

ISECON 2002
San Antonio, Texas
October 31 - November 3, 2002

Local Industry - Student Team Collaboration on IT Projects: Experiences with a Multi-Semester Experiential Learning Course Sequence

Michael L. Frandsen (frandsen@juniata.edu)
Loren K. Rhodes (rhodes@juniata.edu)

Juniata College, Huntingdon, PA, USA

Abstract

Our liberal arts college has recently instituted a new undergraduate Information Technology program that includes a three-semester experiential course sequence called Innovations for Industry as a capstone experience. These courses provide students with a multitude of experiences commonly found in the workplace: collaborating in team settings, implementing unfamiliar technologies, dealing with changing user requirements, working across functions and levels of an organization, managing projects, and presenting information about the projects to a number of audiences. A complement to traditional internships, Innovations for Industry provides a more controlled experiential environment for the students. The course sequence has formally now run for four semesters. This paper describes the course and our experiences.

Introduction

In 1998, our school, Juniata College, a small, rural, four-year liberal arts college in Pennsylvania with an enrollment of 1300 students, was presented with a generous financial gift and challenged to develop a unique Information Technology (IT) program consistent with the liberal arts mission of the college. The initial goals of the IT program were to:

- be interdisciplinary by building on the liberal arts tradition of the college and collaboration among existing departments
- combine communication, business, and problem solving skills with a solid technology background in our graduates
- ensure significant industry experience into the program
- develop management skills for success in leadership roles

- develop an entrepreneurial mindset so that a student could create an information technology product or service and successfully market it
- eventually integrate information technology into all programs of the college

To meet this challenge and achieve these goals, faculty members from the Accounting, Business and Economics department, English and Communications department, and Mathematics and Computer Science department along with interested student representatives met as a task force over the course of 18 months to devise a plan for the development of the IT department and its curriculum. In addition, we drew on the expertise of a number of industry leaders and a network of alumni working in the IT field to form an Advisory Board to provide guidance in terms of what industry would like to see in our graduates.

The program, described briefly below, was formally launched in the 2000-2001 academic year. The program educates students in the technology skills of today, but, because technologies are transient, our vision goes well beyond the development of specific technical skills and knowledge. In the face of rapid change, our program emphasizes the development of skills that will serve the students and the organizations they join well into the future – skills in communication, management, problem solving, and teamwork. We strive to develop fearless learners. The program is deeply rooted in the liberal arts tradition of the college and is a collaborative effort among faculty from Computer Science, Business, Communication, and other departments on campus. The broad perspective a liberal arts education provides helps our students see the impacts and applications of technology on a global scale.

An important component of the program and one of its distinctive features is Innovations for Industry (I-4-I). The primary message from our Advisory Board was and continues to be that our IT program must produce graduates with a solid technology skill set, but also with skills in communication, management, problem solving, and teamwork. In short, our students need to be able to deal with the messiness that is organizational life and be able to address problems in real-time. We believe that developing these skills is best accomplished through experiential learning. While these needs are addressed via experiential methods throughout the curriculum, they are most clearly met through what we now refer to as “Hands-on IT” and “Fearless Learning” in the form of I-4-I. This paper presents I-4-I and the lessons learned in its first two years.

IT Program Overview

There are four components to the IT program as shown in Figure 1. The first component is simply the introductory

course “Principles of Information Technology.” This course gives a broad overview of the field of IT, covers basic terminology and concepts, and immediately gives students an opportunity to experience working in teams. It is essentially an on-line course to give them experience in this newest form of education in IT. The second component is the set of courses from the pre-existing Computer Science, Business, Communication, and Mathematics programs. The third component is a set of “Areas of Concentration” from which a student can choose to study further in depth or to which they can apply their IT background. Finally, the fourth component is Innovations for Industry. The IS ’97 curriculum model was not used explicitly as a guide, but the resulting curriculum is a reasonable implementation. The rationale for and further description of the curriculum are described in Rhodes et al, 2001.

