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Central Queensland University's Course Management Systems: Accelerator or brake in engaging change?

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Abstract

Central Queensland University (CQU) is a highly complex institution, combining campuses in Central Queensland and distance education programs for Australian domestic students with Australian metropolitan sites for international students and a number of overseas centres, also for international students. In common with many other universities, CQU has recently reviewed its course management systems (CMSs). In doing so, CQU has signalled its desired strategic position in managing its online learning provision for the foreseeable future.

This paper analyzes that strategic position from the perspective of the effectiveness of CQU's engagement with current drivers of change. Drawing on online survey results, the authors deploy Introna's (1996) distinction between teleological and ateleological systems to interrogate CQU's current position on CMSs – one of its most significant enterprises – for what it reveals about whether and how CQU's CMSs should be considered an accelerator of, or a brake on, its effective engagement with those drivers of change. The authors contend that a more thorough adoption of an ateleological systems approach is likely to enhance the CMS's status as an accelerator in engaging with such drivers.

Keywords: Australia; course management systems; enterprise systems; open and distance learning; teleological and ateleological systems

Introduction

To realize its goal of becoming acknowledged universally as a leader in flexible teaching and learning, Central Queensland University (CQU) is using different technologies as drivers of organizational change (Central Queensland University, 2003; see also McConachie and Danaher; Cummings, Phillips, Tilbrook and Lowe; Nunan; Reid, this issue). In common with many other Australian universities, CQU has implemented an enterprise resource system, *PeopleSoft*, to improve its administrative procedures. More recently, to improve its teaching and learning, the university has reviewed its course management systems (CMSs) (the terminology choice is explained later in the paper) and implemented *Blackboard* as an enterprise CMS. In this paper, CMSs are defined as software packages that provide Web-based tools, services, and resources to support teaching and learning processes for both online and blended delivery. At the same time,

CQU is seeking to reduce the use of *Webfuse* (Jones and Gregor, 2004), a home-grown CMS. In attempting to use *Blackboard* as an enterprise system (see also McConachie and Danaher; Smith, this issue), CQU has signaled its desired strategic position in centralizing and unifying the management of its open and distance learning provision for the foreseeable future.

Drawing on the results of an online survey and deploying Introna's (1996) useful distinction between teleological and ateleological systems, the paper analyzes the university's identified strategic position from the perspective of the effectiveness of CQU's engagement with an enterprise CMS as one of the identified drivers of change. The university's current CMS, *Blackboard*, is one of its most significant enterprise systems, a significance that is based not only on CQU's history as a nationally acclaimed distance education provider, but also on its ongoing search for institutional identity in an increasingly unstable national and international educational, political, and socio-economic environment. In the process, the university's strategic position is interrogated for what it reveals about "whether" and "how" CQU's approach to the use of CMSs should be considered an accelerator of, or a brake on, its effective engagement with the drivers of change.

Central Queensland University

CQU is a highly complex institution, combining campuses in Central Queensland and distance education programs for Australian domestic students and Australian metropolitan sites for international students with a number of centres based overseas. This complexity derives in part from the equally complex array of forces confronting all Australian universities, including an accelerated blending of delivery modes and pressure to boost non-government funding sources, as well as forces distinctive to regional universities, such as competition with their larger and more established counterparts in capital cities.

