

The Use of Information Technology in New Zealand Universities' External Quality Assurance Processes: Case studies of challenges and opportunities.

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Abstract: The case studies in this paper illustrate how the use of information technology (IT) can present both opportunities and challenges in external quality assurance (QA).

In New Zealand, the Academic Quality Assurance Agency for New Zealand Universities (AQA) – responsible for institutional audits of universities – and the Committee on University Programmes (CUAP) – responsible for setting up and applying qualification and regulation approval – are working within a comparatively mature system.

Responding to stakeholder expectations of more IT-centric processes, these organisations have been focussing on ways in which IT can be used to streamline processes that have been in place for nearly 20 years.

Issues faced and, in some cases, still being explored include: working cooperatively with institutions and individuals that have their own systems, protocols, preferences and competencies; the shift to 'bring-your-own-device' (BYOD) environments; access to information away from a secure office location; interactions between databases, emails, discussion forums and other communication channels; the consistency of information when working with websites and other forms of dynamic repositories, and the consequences of this for auditing and for archiving.

The opportunities and challenges explored in these two case studies are probably not unique to New Zealand. Both new and more established external QA agencies around the world are responding in different ways to the advantages provided by, and the challenges associated with, the use of IT in external QA. This paper will provide an overview of some of AQA and CUAP's developments to date. This is an on-going process for AQA and CUAP as they continue to seek feedback and refine practices.

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New Zealand's external quality assurance system for universities has existed in its current form for approximately 20 years. The New Zealand Vice-Chancellors' Committee (known operationally as Universities New Zealand – Te Pōkai Tara) has, under the Education Act 1989, primary responsibility for quality assurance matters across the university sector.¹ The country's eight universities are autonomous bodies responsible for their own internal quality assurance. Universities New Zealand has delegated the operational responsibility for external quality assurance to two bodies: the Committee on University Academic Programmes (CUAP) and the Academic Quality Agency for New Zealand Universities (AQA).

CUAP is charged with setting up and applying qualification and regulation approval, accreditation and programme moderation procedures across universities. CUAP comprises a representative of each university, plus a student representative and is chaired by a Vice-Chancellor. CUAP is the body to which universities must submit any proposals to offer new qualifications or to make substantial changes to existing qualifications.

AQA supports universities in their achievement of standards of excellence in research and teaching through regular institutional audits and through the promotion of quality enhancement practices across the sector. AQA is operationally independent of Universities New Zealand and has its own governing board of directors including a student representative and a Vice-Chancellor.

Both AQA and CUAP are, themselves, subject to regular external review.

AQA Case Study: Information technology in external academic audit

Commencing in 1995, AQA has been responsible for undertaking regular academic audits of New Zealand universities. In 2013, AQA commenced its fifth cycle of institutional audits with a focus on teaching, learning and student support. This fifth cycle of audits is being undertaken within a framework of guideline statements developed by the agency in consultation with the universities and other stakeholders.² The methodology employed by AQA is centred on universities' Self-review Reports which are validated through analysis and interviews by a panel of AQA-appointed auditors. AQA auditors are generally current or recent senior academic staff of New Zealand universities or quality assurance professionals with experience of the university sector, who have been appointed to the AQA Register of Auditors and Reviewers. All AQA audit panels include at least one international panel member from either the AQA Register or the Register of another international agency. The AQA audit process can be summarised in the following key steps:

1. University undertakes a process of self-review against the audit framework.
2. AQA appoints a panel of 4 – 5 auditors to undertake the audit.
3. University prepares and submits a Self-review Report to AQA along with supporting documentation.
4. AQA audit panel members read and review the Self-review Report and supporting documentation.
5. AQA audit panel corresponds by email and meets (physically and/or by video or teleconference) to discuss the material received and the assessment evolving.

¹ Education Act 1989, section 159AD.

