

Launching an Innovative Hybrid Business and Information Technology Program at Ryerson University—A Case Study

Kenneth A. Grant¹

and

Wendy Cukier²

School of Information Technology Management, Ryerson University
350 Victoria Street
Room S354
Toronto, Ontario, M5B 2K3

Abstract

The School of Information Technology Management at Ryerson University in Toronto, Canada, founded in 1999, has created an innovative program that combines Information and Communications Technology (ICT) with a solid business education. In this case study, the authors describe the planning and execution of the launch of the School and its first programs in a very short-time scale. Issues in curricular planning and development as well as operational challenges are discussed and lessons learned are summarized.

1. THE UNIVERSITY

Ryerson is one of Canada's newest universities, named after Edgerton Ryerson, the founder of public education in Ontario, Ryerson is an applied university that has grown out of its mid-20th century roots as Canada's first Polytechnical Institute. It became a university able to award graduate degrees only in the last decade and is widely recognized for its programs in Applied fields—Theatre, Graphic Arts, Media Studies, Journalism and Ontario's largest undergraduate business faculty, with almost 4,000 students. The Business faculty has four Schools—the original School of Business Management, the School of Hospitality and Tourism Management; Canada's only School of Retail Management, and its newest School, the School of Information Technology Management (ITM), founded in 1999.

Ryerson is a “city” university, located in the heart of downtown Toronto, the largest city in, and the commercial capital of, Canada. It has some 14,000 full-time students and teaches about 40,000 student course

registrations annually in part-time degree, certificate and other continuing education courses. Graduate programs are a recent introduction with approximately 500 students in several programs.

2. THE STORY BEHIND THE LAUNCH OF THE SCHOOL

The School of Information Technology Management had two predecessor programs, which had an overlapping curriculum. One program, called the “Business Information Systems (BIS) Option,” was within the School of Business Management and awarded a Bachelor of Business Management with a focus on combining business education with a relatively technical applications development stream (analysis, design, database and programming). The other was a separate School of Administration and Information Management (AIM), which had its historical roots in a Secretarial Studies program and awarded a Bachelor of Applied Arts degree. This AIM program had a basic level of business courses, a wide range of IT-related courses, including some work in analysis and design and a very

¹ kagrant@ryerson.ca

² wcukier@ryerson.ca

strong focus in the telecommunications area and on issues related to technology management. Each program was successful, was in demand, had a high placement success for its graduates, and was also facing challenges in staying relevant to its various constituencies.

The University, as part of its cost-cutting efforts, set up a faculty committee to consider how the two programs could be made more efficient, perhaps by cutting out some courses and sharing others. This group was given no funds, no time off from teaching, and was left to its own devices. When they surfaced, they proved that tenured long-service academics, who might be assumed to have a strong investment in the *status quo*, could be innovators. They said (paraphrased):

What we are doing now doesn't make sense. Let's merge the two programs and create a new and better one. We'll look across the world to see what other innovators are doing, then combine that with what we think is best from our existing programs.

It took as its mandate the question, "What would the best possible undergraduate program in the management of information technology look like?"

And, the University agreed. Less than six months after establishing this committee in January 1999, Ryerson's Academic Council (its "senate") approved the launch of the new School and its first undergraduate degree." By September of the same year, it took in its first students—over 300 of them!

Demand for the program has been so strong that the University is now bringing in more than 400 students each year, with a targeted, steady state enrollment of some 1,600 students. This is now the largest intake of any program in Ryerson—or possibly of any ICT-related degree in Canada.

3. DESIGN OF THE SCHOOL'S PROGRAM

Design of the School's structure and program was carried out in three parallel, but closely-linked, activities:

- **Curricular Development** for the initial undergraduate degree.
- **A Strategic Planning Exercise** to look at both short- and long-term issues related to the launch of the School.
- **A Resourcing Exercise** to find sources of talent, university facilities and external fundraising.

The first phase of all three activities was completed by September of 1999. Each phase is still in progress as the

School rolls out its curriculum and increases its intake and the range of its activities.

Curricular Development for the Undergraduate Degree

The fundamental effort has been the development and initial rollout of the School's core offering—a Bachelor of Commerce in Information Technology Management, offering two majors, one in Systems Development and Implementation, and the other in Telecommunications Management. Full implementation of the curriculum is a four-year task with the School entering its third year this summer.