1. Principles of Information Technology (3 credits) An introductory course to IT
2. Core Courses (42 credits) Comp. Science and Technology (17 credits) Communication (12 credits) Business (10 credits) Discrete mathematics (3 credits)
3. Areas of concentration (9 credits) Business Digital Media Communication Media Entrepreneurship Computer Science Hardware Criminal Justice Bioinformatics (under development) Individualized
4. Innovations for Industry (12 credits) Industry experience in teams of 2-4 students Three semesters, 4 credits each

Figure 1. Structure of the IT Program

Innovations for Industry (I4-I) Course Sequence

The cornerstone of the IT program is our capstone three course sequence, Innovations for Industry, or I-4-I. The courses are offered as IT 300, IT 380, and IT 480, and each course is offered in both the fall and spring semesters. The first goal of the sequence of courses is to provide students with real-world experience in the needed technical, business, and communications skills to function in different roles as members of an IT project team. An equally important goal is to provide service to the partnering organizations.

The sequence of courses requires teams of students to function as project development teams applying IT solutions to opportunities and problems in businesses and other organizations. Over the course of three semesters, it is hoped that the students are exposed to many aspects of systems analysis, design, development, and implementation, as well as project management tools and techniques. Students assume different roles in the projects as they progress including developer, designer, project manager, and tester/quality controller. As students move through the course sequence, they might move from roles in project implementation to roles in project planning and management to roles in selecting from among alternative projects.

The I-4-I courses are taught, or perhaps facilitated is a better word, by a team of four to six sponsoring instructors, one of who serves as coordinator. These faculty members collaborate in the design, delivery and review of the course and in the evaluation of the student teams and their projects. Each instructor sponsors one or two teams of students per semester and works closely with the students and clients. This design is recognized to be labor intensive. Faculty sponsorship of a two I-4-I teams in a semester is equivalent to teaching one course.

In the course, junior and senior students are grouped into teams of two to four and, along with a faculty sponsor, are assigned to an IT project with a local, partnering organization. Students are expected to spend about 15 hours per week on course and project related activities. Some of the work is done on campus and some is done at client sites. Weekly project status meetings are held with the faculty sponsor and regular project updates are provided to the partnering organizations. There are approximately five “all-hands” class meetings each semester. At these sessions, the teams share information about their clients and projects. Some of this information sharing occurs via formal presentations and some through informal discussion. The course concludes with a presentation of the project status and outcomes to the client representatives and faculty sponsor. Each team member also submits a written reflection/evaluation of the experience to the course coordinator at the end of the course. Grades are assigned based on evaluations by the faculty team and the clients and on peer evaluations completed by the students.

The prerequisites for the first I-4-I course include “Principles of Information Technology”, “Computer Science I”, the first two courses of the business program: “The Management Process” and “Behavioral Analysis of Organizations”, and the first communication course: “The Art of Public Speaking”. Most students have taken a number of additional technology courses by the time they take IT 300, but we feel an occasional student who has met only these minimal prerequisites and may be lacking in

technical skills can still satisfactorily contribute to the team effort.

No matter their level of prior preparation, I-4-I students are not necessarily expected to have a complete repertoire of the particular technical or other skill sets they will need at the beginning of the project to which they have been assigned. In fact, it is better that they do not since one goal of the sequence is the development of skills in “learning to learn” and for students to become “fearless learners.” Students are expected to secure the necessary background in order to sufficiently address the opportunities presented or problems to be solved. We take a just-in-time approach by providing faculty expertise and a variety of training materials, both printed and on-line, as needed. Often the client supplies the necessary materials for learning the technology, as well as the software and hardware of the technology. There is a sufficient budget to purchase materials if not available from the clients, sponsoring faculty, library, or other sources. The teams have access to a designated I-4-I study/development room in the building that also houses the main campus computing facilities. Campus IT professionals and facilities also serve as resources to the I-4-I students. The IT staff members are very willing to help and guide teams as needed.

As students progress through the three I-4-I courses, they work with students from different levels of the course sequence. All three courses in the sequence meet at the same time and location as teams are typically composed of students from each of the different levels. The faculty team makes project team assignments based on students’ different skill sets, I-4-I level, and past experiences. A student who is in his or her third semester of I-4-I will often serve as project team leader, though it is not a requirement that the IT 480 students serve as leader. Students normally do not specify what project they prefer to work on or which peers to have on their team. Given the credit load and team size, the productivity available to the client varies from one half-time to one full-time equivalent employee.

Significant collaboration occurs at many levels in the I-4-I course sequence. Students must collaborate with their peers, both within their teams and across teams, with their faculty sponsors, and with their clients. In many cases, this means working across functions and levels of the client organization. The result is an interaction and coordination of many people representing three constituents across multiple locations. Having to address the requirements of these various stakeholders is an important part of the learning process.