² AQA, January 2013. Cycle 5 Academic Audit Framework. Available online: www.aqa.ac.nz/cycle5 .

6. Any additional or explanatory material requested of the university is provided to the audit panel.
7. A three – five day site visit of the university is undertaken during which time the audit panel seeks to triangulate assertions and evidence provided in the Self-review Report.
8. The audit panel’s final report is prepared by AQA, submitted to the AQA Board for approval, and then provided to the university. This report is also made available to the media, related organisations and to the public through the AQA website.

When the audit process described was first established, the majority of communication between AQA and universities, and AQA and its auditors, was in hardcopy form. Between Cycle 1 (1995/96) and Cycle 4 (2008/12), the process evolved so that communications outside of audit site visits were mainly via e-mail with Self-review Portfolios (the Self-review Report plus supporting documentation) provided in hardcopy as well as in electronic form. Telephone or video conferencing has been used by the panel to communicate on occasion. This hybrid approach has, in the main, served the AQA audit process well and has provided a workable process for universities and for most auditors. From discussions with other mature agencies during 2012 and 2013, AQA formed the view that it was not alone in arriving at a hybrid approach to IT in external audit/review processes.³

The opportunities provided by increased use of IT in audit

Operating the manner described above, AQA has been becoming increasingly aware that it is undertaking its audits in a manner which remains largely unchanged from two decades previously and has not been responding to developments in technology and processes which could make its processes more efficient. In the view of AQA staff, supported by some individual auditors and university staff, AQA may be missing multiple opportunities to:

1. Reduce the financial and environmental cost of printing and postage of hardcopy documents.
2. Recognise and employ IT software and devices used by the universities in their own internal quality assurance systems, including intranet and Dropbox (or similar) sites, tablet computers and e-portfolios.⁴
3. Respond to the desire of individual auditors to work in the ways which they find most effective in their non-AQA roles.
4. Make greater use of mobile devices for portable access to documentation, editing functionality and online data while undertaking academic audits.
5. Employ enabling technologies and communication tools that support both synchronous and asynchronous communication during the audit process.
6. Increase the security of confidential submissions and discussions between universities and AQA, AQA and audit panels, and between audit panel members.

³ Individual discussions and email exchanges between AQA and INQAAHE and APQN member agencies regarding the use of information technology in audits or reviews (2013).

⁴ An e-portfolio is a collection of electronic evidence assembled and managed by a user, usually maintained on the Internet. “Dropbox” is an example of a cloud-based storage facility maintained by a third-party on servers accessible through web services or similar application.

With these potential opportunities in mind, for Cycle 5 audits (2013 – 2016) AQA has been exploring how to incorporate IT to a greater extent into the audit process while still meeting its operational needs. This is a continuing process and one which AQA expects to develop as Cycle 5 evolves. AQA is aware that in doing so, it is integrating new solutions with existing processes rather than reconceptualising its audit approach, and that this may not lead to the full realisation of potential opportunities. Unlike CUAP (see below), AQA does not foresee the development of a customised software solution for its work programme.

This approach is deliberate for several reasons. First, the existing hybrid model is, by-and-large, continuing to serve AQA, its auditors and the universities adequately. As a result, there is no major incentive for significant change. Secondly, AQA is a small organisation of two permanent staff without the resources to purchase or develop and support extensive products and systems for this undertaking. Finally, academic audit is a periodic event occurring only every 4 – 5 years for each university and AQA is of the view that it needs to retain flexibility to be able to operate in line with university and auditor preferences, and specific contextual issues associated with the nature of each audit. For example, AQA recently undertook an audit across several Pacific island locations where access to Internet and even electricity was, at times, unreliable. This kind of audit does, of necessity, require a different approach to information dissemination and communication than one that occurs in one known location where infrastructure is familiar and reliable.

While AQA's approach to the greater integration of IT into its audit processes is on a small scale and iterative rather than revolutionary in nature, it is likely that the opportunities presented by the changes being adopted have some resonance with other international agencies.

