1. **Proposed Citation**

   Embedding new technologies in end-user computing curriculum to create ‘work-ready’ students

2. **Summary of Particular Contribution**

   As a senior lecturer in the School of Business Information Technology and Logistics, I understand the critical need for my students to enter the workforce equipped to adopt emerging technologies to create solutions that address real issues and opportunities. My passion for technology innovation, expertise as a Business Analyst, and extensive operational experience have enabled me to keep pace with the rapid technology advances of the last 20 years when constructing learning resources and new delivery modes.

   My research and teaching practice are intertwined. My scholarship has focussed on creating artefacts ranging from business systems that enable efficient benchmarking of programs against professional accreditation requirements to curriculum resource development and delivery using emerging technologies. I work with academic and industry colleagues to apply emerging technology adoptions within higher education institutions which benefit students learning experiences and University administrative services.

   To teach students HOW to use technology applications in business, I model early adopter behaviour in my practice. The artefacts designed and built have included: digital teaching resource suites, web sites, CD-ROMs, multimedia courseware components, business and ethics cases, textbooks, custom compilations, e-books with social networking capacity, and SMS applications. As technology has permeated every aspect of our lives students now enter class with a range of skills acquired to communicate with their peers in their social networks. The challenge for us has been to create a learning environment that enables the transfer of these technology skills from the social domain to the professional whilst filling their knowledge gaps.

   Irrespective of what is being taught technology has transformed the way we disseminate information to students and the types of learning activities possible. As I teach end-users destined for a range of business professions about information systems and new technologies, it is an imperative that curriculum resources are state-of-the-art. This is fun. To make students and staff comfortable whilst they are pushing boundaries, I have adopted a ‘lead by doing’ approach, alongside team teaching, individual coaching and review.

   This process empowers staff and students to extend their boundaries by doing old things in new ways. Using the e-book, some staff have created annotations to deliver lecture highlights and schedules to student owned devices, such as iPads and phones. Students use the devices for learning activities. Resource upgrade and innovative teaching is an ongoing exploration supported by discussions embedded in cyclical student and staff reviews. The strong collaborative relationships I build are evidenced by receipt of team based teaching awards, funding opportunities and joint publications. All activities represent small steps forward as I act as a change-agent by building internal business processes and changes/improvements to staff work-practice to improve students’ learning experiences. The students learn to use technology to serve business functions and experience new technology in their learning environment.

3. **Statement addressing chosen criteria**

   My response addresses the following criteria:

   - Development of curricula, resources and services that reflect a command of the field
   - Scholarly activities and service innovations that have influenced and enhanced learning and teaching

   Since 1988, I have taught and led university projects to strategically design, develop and implement emerging technology artefacts, primarily for Learning and Teaching. Initially, I wrote industry training resources for teaching government employees to use Excel 4.0. It was exciting when we were funded to trial PowerPoint in lecture theatres. We have moved so far since. My primary focus still requires incremental development of suites of learning and teaching resources to reflect technological advances and construction of current case studies that enable innovative applications of skill sets in problem-solving environments.

   The vast majority of my teaching experience has been leading the development and delivery of an end-user computing subject. I started coordinating the Melbourne and Bairnsdale based deliveries of Business Computing 1 (ISYS2056) in 1992, although it was called Computer Applications in Business (BK901) at the time. In 1994 I started coordination of the offshore deliveries of the subject beginning in Singapore and...
Malaysia. Since 2002 I have either coordinated all of the offshore deliveries or the onshore. This has enabled the maintenance of equivalence and comparability across all sites. I have also been able to continue to lead the curriculum development despite the enormous number of students.

Typically, the student cohort is drawn from a range of business professional niches in the early stages of their University study in Melbourne, Vietnam, Hong Kong, Singapore, Malaysia and Bairnsdale. As higher education has globalised the number of dimensions required to complete each task has increased. Resources take into account the necessity for contextualisation of learning and teaching activities and local Information and Communication Technology (ICT) infrastructure. University business processes have been developed to assure comparability and equivalence despite delivery variation. Technology has changed educational resource delivery tools dramatically.

The commonality for individuals in the student group is the demand for end-user computing skills that can be applied to design solutions to business problems that require the application of desk-top technologies. The philosophy underpinning resource development, curriculum design and delivery is that for some work in business, it is easier to train end-users to complete their own computing tasks rather than employ an information technology specialist and train them in the functional objectives of the organisation. Routine and repetitive low-order skill-based work has been automated and computer competency is a job critical skill. Organisational cultures, social networks and problem-solving models support the human capacity to request, organise and use information to create knowledge or innovate. We are empowering business graduates to use desk-top tools and their professional expertise to innovate to improve their own personal productivity.

