THE IPACS PROJECT: WHEN IT HITS THE FAN

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Acknowledgment

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ABSTRACT

This case summarizes a failed systems development project at the Green Valley Hospital. The project was part of a large strategic information systems plan aiming to lower costs, improve the quality of patient care and integrate the hospital's operations. To implement the project, the president of the hospital selected a $5.9 million system by Ibax. The users, who felt that the selected system did not satisfy their needs, rejected it during the testing process. As a result, the project was abandoned three years after its initiation. To provide the readers with a pragmatic understanding of MIS development, this case describes the key factors and behaviors that led to the failure. Also, it invites the readers to apply their project management and crisis management skills, and creativity in managing the aftermath of the project's failure.

INTRODUCTION

It was eight o'clock in the evening and Andrew Divon was walking towards the Green Valley Hospital (GVH)'s employee garage. He was glad that it was a Friday. For the past year, since he was hired as the Director of Management Information Systems (MIS), he spent his weekends with his family exploring the natural beauty of Oxford and the surrounding area. This weekend, however, was going to be different. Divon planned to spend a major portion of his weekend preparing a plan for managing the crisis faced by the integrated patient administration and care system (IPACS) project. Divon felt that GVH would be unable to conclude the project successfully and recently placed all IPACS-related development activities on hold. As a result, he was asked by the hospital administrators to formulate a contingency plan that would allow the hospital to manage the impeding cancellation of IPACS. As part of this plan, he had to prepare specific recommendations for effectively handling the cancellation process to protect the financial resources, operations and image of the hospital. Most importantly, the plan should outline a replacement project that would ensure that GVH's strategic MIS objectives (which were to be addressed by IPACS) would be met within the original budget and time schedule. Divon had to present his recommendations at nine o'clock on Monday morning to the hospital administrators during an emergency meeting that was scheduled to review his contingency plans. Due to the importance of the IPACS crisis, Divon knew that that it would be difficult to put aside his worries about the project and enjoy the planned family outing. Indeed, his only thought during his drive home was "*What should GVH do to manage the impeding cancellation of IPACS?*"

The Hospital

The Sisterhood of the Holy Cross established GVH in 1912. GVH is among the major teaching and research hospitals in Canada. GVH provides care for about 200,000 patient days per year using a facility of 500 beds. Its annual revenue exceeds $180 million and is increasing by about ten percent annually. Sixty percent of the patients serviced by GVH live in Oxford, a major Canadian city where the hospital is located. GVH employs about 3,200 staff; about 500 of them are physicians.

During the late 1980's, the Canadian health care sector faced severe adverse economic conditions. Provincial governments initiated a series of budget cuts and introduced stricter quality controls to reduce duplication and waste while improving the level of health care services. To prepare the hospital for this new economic and regulatory environment, GVH hired Donald Smith as its new president and CEO. Smith had gone through a similar transition at St. Mary's hospital, which was about the same size as GVH and was located in another Canadian province.

Soon after his hiring in 1989, the new president placed a new management team in place and restructured the senior management portfolio. The new executive team consisted of Smith and four vice presidents (of Medicine, Patient Services, Finance, and Administration). Among the major mandates for this new team was the reengineering of the operations of the hospital. Based on his prior experience with an information systems (IS) project at St. Mary's, Smith believed that sophisticated clinical and patient costing systems could significantly support the hospital's reengineering efforts by enabling it to "treat the patient smarter."

The Management Information Systems Department

Until the early 1980's, information technology received little attention and support from GVH's senior managers. Until then, virtually all applications were developed in-house on an ad hoc basis through informal cooperation between interested users and the few computer professionals employed by the hospital.

The first attempt to introduce planning in the development of GVH's information systems took place in 1983 when GVH hired Arthur Andersen to conduct a review of the information system needs of the hospital. Based on that review, GVH acquired its first patient admission, discharge, and transfer (ADT) system from Medsys Inc., a local vendor. To manage the implementation of the ADT system, the hospital established a formal MIS department and hired its first MIS director, Ian Crooks, in 1985. The MIS department was placed in the portfolio of the vice-president of finance because virtually all existing applications were accounting and financial programs. Despite this attempt to formalize the MIS department, the new director introduced little planning in its operations. According to a department manager:

Our first MIS director was one of these really sort of laid-back guys who wasn't high on formal processes. He basically said to people like me 'what do you need?' And we said, '"Gee I think we need X."' And he said 'okay' and a month after he'd have somebody working on it. It was wonderful. We ended up with an operating room booking system that is still being used—he got that from a free tape from another hospital. He said "let's see if we can make this work" and we did. In a similar fashion, we built our own in-house relief booking system to manage our casual staff because we couldn't get anybody to agree to buy one. So one of the programmers built a little system in about a month. Most of our systems we did just ad hoc.