The curriculum design principles were as follows:

- The new degree was to be a hybrid degree, combining business and technology at an equal level, and, wherever relevant, linking these topics at the course level.
- The degree was to meet well-defined industry criteria to meet an existing shortfall in IT-related education and be flexible to accommodate emerging trends.
- Use existing course offerings, wherever possible, with appropriate upgrade of the content to meet redefined needs.
- Define the technical focus of the program as the use and management of Information and Communications Technology ("ICT") in business.
- Recognize the need for the development of a wide range of non-technical skills. – effective communications (written and oral), change management, working in teams and training and development.
- Close involvement of industry advisors at all stages of curriculum and course development.
- An examination of options available to be innovative in teaching and learning, including technology-enabled learning, mobile computing and distance education, along with an intention to be active in research and publication in these areas to share experiences and lessons learned.
- Use of benchmarking techniques to examine program and course offerings at a wide range of business and IT schools across North America. In addition, the Committee looked at a number of external sources of curricular or industry research. These included:
 - The IS'97 Model Curriculum (developed by a collaboration of the ACM, AIS and AITP, as well as other interested parties)
 - The work of the SHRC in Canada to develop a Software Occupations Skills Reference Model.
 - Materials from the International Communications Association and the

Canadian Business Telecommunications Association.

The Strategic Planning Exercise

While the faculty, as a whole, focused on the curriculum development issue. A small group, including the School director, some faculty members, and university planners, developed a long-term or strategic plan. A *launch* version was produced in the summer of 1999 and updated to focus on some more specific academic priorities a year later. A third evolution is being developed in the summer of 2001 to respond to the fast-paced changes in the School's environment. Within the plan the School's overall mission was defined as follows:

The School of Information Technology Management is a key contributor to Canada's Information and Communications Technology Economy, through the lifetime development of graduates with current business and technology skills, and the sponsorship of related research.

The mission also addresses specific objectives, project resources needed, and measures of success.

Resourcing

Successfully creating a new school and new curriculum requires resources and a great deal of "sweat equity." The School and University worked at three levels to do this:

- Existing resources from the predecessor programs (faculty, space, administrative staff) were transferred into the new school. Additional funds were provided for facilities alteration for meeting space, faculty and staff offices, computer lab construction, and other one-time expenses.
- The government of the Province of Ontario had just launched a new funding program called "Access to Opportunities" (ATOP) to increase the supply of graduates in *technical* areas—needed to address the shortage of engineers in various disciplines and of computer scientists. The University was able to persuade the government that a hybrid program such as ITM was equally meritorious and was able to obtain funding commitments for both increased operating funds and specific capital grants (which needed matching donations in cash or kind from industry).
- Both to match the ATOP funding described above and to support other initiatives, various industry partners made donations of money, software, hardware, or staff time with a total

value of several million dollars, to help the launch and growth of the School.

The combination of these three sources allowed the School to:

- Provide the base facilities for the new School and its programs.
- Establish modern computer networks and Labs.
- Provide faculty the needed release time from teaching to develop new curriculum.
- Provide a broad base of Scholarship funds to assist the students entering the program (approximately one third of the entering students receive such funding)

4. THE UNDERGRADUATE DEGREE

Every student in the four-year BCom program studies about 45 percent in IT and Telecom, 40 percent in Business and about 15 percent in Liberal Studies. They have access to a range of minors, from Entrepreneurship to International Business and a multi-disciplinary Minor in eBusiness that is led by the School. In addition, about 25 percent of the students take part in a five-year cooperative program (with three work terms, one of four months and two of eight months each).

Some of the key features of the degree are:

Degree Structure

The four-year program has:

- A foundation year focusing on basic business education, and a series of additional required courses and electives over the next three.
- A second year that builds the technology base.
- The final two years have a mix of business and technology courses that allow the student to both meet the requirements of their Major and develop a specific focus in areas of interest (which could include a Minor).
- An emphasis on individual technical competence, on extensive group work and on written and presentation skills.
-

A Focus on Practical Experience

There is a strong element of practical experience throughout the program. About 25 percent of the students take part in a coop program, many do a summer practicum, and every student, to graduate, must complete a two-semester capstone strategy and consulting course that combines theoretical material on Business Strategy, IT Strategy, and IT Project Execution with a real-world team project. At the beginning of September of their final year, they form teams of five or six students. As a team, they:

- Find a real Canadian organization,

- Convince the organization of the value of participation, and
- Conduct a six-month project with two key deliverables:
 - A strategic assessment of the role of Information and Communications Technology in their client's business, and
 - A feasibility study of a specific application (including some form of RFI process).
- The professor acts both as a teacher and as project mentor, rather like a partner in a consulting firm.

Flexibility of Offering

The same degree is offered on a part-time basis. For mature students without academic credentials, access to the degree is through a series of continuing education certificates made up from the degree courses. These certificates are also in heavy demand from mid-career workers who need to expand their skills or get more up to date. Students can move between full- and part-time studies as circumstances change.

