

### Case 7.3 A Programmer's Dilemma

Charles Darnton was not looking forward to the weekly Monday morning meeting at D&M Consulting. It was just about 9:00 AM when he entered the third floor conference room and the meeting was just about to get underway. He poured some coffee and took one of the few remaining seats around the walnut conference table. He gazed at the usual managers and support staff seated at the table and pulled out some notes that he had quickly prepared the night before. Darnton was scheduled to give a presentation on a key project that he had been working on for several months. This was the first project which he had managed and he was somewhat apprehensive about giving this particular status report.

Darnton had been working at the D&M Consulting firm in various capacities for over 4 years. He accepted a job here as a junior consultant

after working for several years as an education specialist and product support representative at a major software firm. He was quite content at D&M until Brian Gillin took over as the Director of his division. He sometimes clashed with Gillin whose style was rather abrupt and even abrasive. However, Gillin rose to power because of his particular expertise as a project manager. He had a reputation for bringing in projects on time and under budget, a difficult accomplishment in the world of computer programming. Some said that Gillin was occasionally ruthless, but in the view of upper management his decisions seemed to be sound since they always helped the bottom line.

D&M was founded in 1979 by several ex-employees of IBM in order to provide "complete computer consulting services" to a wide variety of businesses. In other words, D&M would design, program, and test the systems which it built; a company that hired out D&M would only have to administer a system once it took it over from the D&M consultants. Moreover, for an annual fee D&M did offer the option of providing ongoing support for its larger and more complex projects that required some maintenance and occasional updating.

The firm enjoyed an excellent reputation in this nascent industry and grew quite rapidly through the 1980s. It benefited greatly from the trend toward outsourcing and eventually its revenues approached \$500 million. It usually hired computer science and management graduates from the top schools, who were eager to work at such a prestigious organization, and sometimes raided other consulting firms when it needed talented individuals with special skills. D&M was the envy of the industry and for many years it had no problem charging a premium for its much sought after services.

However, in the early 1990s, partly on account of the many new entrants in the consulting industry, the company experienced some competitive pressures and its growth slowed considerably. In addition, managers underbid on two large projects and the company barely broke even on both of them. As a consequence, there was widespread pressure within D&M to stay on schedule and impose stringent financial controls to ensure a consistent level of profitability. Also, the company recently began hiring project managers who had less technical skills but were more adept at managing and controlling costs. As a result, the firm's financial performance began to improve, and in 1995 its profits were on the rise for the first time in 3 years.

It was in this context that Gillin was hired away from a rival firm where he had developed a reputation as a "hard charger" and an aggressive, results-oriented manager. During Gillin's first year at D&M his department had the best record of completing its projects on sched-

ule. They also rarely exceeded their projected budgets. Beyond any doubt, Gillin was a "rising star" at D&M and many felt that they were fortunate to be in his department.

Darnton, however, never considered himself as "fortunate" to be working for Gillin. He found Gillin impolitic, intransigent, and sometimes myopic, willing to cut corners and take some unnecessary risks to get projects completed on their tight schedules. Thus, Darnton recently promoted to Senior Consultant, was rather nervous about his current project.

D&M had recently taken on a new client, a distinguished furniture retailer, called Hamilton Furniture, Inc. Hamilton had 93 stores located throughout the west and midwest with projected 1996 sales of \$374 million. Despite their success and profitability, their corporate offices were in some disarray and this included their information systems function.

Recently, the retailer had attempted to develop a store level sales and inventory system. With the help of this system corporate executives would be able to get a comprehensive overview of the previous day's sales performances at Hamilton's various stores. But its Information Systems (IS) department was not up to the task and the system never got off the ground. As a result, Hamilton turned to D&M for some assistance.

A D&M consulting team headed by Darnton assessed the inchoate system built by the Hamilton IS staff and concluded that it should be scrapped and that a new system should be built from scratch. It presented Hamilton with some design specs based on a careful needs assessment. The new system recommended by D&M would include a credit feature that would do on-line credit checks while the customer waited. Hamilton executives were impressed and they handed the project to D&M. After some negotiations both companies agreed on a fixed fee and a schedule for the project's completion.

Darnton's group had been in on the ground floor of this project and it played a major role in working on the architecture and the requirements for this system. The hardware would consist of Hamilton's IBM mainframe as a host computer connected by a LAN to a network server; the network server would be connected to workstations in different Hamilton stores by means of a WAN (or wide area network). These stores could access the host system for credit and inventory information. They would also transmit sales data to the server on a daily basis. The software consisted of a Structured Query Language (SQL) data base and a computational "engine" that would aggregate the disparate sales data. D&M would build a front end graphical user interface that would insulate the users from the need to learn a query

language such as SQL. The front end was completely menu-driven and end users could simply key in a choice off the menu to retrieve, enter, or update information.

The contract with Hamilton called for D&M to design, code, and test this sophisticated system. Once the programming was completed and the system had been adequately tested, it would be "turned over" to Hamilton's IS manager and her small staff. They would bear the responsibility for administering and maintaining the system.

After Hamilton's aborted attempt to build this system with their own staff, the company hired a new IS manager. She was involved to a limited extent in the design stage of the project, but she virtually always deferred to D&M's "expert judgment." Darnton suspected that she was somewhat naive and did not really have the experience and technical acumen to appreciate the implications and nuances of the decisions and choices that had to be made. Although the corporate staff was generally capable, there were clearly still some vulnerabilities in the area of information systems.