Under Crook's leadership, the MIS department continued to act in an ad hoc fashion with little senior management support and involvement until the arrival of president Smith in 1990. Due to the conflicting styles of Smith and Crooks, Crooks left GVH. To replace Crooks, a new MIS director, Doug Carpenter, was hired. Carpenter's management style was more formal than that of Crooks and was congruent with the president's management philosophy. During Carpenter's tenure, the MIS department staff grew to ten people and its budget reached $1 million. To manage the department, Carpenter introduced a formal organizational structure (see figure 1).

Figure 1: MIS Organizational Chart (1990)

The Strategic Information Systems Plan

Even though GVH's early MIS portfolio included a number of administrative applications, the hospital's administrators and clinical staff were dissatisfied with the existing information systems for two reasons. Firstly, due to the ad hoc approach that was used in early system developments at GVH, the various departmental systems were not integrated. As an administrator pointed out, this lack of systems integration impeded the hospital's ability to eliminate waste and improve patient care:

We wanted to improve patient care and we felt that we needed to connect the systems together in order to do our business better. We didn't like the idea that we were putting all this patient demographic data into a computer in multiple, different departments. We felt that this duplication and waste were just no longer acceptable, that even if they were systems supplied by different vendors there had to be integration. And the units were writing and rewriting things, and this was the beginning of budget cutbacks. We'd gone through one set of budget cutbacks, which started to drive this whole process. We knew that it was only going to get worse through time. So we had to do something to become more efficient and improve patient care.

Secondly, there were no clinical systems to facilitate the administration of treatments and support the activities of the medical staff. Clinical systems are computer applications that are used to monitor patients, diagnose illnesses, administer treatments (such as intravenous drugs), store and retrieve information about a patient's progress and lab results, etc. Virtually no such systems existed at GVH at the time; almost all of the existing systems were developed to exclusively capture financial information and support the clerical and administrative functions of the hospital. The lack of clinical systems impeded the staff's ability to consistently provide high-quality care to the patients and monitor the cost-effectiveness of the various treatments.

To address the above issues and facilitate its reengineering efforts, the new management team initiated the development of a Strategic Information Systems (SIS) plan in 1991. The goal of this plan was to identify systems that would enable the staff to "treat the patient smarter" by improving care quality, internal communication, coordination, and resource allocation and by reducing waste and costs. The administrators believed that these goals could be achieved by implementing a hospital-wide "specific patient costing" system that would be used to support and keep track of all the services, treatments, and costs associated with each patient.

To facilitate the formulation of the SIS plan, President Smith hired Datacom Consulting. Smith had developed a good working relationship with Datacom at his previous position at St. Mary's Hospital, where an MIS project (supported by Datacom) introduced a patient-specific costing system. According to a computing industry magazine, which profiled the St. Mary's project in one of its issues, "the patient is accounted for from the time he/she admitted to the hospital to time of discharge plus all [of his/her] related business transactions." This project cost about $550 thousand. IBM provided the hardware and systems software for it; Dunn and Bradstreet Software provided the financial software and Ibax Healthcare Systems[2] provided the hospital reporting applications.

After a series of meetings and interviews with the users, the Datacom consultants drafted a document summarizing a five-year SIS plan. This plan was delivered to the GVH administrators during the Fall of 1991. Among the plan's major objectives was the implementation of an integrated patient administration and care system (IPACS). IPACS was to achieve the goals set by the SIS plan by replacing most of the legacy applications with a hospital-wide system that would provide "as good as, or better" functionality to each of the departments supported by the existing stand-alone applications.