Figure 1. CQU Student Course Enrollment by Campus 1996-2004

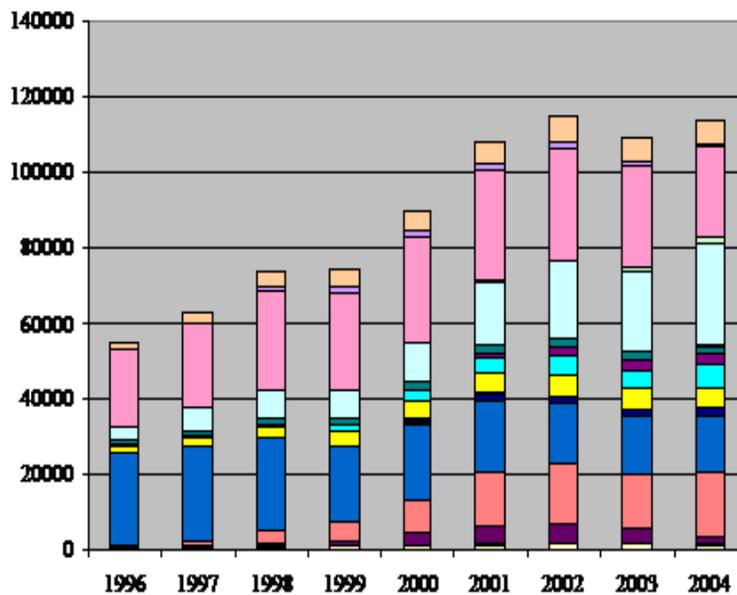


Figure 1 shows the increase in the size and complexity of student course enrollments at CQU from 1996 to 2004 inclusive. It shows student course enrollments more than doubling, from

56,773 in 1996 to 115,601 in 2004. In that same period, the number of delivery modes increased from 11 to 19, including the closure of some delivery modes and the opening of others.

In the context of this ongoing complexity and diversity, the university has recently promulgated its vision and revised its five-year strategic plan (Central Queensland University, 2003). The current Strategic Plan replaced the concept of a 'hybrid university' with a vision to become a "unified university" (p. 2). Indeed, the then vice-chancellor identified strategies that are perceived to create a sense of 'one university.' Furthermore, she requested the factions to reduce political lobbying for local and individual interests and instead to develop an organizational perspective. One of the identified drivers to achieve this particular change has been the implementation of *Blackboard* as the chosen enterprise CMS.

Course Management Systems

CMSs have gone from small tools used by supposedly quirky staff members to dominant elements of higher education's information technology capability in less than a decade (Katz, 2003). CMSs are software systems that are specifically designed and sold in the higher education market (see also Cummings, Phillips, Tilbrook and Lowe; Nunan; Reid; Inglis; Smith, this issue) to educational institutions to support teaching and learning and that typically provide tools for communication, student assessment, presentation of study material, and organization of student activities (see Luck, Jones, McConachie and Danaher, 2004, in which some of the material in this section also appears).

Within the e-learning literature, it is possible to observe authors using a number of alternative terms for CMSs. Amongst the most popular such labels are Learning Management System (LMS) (Clark, Cossarin, Doxsee and Schwartz, 2004; Fahrni, Rudolph and de Schutter, 2004; Paulsen, 2002; Sturgess and Nouwens, 2004) and Virtual Learning Environment (VLE) (Dyson and Campello, 2003). The choice of preferred label often depends on the country of origin (for example, VLE is particularly popular with authors from the United Kingdom) or discipline. We have chosen to use 'course management system' as we contend that *Blackboard* is a tool to manage course content, not student learning. The term 'CMS' has also been used widely in previous literature (for example, Dutton, Cheong and Park, 2004; Katz, 2003; Morgan, 2003).

CMSs are but one part of the spectrum of information systems being implemented in contemporary institutions of higher education to support their operations. Paulsen (2002) identifies a chain of four more or less integrated systems: content creation tools; course management systems; student management systems; and accounting systems. Other authors have identified additional system types or used alternative labels such as Learning Content Management Systems (LCMS), Enterprise Resource Planning (ERP) systems, and Managed Learning Environments (MLE). CQU's chosen ERP is PeopleSoft Higher Education and its chosen CMS is *Blackboard*.

CMSs form the academic system equivalent of ERP systems in terms of pedagogical impact and institutional resource consumption (Morgan, 2003). Enterprise systems are not universally regarded as being useful in achieving an organization's goals. By their very nature, such systems will impose their own logic on a company's strategy, structure, and culture and will push an organization toward generic processes, even when customized processes may be a source of competitive advantage (Davenport, 1998). CMSs automate and standardize elements of higher education that have been subject to refinement and protection for nearly a millennium, and possess a structure that threatens faculty hegemony (Katz, 2003).