We have been fortunate in that we have had more potential clients in our local area (within a 30 mile radius) than we have had student teams to offer. Among our wide variety of clients are a one-person start-up technology consulting

firm, a school district, a regional bank, and a multinational corporation. We have also had various entities on campus as clients. In choosing clients and projects, we have sought client organization that will take a real interest in the students, expose them to their organization, and give them work that means something in their context. Our students need “face time” with external clients, people with whom they are unfamiliar and to whom they have no link. Virtual teams and various types of technology-facilitated communication may be “cool,” and we introduce our students to them, but we feel our students really need to practice with people. Our local client base affords the students the opportunity to have face-to-face communication with personnel at many levels of the organizations with which we partner. The local clients are also a good way for the college to provide outreach to the community, which is an economically depressed area.

We have looked for projects that will get messy, that will force the students to learn something new about technology or otherwise, and that will push students out of their comfort zone. It has not mattered to us if they are programming, networking, database, or media projects. It has not mattered to us if they involve research, development, or production. It has not mattered if they utilize the latest technology or the nearly obsolete. It has not mattered for each individual project, but across the projects we have sought a mix.

The projects have varied as widely as our client base - from web site construction and intranet development, to creation of programs for remote data entry via wireless handheld computers, to development of paper-to-paperless workflow analyses, to cost /benefit analyses of wireless high speed internet access solutions. The accepted project from a client is not expected to fit neatly into a 15-week semester. Rather, we prefer that a project spans the academic year and possibly into a second year with the prospect that a student, hopefully from the assigned team, works as a paid intern during the summer. Ideally, a student will work for no more than two semesters on the same project to assure a wider range of experiences; that is, a student may work the first two semesters on one project but then be reassigned to another, or switch after the first semester to another project that they may remain working on for two semesters.

The expectations of a student significantly change as he or she progresses through the series of courses. They also can differ within a given level depending on the backgrounds of the students. However, this has not been well defined. The only tangible differentiation we have made is that the IT 300 students complete a module on project management, essentially one of the four credits in that semester, that involves classroom instruction and exercises, including case studies, and one written case analysis. We use as course materials a project management text by Weiss and Wysocki (1992) and Harvard Business School cases.

The I-4-I course sequence is designed as a complement to the traditional internship experience. The I-4-I experience is spread over three semesters, rather than concentrated in a one-semester internship, permitting exposure to a wider variety of organizations, project and team management situations, and technologies. The projects and student interaction are in a much more controlled environment than is typical in an internship. The I-4-I structure, with each team having a faculty sponsor, allows for closer guidance than is usually found in an internship. Students invest 12 credits of their undergraduate career in the I-4-I sequence, which is equivalent to the number of credits earned in a full-time internship.

A Summary of I-4-I Projects and Clients

We have classified each of the projects into the following three general categories. The first category is “analysis”, which represents projects of cost analysis or product analysis. The deliverable from this type of project is typically a written report. The second category is “prototype”, which represent projects from which the deliverable is software development or system prototypes for future products or processes. Finally, we have “production”, which represents projects where the deliverable is a product ready to be put into use across a client’s organization to capitalize on an opportunity or solve a pending need. Figure 2 (attached as an appendix) categorizes the numerous projects according to the client and the semester. We can observe that projects vary from client to client and within often within a client. A short description of each client is provided as well.

Observations

We have identified I-4-I as the capstone experience and the hallmark of our program. It is a tangible symbol of “Hands-on IT.” We believe we are doing a number of things right in this experiential opportunity. Our experience is similar to that described by Jensen and Wee (2000). Their observations regarding benefits to clients and students and lessons learned corroborate with our experiences. Students have remarked on how much they have learned in the course of the three semesters in their evaluations of the course and their reflections papers each semester. This learning occurs at a number of levels:

- The immersion into a real life project with real deadlines
- The necessary collaboration with peers and team management
- Project management with timelines and critical paths
- The necessary communication with employers in its various forms of reports, dialogue, e-mail

- The need to learn or re learn a technology and directly apply it to a solution
- The need to deal with change as the project evolves in definition by the client

As evidenced by exit interviews conducted by our Advisory Board with our December 2001 and May 2002 graduates, I-4-I is a course sequence that our students like and one that our graduates see as valuable. However, the students did express concerns about whether they were adequately prepared, in fact suggesting additional prerequisite course before the start of the sequence. They also have expressed concerns about grading and uneven expectations across the project teams.