IPACS PROJECT MANAGEMENT

Vendor Selection

Soon after the completion of the SIS plan, GVH, with the help of Datacom, initiated a procurement process to implement the plan. The goal of this process was to identify a commercially available "turnkey" system that could be fully implemented within four years. To identify such a system, a request-for-proposals was prepared and sent to five hospital IS vendors. All five replied with proposals. After a preliminary review and considerable debate among key users, MIS staff, and senior administrators, three of the proposals (including one by Medsys, which was the provider of the existing ADT system) were classified as unsatisfactory. The remaining two vendors were invited to provide more detailed proposals and conduct on-site product demonstrations.

During the evaluations of the two proposals, there was strong disagreement about the ability of the proposed systems to meet the needs of the hospital. Specifically, the president strongly favored the system proposed by Ibax. According to GVH's senior managers, Ibax's proposal was particularly attractive for three reasons: it (1) was the least expensive among all submitted (it was priced at $5.2 million), (2) supported flexibility and scalability, and (3) promised extensive customization of Baxter's existing software products to fit the needs of the Canadian health care sector.

According to the users, however, Ibax's proposal suffered from serious shortcomings. The users indicated that the proposed systems would not be able to fully support the hospital's existing operations nor capture the information needed to satisfy the Canadian billing and reporting requirements as established by the provincial and federal regulatory agencies. Because the Baxter applications were specifically developed for and were originally marketed in the American health care industry, the users felt that they would not be able to easily support the procedures and data management tasks that are common in the Canadian health care sector. In addition, many users felt that the existing, in-house-developed applications provided better functionality than the corresponding Ibax modules. The MIS director also expressed concerns about the technology used in the Ibax systems. These systems were developed using RPG3[3] and IBM mainframes to satisfy the needs of medium-size hospitals. Even though Ibax promised to customize their systems to fit the needs of larger tertiary hospitals such as GVH, the MIS director felt that the limitations of the original technology would make such customizations more difficult.

The issue about the ability of the US-made Baxter systems to satisfy the requirements of Canadian hospitals was not a trivial one as the health care sectors in the two countries differ significantly. The Canadian sector is based on a national health service system that provides universal health insurance coverage to all individuals; the American system is mostly a for-profit enterprise that is largely based on private insurance companies and health care providers. Virtually all Canadians receive free basic care including free doctor's visits, free emergency and hospital care, and free (or heavily subsidized) prescription medications through a monopoly-based governmental program. In fact, in many provinces, the law prohibits the sale of private insurance for basic services. Conversely, in the U.S.A, health care insurance is provided as a fee-based service by private insurance companies and health maintenance organizations

(HMOs) using and almost free-market mechanism. Due to the costs of such insurance coverage, it is estimated that about 30-40 million people have been uninsured in recent years. Even though the majority of the American health care industry is based on private organizations, the government plays an important role by providing insurance to low-income and disabled individuals through its Medicaid program.

Due to the differences in the health care systems of the two countries, the operations of the health care providers, such as hospitals, also differ. In the USA, most hospitals are private organizations or independent non-profit institutions. They tend to have access to the latest technology and enter into contractual arrangements with several insurance companies to treat their clients. Their financial systems reflect the diversity in the claim and reporting systems of their partner insurance companies. Also, the majority of data gathering about internal operations, costs and profitability reflect the policies and strategies of each hospital as they are mostly used for internal management purposes only. Canadian hospitals, on the other hand, have significantly different data gathering and reporting requirements. As their operations are overseen by governmental agencies, they must collect and report detailed figures and statistics about their services, patient counts, activity cost amounts, etc. Also, their billing systems tend to follow different standards and procedures as they mostly deal with provincial ministries of health services, which allocate resources to each hospital and reimburse them for their services.   Finally, due to the lower modernization and excess patient demand that are present in the Canadian system, hospitals suffer from a chronic lack of resources. This necessitates the established of a number of information gathering and management tasks that do not exist in the American system. For example, due to insufficient facilities and medical staff, patients do not always have timely access to treatments. As a result, they must be placed in waiting lists. For example, it is very common for a patient to wait for up to six months before having an eye cataract removed. This requires the establishment of triage procedures for determining a patient's position in such waiting lists and the need to capture and report information about such lists and procedures to the government.