The challenges of increased use of IT in audit

AQA is of the view that the challenges it faces when integrating IT software and hardware with existing processes and systems are likely to be common to both small and large organisations. For AQA, the main challenges can be summarised as follows:

1. Accommodating the IT skills and willingness of auditors who undertake audit assignments for AQA on an occasional basis.

Most AQA auditors are employed in a university or are consultants in related fields, and are paid an honorarium for their contribution to the audit process. Many are very senior academics with considerable knowledge and experience in their discipline and in the area of academic quality. Their IT skills are generally commensurate to their current role and own needs and interests. Some may not be willing to accept a position on an AQA audit panel if additional requirements are placed on their participation when they believe they can perform satisfactorily without the use of such new IT systems or tools.

2. Ensuring auditors have access to IT hardware, software and related applications while undertaking AQA audit site visits.

Like many workplaces, AQA has seen an increase in the expectation that individuals will "Bring-Your-Own-Device" (BYOD) as the portability of devices and access to web-based repositories has improved. Some auditors have, and prefer to use, their own devices (e.g. laptops, tablets) in the AQA work environment. Other auditors don't own or would rather not provide their own equipment, and

need training to use unfamiliar devices. This has purchasing, financial and training implications for AQA, as well as issues of consistency and compatibility across an audit panel. One particular issue is the need to consider the confidentiality and security of information when accessed on devices owned by individuals or their employers, not all of which can be assured to have passcodes or adequate virus protection, for example.

3. Providing affordable access to cloud-based repositories and internet-based communication tools.

Continual access to internet can be difficult when moving between sites and geographical locations including some that cannot guarantee reliability of supply or access to reasonably priced data plans. Audit panel members and AQA staff have experienced this as an issue when staying in hotels and some locations outside of New Zealand.

4. Integrating IT solutions with those of the universities submitting Self-review Reports and supporting documentation.

All New Zealand universities have their own IT systems, preferences and protocols. With an objective of working flexibly with the universities, AQA has provided guidelines but not imposed requirements on universities with regard to the structure and form of their Self-review Report submission. If AQA was to impose a requirement for electronic submission then it might face the need to be able itself to interface with a variety of different university systems.

5. Working with potentially dynamic information during and following an audit.

Advances in e-portfolios and similar repositories of electronic evidence would seem to lend themselves to the type of self-review submission envisaged by the AQA audit framework. Many universities already use e-portfolios and have an interest in extending their application to AQA audits. However, such repositories are, by their very nature, dynamic and subject to constant change. Already, the increased use of web links, links to intranets and to cloud-based repositories in Self-review Reports has meant that AQA audit panels are consulting material that can, and does, change during the course of an audit.⁵ This can create problems of ensuring panel members are reviewing the same document in their work. Additionally, AQA has a policy of retaining an archived version of Self-review Reports. When considering universities' preferences for Self-review Report submissions, ensuring that the agency's archival requirements are met is something that AQA is acutely aware of. This need not be in a hardcopy form but does need to be in a format that can be captured to correspond with what the audit panel reviewed at the time of the audit and, to which the final audit report and any subsequent follow-up corresponds.

Response to date, and looking forward

In early-2014, AQA is addressing a greater integration of IT into existing audit processes with the identified opportunities and challenges in mind. To commence this process, AQA has developed a set of IT protocols for use by AQA audit panels and will continue to test and evolve these throughout

⁵ Typically, from an auditor's perspective, an AQA audit runs for approximately 5-6 months from receipt of the Self-review Report to publication of the final audit report.

Cycle 5, amending as necessary to respond to the particularities of each audit. These protocols have been designed to provide guidance to AQA and its auditors and cover 10 key areas:

1. Form of materials
2. 'At-home' set-up
3. Secure devices (*includes the requirement that all devices (PC, laptop, tablet, smartphone etc.) used to access emails and/or documents related to AQA audits should be password or otherwise security protected for the course of the audit panel's work*).
4. Email
5. Extranet
6. Use of IT during panel meetings and the site visit
7. Note-taking during site visits
8. Report writing
9. Internet access
10. Destruction of confidential material.

