Building a Paperless Service:
Making the Internship Connection

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EXECUTIVE SUMMARY

Central Ridge University[1] (CRU) is a large, research-oriented university composed of 10 major colleges, connecting over 15 branch campuses, and offering various continuing, distance, outreach and executive programs. One of the major colleges of CRU is The College of Business Administration (CBA). CBA maintains an optional internship program for its undergraduate and MBA populations. CBA strongly recommends its students to experience the corporate world by doing an internship before their graduation. Also, CBA students seek the internship experience to complement their academic courses.

The Internship Office of CBA is charged with the responsibility of facilitating students' contacts with corporate clients. In order to do so, the office must gather, record, and disseminate information to students and to corporations. In addition, the information must be kept private, accurate, and comprehensive. Typical information processes existing in the Internship Office relied heavily on paper entries, paper duplication, and mailings. However, in the Internship Office, the use of technology was lagging. An end-user within the Internship Office was enlisted to develop an information technology solution to the paper-intensive tasks of the office.

Issues of the case study include (1) the organizational behavior issues to overcome when implementing information technology even in an enthusiastic and sympathetic organization, (2) the difficulties in defining a system by an end-user even a sophisticated one, and (3) the obstacles of implementing a satisfactory system under tight time and security constraints even with the cooperation of a systems department.

BACKGROUND

Central Ridge University (CRU) is a large, research-oriented, public university composed of 10 major colleges, connecting over 15 branch campuses, and offering various continuing, distance, outreach and executive programs. Through this massive educational network, approximately 100,000 individuals each year study in a program affiliated with CRU. In order to keep pace with the demands of its broad-based and popular programs, CRU is an aggressive leader in deploying information technology in order to realize its mission to provide high-quality education to its students.

About five years ago, CRU instituted email accounts for all of its students, staff, faculty and administrators — regardless of their discipline, interest, or desire. CRU wanted its primary participants to have an electronic, always available, always vigilant access to one another. From the

president of the university to the night watchman to in-coming freshmen, CRU issued email accounts. To support the effort, introductory and training sessions were provided to familiarize everyone; electronic kiosks were established for quick communications; state-of-the-art, high-capacity labs and networks were installed to handle the increased resource demand; information centers were staffed to be readily available for end-users' questions and university-wide licensed, communications software was offered to all university individuals and units. What resulted was a university-wide temperament for doing work, academics, communications, and appointments electronically without constraints.

One of the major colleges within CRU is The College of Business Administration (CBA). CBA accounts for about 10% of the student population of CRU, approximately 10,000 students. Its offerings span baccalaureate, masters, MBA, doctoral and executive programs through resident and distance education. Several of its departments are nationally and internationally recognized, often being forerunners in their fields.

A significant feature of CBA is the strong ties it fosters with corporations. Through a variety of programs, CBA cultivates relationships with corporations. Likewise, corporations eagerly strive to align themselves with CBA. The Internship Program realizes one strong symbiotic association between CBA and corporations. Initiated in 1978, this program helps CBA students find four- to eight-month work assignments at corporations prior to graduation. Students receive the benefit of practicing the skills from the classroom in a "real" work environment. Companies receive the benefit of assessing a student's skills without a long-term employment commitment. In fact, during downturns in the economy, companies use their internship population as pre-screened employees and students can usually rely on their internship site for a job offering.

The Internship Office manages the Internship Program of CBA. The office has counter-parts in the other colleges of CRU, but acts independently of these other internship offices in all aspects of its functioning. The Internship Office is one part of a group of services handled by the Corporate Support Alliance of CBA, an administrative unit reporting directly to the Office of the Dean. The organizational structure of CBA is presented in Figure 1; the Internship Program is presented in Figure 2.

The organizational linkages within the Corporate Support Alliance enable direct interactions between students, faculty, the business school, and the university with corporations — at the executive, division, or department level. Leadership of the Internship Program, however, is the