Despite the above differences in the information needs between American and Canadian hospitals, the management of GVH felt comfortable about Ibax's ability and financial backing to alter their software to meet the needs of its hospital (and those of the Canadian market in general). According to a vice-president, there was strong pressure for Ibax to create a first-class Canadian system:

> In its proposal, Ibax admitted that this was their first large-scale Canadian hospital implementation. They wanted to use GVH as the basis for the development of a definitive large-scale hospital product for the Canadian market. In order to do that they had to move in two steps: First, the base product would be given some generic major enhancements to bring it up to larger hospital scale and Canadian scale. And then there were some specific customizations for GVH. Even though the scale of modifications was extensive, the company

appeared to have the financial depth to undertake this, given that Baxter was behind it.

To alleviate the concerns of the users and the MIS director, however, Ibax conducted extensive interviews with the hospital staff to better identify their needs. Ibax also provided the GVH staff with the opportunity to conduct on-site reviews of two Canadian sites that were implementing Ibax systems. Based on these discussions and visits, the users identified a number of necessary custom modifications. Ibax revised its original proposal to reflect the specific requirements of the GVH staff. The managers of the various user departments were asked to review the revised proposal. In their reviews, all managers expressed serious concerns about the proposed systems and none of them endorsed the proposal. A couple of them, who conducted their own on-site evaluations by contacting their colleagues at other hospitals implementing Ibax' s systems, identified several concerns with the systems and Ibax's support services in their memos. In her memo, one of them concluded:

> The adequacy with which their efforts will meet our needs must be believed in blind faith, as there is nothing to see and no guarantee that what we require will, in fact, be possible. I have grave concerns that the basic product, despite enhancements, falls short of our requirements.

Despite these concerns, less than a month after the managers' feedback was received the senior administration of the hospital tentatively selected Ibax as the preferred vendor for implementing IPACS. This caused a great deal of dissatisfaction among the involved users and MIS staff. Many users attributed Smith's support for the Ibax proposal to his Datacom and Ibax connections at St. Mary's and became quite resentful. To protest Smith's favoritism, they nicknamed GVH "St. Mary's North" and were bringing "President's Choice" grocery bags to work. In response to the vendor selection decision, the GVH's second MIS director, Doug Carpenter, resigned.

Ibax consultants spent the next few months conducting interviews with dozens of users to better understand their needs and gain their support. During these interviews, 120 additional custom modifications were identified and were documented in a revised draft of the proposal.   At the same time, the senior managers of the hospital met with GVH's board of directors and the provincial government seeking their approval for the project's funding. As this was the first full-scale hospital-wide IS implementation in the province and promised significant impacts on costs and quality, the project received well-publicized political support by the provincial government and GVH's board of directors.

In August of 1992, after receiving the necessary funding from the provincial Ministry of Health, GVH and Ibax formalized their agreement at a public signing ceremony that received significant local news coverage. According to their agreement, Ibax was to implement 26 financial and clinical applications for the hospital within a five-year period. The financial applications were based on the Software 2000 application suite[4] and Baxter's material management software. The clinical systems were based on

Baxter's software that was being marketed in the United States. A number of applications (including the hospital's laboratory, pharmacy, radiology, and ICU systems) were excluded from this agreement because their users felt that Ibax's systems were inferior to their existing systems. According to the agreement, the cost of the project was estimated to be $5.9 million (it was $700 thousand higher than that of the original proposal due to the requested modifications).

IPACS Implementation

To prepare for the development of IPACS, a number of changes took place within the MIS department. Two project managers (one for the administrative systems and another for the clinical systems) and network staff were hired. Also, the department was restructured to better accommodate the needs of IPACS (see Figure 2). Finally, a search for a new MIS director was initiated.

Figure 2: MIS Organizational Chart (1992)

The two project managers worked closely with users to form informal project teams for each of the applications. The purpose of these teams was to provide feedback to Ibax consultants, evaluate their development progress, and assist in the training of other users. Many physicians, clinical support staff, and clerical personnel became heavily involved in this process even though all of them continued to perform their regular duties.

GVH and Ibax decide to begin the IPACS projects with the implementation of the financial systems while delaying the development of the clinical systems. This was done for two reasons. Firstly, the financial applications required fewer modifications and customizations than Baxter's clinical systems. Secondly, GVH's existing financial systems were in a bad shape. As one administrator put it:

> Our finance software was a disaster. It was a very old system that was just hopeless. It crashed more than it ever ran. And so everybody agreed that it was a pretty high priority. We realized that we couldn't run a business if we didn't have the right financial information. Managers need that kind of information. We needed the GL and other functions to work and to be reasonably timely. So all of us, clinical personnel and everybody else, said "that's great, fine, go ahead and we won't worry about the clinical stuff for a while."

