
THE NEXT GENERATION: TRANSFORMATION TO A 21ST CENTURY UNIVERSITY VIA CORE STRATEGIC PROJECTS

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Athabasca University (AU) is recreating itself as a 21st century university. As an open and distance learning (ODL) university, its mandate is to remove barriers to university-level education. This is the vision and institutional context for any changes. Herein, we describe a series of projects with particular focus on two recent major initiatives that challenged our capacity to deal with large complex programs. An analysis of the effect of the start-up and operation of these two major programs with particular emphasis on project management, organizational change, acceptance by the academy, and absorbing the additional work is given. We offer, in the form of lessons learned, our experience for successful systematic integration of ICTs within an open university. These lessons, we believe are relevant for technology integration at any large educational organization.

Previous Special Projects

The original AU model consisted of print-based, independent study courses with telephone tutor support. While this approach was appropriate for its time and worked effectively for many years, it also became well ingrained in the culture of the organization. Although there were always individual examples of innovations in adopting newer technologies into course design and delivery, they were always implemented as “supplements” to the existing print-based model. In the years following the strategic decision by AU to go “online,” in 2002, a series of externally funded special projects were initiated to address the need for the university to integrate ICTs into the teaching and learning environment.

EduSource

This pan-Canadian collaboration created a test bed of linked and interoperable learning object repositories. The project involved the development of the associated tools, systems, protocols and practices to support such a linked repository infrastructure using the Canadian broadband network. This helped determine the direction of the subsequent AU repository initiative based on the development of a metadata framework. This project also supported experimental research in pedagogy, accessibility, protocols, network engineering, hardware integration, quality of service, security, rights management, content development and software applications.

Digital Reading Room (DRR)

Another early attempt at a repository at AU was the DRR (<http://library.athabascau.ca/drr>) implemented as part of the EduSource project. The DRR is an interactive online reading room, offering course readings and supplementary materials in various formats. Further work on the DRR led to the implementation in 2005 of a comprehensive mobile library website, enabling access to the DRR using a wide variety of mobile devices.

E-Learning Accelerator

This two-year CDN\$1.5 million project was sponsored by the province to enhance more than 150 courses with multimedia and to design generic course development guidelines using a typology of online courses. The aim was to “accelerate” the conversion of courses from print-based distance learning delivery to e-learning while enhancing quality [1]. It was also to build on and expand the DRR and EduSource applications, interoperability standards, and protocols [2,3].

Each of these special projects came with the aspiration of being a vehicle that would transform the university into a fully online entity. However, in none of these cases was this goal fully realized. Still, these initial projects did allow some interested staff and faculty to transform a selection of courses, which then served as inspirational examples to colleagues. The projects also built on each other and had some tangible benefits including a better

understanding of the need for standards, several important course enhancements through the e-Learning Accelerator, and the establishment of a useful course resource through the DRR. However, the greatest impact these initial projects had was to bring the whole idea of the university reinventing itself and moving online to the forefront of discussion. However, something more was needed.

Major Programs

The transformation to online was greatly accelerated by two recent externally-funded university programs (CDN\$14 million total): one was to increase systems capacity and currency for research, collaboration, learning, content management and student support, and the other for the digitization of all AU course content. These programs were part of Canada's 2009 Economic Action Plan in which two national economic stimulus initiatives were announced. Prior to these major funding opportunities, AU had already developed a comprehensive ten-year ICT Capital Plan around the vision of an Online Knowledge Environment (OKE). AU's goal was to modernize and expand research and related activities through the OKE to greatly increase capacity and currency. This ICT infrastructure would provide students and faculty with continuous and reliable service.

Knowledge Infrastructure Program (KIP)

Federal and provincial governments together with AU provided the CDN\$7.6 million funding. The OKE was conceived as an innovative online ICT system composed of 34 complementary but separate initiatives.