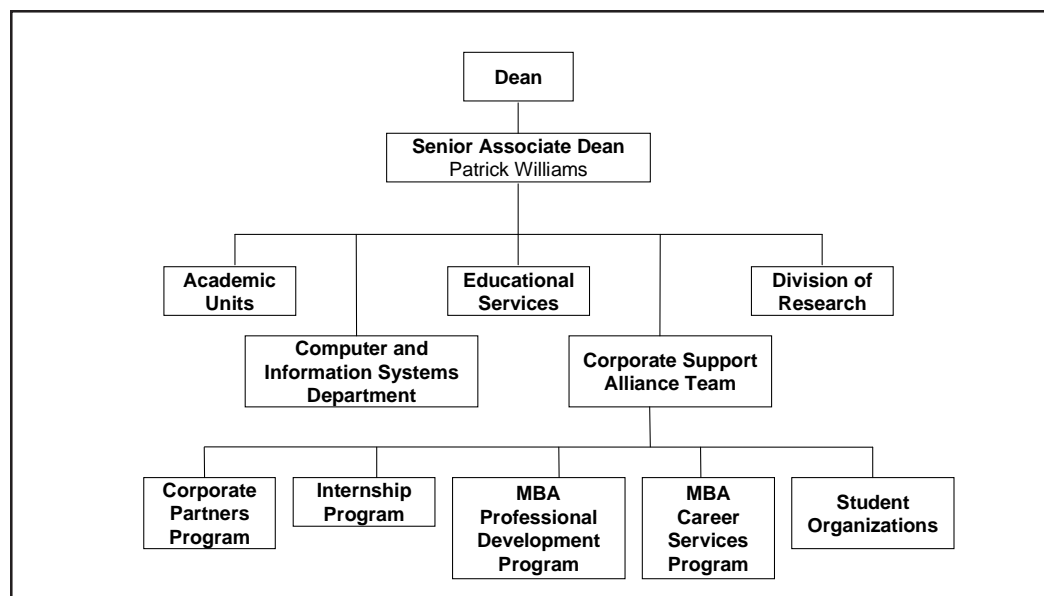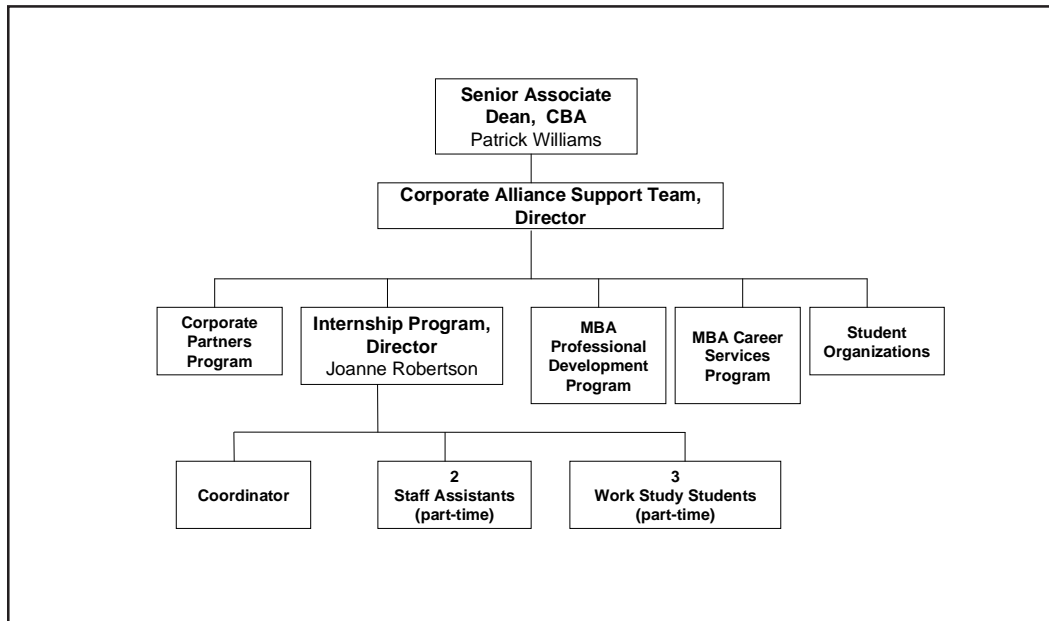*Figure 1: Organization Chart for CBA and Primary Administrative Units*

Figure 2: Organization Chart for the Internship Program

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                    ┌─────────────────────┐
                    │  Senior Associate   │
                    │    Dean,  CBA       │
                    │  Patrick Williams   │
                    └─────────────────────┘
                              │
                    ┌─────────────────────────┐
                    │ Corporate Alliance      │
                    │ Support Team, Director  │
                    └─────────────────────────┘
   ┌──────────┬───────────┼──────────────┬──────────────┐
┌────────┐ ┌────────────┐ ┌──────────┐ ┌──────────┐ ┌────────────┐
│Corporate│ │Internship  │ │   MBA    │ │MBA Career│ │  Student   │
│Partners │ │Program,    │ │Professional│ │Services│ │Organizations│
│Program  │ │Director    │ │Development│ │Program │ │            │
│         │ │Joanne      │ │ Program  │ │          │ │            │
│         │ │Robertson   │ │          │ │          │ │            │
└────────┘ └────────────┘ └──────────┘ └──────────┘ └────────────┘
        ┌────────┼──────────────┐
   ┌──────────┐ ┌────────────┐ ┌──────────────┐
   │Coordinator│ │    2       │ │      3       │
   │          │ │Staff       │ │Work Study    │
   │          │ │Assistants  │ │Students      │
   │          │ │(part-time) │ │(part-time)   │
   └──────────┘ └────────────┘ └──────────────┘
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responsibility of its director, Joanne Robertson.

Specifically, the Internship Program provides services for two primary clients — students and companies. The first clients, the students, must be pursuing a major or a minor offered by CBA and must be enrolled at the main campus location. The location constraint exists to ease the interviewing process. The program does not place any grade point average criteria on students seeking its services.

The second clients, the companies, differ by size, industry type, and geographic location. The Internship Program has partnered with firms listed as Fortune 500 as well as with small firms local to the university. Global corporations with international hiring needs also connect with the Internship Program. The participating companies gain the advantages (1) of providing a source for temporary employees as well as for future, permanent employees, (2) of training and orienting employees through a low-cost, but high-quality avenue, and (3) of increasing the employee retention rate by enthusing their permanent workforce with the energy of the new hires.