Another criticism of using enterprise systems to drive and enable change is that these systems impose a hierarchical perspective on organizations, in that they require centralized monitoring (Davenport, 2000). Enterprise systems presume that information will be centrally monitored and that organizations have a well defined hierarchical structure. According to Davenport (2000), “for better or worse, most organisations I have encountered in the world are still quite hierarchical. It’s fairly clear ‘who reports to whom’” (p. 19). He argues that concepts such as empowering employees through ‘participation’ are intriguing, but that few large organizations have adopted them successfully.

Moreover, implementing enterprise systems often reflects a conscious or unconscious move toward standardization (Morgan, 2003). Standardization and inherent values in CMS design can create a number of implications, which push teaching and learning in a particular direction. CMSs, as with any technology, are not value neutral transmitters of facts, but instead carry the values and priorities of their producers (Dutton and Loader, 2002). As teaching and learning are personalized sets of processes within institutions of higher education, any attempt at standardization is likely to be radical, painful, and problematic (Morgan, 2003).

Using Planning to Achieve a Purpose Driven Approach

Approaches to planning are varied, as are the results of the planning effort (Bourgeois and Brodwin, 1984; Chakravarthy and Doz, 1992). The logic and purpose of integrating technology planning into the organization’s strategic planning are readily understood; the actual process and its appropriateness within the context of an organization are more complex (Porter and Millar, 1985). Wildavsky (1973) states that “if planning is everything, then maybe it is nothing” (p. 127). In contrast to this assertion, Self (1974) believed that even more planning may be preferable to a non-planning situation and may be more relevant when using a CMS as a driver of organizational change.

Gaddis (1997) questions, as do many others, not only the methods and processes of strategic planning, but also the very concept of future-oriented management. He contends that change need not be conceptualized in advance but merely allowed to emerge, perhaps with management facilitation. This theory, which argues that strategies are not necessarily positive, or emergent ideas necessarily negative, had been endorsed previously by Mintzberg (1994). Furthermore, Porter (1987) states that “Strategic planning in most companies has not contributed to strategic thinking” (p. 7). However, he asserts that, with the increasing dependence on technology, the answer is not to abandon planning and gaining ownership of a common vision for the organization; instead strategic planning needs to be rethought and recast.

Since Porter’s work in 1987, proactive planning strategies have been significantly revised by researchers (Hamel and Prahalad, 1994). Writers such as Neuhauser, Bender, and Stromberg (2000) argue that a totally different planning and decision-making framework is imperative. Together with Stubbart (1995) and Davenport (2000), they suggest that long-term goals should be replaced by renewed emphasis on the creation of organizational identity. Moreover, to overcome negativity about a change in direction, Wheatley (2000) believes that it is necessary for leaders not only to develop a common vision but also to encourage a change from the traditional thinking that if organizations do not plan and control then change will not happen.

On the one hand, theorists tend to agree that hierarchical cultures force organizational members into competition and conflict with one another (Davenport, 2000; Kraus, 1980; Thayer, 1981). On the other hand, some studies (Creith, 2000) challenge these writers who identify hierarchy as the single or major culprit in inhibiting an organization from achieving a common vision. There are

many elements to be considered (Dunphy and Stace, 1988). The management concept of strategic planning to create a common vision should be used if this concept enables the development of the right strategies at the appropriate time for a particular organization.

Enterprise systems such as *Blackboard* require stability achieved through staff having a high level of understanding about the direction of the organization (Davenport, 2000). Therefore the need to achieve acceptance of a common vision and a unitary approach to change is seen as a risk factor that must be managed when using an enterprise system as a driver of change.

