to operations throughout the facility and tie ABCM into the facility's cost management strategy.

The benefits created through the pilot projects can help provide resources for expansion of ABCM implementations and tie ABCM into the facilities cost management strategy.

Although organizational culture and resistance to change provide the bulk of the barriers to ABCM implementation, at BCAG Wichita , the ABCM team argues that technological barriers account for fully 20% of the implementation problems. The team states that product complexity is not the biggest issue. In fact the biggest problem may well be the number of "transactions" involved in producing the product. "Transactions" are defined as the number of personnel, processes, part numbers, and variations involved in manufacturing the main product. The larger this number, the harder it is to gather complete activity data, through surveys, from the actual practitioners.

Additionally, ABCM has shed light on a new set of cost performance metrics that vary from application to application, which go well beyond the labor hours used to account for overhead charges. This empowers manufacturing managers by giving them much more flexibility to manage the costs of their processes in many cases without impacting labor. The statement below summarizes the management changes taking place among manufacturing managers:

> Culturally, ABCM allows the company to harness the power of the entire organization and

[4] Patterson and Arendt (1994) describe the introduction of ABCM in an aerospace facility where the organizational dynamics were similar to those experienced in Wichita. Despite resistance from parts of the organization, so much information and learning had occurred within departments that the organization decided to reconfigure its ABCM program rather than discontinue it. See Management Accounting, April 1994, pp 55-64.

> change the way that it manages costs, while creating an entrepreneurial environment where the department managers can run the department efficiently.

CONCLUSION

One of the most attractive and counterintuitive characteristics of activity-based costing arises from the previously untapped sources of added value that it allows a company to discover. As the emphasis on costs shifts from labor to overhead, companies are changing their business strategies to capture these gains. Although overhead costs now dwarf labor costs as a percentage of overall expenditure, companies have not changed the methods they use to quantify costs. Advocates of ABCM believe that unless there is a change to a new way of identifying monetary output, companies will never know the true costs of production.

At present a majority of the companies that have adopted ABCM operate in the commercial sector. Traditionally, these companies have been perceived to be more exposed to economic variability, and thus must be able to adapt to changing market conditions in order to retain competitiveness.[5] Although the aerospace industry has been slower to adopt activity-based costing methods, cycles of instability in the industry may lead to increasing interest in ABCM. The successes of the pilot projects at BCAG Wichita may illustrate the benefits of investigating different cost management strategies. BCAG Wichita hopes to move ABCM principles in to other areas of the manufacturing process, and encompass an ever-increasing portion of the facility's operations.

However, there are a number of potential external reasons why ABCM adoption in the aerospace industry has been slower than in other industries. Central among to these potential reasons is the current product acquisition structure with its attendant interactions between government agencies and contractors. The following quote, taken from MIT research into economic incentives in government programs, summarizes the difficult relationship that exists between government agencies and contractors:

> On the government side, there is concern about the policies, processes, and procedures used when

[5] Krumweide (1998) reports that in a survey done by the Cost Management Group of the Institute of Management Accountants in 1996 adoption of ABCM is on the rise among "nonmanufacturing companies. See Management Accounting v79, n10, page 32.

> assembling a contract. Anything that deviates from standard contractual terminology (as defined by senior government contracting officers) requires significant amounts of time, the willingness to take risks, and the ability to withstand pain in order to secure approvals through many levels of governmental bureaucracy.[6]

The aerospace industry also has a large unionized segment of its overall workforce and the labor organizations that represent these workers have many views on ABCM. Since changes in working conditions are subject to collective bargaining agreements, the views of those who represent the workforce are important. Although ABCM shifts cost cutting opportunities away from labor, the original driver of overhead costs, it is surely not an insurance policy against the prevention of changes in labor structure.[7] Highlighting the potential benefits that ABCM offers to create accurate information and avoid unilateral headcount reduction decisions, one IAM official comments:

> The IAM has supported the adoption of activity-based costing management (ABCM) as a way to get at the true costs of production. ABCM is a tool that, [if] properly used, exposes overhead costs, unproductive time, and a truer value to the efforts our members add to the economic process within an organization. It is not, by any means, the answer to the current management vogue of downsizing productive capacity and distributing returns to shareholders. It is, an effective accounting methodology for organizations that are in the business of adding value through complex productive processes. When teamed with a high performance work organization approach, ABCM has helped our union identify opportunities to make products or services

[ABCM] is an effective accounting methodology for organizations that are in the business of adding value through complex productive processes.