SETTING THE STAGE

In the 90s, the Internship Program experienced tremendous growth in its student applicants and in its corporate affiliates. In the 1992/93 academic year, 633 undergraduate students had applied; 303 were placed. By the 1996/97 academic year, the number had nearly doubled to 1,245 students applying, 596 being placed. Similarly, the companies seeking interns also grew. In the 1996/97 academic year, the program saw a 23% increase in the number of actively recruiting companies to a current level of 235.

Like its parent organization, CBA usually advocates information technology options. Also, CBA students — indoctrinated with the electronic dogma of their university — seek electronic access for their tasks that included communicating with the Internship Office. The Internship Office, however, is a paper-driven office. By 1996, its entire annual postal budget of $4,000 was used to cover its mailings. While this situation is not unthinkable — given the amount of postal traffic required by the processes, it is unthinkable — given the electronic expectations of the students, of the companies, and of the university.

Even as an administrative unit, the Internship Office lacks information technology. Connectivity to the Internet and to CBA-affiliated intranets is non-existent. The office keeps all information about its clients manually, not utilizing database technology. Email access for the director of the

office is through a mainframe mail utility, EMC2. The office staff had no direct email access. For the most part, the office computers are word processors. Capability with computer-based office automation is not a requirement of the staff positions.

This backwardness on the part of the Internship Program is not lost on the director, and these points are addressed in her strategic plan (submitted in mid-1996) for the office. Improvements in the technology base, increased space allocations, additional staff appointments, training opportunities, and more faculty involvement are the major items desired by the director. The director position needs to be updated, too. Rather than being a 10-month position, the position of director should be extended to a 12-month appointment. In the early 1980s ten months was sufficient time to handle the flow of traffic for internships, but with the increased volume of clients — students and corporations — and with maintaining paper-based processes, the Internship Program is becoming overwhelmed. Currently, the duration of the director's appointment matches the duration during which the Internship Program is open to students.

Changes would not be easy, however for a variety of reasons. Due to the organizational connection of the Internship Program to the Office of the Dean, any improvements to the Internship Office require direct consultation with and approval by the Office of the Dean. As a high-level administrative unit, the Computer and Information Systems (CIS) Department of CBA handles all technology improvements. (Its organizational layout is shown in Figure 3.) Due to the high profile of the Internship Program with corporate clients, changes in the processes of the Internship Program need to be handled judiciously. Upgrading the Internship Program would require administrators, directors, and top-level systems staff coordination and approval.

Although Robertson had directorship power over the Internship Office, the inclusion of information technology brought the CIS Department into the scenario. More importantly, since the

Figure 3: Organization Chart for the Computer and Information Systems Department
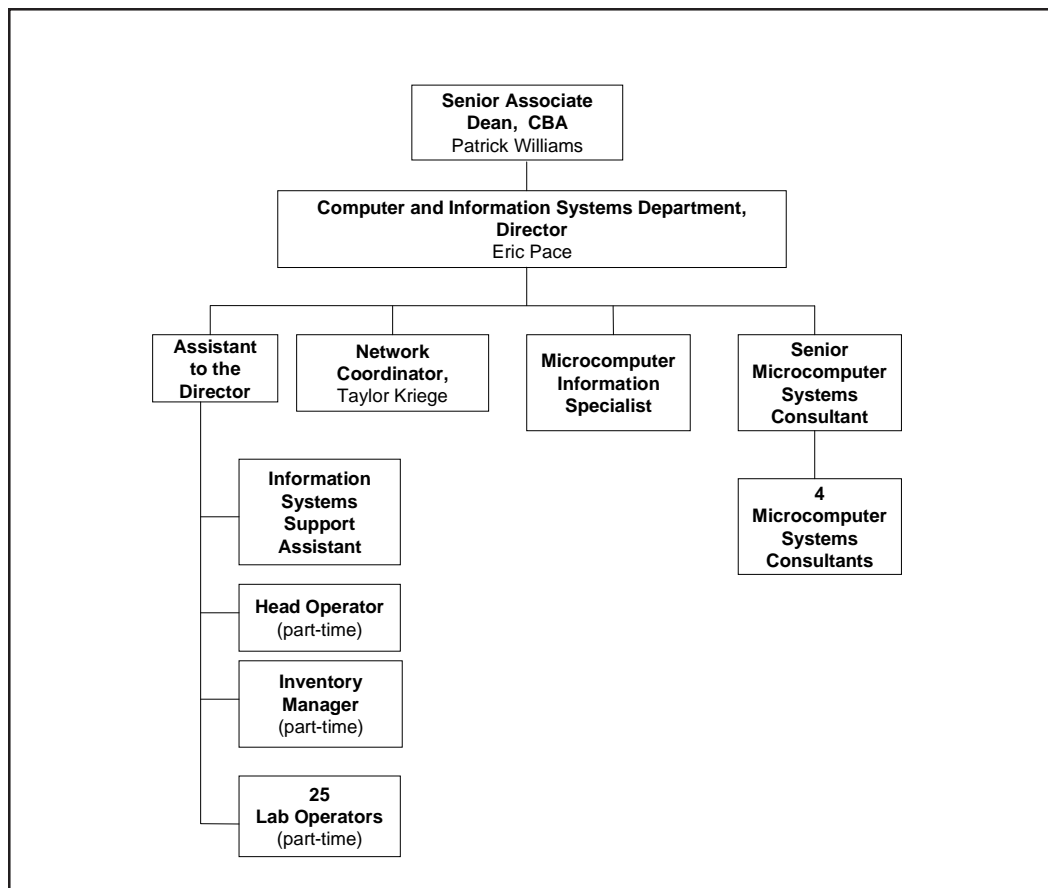
sought information technology required the network, Taylor Kriege entered the picture. Kriege's involvement is the linchpin in any technology solution requiring network services.