Some of the key sub-projects included:

- Content Management: web, course materials, documents and records managed through a central content management system - Alfresco
- The Landing: online learning communities for AU students;
- Contact Centre Enhancement: student call tracking and response management;
- Desktop Virtualization: student service and data security through the enablement of an enhanced virtual computing environment for tutors;
- Exam Harmonization: exam request, invigilation, and scheduling processes for students;
- Learning Analytics: use of Learning Management System data to determine behavioral patterns that influence learning;
- Mobile Learning: increased understanding of the pedagogical needs associated with mobile learning technologies;
- Gradebook Upgrade: integrated grade management within AU's Learning Management System (Moodle) facilitating improved administration and access to grades by students;
- myAU Tutor Services Tab: improved course management for tutors for improved student service; and
- Digital Imaging Workflow System: automated document workflow related to transfer credit evaluations, articulation agreements, and examination requests provides an interface between Alfresco and Banner for direct, automated and seamless updating of student records; integration with the ApplyAlberta provincial site will further expedite transcript receipt.

While many other Canadian institutions used KIP funding for buildings, the bricks and mortar for an online university is technology and the funders recognized ICT as infrastructure for AU. This was the only KIP project that built digital rather than physical infrastructure.

Community Adjustment Fund (CAF) Program

Funded jointly by the federal and provincial governments (CDN\$6.4 million), with a contribution from AU, the CAF program was designed to accomplish AU goals in the digitization of content through a job creation and training program for under- or unemployed people in northern Alberta communities. Project offices were established in collaboration with postsecondary partners in three northern communities suffering from extremely high unemployment: Grande Prairie, St. Paul and Athabasca.

An essential goal of the program was to produce learning resources as components using core XML coding so that they could be easily adapted for different uses. The university successfully created a digitizing process using

our open source content management system, Alfresco, that will serve its long-term needs. Now that digitization is complete, course components are available for use in support of multiple flexible learning environments for students. These environments will be adapted over the coming years for use on new devices, such as tablets and mobile phones, and with different software applications, such as learning management systems, web pages, assistive technologies and devices for the disabled, as well as print publications.

The six CAF sub-projects included converting course and other web-based content, digitizing print materials, creating assisted learning tools for large courses, adding new quality assurance mechanisms, and integrating the digitized materials into online courses. For example, the digitization project developed twenty-five interactive, multimedia learning objects and activities for seventeen of AU's highest enrolment courses. These "showcase" enhancements were designed to focus student attention on difficult content or concepts in individual courses with a view to increasing their engagement and motivation.

Governance and Project Management

The combined KIP/CAF initiative was the largest systems undertaking to date for AU in terms of total funding, as well as the number of people, physical work locations, and sub-projects initiated. In addition, the funding announcements were delayed by several months so that the short-term programs (two years) became even shorter with very little time to ramp up operations once the funding go-ahead was given. Moreover, the amount of activity drastically increased, and even with foreseen temporary hires it still required many permanent staff to absorb much more work in the short term. Properly managing abrupt increases in temporary hires and workloads in a unionized environment is not trivial. KIP/CAF was both a great challenge and a special opportunity for AU. Setting up the proper governance and project management frameworks was vital for AU to be successful.

Governance

The individual KIP/CAF sub-projects were adopted by the existing Information Technology Systems (ITS) governance structure at the university. This structure is governed by three steering committees that reflect different constituencies: (1) ITS Computing Committee, (2) ITS Administration Committee, and (3) ITS Learning and Research Committee. These three committees are formed around a cluster of common interests, but are also tasked with remaining informed on the interrelated nature of IT development across the university. Substantive IT projects are regularly vetted and coordinated through these committees. However, the size and complex nature of having two major initiatives (KIP and CAF) occurring simultaneously with multiple sub-projects required additional short-term governance on the initiatives as a whole. We adopted a two-tier structure consisting of a KIP/CAF steering group and an operations group. This structure was able to provide depth of analysis with simplicity of structure. These two groups had separate but related purposes and were made up of different personnel.

The role of the KIP/CAF Steering Committee was to provide organizational direction, oversight to the ongoing performance of the program, and regular reports to the university Executive Group, the governing board, and government funders. It consisted of faculty representatives, key members from senior administration (academic, student services, IT, finance, advancement), senior managers (communications, facilities, course design and development, web services, computing services, finance), project management office (lead and manager), and strategic liaisons (academic, government). The group met about once every six weeks.