The first ten months of the project were devoted to the implementation of two applications: general ledger (GL) and accounts payable (AP). Due to the highly standardized nature of these applications, their implementation required minimal

customization. Both applications were delivered to the users on time in the summer of 1993. As the following comment indicates, the IPACS development project enjoyed high levels of support during its early stages:

> IPACS was a very large project for us and required all the staff and time we could dedicated to it. Everything else went on hold. After the consultants came in, all efforts and energies were directed towards achieving the strategic plan. So, all the ad hoc development work stopped and any new requests were ignored. I mean, if you had a real problem, they would give you a hand but for the most part there was no movement other than IPACS.

After the completion of the first two applications, the IPACS project team initiated the implementation of the materials management (MM) application. This application was part of the Baxter program suite (which was not favorably reviewed by the users during the proposal evaluation stage). As a manager explained, MM's implementation proved to be more difficult than those of the previous two applications:

> The staff identified a lot of problems in the system. Even though the materials management people who were involved with the system were ready to go live, the finance people were not willing to accept the system. They didn't like the way moving average price was calculated, they didn't like the way entries were posted to the general ledger, they didn't like a lot of other things. So we called in some more Ibax consultants and we said, "This isn't going to work and we cannot go live." We had several meetings with them. They actually took two of us down to Florida to help them come up with the necessary functions and calculations. This delayed the delivery of the MM application and created a lot of resistance among users who felt that the customizations were not satisfactory.

In January of 1994, while the implementation of the MM application was in progress, a new MIS director, Andrew Divon, was hired. In addition to managing the MIS department, Divon was charged with the overall responsibility of the IPACS project. Incidentally, during the same period the management of Ibax went through a senior management shakeup as a result of troubling financial performance.

By the summer of 1994, the project's second year, the MM application was put into operation and the implementation of three financial applications—human resources/payroll (HR/P), accounts receivable (AR), and capital assets tracking (CAT)—was initiated. During the testing of these modules, the users identified a number of internal record-keeping activities that the system was not able to capture and process. For example, the AR module was not able to store and process all information required by the Ministry to process the hospital's billing for provided services. These applications created additional workload for the users because a number of processes that were previously performed by the legacy applications would have to be performed manually after the introduction of the IPACS modules.   As a result, the affected users, mostly administrative staff, strongly resisted their

introduction.

During the fall of 1994, while GVH and Ibax were negotiating a solution to the AR and CAT introduction issues, the implementation of the first two clinical systems (OR and ADT) was also initiated. Despite earlier promises by Ibax to customize these two products, the delivered customizations did not meet the demands of the clinical staff. A GVH manager described the reception of the OR application by the nursing staff:

> So Ibax says we're going to bring in OR-Star -- that was the product that they were touting. Well, the people in the OR took one look at it and said, "No, this won't work." They felt that it didn't match what was in the request-for-proposal. The users felt that the OR application was not going to work and was not, in any way, better than what they currently had at the time. It was worse than what they had! We said, "We don't want this system until you can provide us with a decent wait list system." As you know, in Canada, wait listing is really important. Our government requires information about our average waits, about every patient who has surgery. They want to know what was the longest wait, what was the shortest wait, and a whole bunch of other junk that we have to send to the ministry. This new system didn't even have a wait list because in the States wait lists aren't an issue. So they took that system, they merely changed the date format, they put it in military time,[5] and that was all the customizing they did! So the people in the OR were not happy. The staff and the nurses in the OR are "one breed of cat." I mean, you just don't fight with them. And they said absolutely no! I mean they would have scalped anybody that would have tried to change their system. That's how strongly they felt. So they basically said, "Sorry, count us out. We refuse. We'll stay with what we got. Get out of here. We're not going to have anything to do with it."