Information Technology and Systems

Researchers have looked closely at the role of information technology (IT) in organizational change (Cnaan and Parsloe, 1989; Tapscott, 1996). They say that, because technology is in a state of perpetual innovation, IT has introduced a level of complexity within organizations that is different from anything that has been experienced before. On the one hand, the role of IT in facilitating organizational change (Markus and Robey, 1988), and thereby in providing value (Ives and Learchmouth, 1984), is widely acknowledged. On the other hand, the lack of quantitative measures has prompted the 'productivity paradox' researchers to question whether IT investments, in fact, add value to organizations (Brynjolfsson and Hitt, 1996). As Robert Solow (1987) stated succinctly, "We see the computer age everywhere except in the productivity statistics" (cited in McGee, 2000, p. 1).

The relationship between IT and organizational change continues to be a double-edged sword. While IT often helps to redefine and change organizational processes, structures, and roles, these organizational elements may also have a corresponding effect on the success or failure of IT. The difference between the success and the failure of IT implementation is due to the unique characteristics of an organization (Brynjolfsson and Smith, 2000; Davenport, 2000). An organization's ability to encourage innovation in both technical and organizational arenas is crucial to remaining competitive in an increasingly changing world (Davenport, 2000; Schein, 1992). Therefore it is important for managers to understand how IT enters organizations and transforms some of their practices (Schein, 1992).

Traditional methods of implementing IT are no longer valid for enterprise systems (Davenport, 2000). As Wheatley (2000) notes, rarely are there instances when it is solely the software system that fails. Traditionally management concepts such as creating a corporate vision, setting goals, and strategic planning have been based on the notion of problem solving, where a problem is defined as the difference between the status quo and the desired state (as defined by the goals). The aim, therefore, is to search continually for problems and to generate actions as solutions. What these concepts neglect to address is that what is identified as the 'vision' is subject to normative judgments, which will always serve the interests of some over the interests of others. Thus the vision, goals, strategies, and outcomes are political and subject to debate and questioning.

As a result, the problem facing organizations today is that many information systems development projects are still developed through a planning process with purpose driven methodologies. The strengths of this type of approach are its emphasis on predictability, stability, and control of the development process and its account of rational problem solving behavior (Lyytinen, 1987). Purpose driven development has dominated the research and practice of information systems development since the inception of the field (Introna, 1996; Truex, Baskerville and Davis, 2000). Nevertheless a number of authors (Baskerville, Travis and Truex, 1992; Highsmith, 2000; Introna, 1996; Truex, Baskerville and Davis, 2000) have recognized that

these methodologies may, at best, superficially address the social reality of the information systems and that this causes significant shortcomings.

Consequently many authors have sought to develop alternatives to the purpose driven or teleological development of information systems. Much of the earliest published work in this area was published within the information systems discipline (Baskerville, Travis and Truex, 1992; Introna, 1996). Many of the principles from that early work can be seen in recent interest and developments in agile software development practices (Highsmith and Cockburn, 2001) such as extreme programming (Beck, 1999).

In his paper, Introna (1996) suggests a distinction between teleological development (the dominant paradigm) and ateleological development, and proceeds to develop the principles of ateleological development. It is this distinction that we draw on within this paper (see also the distinction between 'top-down' and 'bottom-up' approaches to management deployed by Cummings, Phillips, Tilbrook and Lowe, this issue). "Ateleological systems development" (p. 25) is described by referring to four principles of ateleological development: local and contingent; historical; piecemeal; and random (p. 29-30). These principles can be summarized as follows:

An ateleological development process is a piecemeal process that aims to take maximum account of local emerging contingencies, as well as actively pursuing 'random' unexpected possibilities while maintaining some sense of overall coherence (p. 30).

The differences between teleological and ateleological systems development approaches are illustrated by the attributes of the design process, as listed in Table 1.