The KIP/CAF Operations Committee was responsible for coordinating the execution of the projects. This group met weekly and consisted of the program and project managers, representatives from organizational units including the IT Project Management Office (PMO), Human Resources, Financial Services, Computing Services, Office of the Registrar and the Centre for Learning Design and Development. The group was critical to ensuring that the coordination of the myriad of projects were managed as effectively as possible, working in tandem with the PMO to manage resource, schedule, scope, financial and project process issues.

Project Management

The university's Project Management Office (PMO) acted as the operations group or working committee. It was responsible for day-to-day project management activities including performance tracking, resource management, and communication management. It achieved this by providing technical expertise, by ensuring the projects were

effectively managed, and by evaluating requests forwarded from the steering committee and constructing projects to address requested directions. This operational group met weekly to identify and resolve issues. If problems could not be settled in the room or there were emerging concerns during the rest of the week, they were dealt with online. Larger questions were directed to the Steering Committee.

People, Process and Technology

With the governance and project management frameworks in place there were still several important aspects to be considered. The most immediate and pressing challenge was ramping up quickly to establish several physical work locations, hire, orient, and train over 150 temporary employees, and initiate 40 sub-projects that would make up the KIP/CAF initiative. Not surprisingly the team built on existing structures and processes wherever possible. For example, existing purchasing practices were employed for securing hardware/software resources. However, some business practices had to be created specifically, or modified and reinvented as we progressed.

Establishing Physical Locations

The CAF initiative required that we physically set up temporary digitization operations in the targeted centres. In addition, other parts of the overall KIP/CAF project required further additional space to be established in the AU offices in Athabasca and Edmonton. Given the short timelines, distributed nature of the locations, and variable circumstances, the logistics were substantial. Collaborative partners consisting of high schools, colleges and municipal administrations were invaluable in providing local knowledge and connections including identifying space and assisting with hires.

Absorbing Additional Work

One overarching strategy was to use permanent AU employees for higher level work with the intention of back-filling more routine work with temporary employees. The reasoning for this was three-fold. First, permanent staff already understood the AU context and could readily step into these roles almost immediately. Second, the experience and expertise gained would more likely remain in-house once the projects were finished. Third, it was generally easier to find employees for the lower skill positions. In addition, the largest of the projects also were assigned project managers to keep projects on track and to free project staff from administrative functions allowing them to focus more on their own expertise.

Recruiting Temporary Staff

Given the large number and temporary nature of the hires required in a short timeframe, human resources negotiated with the unions to waive some of the regular hiring processes to accommodate the project. Although this helped substantially, it became evident that recruitment-related processes were not scalable or suited to securing resources of this magnitude quickly. The program has identified areas of improvement that will be incorporated into future practice

Orientation and Training

One general orientation session was offered for the bulk of the CAF and KIP employees by our human resources department (via videoconference to satellite locations). The remaining orientation sessions were in-person contacts with human resources staff.

Financial Tracking

Initially the financial side of our project management (in terms of budgeting, reporting, expenditure tracking and estimation) was weak and needed to be significantly enhanced. Together with assistance from an external consultant, we developed a project financial management process with accompanying tools, consistent with our financial system, general ledger, accounting policies and a dedicated accountant for the programs. The project management financial tools allowed us to develop project-specific budgets and operating statements linked to the general ledger that enabled consistent reviews of project expenditures to budget; each project was assigned a GL code to ensure all expenses were attributed correctly. These were critical capabilities in managing time-bound grant-based programs such as KIP and CAF.

Communications

A comprehensive plan was created to cover communication activities for academics, government stakeholders, media, broader AU community, and the general public. The plan further ensured that reporting requirements for both AU governance and government funders were met. A dedicated communications team was an integral part of the overall project and was represented and active on both the Operations and Steering Committees. They coordinated a wide range of activities for the KIP/CAF projects including news releases (internal and external), public website, project newsletter, information sessions, staff e-mails, milestone celebrations and the final wrap-up event. Communications were well in hand as the projects progressed, but could have been started a little earlier especially on the internal side.

Coordinating Change and Regular Business

A key challenge was how to arrange for the digitization of course materials and other content without impacting negatively on the regular business of course development and delivery. With the production of several hundred courses to manage daily, regular staff could not devote the time to transform files from multiple legacy formats to a consistent standard. But the hiring of more than 100 individuals to perform the digitization within twelve months in four locations posed training, supervision and coordination challenges that needed internal expertise to manage.