The course sequence is also having a positive impact on our enrollments. An IT professional who attended our fall enrollment event as the parent of a prospective student said we are “right on” with the things we are trying to accomplish through I-4-I. His son will join us next fall as a member of the class of 2006, a class that is more than double in size than that of the prior year.

The course is meeting the objectives we have set. The experience for students approaches a real world experience. They are being required to apply technical, business, and communication skills, though the application is not always even. The students have experienced the constant change that characterizes organizations and information technology today. We fall short of the real world at least in that part of the stakes, grades, are relatively low and in that the nature of our academic calendar makes it hard to simulate real timelines and makes it easy to walk away at the end of a semester or two.

We are succeeding in providing service to the partnering organizations. We have delivered important pieces of projects for our clients. They are satisfied. In some cases, it took a semester or two to develop a level of trust with the client that allowed the students to become involved in more important projects. In most cases, the work of the students has been put into use. One of the things that has worked out better than anticipated has been the integration of the students into the client organizations. We have been fortunate to work with clients who are truly interested in the development of our students and who have allowed them to become real parts of the teams in those organizations, working as junior partners with client employees. For the most part, these have not been projects that the student team has been given to work on by themselves. At the same time, more work has been done on campus and less at client sites than initially envisioned.

As far as the process goes, the students are experiencing multiple roles; however, the differentiation of roles within the teams and across semesters has not been great. It was not until the second year of the course that we had students

at all three levels of the course. Perhaps now that we finally have a group of students at all different levels rather than a cohort moving through together we will see more role definition and shifting.

An area where we are really falling short is that of developing the students' capabilities in identifying opportunities and problems and then thinking about how technology might be applied to pursue or solve them. The technology, rather than a situation that can be addressed by technology, is driving the projects most of the time. Along with this goes a deficiency in appreciating the impact of the issues on the organization and its ability to turn a profit and/or serve its customers and stakeholders. Some of these problems are due to the point at which we are getting involved with the organizations. In some cases, the technical solution has been identified and our students are there as part of the implementation team.

We are also falling short in terms of developing communication skills, especially in the areas of writing and listening. Technical writing was the last requirement we added to the IT program and most of our students are just now taking the course. We need to see if we can get students to take that course earlier and we need to develop consistent expectations across the curriculum for written work. The curriculum and I-4-I have placed a great emphasis on formal spoken communication. The improvement in that area is marked, thanks to the involvement of Communication faculty and to the fact that more of the students have had "The Art of Public Speaking" and "Professional Presentations" before beginning, or at least earlier in, the I-4-I sequence. We need to identify ways and places to emphasize listening in the same way we have emphasized speaking. Our students need to be better at interviewing and questioning the clients to really understand their situations.

The students have been forced to learn in real time as they have dealt with the dynamic environments in our client organizations. We maintain that the most important skill the students can leave our program with is the ability to learn and adapt. While we have provided great situations for them to develop that ability, we have fallen somewhat short in providing the resources – hardware, software, and technical expertise – from which to learn.

We have also fallen short in getting them to learn from each other across the projects. Most interactions between teams occur in a relatively formal classroom setting through the few "all hands" meetings. We need to create more opportunities for cross-project sharing. We have failed to capitalize on the learning that might have occurred across teams when they have been working with the same technologies.

With a few exceptions, we have not had projects that meet the ideal of transcending traditional semesters. We have had students involved in pieces of on-going projects across semesters, but our need to fill fifteen weeks and to assign grades has forced us to extend projects beyond their natural length and to deliver incomplete results because time is up. To some degree, we are slaves to our calendar. Even the break between our fall and spring semesters is long enough that most projects cannot have that much downtime, especially in today's fast paced environment. Also, the pace of change today is such that project life cycles are shorter and the speed with which priorities change is accelerating. In one case, we started a project with a client that met our ideal of spanning the academic year and extending beyond only to have the client's business conditions change such that the project was cancelled one month later.

We have had limited success in placing our students as interns in our client organizations, primarily due to the difficult business conditions they have faced and the elimination of their intern programs. On the other hand, I-4-I experiences have been important in helping our graduates find jobs in a difficult market and in placing current students as interns in organizations with which we did not previously have a relationship.