Table 1. Teleological and Ateleological Development Systems
 (adapted from Introna, 1996, p. 26)

Attributes of the design process	Teleological development	Ateleological development
Ultimate purpose	Goal/ purpose	Wholeness/ harmony
Intermediate goals	Effectiveness/ efficiency	Equilibrium/ homeostasis
Design focus	Ends/ result	Means/ process
Designers	Explicit designer	Member/ part
Design scope	Part	Whole
Design process	Creative problem solving	Local adaptation, reflection, and learning
Design problems	Complexity and conflict	Time
Design management	Centralized	Decentralized
Design control	Direct intervention in line with a master plan	Indirect via rules and regulators

Implementing change driven mainly by technology continues to be a complex matter for the majority of organizations (see for example Williams, 2000). The human side is integral to the success of change, since organizational changes are planned, negotiated, implemented, interpreted, reacted to, and continuously altered by people (Dunphy and Stace, 1988). Because human behavior is unpredictable, uncontrollable, and discontinuous, the level of understanding by staff about the goals of the organizations and therefore the requirements of any system will vary (Beck, Giddens and Lash, 1994). Using a traditional teleological model for information systems

development, as outlined in Table 1, may result in the hierarchy of goals and objectives becoming an issue, thereby leading to conflict.

CMSs as Drivers of Change

Having presented a conceptual account of CMSs, and having distinguished between teleological and ateleological approaches to systems development and planning (Introna, 1996), we turn now to analyze the survey data underpinning this paper (see also Luck, Jones, McConachie and Danaher, 2004, where different data from the same survey were used to address different research questions). The online survey was conducted between August and October 2003, and was completed by 91 respondents. Questions were divided into two sections: demographic and attitudinal. Attitudinal questions sought to map such phenomena as respondents' understandings of what a CMS is and of what makes it effective, and of why CQU selected *Blackboard* as its 'preferred' CMS. Table 2 summarizes the survey participants' roles at the time of completing the survey.

Table 2. Respondents' Current Roles

Response	Count	Percentage
Academic	52	57.8
Administrative support staff	22	24.4
Designer	2	2.2
Head of School	2	2.2
Manager (i.e., in charge of budget and staff)	2	2.2
Student	2	2.2
Technical support staff	7	7.8
Not Stated	1	1.2

In analyzing the survey data, we are aware of some limitations. The survey had been intended as a kind of 'pretest,' with a follow-up survey to be administered after *Blackboard* has become more firmly established at CQU. Consequently, the survey was administered at a time when most respondents had no direct experience of using *Blackboard* and, indeed, when many of them had little or no direct experience of using any CMS.

Survey responses, however, indicate that 54 percent of staff have taught online and over 43 percent of staff have learned using online learning. CQU had been using *WebCT* as its enterprise CMS since 1999, and by late 2002 there were 231 courses using *WebCT* (Sturgess and Nouwens, 2004; see also Cummings, Phillips, Tilbrook and Lowe; Smith, this issue). In 2002, *Webfuse*, a locally developed CMS, was used by 118 staff to modify 308 course websites, with staff usage increasing in subsequent years (Jones and Gregor, 2004). In addition, the university had already completed what was perceived by management to be a broad consultation process (Sturgess and Nouwens, 2004) to identify the appropriate CMS to be implemented at CQU. Consequently it might be expected that significant numbers of CQU staff and, in particular, academics, should have knowledge of and interest in CQU's directions with respect to CMSs.

Because of these limitations, we combined the statistical analysis of responses to the survey's closed questions with the qualitative analysis based on identifying patterns and disparities in responses to the more open ended, attitudinal questions on the survey. We accept that this is selective rather than representative of both questions and responses. Nevertheless, we argue that the resulting analysis provides strong evidence for our assertions that the traditional, purpose

driven, teleological approach to systems development and planning (Introna, 1996) is not maximizing the possibilities of using a CMS as a driver of organizational change at CQU.

The limitations duly noted, our qualitative analysis focused on identifying both similarities in, and variations on, responses to four key questions:

1. "How likely is the implementation of *Blackboard* to help CQU to become a universal leader in flexible teaching and learning?"
2. "Which groups and organizational units should have the leading role in quality control and/ or quality assurance in the use of *Blackboard* at CQU?"
3. "Do you believe that implementing *Blackboard* is a way to place additional controls on teaching and learning activities at CQU?"
4. "Does it matter to you whether CQU implements *Blackboard* or any other Course Management System?"

