

# MANAGEMENT OF INFORMATION SYSTEMS CASEBOOK

**Gary W. Dickson**  
**James C. Wetherbe**



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**Gary W. Dickson**

*University of Minnesota*

**James C. Wetherbe**

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## **MANAGEMENT OF INFORMATION SYSTEMS CASEBOOK**

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The *Management of Information Systems Casebook* contains a variety of cases dealing with topics frequently encountered by information systems managers. Planning, staffing, equipment selection, and "people" problems are but a few examples of topics involved in the cases in this book. In writing the cases, the authors have used their extensive experience in dealing with real organizations to construct situations that are typical of those with which the contemporary information systems manager will have to deal.

The cases in this book tend to focus on the problem areas of the IS manager or subordinate managers in the IS function. Thus the focus of this book is not on issues typically dealt with by executive management, e.g., strategic uses of information systems or the level of resources to devote to the IS function. Because of the focus, the audience for this book is in a capstone course for information systems specialists or involved in a depth course in information systems. Ideally, the book supports our book *The Management of Information Systems* but may be used with other more basic information systems texts.

## viii PREFACE

Many of the cases in this book are relatively short. Because of this fact, cases can be used in class sessions along with topical discussions or can be read in class prior to discussion. Longer cases, e.g., Perigee Industries, are typically broken into parts that build on each other. Normally, multipart cases require a part to be read or worked before work can commence on the next part. Cases requiring depth analysis prior to their discussion are noted in the Instructor's Manual.

In real life, problems do not come labeled "I am a problem dealing with people's resistance to change," or "I am a problem of estimating the computer's future processing capacity." For this reason, the cases in this book are arranged alphabetically so that students have to determine what problem or problems are present in the situation described and draw from different sources or chapters in their text to come up with solutions. To assist the instructor in assigning cases, the major focus of each case is stated in the Instructor's Manual. Assignments are given at the conclusion of each case, but the instructor may modify these or give completely different assignments.

To preserve confidences, all the case names are fictitious and geographical locations have been changed. In some instances, all the facts are authentic, while in some others the facts have been disguised by changing the data so as not to alter the basic relationships. Several cases are built upon facts from two or many actual situations.

Analysis of a case may reveal that some of the data given may be superfluous to the particular problem in the case or that additional data which would be desirable to have are not provided. This is typical of complicated situations involved in the management of information systems and tests the manager's ability to select the pertinent data from large quantities of data, much of which may not be relevant. It also tests the manager's ability to make plausible assumptions about other factors which are relevant but unavailable or unknown. Many of the cases will have alternative solutions. The best analytical approach will be to

compare numerous feasible courses of action and to recognize that many decisions must be made with incomplete knowledge about all the relevant factors. Often there will be a lack of unanimous agreement among the students in determining the most workable solution. Differences of opinion are valuable because they lead to a better understanding of the problem, the general concepts that are involved, and the many interrelationships affecting the solution.

In writing this casebook, the authors directed their efforts toward situations in information systems management that are common and of the type frequently encountered by information systems managers. It is our hope that the student will find these situations interesting, stimulating and useful.

*Gary W. Dickson*  
*James C. Wetherbe*

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## ACME GUARANTEED BUILDERS: PART A

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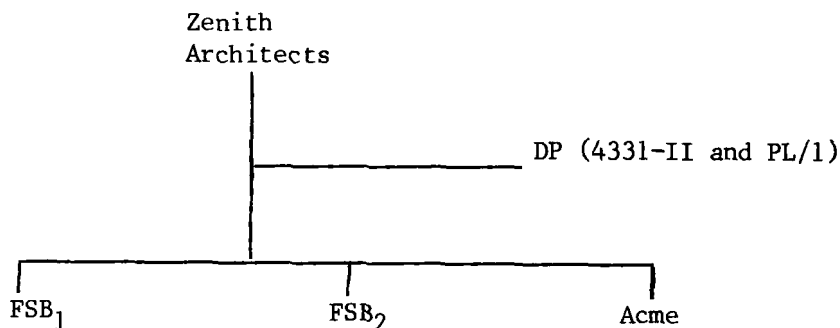
Acme Guaranteed Builders is one of three divisions of Zenith Architects. The architectural division is by far the largest of the three, but Acme has been the glamour division in the past few years because of its very high profit rate. Acme is in the business of bidding fixed-price contracts for buildings, financing them, subcontracting the architectural work to Zenith's architectural division, and doing the construction. For the past several years, Acme's primary activity has been in the construction of hospitals (including major expansions) and hotel/motels.