[6] Cowap, S.A., Economic Incentives in Aerospace Weapon Systems Development, Master Thesis, Massachusetts Institute of Technology, February 1998, p. 64.

[7] In July 19, 1999 Aviation Week and Space Technology (v151, n3:34) reported Boeing's intention to eliminate up to 53,000 workers – up to 4,400 of those at the Wichita, KS. plant. Boeing cited the need to reduce production costs as the impetus for these workforce cuts.

> versus buying those same products or services from a vendor.[8]

At the same time, another union leader – from the UAW – cautions that ABCM is not a panacea:

> Activity-based cost accounting grew out of the frustration many managers and accountants felt with their existing accounting systems. They felt that an accounting system which generated final product costs built up from the costs of specific activities would better allow them to manage activities and make wiser economic decisions. For example, one major concern was that application of overhead was not sufficiently accurate. Using overhead applications such as direct labor hours or direct labor dollars was not considered good enough since it had the potential for distorting product costs. In addition, many existing cost accounting systems did not accumulate costs in a way that identified opportunities to reduce costs. For these and other reasons, managers and accountants found activity based cost accounting to be a much more sophisticated way of assigning costs to products. Its use has grown significantly since the early 1980's. As an accounting tool that allows for better assignment of cost to product, it is certainly beneficial to managers. At the same time, it is neutral in terms of job retention. The finding that a product has more or less cost than determined by a less sophisticated accounting system may or may not be determinant of whether a company will continue to produce the product in-house or outsource it. Even if it were, some jobs would be retained and some lost.[9]

Clearly labor organizations will support policies and programs that they deem beneficial to their members but not all have been convinced of the benefits of ABCM at this point in time.

Activity based accounting offers aerospace a cost management system that dovetails nicely into current lean manufacturing initiatives underway across the industry. Since ABCM can present cost data in a

---

[8] Sleigh, S.R., Director of Strategic Resources, The International Association of Machinists and Aerospace Workers, AFL-CIO/CLC.

[9] Lazarowitz, G., Director, Research Department, The International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America.

novel way, it allows the company to tie cost with value and strategy. The cases described here, though limited to pilot program implementations, do suggest that ABCM can offer benefits to aerospace industry companies, as it has for companies in other sectors.

Teaching Notes

It is people who are at the heart of new work systems – establishing stability and then driving continuous improvement. The Labor Aerospace Research Agenda (LARA) at MIT is committed to furthering our understanding of the human and institutional aspects of these new work systems, especially as they relate to broader issues of employment and vitality in the aerospace industry.

These case studies were written by a MIT-based research team and were developed in conjunction with representatives from each of the sites with the help of representatives of the United Auto Workers and the International Association of Machinists.

These case studies will be valuable to union leaders, labor educators, college professors and human resource trainers as well as anyone interested in discussing current dilemmas in the aerospace industry around employment. These can be used in a classroom setting, in small discussion groups, or by individuals. This case study was prepared as an example of the challenges of instability in the aerospace industry. It was written as a basis for dialogue and learning, not as an illustration of either effective or ineffective actions. There may be many possible answers to these questions. They are designed to foster constructive dialogue and action on these very challenging issues.

Potential Discussion Questions

- Again, if you were to conduct an ABCM pilot in your facility or operations, what stakeholders would be most likely to support the project? What stakeholders would find the project threatening or problematic? Why?

- Do you believe that make-buy decisions would be better, worse or no different with an ABCM system in place? Why do you reach this conclusion?

- Do you believe that continuous improvement efforts would be better focused by such a system, or do you think they wouldn't be helped?

- On balance, do you have enough evidence here to decide whether you would support or oppose an ABCM initiative in your location? If not, what additional data or information would you need?

Again, if you were to conduct an ABCM pilot in your facility or operations, what stakeholders would be most likely to support the project? What stakeholders would find the project threatening or problematic? Why?

- Do you believe that make-buy decisions would be better, worse or no different with an ABCM system in place? Why do you reach this conclusion?

- Do you believe that continuous improvement efforts would be better focused by such a system, or do you think they wouldn't be helped?

- On balance, do you have enough evidence here to decide whether you would support or oppose an ABCM initiative in your location? If not, what additional data or information would you need?

Rocco Paduano and Joel Cutcher-Gershenfeld prepared this case with editorial and design input from the entire LARA team, especially Betty Barrett. This case study is based on a thesis by Rocco Paduano, under the supervision of Wesley Harris and Joel Cutcher-Gershenfeld. It is an example of the challenges of instability in the aerospace industry and was written as a basis for dialogue and learning – not as an illustration of either effective or ineffective actions.