Despite the major concerns of the users with the functionality of the systems, the administrators of the hospital were not overly concerned with its progress. Involved users attributed this to the manager's escalation of commitment to the project:

> Many managers were not willing to accept the major problems transpiring in the project. You see, once you've committed a heck of a lot of money to a project, you tend to want to save it rather than pull the plug when in fact it is sometimes better to pull the plug. I think that's what happened here. We were thinking that if we put in that little extra effort, a little bit more money, we'd make it work. So, we thought that many of the problems would go away if we just ignore them. We were wrong. But because this was such a high level project, the pressure to go on with it was high. Yes, it was the president's solution as everyone seems to think but it was a solution that most of us thought would help the hospital strategically by computerizing its operations.

This high level of commitment to the project by the managers made it very difficult for non-managerial staff to openly express their opinions about the problems in the project.

One staff member commented on this issue:

> Our department was having a lot of trouble with the software. I raised concerns
> many times. I was a very loud whistle blower. And I was outvoted each time. I
> know there was a lot high-level stuff flowing on the top and there were lots of
> other issues going on so I realized it was beyond my control. So I just basically
> shrugged my shoulders and said "Okay. If you can make it work, wonderful. I
> don't believe it can work, but I give up."

During the testing stage, the users also rejected the ADT application. As a result,
Divon and his staff spent most of their time in the winter of 1994 discussing the
shortcomings of the ADT application with frustrated users and managers and
negotiating with Ibax for a solution for the users' concerns. Despite numerous
assurances from Ibax consultants, little was done to accommodate the requests of the
users. Based on his informal conversations with the newly hired senior Ibax
administrators, he felt that Ibax was reluctant to fund the needed software
modifications, as they would not be able to recover their costs from the sale of the
systems to the relatively small Canadian health care sector. The growing dissatisfaction
with the functionality and performance of the systems, coupled with the apparent
inability of Ibax to remedy the situation, began worrying Divon. He summarized his view
of the project as follows:

> The clinical software was delivered behind schedule. When it arrived, it was
> immediately tested exhaustively by our staff and by our users. That was the first
> sign of trouble. The users came to me in revolt and said that the system that
> they'd been delivered was awkward, cumbersome, not very Canadianized, and
> not as functional as the system they had already. The systems that GVH was
> using at that time were considered to be outdated systems. However the users
> demonstrated that the new Baxter product was more labor intensive to use.
> Even though it contained a lot more information, it was missing some of the
> essential information that they needed. Baxter's system was functionally rich,
> particularly if you were a U.S. hospital—there was a lot of front-end accounting
> and patient accounting going on.

The delays in customizing the ADT program brought its implementation to a virtual
standstill. As an MIS analyst recalled:

> We had gotten to the point where we did all the conversion preparation. We got
> ready to move all of the data over, but we were still waiting for the update in the
> features. We knew we couldn't proceed without a specific list of features being
> met, and that was the code that we were waiting for. We had a long list of
> detailed specs for a lot of the functionality changes, but we were never asked for
> them.

The inability to develop a satisfactory ADT application was critical as it had serious

consequences for the whole project because most of the other applications were dependent on the data that was to be captured by and stored in the ADT module. Given this, Divon, after consulting with the GVH's executives, placed all IPACS project related activities on hold in February of 1995. He immediately began consulting with his staff and the hospital administrators to determine the future of the project and GVH's relationship with Ibax. According to an administrator, this served as a wake-up call for them:

> Many times the users voiced concerns about what the systems could and couldn't do. Most of us thought that they were just causing noise because they didn't like the systems. We felt that once the systems were installed, they would be used. So, we kept going on without paying attention to, what we assumed were insignificant issues. It wasn't until the MIS director came to us and said 'this is not working' that we began to pay more attention.

Divon and the hospital's administrators were concerned with two issues related to the future of the IPACS project. Firstly, the current problems and potential cancellation of IPACS would delay the materialization of the SIS plan's objectives. Also, it would further disappoint the users who were getting increasingly frustrated by the lack of computerized support. Users were frustrated because the promised IPACS modules were not being delivered on a timely basis, and the legacy systems were not sufficiently supported by the MIS staff and their vendors. Even though a couple of the legacy systems (such as GL and AP) were replaced during the early stages of the IPACS project, the rest of them were not upgraded since 1992 (i.e. IPACS initiation) despite the availability of newer versions from their vendors. GVH did not keep up with the vendor upgrade releases in an effort to reduce license fee and maintenance costs (as it was expecting that IPACS would replace these legacy systems). This resulted in reduced service from the vendors of the legacy systems, which were not receiving any new license revenue from GVH. The reduced level of service for the existing systems coupled with the lack of progress in delivering the newer IPACS applications angered physicians, nurses and other staff contributing to the negative attitudes towards computerization.