An Experienced Faculty

The School's faculty mixes strong academic backgrounds with industry experience. Some are accomplished researchers; others are industry practitioners who have moved to the School in mid or late career. It also draws on a pool of industry experts who act as guest lecturers and sometimes deliver complete courses that draw on their specific expertise. Some faculty have industry partners who provide access to leading software, hardware and expertise. The School has close to a 50:50 gender balance in both faculty and student population, very unusual in a high-tech or IT program.

5. NEXT STEPS

Over the next three to five years the School has five key initiatives:

- **Completion of the "teach-out" of the undergraduate degree:** The School is moving into its third year of operation. Successfully delivering the advanced courses needed for its higher years is a major challenge that requires both effort and considerable coordination between faculty members.
- **Launching its "Distributed Learning Environment":** This is intended to be a judicious use of technology-assisted learning that will create a *virtual* school with every full-time student using a wireless networked laptop computer to access course materials

either on the computer or over the Internet. A number of the School's courses are already being offered in Internet-only versions. The emphasis is on integrating the technology into teaching as opposed to treating it as a more standalone tool. Full integration starts in Fall 2002.

- **Expanding the Faculty's research base and infrastructure:** In addition to the efforts of individual researchers, research in the School focuses on three themes—Strategic use of ICT, including eBusiness; the use of learning technologies; and gender issues in ICT. Formal research centers have been, or are being, established in each area.
- **Developing and launching graduate programs:** The next stage in achieving the School's mission and objectives is the launch of graduate programs that address specific societal needs and build on the School's unique focus on combining the needs of management with the integrated use of Information Technology and Telecommunications.
- **Expanding its international reach and focus:** The School is working to develop an increasingly international focus in its degree programs and in its research relationships. Links have been established with a number of related programs in Europe and Asia/Pacific, and next year in 2002 the first group of ITM students will take part in full-semester international exchange programs.
- **Continuing and expanding active fundraising efforts:** Achieving all the objectives set out for the School cannot be fully funded within the public university system in Ontario. The School will need extensive support in many areas and its needs form a significant part of the University's current fundraising program. Establishing close alliances with the Canadian High Tech industry is seen as a key part of this effort.

6. CHALLENGES

The School has faced a number of challenges in the events described above:

- **It has difficulty in getting sufficient qualified faculty.** As every chair of computer science knows, there is a significant shortage of technically qualified Ph.D.s willing to work in the academic environment. Demand for such graduates is very high both from academic institutions and from industry. Compensation is a real challenge, especially in Canada. This is compounded by the special needs of the School, since the ideal faculty hire combines

both business and technical knowledge—not a knowledge set found with many Ph.D.s.

- ***The fast pace of change in technology continues to make keeping up difficult.*** Today's technology is tomorrow's "doorstop." While it is not necessary for an undergraduate program to be *cutting edge* in every area, there is a need to keep both School technology and the faculty members current, which requires ongoing funding and continuous development of faculty, over and above the effort they commit to their particular area of specialization.
- ***Its students face significant challenges in surviving the program.*** More than 50 percent identify themselves as minorities (Toronto is very multi-cultural), and, for many, English is a second language. More than 50 percent of the students work between 10 and 30 hours a week to support themselves. For many, they are the first generation of their family to attend university. This creates a need for an effective support and counseling structure. While the School has a good record in student retention so far, this continues to be a difficult area and new support programs are being considered.
- ***Finally, the School is finding it challenging to maintain the gender balance.*** Close to 50 percent of the student body and about 40 percent of the faculty are female. However, it has already been noted that the proportion of women applying for admission to the School is falling significantly and the School is launching a number of initiatives to promote IT as a career for young women.

7. LESSONS LEARNED

Among the key lessons learned are:

- It is possible to make rapid and dramatic changes in University programs, as long as the proposed change has:
 - - The support and commitment of the involved faculty,
 - The active involvement of the senior administrators of the university, and
 - A well developed and clearly argued academic and business case for the proposed changes that will be acceptable to the various governing bodies within the university.
- Tri-partite programs in applied subjects, combining University, government and Industry can be made to work effectively if the objectives are clear and the parties involved can establish concrete goals and a mutual understanding.

- To introduce new curriculum, especially in a technology field and using significant technology in delivery, needs a tremendous effort from faculty, well beyond that which is normally expected and needs a wide range of support, in education, in time off from normal responsibilities, in support resources and in recognition of their efforts.

8. REFERENCES

"IS '97—Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems," Association for Computing Machinery, Association for Information Systems and Association of Information Technology Professionals, 1997

"The Occupational Skills Profile Model," Software Human Resources Council, 2000

2000/2001 Calendar, Ryerson University.

<http://www.ryerson.ca/itm/>, School of Information Technology Management Website