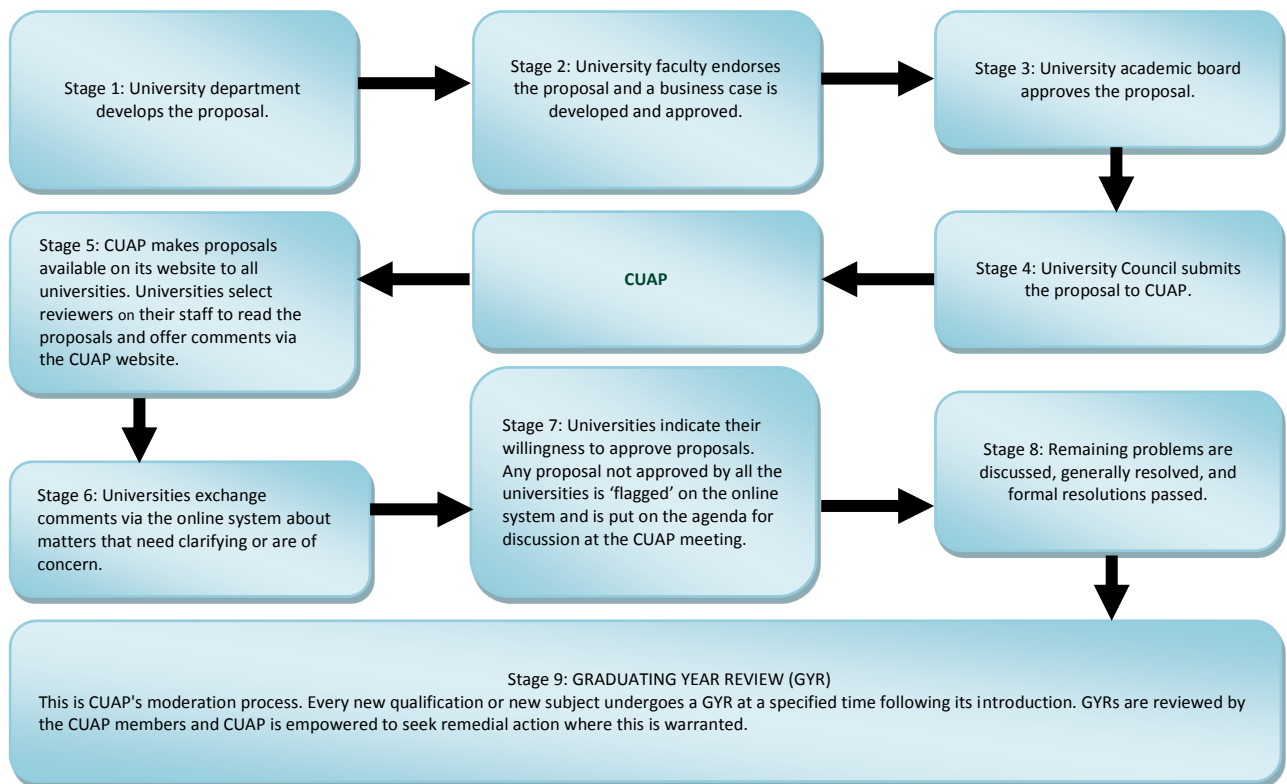
Auditor recruitment information now specifies that AQA auditors are, in addition to other criteria, expected to be comfortable working with documents presented electronically. AQA's Cycle 5 Audit Handbook for Auditors advises that AQA endeavours to use electronic resources and communication wherever possible and that auditors will also be encouraged to use them. Audit panel members are now asked to bring their own laptop, notebook, tablet or other suitable electronic device to audit site visits with software appropriate for note-taking and accessing electronic documents during the panel's private sessions. If this is not possible, then auditors are asked to advise AQA at the earliest opportunity so that alternative arrangements can be made. To provide for auditors who cannot or do not wish to bring their own devices, AQA has purchased several tablets with annotation software for the use of audit panel members. Discussions with New Zealand universities being audited in 2014 include early communication over the form of audit Self-review Report submissions, with AQA being willing to accommodate university preferences taking into account the challenges described in this paper. AQA will continue to evolve its practices to capture the opportunities offered by the use of technology in institutional audits.