Kriege handles all new development of network-based processes for CBA — such as developing web-based services for the Dean's Office of CBA, initiating distance education links for the college, and establishing on-line course-links for high-profile MBA classes. His services are indispensable to CBA. Knowing this, he becomes a powerful figure in any network-based development project. Pace is not oblivious to the subversion power wielded by Kriege. Unfortunately, CRU does not have a huge technology-based population from which to draw employees nor does CBA have a large budget to coax high-demand professionals to its employ. In many ways, Kriege holds CBA hostage.

While Kriege's power is obvious, his leadership is completely lacking. Technical staff members who must interact with him in order to perform their jobs have a higher turnover rate than other staff members do. No one is directly under Kriege because he will not share his domain and because he repeatedly has alienated individuals who have temporarily been assigned to him.

Much has been written about the cultures and subcultures of organizations. Technology-based units often have a discernible subculture (Gregory, 1983; Krackhardt and Kildruff, 1990; Jermier et al., 1991). The subculture may function productively for the good of the organization or it may function maladaptively to the detriment of the organization. Kriege's subculture is whimsical — and as such, is a random element in any development project. Since CIS has no parallel resource for Kriege's competency, he goes unchallenged. For the most part, this arrangement is fine because his competency usually is highly in demand by units outside the technology group, dependent upon Kriege.

Kriege maintains his power over the organization by keeping himself as a limited, necessary resource. He completes projects of a high profile — such as those for the Dean's Office — in record time. If a project requires several technology competencies, his effort may be reduced. In these situations, the blame for the slowness in the project's implementation is spread across several parties. Directors and individuals outside of the technology group — who do not understand the interactions and needs of a technology-based project — will not be able to discern who is not contributing, who is causing the project to stall. Often individuals outside of the technology-based subculture see systems as being highly idiosyncratic. This perspective enhances Kriege's position with the necessary camouflage to be discriminating in his project priorities. Kriege also maintains his control from erosion by end-user development because of his responsibility over network-based processes. If the development effort requires the network, then the development effort will come head-to-head with Kriege.

Kriege's manipulations are not lost on Pace, but neither are his strengths. By judiciously selecting to be a master and a resource on high-profile projects, Kriege has protected his power base. While Pace and Kriege may disagree, the fact still stands that when Kriege performs well, Pace also shares in the success.
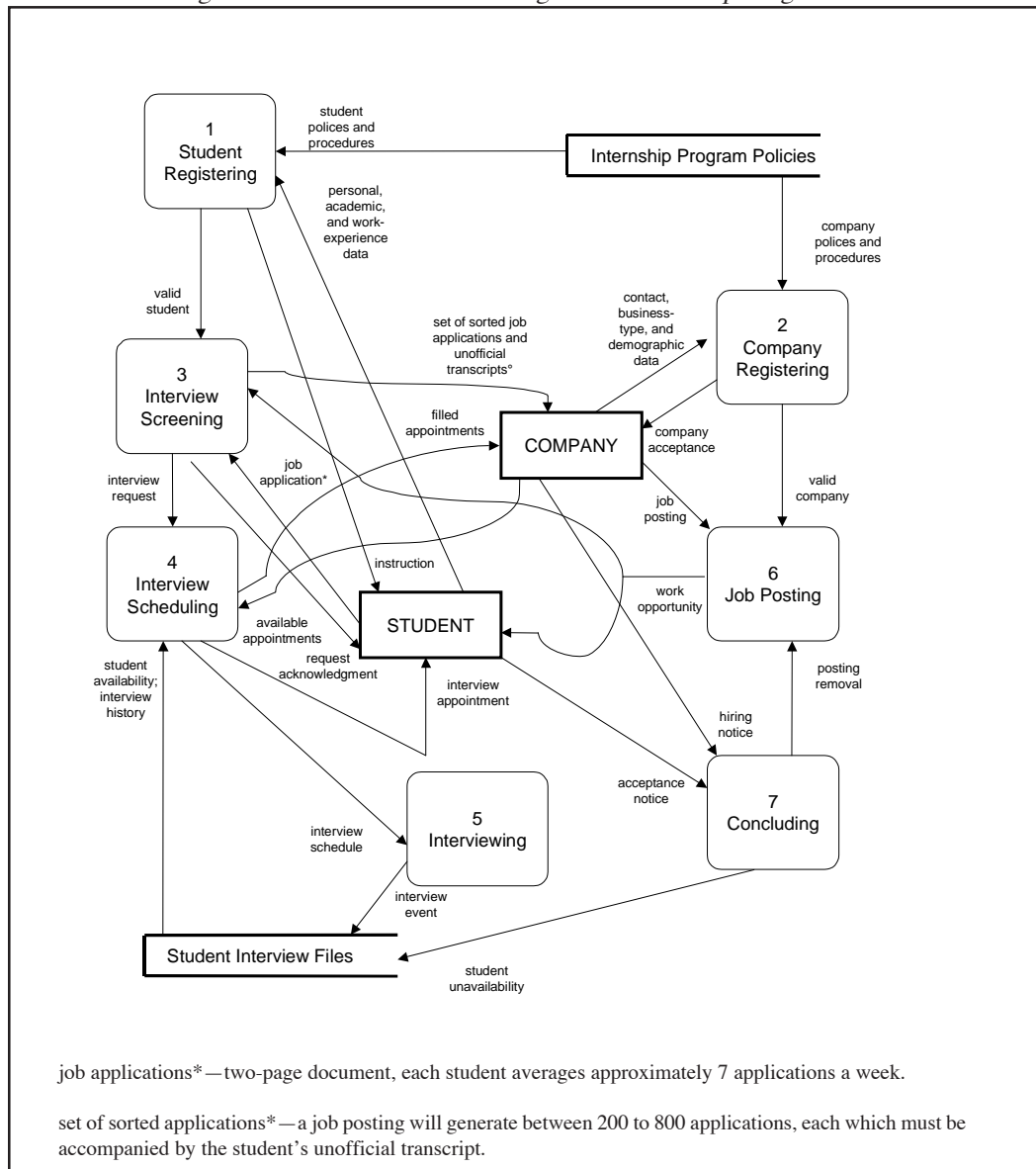
CASE DESCRIPTION