Reporting and Documentation

One of the cornerstones to managing a mega project like this was the reporting and documentation. As noted before both the OKE concept and the ICT Capital Plan had been established well before this funding opportunity arose. In addition, several sub-projects were already fully developed project proposals. The availability of good planning documents was invaluable. The attention to documentation carried on throughout the project. Reporting of the project management group to the committees improved with time, as did the review and analysis of the documents provided. At the end, each sub-project prepared closure documents (including lessons learned) for sign off by key stakeholders and for storage in the project repository. Together with the communications reports, all this documentation provided excellent and transparent tracking.

Observations

Taken together, the KIP/CAF projects represent a large and complex undertaking that, at first glance, appears primarily as an institution-wide change in technology. However, this is certainly not the entire picture. Driven by the need to improve the AU teaching and learning experience, while also facilitating greater ease of administrative and support services, the transformation necessarily involved fundamental changes to process and organizational culture. Indeed, it was the management of the human component during start-up and operation of the projects that demanded the most attention. For example, despite nominal back-filling it became important to quickly identify gaps for positions, or to seek other strategies for equitable workloads. Another example was simply realizing the importance of matching the right project manager with a particular initiative.

The reporting requirements and deadlines alone gave a sense of urgency and immediate purpose that got things going. Still, the university had already seen other externally-funded projects come and go that had had less impact. In part, the scope of the KIP/CAF programs was such that a substantial part of the university was involved and it literally demanded institution-wide commitment. However, we feel that the organization itself was now also ripe for change. The previous programs, which prompted technology integration discussions and won allies, did a lot to influence the teaching and learning culture of the university and how it viewed technology integration. They had helped pave the way for KIP/CAF.

Lessons Learned

Innovation is not a smooth uninterrupted flow of adoptions into a pre-determined master plan. While a plan is critical, adaptability and a focus on execution are the keys to eventual success. A couple of the sub-projects did not achieve their objectives as stated in the project charters, but served as effective lessons on the nature of

innovation and organizational change. The following is a summary of some of the more important take away lessons that we would employ in future initiatives, as well as ongoing university business.

Governance and Management

- Create a two-tier structure with a steering group providing organizational direction and oversight and an operations group actualizing the requests of the user community.
- Have an agreed upon plan written down and in place with clearly articulated goals.
- Break down large initiatives into smaller chunks or sub-projects where possible.
- Involve the community appropriately and meaningfully and always be transparent.

People, Process, and Technology

- Projects need competent managers.
- Projects need standardized and accepted methodologies.
- Documentation and records of plans, finances, progress and results are essential.
- Results need to be analyzed continually and changes made where and when needed.
- When things do not work, admit it, change it, and move on.
- Ongoing internal and external communications are essential - in as many forms as is manageable. Discuss often and have regular meetings. You can never over-communicate.

A university is a complex organization where power is decentralized and there is a strong culture of ageless and revered tradition coupled with open discussion that takes into account multiple points of view. While this offers many positives, it is easy to get trapped into endless debates and conversations. After having gone through the changes catalyzed by these programs, one naturally looks back and wonders why we didn't start earlier. We learned that you need to discuss and plan, but you also have to move on from there to action. The lesson here — just do it!

Conclusion

The transformation of AU is an ongoing process. It has been substantively influenced and accelerated by major programs. The mega nature of the KIP/CAF programs initiative not only helped to push the transition from print to online, but also created immense organizational, logistical and cultural challenges for us. We have described our experience in effectively starting up and operating a suite of projects at a high level and complexity. Initial indications are that real change is occurring in many areas, and that we have learned and grown from the experience. However, many of the projects are just freshly completed and have not had a chance to show evidence of their longer-term impacts. It will take a little time to fully assess how the initiative (overall and at the project level) has reshaped the university. Still, there is no doubt that we have become more advanced and more confident in tackling larger change initiatives. We have witnessed what can be achieved and there is also no desire to go back to many of the past practices. We may not arrive at the exact future we envisioned for AU in the 21st century, but we start our journey knowing that "The best way to predict the future is to invent it."¹

References

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¹ Quote attributed to Alan Kay at a Xerox Palo Alto Research Center meeting in 1971.