The entire team for this project consisted of three other programmers. Darnton as Senior Consultant was the team leader, and he was responsible for ensuring that the project was completed within the 11-month time frame determined by Gillin and approved by a D&M executive vice president. Charles resisted this deadline but after several futile conversations with Gillin he had to demur to Gillin's judgment. Gillin felt that an 11-month time limit was quite appropriate for designing and implementing a system of this scope. He reminded Darnton that if the project could be wrapped up in the scheduled 11-month time frame D&M would make a pretty healthy profit from this job which would certainly enhance the year end bonus picture for him and his staff.

But 8 months later Darnton was feeling enormous pressure since the team had fallen behind largely because of forces beyond his control: an illness that felled one of the programmers for three and a half weeks, some unusually nasty software bugs, and some other unanticipated setbacks. Darnton was quite skeptical that he could finish the project on time, but he had not yet said anything to Gillin. He realized, however, that he had to do so at this meeting, even though he dreaded communicating this "bad news" to Gillin.

Gillin began the weekly meeting in the usual way by reviewing D&M's revenues and project updates for the past week. He then conveyed some general news about the comings and goings of various people at the company. When he finished, he turned to Darnton for his progress report on the Hamilton project.

Darnton talked for 10 minutes about some of the different challenges and features of the project. He explained that several modules had already been coded and were currently being tested. There were more bugs than expected, he noted, and taking time to fix them properly was slowing down the team's progress. Gillin seemed rather disinterested in these details. Finally, after several more minutes he interrupted Darnton.

"Let's cut to the chase, Charles. Will you make the October 15th deadline?"

"Well, I'm not so sure," replied Darnton. "Right now I would have to say no. I think that the bug fixes are really slowing us down. Also I don't feel that the security is robust enough at this point."

Gillin was clearly perturbed and became more animated and annoyed as the awkward conversation continued.

"When *will* you have this thing completed? Give me a date!"

"As I said," responded Darnton, "I'm not exactly certain but my best guess is around December 1st."

"December 1st!!!", bellowed Gillin, "you've got to be kidding! I need your engineers for two other major projects, and you're scheduled to team up with Joan in Frankfurt in mid-November to take a look at that Army Corps application. No, December 1st is totally unacceptable."

Gillin could see that this confrontation was escalating and in order to avoid a scene he told Darnton that they should discuss this in his office right after the meeting. A tense atmosphere prevailed as the meeting continued, but the other managers gave their reports without incident.

Later in Gillin's office the emotional exchange continued. Gillin was clearly upset that this project had fallen so far behind schedule and that he had not been informed of this at an earlier date. Darnton was quite defensive but he was also cautious not to further upset his volatile boss. Gillin pressed Darnton on what could be done to get back on schedule, and the conversation turned once again to the contentious issue of security.

"The only way to stay close to the schedule," Darnton remarked, "is to cut back on some of the security features, but I don't think that would be such a good idea."

"Why not?" queried Gillin. "Security should not be a big deal for a project like this. Just make sure that the application is restricted to authorized users and that the network is reasonably secure. Nothing fancy, Charles, because we just don't have the damn time!"

But Darnton was insistent that more needed to be done.

"I'm afraid that I can't agree with you, Brian. I have a comprehensive security plan with a good deal of emphasis on network security and detection measures. It's especially critical to build in audit trails identifying invalid access attempts. I also want to make sure that those sites using modems have call back authentication. And I'm convinced that we have to have terminal controls that prevent display of passwords on the screen and provide for an automated logoff capability."

"Ah, screw that," Gillin angrily responded.

He picked up the specs for this project from a pile of folders on his desk. He studied them for a few minutes while Darnton stared blankly out the window.

"I've just been looking over these specs, and I think that the level of security which you are proposing is preposterous," commented Gillin.

"It's overkill. I do *not* believe that the Hamilton system needs all those features. After all, this is not highly sensitive data that we are talking about. If we were protecting corporate secrets, then it might be a different story. Also, let me point out that nobody at Hamilton is pushing for this kind of security. It doesn't seem to be a big thing to them either."

"But look at all the publicity in the computer journals about security," Darnton replied. "Everyone is talking about the need to enhance the basic security of our information systems. I think that we have an obligation to make this system as secure as possible, regardless of whether the client explicitly asks for it or not."

Gillin responded coolly to Darnton's rather impassioned arguments:

"On this project, Charles, security is simply a luxury we can't afford. Besides my philosophy is that if the customer is not asking for all that security then they don't really need it."

The discussion continued for a while longer and Darnton continued to implore for a more secure system. But Gillin's position was unyielding: There was no time or money to build "robust security" into this sales

tracking and inventory control application. Hamilton would have to settle for the usual user verification controls.<sup>6</sup> There would be minimal network security and no detection measures or audit trails except those that were already provided in the software that was purchased. His obstinancy was characteristic, and Darnton recognized the futility of pursuing the matter further.

When Darnton left Gillin's office he was in a state of some consternation. He did not feel that it was fair to the client to shortchange them on vital security features. But Hamilton's managers were not cognizant of these issues, and the security specifications in the design document were not too specific. Hence, he was fairly sure that they wouldn't balk at the security level being proposed by Gillin. Security was on the agenda for the next milestone meeting with Hamilton's IS manager. Darnton could outline the specific security features of this system and clearly give the impression that the security was comprehensive.

Nonetheless Darnton still felt that he was obliged to provide Hamilton with a truly viable system, and this meant one with adequate security, not one with a lot of security holes. Also, he worried about D&M's accountability if there were a security breach. At the very least this could reflect badly on the firm's reputation as well as his own.

On the other hand, as he mulled over these concerns he wondered about what recourse he had. Gillin was adamant that the project be completed on time even if this meant compromising the application's security. Darnton was convinced that he was right but he was perplexed about exactly what to do at this point.