These similarities and variations form the basis of our claims about the effectiveness of CQU's use of a CMS as a driver of change.

Since its establishment as a university in 1992, CQU has had four vice-chancellors. Appropriately, each of these vice-chancellors has attempted to increase the ownership of her/ his vision across the organization. The second and third vice-chancellors have used the implementation of large enterprise systems such as *PeopleSoft Higher Education*, *PeopleSoft Financials*, and *Blackboard* to develop a unified approach to administration and teaching across the organization (the arrival of the fourth and present vice-chancellor coincided with a comprehensive organizational review whose findings are currently being worked through, with at this stage unknown implications for CQU's CMSs). In that context, we were particularly interested for the purposes of the paper in identifying what advantages respondents saw in having an enterprise approach to the use of a CMS compared to a less structured and more devolved approach using a mix of *Blackboard* and the 'in-house' developed product, *Webfuse* (Jones and Gregor, 2004).

Table 3 summarizes the responses to Question 18: "How likely is the implementation of *Blackboard* to help CQU to become 'acknowledged universally as a leader in flexible teaching and learning and well focused research' (Item 2 in the 'Vision Statement' section of the CQU Strategic Plan 2003-2007)?"

Table 3. *Blackboard's* Ability to Assist CQU to Become a Flexible Learning Leader

Response	Count	Percentage
No response	1	1.1
I don't know	51	56
Very unlikely	15	16.5
Fairly unlikely	8	8.8
Fairly likely	10	11
Very likely	6	6.6

The survey shows that over 50 percent of staff “don’t know” if *Blackboard* will assist the university to achieve one of its major goals, that of becoming an acknowledged leader in flexible teaching and learning. This might reflect respondents’ lack of familiarity with the CMS. On the other hand, the fact that 25 percent of respondents felt that such an outcome was “fairly unlikely” or “very unlikely, ” while only 17.5 percent felt that such an outcome was “fairly likely” or “very likely,” suggested a polarization of opinion that might make a teleological systems approach (Introna, 1996) more difficult to implement.

Tables 4 and Table 5 summarize the responses to Question 23: “Which groups and organizational units should have the leading role in quality control and/ or quality assurance in the use of Blackboard at CQU?” (see also Reid; Inglis, this issue).

Table 4. Groups Responsible for the Quality of CMS

Response	Count	Percentage
Administrative support staff	0	0
Associate Dean (Teaching and Learning)	32	49.2
Designer	9	13.9
Head of School	8	12.3
Technical support staff	8	12.3

Table 5. Organizational Units Responsible for the Quality of CMS

Response	Count	Percentage
No response	0	0
The relevant faculty	36	61
Division of Teaching and Learning Services	16	27.1
Information Technology Division	7	11.9

Table 4 shows that nearly 50 percent of respondents believed that the associate deans (teaching and learning) and the faculty should be responsible for the quality assurance of *Blackboard* within the university. Associate deans (teaching and learning) are faculty- and workplace-based; they are not a central or enterprise resource. Table 5 shows a similar finding: that more than 60 percent of respondents believed that the relevant faculty is the most appropriate organizational unit. These results are perhaps unsurprising, given that most respondents were academics working in faculties.

The qualitative data, including the respondents’ respective occupational roles, highlight the fact that many respondents were concerned about the prospect of control being removed from academics and faculties to a central body.

- None of the above! Academics are the only ones who should be responsible for quality control of their materials! If by ‘designer’ you mean the academic who designs the course material, then that person – but by no means a Division of Teaching and Learning Services or other ‘expert.’ (Academic)

By contrast, there was a perception by some respondents that there needed to be an increased control at the enterprise level.

- Chancellery – as a decree will be needed to kill off other systems as CQU can only eventually get expected value from the *Blackboard* system if it is adopted as the standard approach. (Administrative support staff)

Table 6 summarizes the responses to Question 25: “Do you believe that implementing *Blackboard* is a way to place additional controls on teaching and learning activities at CQU?”