CUAP Case Study: Developing a web-based qualification proposal management system.

In response to an audit recommendation in 2011 by the Academic Quality Agency for New Zealand Universities, Universities New Zealand developed a web-based system for managing CUAP's programme approval process. The new system was used for the first time for Round Two proposals in 2012.

CUAP's key proposal processes can now be summarised in nine stages shown overleaf.

Figure One: CUAP proposal processes



Prior to the development of the online system, CUAP’s proposal processes were conducted predominately via email exchanges between the universities and the Universities NZ CUAP manager. Proposals and related documents were submitted as email attachments and comments on proposals exchanged via email between the university administrators and copied to the CUAP manager. In cases where proposals were brought to CUAP for discussion, the exchange of comments would be copied from the original emails into a Word document for the CUAP meeting. Reports generated for CUAP, the universities and other agencies (for example the government agency responsible for funding approved programmes) were created manually by the CUAP manager.

The AQA audit of CUAP in 2011 recommended that CUAP’s programme approval process be managed online, preferably with a web-browser interface, enabling electronic submission, processing, monitoring and reporting of proposals. The audit panel identified CUAP’s heavy reliance on the services of one long-standing staff member as a potential risk and noted that “continuity of expertise was tenuous and not systematically assured”.⁶ The audit panel anticipated that as well as mitigating these risks the development of a web-based system would also enhance the process by creating a more transparent and efficient process as well as an accessible archive of proposals and resolutions.

The challenges of developing a web-based system

The 2011 audit panel’s recommendation was to develop a web-based system that would enhance CUAP’s existing, relatively mature processes. The system that was developed took the existing processes and replaced the medium of exchange from an email-based system to an online system. Despite being based on an existing system the development of a web-based system still created a number of challenges.

⁶ CUAP audit report 2011. Available online from the AQA website: www.aqa.ac.nz/CUAP2011.

The goal was to design an online system that was simple and intuitive to use, that would work cooperatively with the universities' own internal systems, processes and internal delegation systems, and facilitate rather than hinder the core system. Once the existing process was mapped out, it was proposed to develop the web-based system in two phases. To retain the autonomy of the universities' own internal processes, stages 1-4 of the CUAP process (the universities' internal proposal development and approval processes) were not included as part of the online system. The online system that was developed began at stage 5, the point at which university-approved proposals were submitted to CUAP and made available to the other universities.

It was initially envisaged that the web-based system would incorporate stage 5, distribution of proposals to peer reviewers, and all aspects of stage 6, the exchange of comments between the reviewers and the proposal developers. Including these two stages in the web-based system was contingent on providing individual reviewers at the universities with direct access to the online system. It was, however, decided to maintain the existing process of a centralised system within the universities. Access to the CUAP online system would be limited within the universities to the CUAP administrators and these administrators would act as the interface between the reviewers and proposal developers. Providing reviewers direct access to the system would have complicated access to the system with multiple and changing user log-ins. Moreover, it would have been challenging to develop a system flexible enough to accommodate the different ways in which the review process operated within each university. A centralised system also potentially encourages greater standardisation and moderation at a university-level. Limiting access to the CUAP administrators has meant that the work of disseminating proposals and exchanging comments between reviewers and proposal developers falls to the CUAP administrators.