My leadership at the forefront of technology innovation and application was initially supported by RMIT University through Strategic Implementation Funds, Learning and Teaching Investment Funds (LTIF) and then various College and School seed funding opportunities. The resources for delivery of the first year course were developed for online delivery in 1998 as part of a flagship undergraduate business program. Best practice was disseminated using education conference papers and presentations. The potential of the innovation was recognised by industry which led to the development of a 10 year relationship with Pearson Education to write texts in Information Systems for end-users and to trial technology innovations in the higher education sector, such as Short Messaging Service (SMS) to support student administrative services.

Since 2001, I have been the principal author of four editions of ‘Computing for Business Success’, the first Information Systems publication published by Pearson Education Australia. This work is a suite of teaching and learning resources that includes a text, ICT lecture and workshop digital content, a test-bank and test question solutions for delivery. I designed these resources to suit both traditional learning and teaching spaces or online learning and teaching. Each version of the text has included ‘state-of-the-art’ digital media and resources, in the form of companion CD-ROMs and websites. The success of the textbook and accompanying suite of resources can be seen in the publication of four editions of the book and a joint software licence all with Pearson Education Australia. The suite of resources was adopted by Central Queensland University, the Australian Catholic University and Holmesglen TAFE and is used for offshore delivery.

Over time software applications versions have been upgraded and new technologies have emerged in the marketplace. The use of information technology has changed, particularly since the overwhelming adoption of personal productivity tools in business means that people can tailor the use of technology to immediate functional needs and Web 2.0 tools enable collaboration and social networking. As the type of resources required has changed the development team has responded to internal and external academic, and industry stakeholder reviews, the needs of end-users of ICT from all professions and opportunities to use emerging technologies for delivery and students.

In 2010 RMIT and Pearson Education funded the construction and trial of an e-book with device independent social networking capacity using ‘Computing For Business Success’, our first year end-user text. Students could choose whether to use a traditional text and associated CDROM resources or the e-book. This was the first e-book, of this type, to be piloted at RMIT University and amongst the first in the country. The technology enables students’ to collect annotated texts from a range of publishers that are stored a virtual bookshelf. Staff notes that mirror highlighting and written text traditionally scribbled on a page in a book can be accessed by students on their phones, PCs, Mac-books and iPads. Notes written by the students during class can be easily shared with friends or the public. They can communicate with one another, but using the...
features is a learning experience in itself as students alter fundamental patterns for learning, such as, writing notes during lectures.

The fundamental structure of course resources and dissemination methods are changing and we are working at the forefront to test the impact on student learning. I lead the development of curriculum resources that ensure that students use new technologies for work related tasks. This necessitates embedding new technologies in the curriculum. At the same time case studies are created to mimic business operations so that students can practice problem-solving and utilise the broad set of end-user skills to creatively design and communicate the solution.

My national leadership in the end-user computing resource development space has led to further work with Pearson Education to design, and prototype Trigger, an innovative SMS artefact. In 2006 Pearson Education Australia and the School of Business Information Technology and Logistics (SBITL) funded the development of an SMS prototype. In 2008 RMIT University supported extension of the trial through a Learning and Teaching Investment Fund (LTIF) project ‘Just in Time Information Services: Mobile Technology Enables On-demand Access to Enhance Students’ Experiential Learning’. This initiative provided ‘on-demand’ administrative service information to students (2006–2008). Students were able to obtain, on-demand, assessment feedback, course schedules and locations of classes. Academics could send reminders to students’ phones. The innovation was disseminated using conferences and journal publications which drew media attention, invitations for INFORMA industry presentations. The application has been modified to enable tutor assistants to converse with students and staff to send out assessment reminders. As well as engaging in projects to use current technologies to support administrative student services I have been a team member for the ALTC project entitled ‘Web 2.0 authoring tools in higher education learning and teaching: New directions for assessment and academic integrity’. This extends my research to look at shifting paradigms for assessment using social networking technologies.

My role in Learning and Teaching within RMIT University and SBITL has enabled me to use my discipline knowledge to build effective student administrative support systems. As the coordinator of a number of large courses I mentor all new staff intensively to: build their teaching confidence; identify strengths; and integrate them into teaching teams. As the Acting Director of Learning and Teaching in SBITL I ensure that all staff are inducted into their various roles.

I developed and implemented School-based student service systems and program compliance and reporting procedures (Systems artefacts) that ensured University, Australian Universities Quality Agency (AUQA), audit and University strategic objectives were met. As the Teaching and Learning representative on the School Executive Team, I worked with the school’s Program Advisory Committee (PAC) comprised of industry representatives, program teams, and students to create quality systems and align program content with student and industry needs. Annual program review meetings included industry representatives drawn from the PAC, SBITL staff and students in order to holistically collect data used to plan change activity at a program level. I implemented business procedures in my School to streamline the collection of student feedback in various forms that are mandated by the University: the Course Experience Survey (CES), Student Experience Survey (SES) and Student-Staff Consultative Committee (SSCC).