Table 6. A CMS As Controlling Teaching and Learning Activities

Response	Count	Percentage
No response	9	10
Yes	40	44.5
No	12	13.3
No Difference	29	32.2

Nearly 45 percent of the respondents believed that the university has implemented *Blackboard* as an enterprise system as a way to place additional controls on teaching and learning. We plan at a future stage of the research to ask respondents whether they regard such an approach as positive and necessary in a context of increasing bureaucratization around teaching quality and other accountability measures. Potentially this result suggests a reasonably high level of concern about centralization of decision-making that does not augur well for *Blackboard* as a driver of change consistent with teleological systems (Introna, 1996).

Table 7 summarizes the responses to Question 26: “Does it matter to you whether CQU implements *Blackboard* or any other Course Management System?”

Table 7. Significance of Blackboard as the University’s Chosen CMS

Response	Count	Percentage
No response	2	2.2
Yes	47	52.2
No	29	32.2
I don't care	12	13.4

Over 50 percent of the respondents cared whether *Blackboard* were implemented within CQU, which demonstrates a level of ownership for whichever CMS the university chooses as its driver of change. Unlike the responses in Table 6, and given that most respondents had had no direct experience of *Blackboard* at the time of the survey, this suggests a high degree of professional commitment and concern that might be likely to endorse an ateleological approach (Introna, 1996) to the CMS as a driver of change at CQU.

This suggestion might have been part of the explanation for the fact that there appeared to be no consensus about whether teaching and learning should be monitored and controlled centrally, by the faculty, by the school, or down to the level of the individual lecturer designing the course.

- The relevant school. Nobody else has a clue about what the needs are for individual courses. (Academic)
- The school, as the faculty may have no understanding of the pedagogical methods used in the school. (Academic)

- The Division of Teaching and Learning Services. (This response was submitted by respondents with a variety of roles: academic, administrative support staff, head of school, technical support staff)
- Should be a joint effort with the Division of Teaching and Learning Services [and the relevant faculty]. (Administrative support staff)
- Each Unit's quality management system. (Administrative support staff)

Because of their lack of knowledge about the processes underlying, and the intended use of, *Blackboard* as the enterprise CMS, many respondents found it difficult to comment on why CQU was implementing *Blackboard* as its preferred CMS.

- I don't know, not sure. (15 responses)
- Stop-gap. (Academic)
- No idea. (Academic)

Others understood the process and the direction but appeared cynical about the decision.

- Peer pressure – it's being done everywhere else. (Academic)
- The technical staff were happy with how this system worked. (Designer)
- There is a perception that if you're not online then you're not at the 'cutting edge' – that perception need not be correct. (Academic)
- Personal agenda of decision makers. (Manager)

By contrast, others appeared to be supportive of *Blackboard* as a CMS, but perceived that management needed to make further decisions in order to maximize the effectiveness of the system.

- If purchased to become a standard[s] what about all the other approaches being used – are they now to be outlawed? (Administrative support staff)
- A genuine interest in trying to cater to students['] needs – just don't let it become like an ATM [automatic teller machine] or [as] online banking was to the banks, where they pushed people out of the branches – don't ever let it replace face to face teaching, to only cut staff costs. (Academic)
- We have to have some type of CMS. It makes sense to have one used CQU wide. (Academic)
- Training has not been as widely available (frequent) . . . (Academic)
- Let it be a long term decision. (Academic)
- I'm pleased CQU has taken the step to provide innovative resources for staff to enable them to continuously improve the flexibility of their course offerings. (Academic)

- The survey has made me realise I should attempt to know more about the system. (Administrative support staff)

Although there are clearly differences among the responses received for the research project, we argue that there is also evidence that much would be gained from CQU increasing the knowledge of its staff about whether, and how, the university proposes to use *Blackboard* as the CMS to drive organizational change that will enhance CQU's reputation as a leader in flexible learning. We contend that, given the divergence in opinions, the level of understanding about the expected benefits from an enterprise CMS will be improved through replacing the traditional, purpose driven approach to systems development with a more flexible, ateleological system (Introna, 1996).