Secondly, and perhaps more importantly, executives were worried about the impact of the project's potential failure on the reputation of the hospital. Due to the widely publicized announcement of IPACS and the strong political support it received from the provincial government, they felt that it would be a major predicament for the hospital if the project turned out to be a failure. The hospital's administration felt a strong pressure to rectify this situation given the provincial government's recent cost monitoring and control initiatives. A manager commented on this pressure:

> The CEO had gone to the government and the [hospital] board with a five-year strategic plan and committed to implementing it. It would be a major embarrassment for the CEO to go back to the government and say we need more money. There had been an original budget of some $5 million dollars for

hardware and software… Our main objective was to see if we could stay within those targets yet complete our functional and SIS plan requirements with either IPACS or another project.

To deal with this situation, the president of the hospital scheduled an emergency meeting. During the meeting, Divon was to present to the administrators alternative "recovery" strategies to satisfy the initial objectives of the 1991 SIS plan within its original five year schedule and its budget constraints. Given that the project was in its third year of life and had consumed over $2 million with almost no results, this was a daunting task!

QUESTIONS

1. Evaluate the project management process of IPACS. Identify the key factors that contributed to the crisis faced by GVH.

2. Provide specific recommendations to Divon for managing the current situation. While generating your recommendations consider the financial, operational and credibility liabilities caused by the IPACS project failure.

3. Identify the key lessons that GVH should learn from this experience. Provide specific recommendations that GVH can follow to incorporate these lessons in its organizational memory to avoid similar incidents in the future.
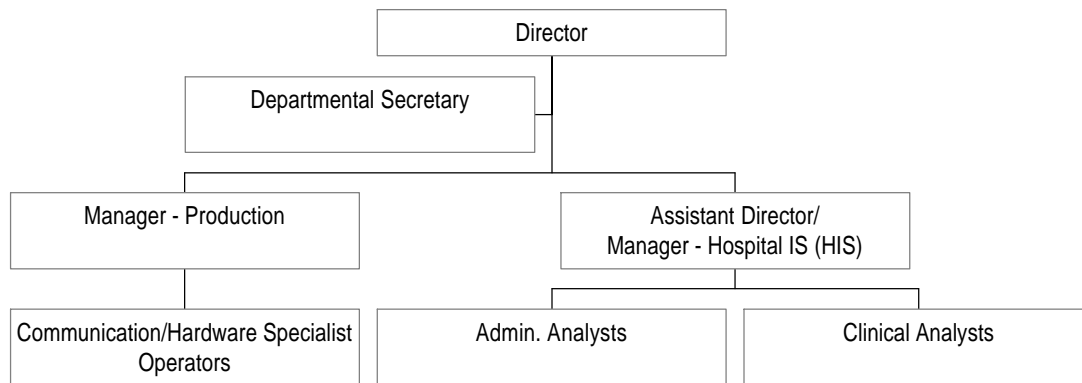
Figure 1

ENDNOTES

[1] Certain names and additional identifying information (such as organizational titles, locations, dates, etc) have been altered to protect the anonymity of the organizations and individuals involved in this case.

[2] Ibax was a joint venture between IBM and Baxter Systems. The purpose of this venture was to "sell computer software to hospitals and physicians" in the "$6 billion American market for health-care information services." Even though Ibax was based in the United States, Ibax Canada, a subsidiary with about 40 employees was formed to serve the Canadian market.

[3] RPG3 is a "punch-card emulator" programming language that was a developed in the 1970s. This language was developed to help migrate applications from a punch card environment to a newer data entry environment. Because Baxter's systems were written in RPG3, their applications had certain technical peculiarities limiting their ability to be easily customized and integrated with other applications.

[4] This was a third-party software suite that was to be customized by Ibax to fit the needs of GVH and the Canadian health care sector in general.

[5] This suggests that Ibax simply changed the time format from a twelve-hour (am/pm) standard to a twenty-four hour one.