All the corporate computing used by the divisions and the parent organization is provided by a centralized data processing organization which developed application programs using PL/1 and run on the firm's 4331-11. (See Figure 1 for Acme's fit in Zenith's organizational structure and for the location of the DP activity.) Virtually all the computer applications could be classified as being the business type, but an abortive attempt had been made to use a special-purpose computer for assisting the architects. Because of technical difficulties, this activity was very limited, and most of the time this machine was sitting idle.

In the summer of 1983, the president of Acme was very dissatisfied with the computer support (or lack thereof) he was getting from the central DP organization. In effect, it

## 2 ACME GUARANTEED BUILDERS: PART A

**Figure 1 Acme Guaranteed Builders:  
organization structure**



had failed to respond to his requests to provide a computer application to assist Acme's project cost control. For several months, Parker Biggs, the manager of project cost control, had been trying to work with one of DP's seven analysts to design and implement a cost control system for the various construction projects. Over this time, much discussion had taken place and a number of meetings had been held, but the system was apparently no closer to realization than it had been several months earlier.

One of the reasons for the president's dissatisfaction was his feeling that it was critical to Acme's business success that it estimate project costs accurately in the bidding process and then carefully monitor actual costs during the construction phase. He was heard to say that for a business doing business on a fixed-price basis the most

critical thing to do well was to control the project costs. He knew that, from the present level of four active projects underway around the country in the summer of 1983, the company was likely to have as many as three times that many going by the summer of 1984. Most of these, in addition, would be run by project managers new to the company, and the combination of increased business activity and new project managers was an invitation to financial disaster unless a standard computer-based cost control system was in place early in 1984. Time, he felt, was running out on implementing such a system.

With this situation in mind, the president and Acme's vice president of finance decided to honor Parker Biggs's request to be allowed to attend a 3-day executive program run by a local university on the subject of "building effective information systems." If one were to categorize the Acme president as dissatisfied with the service given by Zenith's DP organization and anxious about the future, then Biggs's feelings were about 10 times stronger than those of the president. Biggs had the frustration of trying to work with the central DP analyst and the disappointment of getting absolutely nowhere. Further, as manager of the company's cost control, he was absolutely convinced of the need for a computer-based cost control system to handle the anticipated new construction projects. He felt that without such a system neither he nor the project managers could do their jobs. It was with this background that he became aware of the university's executive program, which promised to show users how to get effective information systems. He thought that maybe this program would help him find a way of getting the project cost control system he so desperately needed.

The program was everything Biggs expected, and more. The program emphasized MIS system planning, its importance, how to do it, and the role of the user. Biggs got so turned on that after the program, he took 2 days of vacation plus a weekend and developed a 55-page MIS plan for Acme. In addition, he prioritized the systems he identified and detailed what the project cost control system would produce and how this system would work from a user perspective. He then submitted the plan to his boss, Acme's vice president of finance, and to the firm's president.

#### 4 ACME GUARANTEED BUILDERS: PART A

These two managers were very impressed. They agreed on the plan and its detail but had difficulty when considering the next step. They felt that they were now secure in knowing what they wanted to do with information systems but were very uncomfortable about how to go about doing it. In particular, they were uncomfortable with taking the plan to Zenith's DP manager. First, they felt that he would reject the plan because it was developed by users, not by DP personnel, and because it was "not invented here." Second, they felt that since the central DP organization had done nothing for the past 7 months there was little likelihood this situation would change in the future. Biggs decided to contact one of the two professors who had conducted the program he had attended and see if he could be hired to help get a system in place in a time frame consistent with what all three managers thought was Acme's critical need.