Conclusion: CMS as an accelerator or a brake in engaging change

If we agree that the teleological, purpose driven approach to systems development and strategic planning (Introna, 1996) seems not to have provided the answers that organizations desperately need to maximize value from IT, what are the alternatives? This question is a crucial one for all contemporary Australian universities to address, a fact that highlights the wider applicability of this paper's analysis of survey comments by staff members at a single university.

The preceding analysis discussed the survey participants' responses to each of the four key questions identified earlier:

1. "How likely is the implementation of *Blackboard* to help CQU to become a universal leader in flexible teaching and learning?"
2. "Which groups and organizational units should have the leading role in quality control and/or quality assurance in the use of *Blackboard* at CQU?"
3. "Do you believe that implementing *Blackboard* is a way to place additional controls on teaching and learning activities at CQU?"
4. "Does it matter to you whether CQU implements *Blackboard* or any other Course Management System?"

What is clear from the foregoing analysis is that there are several challenges associated with CQU's identified wish to become a "unified university" (Central Queensland University, 2003, p. 2). On the one hand, one of the key challenges currently confronting CQU is to identify drivers of change that will increase the level of ownership of the vision. On the other hand, another challenge for CQU is to manage its organizational complexity without fragmentation and in ways that encourage innovation. These challenges have underlain this paper's focus on the contrast between a traditional, purpose driven, problem solving, teleological approach and a more decentralized, locally adopted, flexible, ateleological approach to systems development and planning (Introna, 1996).

At the organizational level, there is a distinct need to evaluate regularly the use of any chosen driver of organizational change (see Nouwens, Ross, Harreveld, Thomson and Danaher, 2004), which in this instance has been the CMS. Evaluations should be conducted in a systematic and methodologically rigorous manner and the outcomes of these evaluations should be used to make informed decisions to update, change, or implement new policies. Policies, documented practices, and implementation strategies should be integrated into the strategic and operational fabric of the

institution. Such a transparent process will increase the level of understanding as to why change is necessary and, therefore, increase the level of ownership of the university's vision.

From the strategic planning documents (Central Queensland University, 2003), it is evident that CQU has identified its vision to become a "unified university" (p. 2), and it has as one of its goals to be recognized as a universal leader in flexible learning. This paper suggests that the organization's traditional strategic planning and systems development methodology have not achieved a high level of understanding within the university of how *Blackboard* as an enterprise CMS will assist the achievement of this vision and this goal. With this realization as a starting point, a key assumption of the paper has been the need to identify different strategies that will increase the understanding of staff about how and why an enterprise CMS is functioning as a driver of organizational change. In a context of budgetary constraints and political pressures, there is a crucial need to move from the traditional, goal-oriented, purpose driven approach to less teleological systems development and planning (Introna, 1996). If the enterprise CMS is to be used as an accelerator of, rather than a brake on, change, there is much to be gained from the organization embracing ways that encourage staff to engage with the challenges through the use of the ateleological development and planning approach identified in the paper.

Nevertheless, in view of the organizational complexity that is an indisputable feature of contemporary universities, whether in Australia or elsewhere, such an organizational embrace is unlikely and that unlikelihood points to something of a paradox about teleological and ateleological systems. Teleological systems development is better suited to a commercial organization in which a single vision is more likely to be accepted by employees. By contrast, ateleological systems development can be considered more appropriate to enactments of academic collegiality and decision-making in universities as they used to be (or perhaps as they are claimed to have been), because of the ateleological emphasis on local contingencies. Yet contemporary universities are poised – generally uncertainly and uncomfortably – on the cusp between commercial and academic organizations. A crucial dimension of the interplay between teleological and ateleological approaches to systems development, therefore, is its reflection of an even more fundamental and ongoing struggle for meaning and understanding around the questions, "What should universities in the early 21st century be and do and look like? And how can distance education, enterprise systems, and so on help them to be and do and look like in those particular ways?"

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