The students are still not exhibiting good project management practices consistently. Of course, we established in the first semester as we launched the course that they did not have good role models in the faculty. The module that has been taught as part of IT 300 for the last two semesters is a step in the right direction, but we may need to spend even more time up front developing and practicing those skills.

We have not done a good job of defining expectations of students at different levels of the sequence. Now that the pipeline is full we need to do that. We are especially concerned that we don't see the IT 480 students really stepping up to leadership roles. Not every IT 480 student needs to serve as the group leader; they won't all have that skill. However, they need to take more responsibility for the quality of their group's efforts.

Finally, we recognize the sustainability of the labor intensiveness will continue to be a challenge. At the same time Innovations for Industry is a unique program in which we have not truly measured its market draw and contribution to student placement.

The Future: Planned Changes

As with everything in IT today, change is a constant and a necessity for our program and the I-4-I course sequence. In the spirit of continuous improvement, we have the

following changes in process and/or under discussion based on the observations above and the feedback from students, clients, and our Advisory Board.

The preparation of the students via prerequisites and the sequencing of those courses as well as those taken concurrently was an issue quickly pointed out by the students. In fact, in the first semester the course sequence was offered the only prerequisite was IT 110, "Principles of Information Technology." The faculty quickly added the other courses identified above as prerequisites. Still, the students are asking for more preparation, primarily in the communication skills areas and to a lesser extent in technical skills preparation. In a relatively few cases, clients have also suggested more technical preparation.

Part of the prerequisite problem is simply a consequence of the start-up of the program. We had many students who "transferred" into the program when we started it and let them participate in I-4-I without some of the prerequisites. In bringing together an interdisciplinary faculty and set of courses, we also were unclear with regard to advising students about the best sequencing of courses. We have the prerequisites now in place and an understanding among the faculty of what sequences are best across the program. Few students waive the prerequisites as they go through the IT program in the designed sequence. As for the technical preparedness, part of the point of the design of I-4-I is to prepare students for the fact that they will experience being unprepared -- having to learn something new -- repeatedly in their careers. We make no apologies for students being asked to work on a project in which they must read documentation, research the internet, and query other professionals for help in understanding a new (to them) technology. This is a desirable situation.

We desire a higher degree of cross-project knowledge transfer. In the past year, we had a few projects in which the technologies were similar and different teams were solving similar problems. To improve the communication potential in these cases we are planning more informal sessions, primarily by instituting a weekly brown-bag lunch session for faculty sponsors and team leaders to share progress informally. While attendance won't be mandatory, it is hoped that each team will be represented on a regular basis to maximize the opportunity for sharing. We are also in the process of renovating a 27,000 square foot building wing for the IT department and related programs that will specifically provide for a large team projects development lab. The knowledge transfer is expected to more naturally occur there, as the space in the current study and development lab is limited to about two teams at any given time.

More project management training is clearly required for the students. We expect to re-tool IT 300 to be half classroom and half project rather than the one-quarter and

three-quarters partitioning of time, where the classroom time is primarily devoted to the rudiments of project management.

Grading is another area for improvement. We need to provide clearer expectations of deliverables, skills and leadership across the three levels a priori. Deliverables for the client certainly drive the project; however, deliverables and grading must be less client-driven and more faculty-driven than they have been to ensure consistency. Better, more consistent course deliverables will also provide us with better archiving of project outcomes. Our plan is to develop a set of written and other deliverables required for all projects and to provide templates for them. While our curriculum highly encourages collaborative work, we also recognize individual differences and thus contract grading on a student-by-student basis is another component we plan to include in the evaluation process. Furthermore, students want regular feedback to know where they can improve, thus mid-semester evaluations will be instituted.

While recognizing the value of the faculty labor investment in I-4-I, faculty resources are always under scrutiny. Most team sizes to this point have typically been two to three. We will likely be creating teams typically of four students in light of the fact that IT 300 enrollment is usually twice that of IT 380 or IT 480. Students in IT 380 and 480 devote their entire time to the project, the aforementioned revision of IT 300 only permits those students half of their time. The bottom line is to control the number of teams and thus the number of faculty sponsorships.

We must better leverage our own campus IT resources such as our network managers, webmasters and database administrators. We are fortunate to have an organization that recognizes the value of the I-4-I program and stands willing to provide the necessary support. The administrative IT unit on campus has recently undergone a reorganization and an additional staff member has been hired, in part to support I-4-I and other experiential learning activities in the IT academic program. Also, the renovation project mentioned above incorporates most of these resources in the same physical area.