The Processes and Their Problems.

By the fall of 1996, the Internship Program had begun to concretely analyze its technology deficits. In order to gain insight into the specific changes, the director allowed a team of MBA students to perform a process improvement study on the program as part of a class requirement of theirs. The recommendations by the MBA-team paralleled what the director had previously outlined in her strategic plan, reinforcing her stand with CBA: the office needed to revamp its processes and to take advantage of internet-accessibility.

The processes of the Internship Office are shown in Figure 4.

Process 1: Student Registering. Each student is required to complete a personal data form, providing contact information, academic records, and work experience. The form must be updated each semester. As part of the Student Registering Process, the student is instructed

Figure 4: Level-O Data Flow Diagram of Internship Program Processes

job applications*—two-page document, each student averages approximately 7 applications a week.

set of sorted applications*—a job posting will generate between 200 to 800 applications, each which must be accompanied by the student's unofficial transcript.

about the policies and procedures of the Internship Office. This process identifies a valid student who may request interviews with companies.

Process 2: Company Registering. Each company must formally request to seek interns through the Internship Office. The company provides contact information, business-type identification, and demographic data. A "company" may be the corporate unit, a division of a corporation, a government unit, or even an academic research unit. The companies and their positions are screened to insure educational, well-managed, and beneficial experiences for the interns. Upon completion of this process, the company is notified of their acceptance into the Internship Program.

Process 3: Interview Screening. A student submits a completed job application for a position — physically posted on the bulletin boards of the Internship Office — to a drop-off box. The applications are collected every Friday. Upon collection, the applications are sorted by position, requests are checked for validity, unofficial transcripts are included, company sets are

mailed, and students are notified of the mailing.

Process 4: Interview Scheduling. Within the next two to three weeks, a recruiter for a company would receive the set, review the applicants, select a set of candidates to interview, and identify a set of dates to have campus-based interviews. Upon receiving notice of the company's intentions — notified by fax or phone, the coordinator makes a phone contact with all students in the set and informs them of their status. If a student has been selected for an interview, the student must physically come to the Internship Office and select an appointment time.

Process 5: Interviewing. The Internship Office manages the schedule of on-campus interviews. Companies and students meet in rooms arranged for by the Office.

Process 6: Job Posting. For each position, a one-page job description must be submitted and accepted by the Internship Office, at least two weeks prior to its posting. The acceptable positions are catalogued and posted.

Process 7: Concluding. Once a company selects an individual for a position, the Internship Office is notified and the description is physically pulled. If the selected individual is registered with the Internship Program and accepts, his availability status is changed, future interview dates are cancelled, and specifics about the offer (such as salary and work site) are collected.

Making the internship connection between students and companies requires several documents to be received, catalogued, verified, acknowledged, duplicated, and mailed. Only in the instance of notifying the coordinator with the list of selected interviewees (Process 4) is faxing an option. Most of the acknowledgements of events made to students and to the companies are handled by phone.

The students, the companies, and the Internship Office, itself, are inconvenienced by the time and effort constraints implicit in the processes. The Internship Office is located on the edge of campus and is not on the route of the average business student's travels. A student physically came to the office (1) to register with the program, (2) to check the postings, (3) to apply for positions, (4) to schedule an interview appointment, and (5) to be interviewed. A company physically contacted (through mail or fax) the office (1) to register with the program, (2) to submit job postings, (3) to supply an interview slate, (4) to supply interview dates, and (5) to interview. For both the company and the student, only the interview needed to be a physical contact; all other events could have electronic substitutions.