Although this was the also the case under the existing system, initial feedback from the administrators indicated that, at least for some administrators, exchanging comments using the online system (which the reviewers and proposal developers do not have access to) was more time-consuming than the email-based system (where the administrators could simply forward emails to the reviewers and developers).

The CUAP system was designed to be as user-friendly and intuitive as possible and, while the process remained the same, the shift in medium did create some challenges. The university CUAP administrators were experienced with the existing system and there were some teething issues as both the CUAP manager at Universities NZ and the university administrators adjusted to using an online system. Feedback from the administrators and the CUAP manager has resulted in a number of amendments to improve the system for both the CUAP manager and the university administrators.

The opportunities provided by developing a web-based system

Developing the existing CUAP system into a web-based system has provided a number of opportunities, particularly in creating a more transparent and efficient process. The 2011 AQA audit of CUAP identified "continuity of expertise" as a risk-factor due to the heavy reliance on the sole CUAP staff member. An important step in mitigating this risk was to make the process more transparent. This was achieved, in part, by the process of mapping out the existing system and building a web-based system to manage it. Various key points in the process have been automated to some extent by the online system. Under the previous system universities could access only those comments which were made about their own proposals. To increase transparency users can now access all the proposal comments in the three weeks leading up to a CUAP meeting and all proposals, related documents and comments are now archived on the web-based system and accessible to all users. Universities can use the system to generate reports and access archived material independent of the CUAP manager. The web-system also accommodates a certain amount

of flexibility in that the proposals, related documents and comments are available to the CUAP manager from any internet location.

Having completed three rounds of programme approval using the online system, there is now a group of users across the universities who are familiar with the system. The user manual (currently in the process of being revised) and the user-friendly interface make it more manageable for new users to navigate the process. In addition, some of the process terminology dated back to a time when the system was conducted by post. Certain key terms were updated to align them to a web-based system.

It was anticipated that the web-based system would be more efficient than the existing system. After the initial round some CUAP users in the universities reported that using the online system had added to their workload. Potentially this has been rectified as administrators become more adept at using the system and improvements were made in response to the feedback received. CUAP meeting papers pertaining to the proposals can be readily downloaded, while automatically generated emails alert users of upcoming deadlines, proposal updates, and provide for various other notifications that were previously undertaken by the CUAP manager. Additionally, information on the system is less likely to be subject to double-handling as the comments and reports are retrieved directly from the system.

Progress to date, and looking forward

While the web-based system recommended by the audit panel was intended to replicate the existing system it nevertheless involved a number of modifications to the process in order to adapt it to a new medium. In its early-stages of development it was envisaged that the web-based system would have the flexibility to handle the process' many complexities and contingencies. While the system has been amended in response to some of these issues, it has been necessary to retain some aspects of the email-based system. Email and telephone calls add a level of flexibility to the day-to-day communications behind the proposal system while the web-based system still captures the critical information it was designed to.

Improvements to the web-based system are ongoing. Sometimes small amendments make a real difference to the efficiency of the process. Some elements of the process have been remapped to capture the process better and new developments are currently being explored, specifically incorporating stage nine, the Graduating Year Review process, into the web-based system. The benefits of an instantly accessible archive of past approval rounds are only just starting to become apparent as the system moves into the fourth round of using the web-based system.

While improvements of the system are ongoing, it will be of interest to see the findings of the next external audit of CUAP and the extent to which the web-based system has met the concerns and opportunities identified in the 2011 audit.

Conclusion

As outlined in these two case studies, AQA and CUAP have taken different approaches to the greater use of IT in external QA processes. Both approaches emphasise the importance of retaining existing and effective process steps, the institutional autonomy of universities, the preferences and experiences of users, and of iterative improvement over time. It is anticipated that, in this way, both approaches will allow AQA and CUAP to see the benefits of increased use of IT while working to overcome the challenges foreseen within the New Zealand context.