Finally, we realize that I-4-I is not a replacement for some of the experiences found in internships. There is great value in the total immersion into an organization and its IT project that I-4-I does not permit. Internships typically take the student away from the comfort of the campus, another important part of the learning. We view internships and I-4-I to be complementary. Starting with the incoming freshman in Fall 2003 (class of 2007), we will be requiring internships of all IT majors. The students will be able to secure these internships during one or more of their summers between their freshmen and senior years. The internships are typically paid and do not normally carry credit, but will be noted as a zero-credit transcript entry.

Conclusions

We have described a unique experiential program in undergraduate IT education, Innovations for Industry, that meets numerous educational needs in such areas of project management, development and implementation, teamwork, life-long learning skills, and communication. The program meets client needs as well. Businesses in our economically depressed area often call upon the college to help with solutions to IT problems. We have described our experiences over the program's first two years. We are doing many things right, as always there is room for some fine-tuning. We have learned from our experiences over the first two years and hope the changes described above make this an even more worthwhile experience for all involved.

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Semester	Project ID	Project Type	Client Name and Location	Description of Client
Fall 2000	AGY-1	Production	Advanced Glassfiber Yarns, LLC Huntingdon, PA and Aiken, SC	An independent joint venture, established by Owens Corning and Groupe Porcher Industries of France to provide the best quality, highest performance fiberglass yarns to a wide variety of markets and end uses throughout the world.
	Avail-1	Prototype	Avail Technologies, Inc., State College, PA	A systems engineering firm focused on Intelligent Transportation Systems (ITS) and Mobile Data Communications technology.
	Kish-1	Production	Kish Bank Reedsville, PA	A locally owned and managed community bank offering a full range of personal and commercial banking services.
	CIS-1	Prototype	Juniata College IT Dept.	Academic unit
Spring 2001	AGY-2		Advance Glassfiber Yarns, LLC	
	Avail-2	Production	Avail Technologies, Inc.	
	FIT-1	Production	Fully Integrated Technologies and Systems, Inc. State College, PA	A consulting firm specializing in integrating technologies into business and production information systems.
	Kish-2	Analysis	Kish Bank	
	MBG-1	Analysis	Mutual Benefit Group Huntingdon, PA	A regional property and casualty company with consolidated assets of over \$100 million that includes five subsidiary companies. Represented by more than 200 independent insurance agencies throughout Pennsylvania, Maryland, and Ohio.
	HP-1	Production	Juniata College Health Professions Program	Academic unit
	CIS-1	Production	Juniata College IT Dept.	
Fall 2001	AGY-3	Production	Advanced Glassfiber Yarns, LLC	
	FCI-1	Production	Framatome Connectors International Mount Union, PA	A worldwide supplier of electronic and electrical interconnect systems and member of the Areva group with a presence in 29 countries. The company serves data, consumer, and energy markets throughout the world.
	FIT-2	Prototype	Fully Integrated Technologies and Systems, Inc.	
	Kish-3	Prototype	Kish Bank	
	MBG-2	Prototype	Mutual Benefit Group	
	SCSD-1	Prototype	Spring Cove School District Roaring Spring, PA	A rural district comprised of three elementary schools, a middle school and high school serving 2,135 students in a 98.6-mile area with a population 13,442. Spring Cove was awarded one of three prestigious PA Digital School District grants.
	CTS-1	Analysis	Juniata College Campus Technology Services	Administrative unit.
Spring 2002	AGY-4	Analysis	Advanced Glassfiber Yarns, LLC	
	FCI-2	Prototype	Framatome Connectors International	
	FIT-2	Prototype	Fully Integrated Technologies and Systems, Inc	
	MC-1	Production	Mifflin County Government Lewistown, PA	A primarily rural county with a population of 46,000 characterized by valleys of fertile farmland displaying diverse lifestyles-from Amish farms to modern dairies.
	SCSD-1	Production	Spring Cove School District	
	Wald-1	Analysis, Production	Wald (J. R.) Company, Inc. Huntingdon, PA	Wald provides industrial engineering and equipment contracting services to prisons throughout the country in the field that has become known as correctional industries.

Figure 2. I-4-I Projects and Clients