Information collected from stakeholders was used in conjunction with the University Strategic Plan to report against the University and industry benchmarks and to action plan. In 2002 I led a review of the postgraduate programs in the SBIT. This was a major change management exercise and provided me with a detailed picture of the course offerings. As the changed program structure and rationalisation was underpinned by extensive research in the marketplace it was easily extended to enable me to lead the Australian Computer Society (ACS) re-accreditation of the postgraduate and undergraduate Business SBITL programs in 2005. I was personally commended for the outstanding quality of the documentation and my knowledge of the School’s programs and University Quality system by the ACS panel chair and Pro Vice Chancellor Business.

In 2009 the ACS changed the guidelines for accreditation of higher education programs. I participated in the higher education response to the new guidelines disseminated by the Professional Standards Board of the ACS. I constructed the School (and University) Information Systems (IS) response to the new ACS Core Body of Knowledge (CBoK) described in the guidelines for professional accreditation. This report was commended for the rigour of approach. I then tested the application of the guidelines against the undergraduate degree in SBITL using the graduate role of a Business Analyst. This was workshopped by the Australian Council of Professors and Heads of Information Systems (ACPHIS). The Chair of ACPHIS then
invited me to present the IS response to the new ACS CBoK at the ACS Professional Standards Board (2009).

4. **Statement identifying the ways in which the contribution has influenced student learning, engagement and/or the overall student experience, been sustained over time and been recognised by fellow staff, the institution and/or the broader community**

My initial success in acquiring RMIT University funding support for trialling new technologies occurred in 1996 when the Internet first became available for use to support the delivery of course resources. Since 1996 I have created artefacts to provide students with choices. I have long provided students with engaging activities they can complete at home using a CDROM, a textbook, an e-book, audio lectures, the Internet, video or on campus. I measure the performance of these initiatives against University benchmarks and awards, scholarship and industry recognition. I have won and/or been nominated for:

- **RMIT University Teaching Quality Award 2000.** The Award recognised my design, development and implementation of an artefact to provide continuous upgrade of content and technology which augmented delivery for a Business College common core end-user computing course.

- **Business College Team Teaching Award (2002).** As the Teaching and Learning Coordinator in SBITL, I was a member of the Informatics Steering Committee. This Committee was responsible for maintaining the quality of a program jointly delivered in Singapore by the School of Computer Science and Technology, SBITL and TAFE. My role was to ensure appropriate quality processes, such as moderation procedures, were adhered to offshore and to assist with curriculum upgrades.

- **University Team Teaching Award (2007).** As Teaching and Learning Coordinator in my School, I was a member of the College working party that designed and implemented common curriculum for all Study Tours conducted in the Business College. Changes to course curriculum were adopted by all Study Tours after approval by the Business College Academic Development Committee.

- **Business College nominee for the Vice Chancellor’s Teaching Excellence Award 2010 in recognition of long standing contributions across a range of areas.**

All of my courses are reviewed by students and staff each semester to enable planning and enacting of improvement to resources, assessment tools, technology usage and services. The largest reward is unsolicited feedback from individual students indicating that they are excellent end-users of ICT, illustrated by this comment:

> I would also like to say that I gained a lot from the subject ... I feel that the weekly exercises and the assessment tasks were an effective way to cover the material and software. I now have a much more professional understanding of MS Office, and will use it a great deal more.

Individual student feedback is always welcome – it is part of the personal dimension of learning and teaching. But it is always important to gather feedback from the wider student body. I gauge my success, in part, by student feedback which is obtained for the whole course using the University Course Experience Survey (CES) instrument, and during focus groups to obtain qualitative information about new technology implementations.

As Teaching and Learning Coordinator in my School, I have designed courses, provided resources and industry connections, conducted classes and assessed students. My performance is evidenced by:

- **Development and implementation of a new course: Strategic Information Systems and Accounting.** It was designed to meet CPA Australia Information Systems knowledge requirements. Since 2007, the a team-based CES Good Teaching Scale (GTS) score of 56% has increased to the GTS of 89.8%. I adopted a team-teaching 'plan-do-review' approach, and changed the delivery structure, workshop content and assessment tools.

- **The Management Information Systems course required a complete curriculum renewal when I became the Course Coordinator.** Under my leadership the GTS has improved from 50% (Semester 1, 2007) to 80% (Summer 2010).

- **Business Computing 1, coordinate and teach at the Singapore Institute of Management (1994 to 2010).** The survey instrument for evaluating teaching at SIM is different to the CES survey used in Melbourne. My teaching has been evaluated between 3.7 and 3.85 out of a total of 5.

My success is bound by staff appraisal of the resources, curriculum, assessment tools, cases studies and guidance I provide and students’ learning. It must all happen in a positive, nurturing environment to enable creativity and risk-taking. An ongoing challenge!

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