#### VENDOR SELECTION

Professor Johnson agreed to assist Acme Guaranteed Builders with obtaining a project cost control system. In late September, he met with the president of the company and Parker Biggs. They agreed that the task at hand was to (1) review the MIS plan developed by Biggs, (2) given an adequate plan, develop a request for proposal and contact a few vendors judged to be capable of having a working system available by late January 1984, and (3) make a decision as to whether one of these vendors should be selected to provide the system and, if so, which one.

Professor Johnson suggested that given the very tight time schedule, a limited number of vendors be considered and at least two of these use what he called "nontraditional" languages. He explained that there were now available computer languages, called very high level languages, that offered a great deal of power over a traditional language like PL/I. This, he suggested, would greatly increase the chances of meeting the president's condition that a system be available by late January. Johnson emphasized the fact that the Acme project control system, as well as other, lower-priority systems, did not rely on any of Zenith's central computer applications or data and thus were good candi-

dates for systems developed according to what he called a "prototype" design strategy.

Johnson and Biggs worked together to develop a letter to send to three vendors describing the time constraints to develop the system and to convey the fact that a copy of the system plan was enclosed. A steering committee for the project was established. Members were the Acme president, the Acme vice president of finance, Biggs, Johnson, Zenith's head accountant, the Acme manager to whom all the construction project managers reported, and the Acme manager responsible for project estimating. The charge given to the steering committee was to participate in listening to the vendor presentations and to make, as a group, the vendor selection decision.

The president stated that one of the "vendors" in the final group from whom the selection would be made would be the central Zenith DP organization. He noted that he had little faith that it could develop the system in the time needed (given its past track record), but for political reasons it had to be considered. With the internal Zenith DP organization considered as vendor A, letters were sent to vendors, B, C, and D to see if they would be interested in bidding on developing the system. The letter instructed the vendors that Acme was interested in a fixed-price contract for the system. All three vendors asked to be allowed to gather more information from Acme and to be allowed to bid on the system. The vendors, then, were as follows:

Vendor A. The Zenith DP organization. It would assign a systems analyst to work with Biggs, and the system would be developed in PL/1 and would run on Zenith's IBM 4331. The Acme office was about 3 miles from the Zenith office and data center, so the plan was for CRT/printer stations to be located in the Acme office and communicate at 9600 bps with the Zenith computer.

Vendor B. A very high quality national software firm with a very large staff located in the same city as Acme and Zenith. It would put two analysts on the project and would contract out the programming, which would be in PL/1. The application would be run on Zenith's 4331, and the equipment in the Acme office would be the same as described above.

## 6 ACME GUARANTEED BUILDERS: PART A

Vendor C. The local branch of a very well known national time-sharing company. The application would be developed in Focus and run on a time-sharing system with two terminals (CRT and printers) in the Acme office. Two local analysts would work on the design and programming of the system with the technical assistance of a Focus "expert" out of the firm's Chicago office.

Vendor D. A company proposing advanced database-oriented software run on IBM PC/XTs. This company was located in a small town about 100 miles from Acme's headquarters. It was a relatively new firm with about 15 employees and would assign its best applications programmer to the development and implementation of the Acme project cost control system.

From September until early November 1983, each of the vendors met frequently with Biggs, Johnson, and other Acme personnel to firm up the system specifications and design. During this period, the system became Biggs's full-time job. In the second week of November, each of the vendors made a lengthy presentation to the steering committee detailing how it would develop the system, the time frame for system operation, and its costs. Figure 2 summarizes the proposals.

Note in Figure 2 that the vendors bid the cost of developing the system (a one-time cost), the cost of operating the system for a year, and the time at which the developed system would be available. Several comments are in order. First, vendor B would not guarantee a fixed price for the systems development. The \$95,000 figure is an estimate based upon time and materials. If forced to make a fixed quote, vendor B said it would do it for twice the price it estimated although it fully believed it would come in at a figure consistent with that estimated. Further, the operating cost for vendor B was taken to be the same as that developed by the in-house DP organization since there was no basis to assume differently. The operational cost of vendor C on time-sharing was quoted to be a monthly figure of approximately the same magnitude of annual expenses on the in-house computer.