These typical, clerical procedures were not effective as the Internship Program grew. The increase in the office traffic, alone, made the office difficult to access, let alone, to work there. Staff members felt increasingly pressed for time. Some students stopped using the service of the Internship Program because of its time-consuming, tedious procedures. Companies complained about the time pressures placed on them to provide early notice of a position and then also to provide quick turn-around on their hiring decisions.

Proposed Solutions

In early 1997, Joanne Robertson, the director of the Internship Program, had her (part-time) staff investigate pre-packaged software programs that would incorporate database and web technology together. Her goal was to provide the office with a paperless system that required minimal to no amount of technical expertise. The selected package was a product by FirstPlace Academic Software, Inc. (Throughout the remainder of the case, the product will be referred to as FirstPlace.)

Knowing that any technical changes in the office would require the help and support of the CIS Department, Robertson requested the network coordinator, Taylor Kriege, to evaluate the feasibility of the package. FirstPlace Academic Software assured Kriege that the software would be compatible with the Banyan network used by CBA. When asked directly by Kriege, "Is FirstPlace able to work with a Banyan networked system," the reply was consistently, "Yes." With these assurances, the CIS Department gave their administrative approval for the purchase of FirstPlace. In the summer of 1997, the Internship Office used its funds to purchase FirstPlace, sent its staff for training, and scheduled work orders for the installation. Unfortunately, FirstPlace and the Banyan network were not immediately compatible and could not be made compatible — a fact that did not become verified until late 1997.

In the fall of 1997, the Internship Program hired a technology-savvy, work-study student, Jacob Billings, to develop a custom-configured, interim solution until the difficulties with the purchased software could be resolved. Billings was competent with systems, but his major, accounting, was not a systems-related one. Unfortunately, at this time, the Internship Program has entered another fully packed, 10 months of operation. No solution could be speedily implemented due to time constraints on the Internship Program, its staff, and the CIS Department staff.

Billings proposed a system with the limitations and capabilities of the Banyan network, the Internship Program, and the CBA community in mind. Data was to be collected from students and from companies via web-based forms. The forms would reside on a secure-socket web site. (A secure socket is an encrypted portion of the Internet.) Pages and data transferred from a user's terminal to a web server were to be encrypted. The web server would use a Perl script to transform the data into an email message. The Perl script would call the encryption program PGP (Pretty Good Privacy) (Zimmermann, 1995), would encrypt the email, would send the message to a staff member and would unencrypt the email. The email message would be handled by macros within a Microsoft Access (Access) database to convert the email text into password-protected, table data.

Job postings could be collected from companies via paper or electronic form. The information would be converted into an HTML document and electronically posted to the web. Students would review these postings and would submit an electronic form to request an interview. The application data and unofficial transcripts for the set of all students requesting interviews for a position would be sent from the file server to the company's fax using Microsoft Exchange.

In fall 1997, the Internship Office believed it had a choice between two alternatives: (1) wait until the pre-packaged software became useful and continue with the manual system or (2) wait until the pre-packaged software became useful and in the interim implement the custom-built system. In order to make the best decision, Billings analyzed both in terms of the option's operational and technical feasibility. (See Whitten, Bentley and Barlow, 1994, pp. 811-833 for an explanation of how to perform these feasibility assessments.) Schedule feasibility was less of a concern at this time; another 10-month interviewing cycle had begun, making all other activities conducted by the Internship Office of secondary importance — including process renovations.

To classify the development situation at the Internship Office, he also examined it with respect to James Wetherbe's (1988) PIECES framework. He conducted these analyses to discern if the FirstPlace package should have ever been pursued or if a custom system would have been better. The analysis was of interest to him personally because (1) he wanted to understand project management methods from an IS perspective rather than from a pure accounting perspective and (2) he wanted to understand how the custom system fared with respect to the packaged option.

Also, economic feasibility was not relevant because of the sunk costs of the purchase and training. If the CIS Department could identify how to interface FirstPlace with the security protocols of the Banyan network, then the investment in FirstPlace stood a chance of continuing. If FirstPlace could not interface with the security protocols of the Banyan network, then a different alternative — either manual processing or another automated alternative — would be necessary. However, when Billings did his feasibility comparisons, he was seeking to identify if FirstPlace should ever have been a target system for implementation. At the time he started his comparisons, the technical difficulties with FirstPlace were hoping to be resolved. Ultimately, security and ease-of-use would be the major issues in the decision.

Operational Feasibility Comparisons

The performance of the new system is a key consideration for the Internship Office, but both options give the office better throughput and response times to its processes. The office would not require firms or students to use an Internet connection, but would offer the choice. With this strategy in mind, the Internship Office could enhance their operations, could respond to the wishes of their clients, and could continue to place students in meaningful positions.

In terms of enabling the office to use the collected data in a timely and appropriately formatted mode, the custom system has an advantage. At the end of each day, macros of the Access application would convert the collected data into an Access form. Then, the Internship Office could use the query

and report generating capabilities of Access to probe and to display the data. FirstPlace would gather the data and make it available to end-users immediately through a Paradox database. Unfortunately, the query interface and report generator of FirstPlace are not able to compile and to display the data as needed by the Internship Office. While the custom system requires a day to structure the data into usable form, more than a single day of staff time would have been consumed in order to structure the data available through the FirstPlace version.

In terms of how either system would impact the economics, efficiency, and service of the Internship Office, both are acceptable choices. Both offer to reduce the paper costs, to reduce the postal expense, and to save the costs of the staff's time for sorting and mailing applications to companies. Both systems offer increases in efficiency in other ways, too. Both offer a scheduling feature, effectively eliminating the need for students to physically travel to the Internship Office for interview scheduling. Both collect student and company data online through Internet interfaces. This collected data is available for companies as well as the Internship Office to review online.

The major difference between the two systems is the security control offered by the option. Due to privacy issues, student data must be safeguarded with the utmost care. The custom system transmits data in an encrypted form during the entire transmission. Forms and data would be sent from the server to the browser using secure socket protocols. Data sent back to the server would use a secure socket protocol, also. FirstPlace would transmit the data as plain text. Forms and data transmitted from the server to the browser are unencrypted. Furthermore, FirstPlace did not have the capability to use secure socket web pages or any other type of encryption.

Finally, with respect to flexibility, the custom system would be better. The Internship Program needs a process solution to adapt as the program changes and grows. A software package would offer changes through its updates and new versions, but these changes may not produce features desired by the office. FirstPlace is limited in its server option and in its Web-site software. Alternatively the custom system offers greater potential for flexibility because it is customized. An individual as technically proficient as the work-study student, Jacob Billings, could add any changes. Also, making any changes to the custom system would be easier to make as compared to trying to revamp a purchased package to fit a unit's data needs.

Billings did not apply business re-engineering methods to the processes of the Internship Office. In the field of business re-engineering the conventional wisdom is to inspect current processes for their efficacy rather than simply automating — applying information technology — to them. In the case of the Internship Office, the flow of data and information was prescribed in order to protect the privacy of the students and to control access to the companies.

In any software develop initiative, management support is required for its success. Robertson was in favor of any system to improve her office. Eric Pace, director of the Computer and Information Systems Department, who had final responsibility for the security of any CBA-related system, could not accept the security lapse inherent in the FirstPlace option. With his insistence and support, the custom system took sway over the pre-packaged option. With Pace and Robertson favoring the custom system, Patrick Williams, senior associate dean of CBA, provided his administrative backing to its development.

Equally important as management support is end-user support. Initially, the staff members of the Internship Program were concerned that a custom system would be inherently more difficult to use than a packaged system. Also, they felt better prepared to use the packaged system due to their training over the summer. The staff members were particularly concerned about their ability to formulate queries.

Although they were hesitant about the ease of use of the custom-built system, pieces of the custom system became part of the Internship Office by late fall 1997. As the staff members were freed from some of the day-to-day processing requirements of the paper-driven system, they were able to focus on serving the clients, on evaluating the strategic role of the office, and on learning the manipulations of the custom system. With Billings present in the Internship Office on a daily basis, the staff had immediate answers to any of their questions. As Billings added pieces to the custom system, he would walk the rest of the staff through addition and handled their concerns as they arose. More so, as the staff began using the custom system, the information-retrieval potential of the system

became more clear to them. Since the staff knew the data and processes intimately, their questions were regular, parametric queries. Then Billings easily added any new parametric queries to the custom system. Summary reports and queries were also well articulated due to the clear boundaries of the purpose of the Internship Office. Formal training on the custom system was never scheduled; the staff learned the system by using it, by its straightforward design, and by the presence of Billings as its technical liaison. Usage of the system soon swayed the staff in favor of it and eased any concerns they had about it.

Technical Feasibility Comparisons

To assess the technical potential of the two options, Jacob Billings compared the practicality of the solution, the availability of the solution's components, and the availability of relevant technical expertise. He compared the systems early in fall 1997 in order to promote his custom system while the problems with FirstPlace were being examined. Practicality is an important aspect of any undertaking. Both options provide the Internship Office with mainstream, reasonable approaches. Both options need an additional component to be procured, but in neither case, is the lack of the component a barrier to its implementation. FirstPlace requires the specific Web-site software to be downloaded from a Web site; the custom system requires a secure socket Web site and the PGP software.

In terms of technical expertise, both systems have their disadvantages. The network coordinator, Kriege, could easily install FirstPlace, but the Internship Office staff did need to go through the training program provided by FirstPlace Academic Software — which they had done in the summer of 1997. The implementation tasks of the custom system are split between Kriege and Billings. Kriege handles the secure socket issues. Billings handles the specific tasks required by the Internship Office to interact with the web-interface such as building the database, training the staff, writing the data conversion scripts and testing the system. While the high-level skills of Billings would be necessary for the development of the custom system, a competent staff member could handle its daily operation and maintenance.