The price bid by vendor D is difficult to compare since the price is a one-time charge for two microcomputer systems. The only ongoing charge was for maintenance. In

**Figure 2 Costs and schedules**

	Traditional		Nontraditional	
	A	B	C	D
Cost:				
Development	\$35,000	\$95,000	\$35,000	\$7000
Operation	\$7000	\$7000	\$6000	\$26,000* + \$300
	per year	per year	per month	per month
Time	6 months	5 months	3 months	6 weeks
Qualitative factor score	89.6	121.6	172.5	179.4

\*One-time charge and monthly maintenance.

terms of time performance, vendor D promised the system in mid-January, vendor C by the end of February, vendor B by the end of April, and vendor A by the end of May.

A subcommittee of the steering committee, Johnson, Biggs, and the Zenith head accountant, developed a system in which various vendor attributes and their bids were weighted to arrive at a vendor "score." The group went through this exercise and arrived at the following scores, which were presented to the steering committee prior to its decision-making session: vendor A = 89.6, vendor B = 121.6, vendor C = 172.5, and vendor D = 179.4. It is fair to note that vendor A's low rating was affected by the bad experience Acme had had with the internal data processing group at Zenith. There was little belief on the part of Biggs and other Acme managers that this bid was accurate.

At the session of the steering committee devoted to making a decision, the process was reviewed and each vendor's detailed bids were presented. At the conclusion of the presentation, the Acme president took about 10 seconds to observe that vendor D was the clear option. He said that he could afford to make the investment in the systems development and if in about 6 weeks the system did not work out, start over. He further observed that the project management system, if it saved one costly error, would recover the \$33,000 investment very quickly.

## **8 ACME GUARANTEED BUILDERS: PART A**

Acme immediately signed a contract with vendor D to develop the project management cost control system. Acme, in notifying vendors B and C of the contract decision, stated how impressed it was with their quality and professionalism. They were told they would be recontacted should the chosen alternative not work out. In fact, a decision was made to select vendor C should vendor D be unable to perform in the 6 weeks following the selection decision.

### **ASSIGNMENT**

Write a report critiquing the selection of a vendor to provide Acme Guaranteed Builders with a system to control its construction project costs. In your report consider:

1. Was the selection process sound? If not, what were the major weaknesses?
2. Comment on the ability of Acme to "go its own way," bypassing the central data processing organization. How might a more synergistic approach have been taken?
3. What about the emphasis on a "nontraditional approach"? Was Johnson wise to suggest this approach and to some extent "push" its consideration?
4. In many ways, vendor C was the most professional of the bidders and, to some extent, the safe alternative. Its very high cost of systems operation caused it not to be selected. Comment on this situation.



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## ACME GUARANTEED BUILDERS: PART B

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The vendor selected to develop a project cost control system for Acme Guaranteed Builders was Probe Systems, a firm about 1 year old that had developed a very good database system and an associated procedural processor for the IBM PC/XT. As was mentioned in Part A, Probe Systems was headquartered in a small town about 100 miles from Acme. Probe Systems assigned their best applications programmer, Bill Liewer, to the Acme contract.

Liewer knew that finishing the system by the end of January 1984 was very important. He had been instrumental in preparing Probe's bid and was confident that the MEGAFIELD system developed by Probe would allow him to prototype the system and meet the deadline. His experience with other applications had, in some cases, yielded compression of as much as 65 to 1 from COBOL to MEGAFIELD.

Between the signing of the contract and the first of the year, Liewer and Biggs worked almost full time on the design and coding of the project cost control system. By the first week in January, a preliminary version of the system was available for demonstration to a group composed of the Acme president, Professor Johnson, and the head accountant from Zenith Architects. They were very impressed. At the meeting at which the demonstration was given, several further system enhancements were suggested, with Biggs and