In terms of person-hours required — and the associated costs — for developing the two systems, the FirstPlace option required approximately 8 hours for installing and testing and 80 hours for the training of the two staff members for a week off-site, totaling 88 hours. Due to the expense of the individuals involved and the travel expense of the training, the packaged-software option costs about $10,000. The custom system required approximately 50 hours for database structuring, 5 hours for installing the secure socket, 20 hours for creating and testing the scripts, 20 hours for the web-site construction, and 10 hours for the Perl script addition, totaling 105 hours. Training on the custom system was not evaluated because the staff never had to suspend their normal work responsibilities for training sessions. The training was "on the job". Since the major portion of the work was handled by the undergraduate assistant, the expense of the custom system is about $2,500.

Organizational Interactions.

Through most of fall 1997, the custom system was projected as the interim solution while the suitability of using FirstPlace with a Banyan network was investigated. When it became apparent that FirstPlace was not compatible with the network and could not support secure processing, the custom system became the target to implement. Robertson made this decision once Kriege could not obtain any technical confirmation to indicate that FirstPlace would work — ever — with a Banyan network.

However, this change also caused the Dean's Office and the CIS Department to become more directly involved in the process. Coordination meetings routinely involved Williams, the Senior associate dean; Pace, the director of the CIS Department; Robertson, the director of the Internship Program, and Billings, the undergraduate assistant, but not Kriege, the Network Coordinator. In other circumstances only Pace, Robertson, and Billings would have met. Williams entered the meetings as a high-level connection between two units under his authority, the Corporate Support Alliance Team and the Computer and Information Systems Department. What had begun — as simply an effort to upgrade a service unit of CBA — became a focus of the administration.

Since the Internship Program is under the direction of Robertson, she had the responsibility for coordinating all of the many tasks required for the system's construction.   However, she had no authority — and was given no authority by Williams — over the individuals outside of her unit, within the CIS Department, who would handle the network aspects of the custom system. With this difficulty, the timeline for the custom system was solely dependent upon the auspices of the CIS Department since all tasks directly under Robertson's control had been completed.

The CIS Department did not see its tasks on the custom system as a priority, but placed the work on its schedule. Ironically, the only task to be placed on the schedule was the Perl script since the secure socket web site had been completed in November 1997. Without the Perl script, the custom system was stalled. For the want of this simple piece of code, the final stages of the custom system could not be realized. The Perl script allowed the custom system to interface with the network, Kriege's domain.

Billings could have easily developed the script, but was not permitted. CBA departmental protocols firmly classify systems-related tasks as being either inside or outside the domain of the CIS Department. Once a task is classified, the culture of CBA dictates that progress on a task is under the authority of the CIS Department director, Pace. However due to the established delegation of authority within CIS, Pace left the scheduling and work decisions of network-related tasks to Kriege's discretion.

Pace's laisser faire attitude towards Kriege's domain replicated the culture across and within the service units of CBA. Pace might get annoyed with Kriege, but he would not interfere. Just as Pace would not directly interfere with Kriege's domain, Williams would not directly interfere with Pace's domain. Robertson and Billings could only petition Kriege for a change in the work schedule, but could not induce the effort. Williams expressed displeasure at the lack of movement on the project, but unless he was willing to revamp the lines of control and authority throughout CBA, the system would be stalled. This situation was made evident at a meeting between Williams, Robertson, Pace, and Billings (note, Kriege is not present):

Williams (pointing to Robertson and Pace): I want you two to stop complaining about each other and get the job done.

With this, Williams is essentially allowing the normal power struggles to continue. Alternatively, he could have allowed Robertson to out-source the work pending from the CIS Department. However, out-sourcing the work would have been a change to the CBA organizational behavior, too, and not ever really considered.

System Status
By the end of fall semester and Billings's graduation, the custom system was not fully completed. In fact, by June 1998, the system still had not been completed.

CURRENT CHALLENGES / PROBLEMS FACING THE ORGANIZATION
When the Internship Program began to upgrade its processes, technology seemed to be the greatest hurdle. Twelve-months later, the greatest hurdle was the organizational behavior of CBA. Technology can be bought, learned, or "worked-around." If the flow of control within an organization remains strictly along lines of authority, then the success of a project may not lie in the technical abilities of its participants.

The main challenge expressed by this case is the one faced by CBA: How to deploy interdepartmental systems without involving the highest-level of management that links the departments while maintaining standard lines of authority. Many organizations, like CBA, rely on a systems division to realize information technology within the corporation. These organizations rely on the director of the systems division to be aware of the importance of a project, to be sensitive to changes in the importance, and to communicate these changes to the staff. Once Williams became

a participant in the coordination meetings, the importance of the project had increased by default. Also, the presence of Williams in the meetings implied the project now spanned departmental lines — the project would effect all units under Williams's authority. Yet, Pace did not effectively communicate this change to his staff, particularly Kriege. And yet, Robertson was not empowered by Williams with his authority to influence the staff. Once, hierarchical lines of authority are reinforced, the success of an interdepartmental operation will be under the good will and auspices of the systems group.

ENDNOTE

[1] "Central Ridge University" is a pseudonym as are all names and labels in the case. In all other respects, the case is an accurate depiction of the situation. The data comes from authoritative, but private, sources.

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