THE IMPACT OF UNIFIED COLLABORATION TECHNOLOGIES IN THE WORKPLACE

Report prepared for the Division of Information Services, Griffith University and CISCO Systems

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Executive Summary

This report examines and discusses potential benefits, opportunities and challenges related to the adoption and greater use of information and communication technology (ICT)-supported workplace collaborative technologies across the Griffith Business School (GBS). It further considers these issues in relation to the Division of Information Service's (INS) Unified Collaboration Project and the associated roll out and adoption of CISCO collaborative workplace technologies.

The report examines and discusses prior research and studies on the adoption and use of ICT tools in the work place. These findings assist in an examination of primary research data, which included interviews with staff stakeholders at the Department of International Business and Asian Studies, Department of Employment Relations and Human Resource Management, Department of Marketing, the Centre for Work, Organisation and Well Being (WOW), the Griffith Asia Institute (GAI), the Centre for Social Marketing @ Griffith, the Centre for Population and Social Health, Research, and the Division of Information Services (INS).

An analysis of the interview data elicited five key recurring themes: 1) *Trust and Employee Ownership;* 2) *Work/Life Balance and Telework;* 3) *Training Issues;* 4) *Face-to-Face versus Virtual Collaboration;* and 5) *Current established Default ICT tools versus New Technologies*.

The report provides preliminary thoughts and conclusions in relation to factors that support and enhance the use of ICT-supported collaborative workplace technologies.

The report found the use of more traditional ICT-supported workplace collaborative tools, such as video-conferencing rooms, to be well established, however, as could be expected, participation in newer collaborative technologies is in its early stages.

The report found potentially significant quantifiable savings linked to the increased adoption and use of these collaborative tools across the University. There is also broad and wide-ranging potential for more innovative staff work practices, including greater support for telework and flexible working practices. The latter was viewed very favourably by employees with family commitments.

Changing work place practices, however, will require **transformational management leadership** to assist in overcoming organisational cultural barriers.

This research also found potential challenges to the on-going staff uptake and adoption of these technologies. These included the need for the perceived benefits and ease of use of new ICT-supported workplace collaborative tools to outweigh the time and opportunity costs associated with learning new ICT programs and work practices. More recent ICT technologies further face ***competition*** from established ICT communication tools such as Skype.

Given the relatively recent roll-out of some of these technologies across the University and the potential identified challenges for further widespread adoption of these technologies, the report proposes the following four phase approach to support the on-going long-term adoption of ICT-supported workplace collaborative tools across the university:

- Phase 1: Preliminary investigation and report;
- Phase 2 : Implementation of report recommendations;
- Phase 3: Follow up qualitative and quantitative research to gauge longer-term adoption of workplace technologies following CISCO technology rollout. Follow up interviews to be conducted by ICT supported video and/or web conferencing to further promote workplace technology adoption;
- Phase 4: Continued implementation, monitoring and ongoing review of project.

The report concludes with a list of recommendations to assist in maintaining the momentum of the INS Unified Collaboration Project. The recommended strategies aim to better support the ***ongoing*** and ***widespread*** adoption of ICT-supported workplace collaborative technologies across the University.

1. Introduction

- This report examines the adoption and use of ICT-supported workplace collaborative technologies across the Griffith Business School (GBS), in light of the Information Services (INS) Unified Collaboration Project. It further considers these changes in relation to previous research on ICT adoption and use across professional workplaces.

- The report provides preliminary thoughts and conclusions in relation to factors that support and enhance the use of ICT-supported collaborative workplace technologies, including the recent roll out of CISCO technologies, such as video enabled phones and computers, desktop sharing, and video conferencing services.

- A proposed four phase approach to support the on-going long-term adoption of ICT-supported workplace collaborative tools across the University is discussed in section 2.
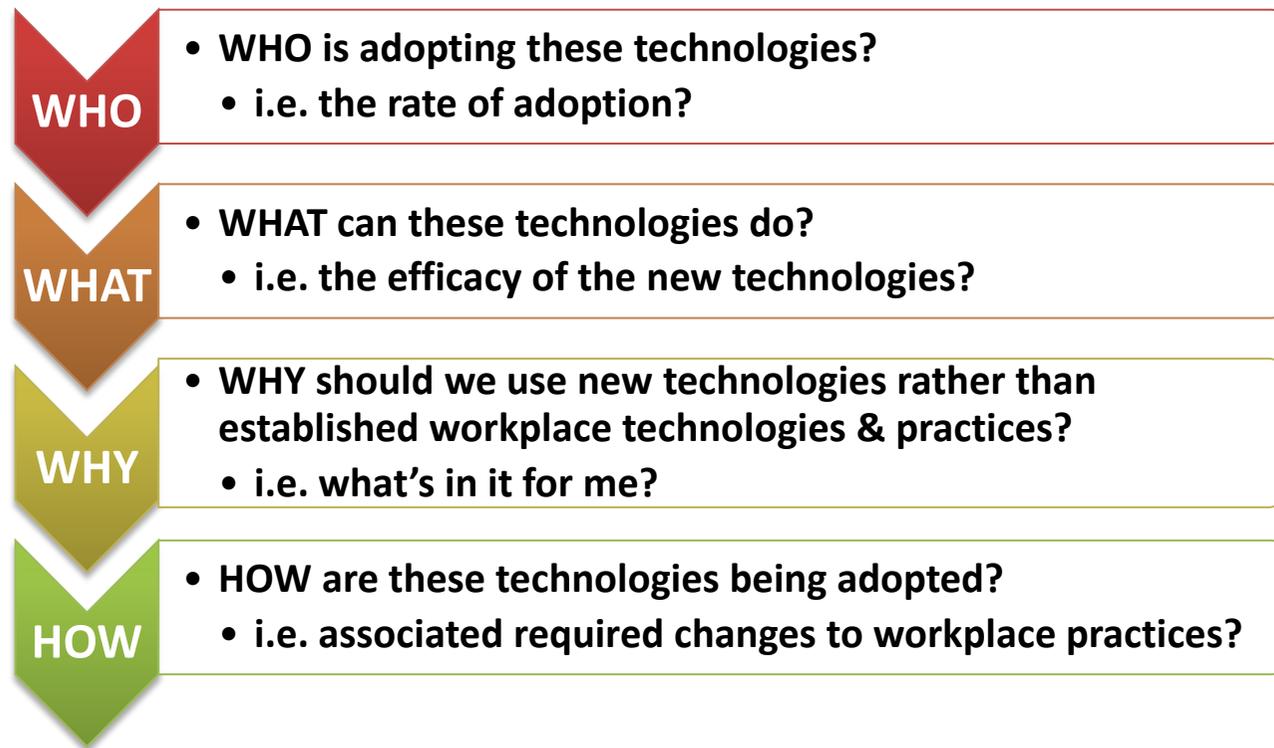
- The research builds on earlier studies, by providing in-depth qualitative data that sought to discover underlying nuances involved in staff adoption of new technologies.

- Primary research data included interviews with staff stakeholders at the Department of International Business and Asian Studies, Department of Employment Relations and Human Resource Management, Department of Marketing, the Centre for Work, Organisation and Well Being (WOW), the Griffith Asia Institute (GAI), the Centre for Social Marketing @ Griffith, the Centre for Population and Social Health, Research, and the Division of Information Services (INS). Please note that GBS ethical requirements preclude any mention of interviewee names and/or positions.

- The interviews were semi-structured and focused on research and operational workplace issues. However, teaching related ICT concerns were also a feature of interview feedback as this is an area where many academics regularly use ICT tools as an integral part of their job. This included an examination of the underlying and interlinked 'who', 'what', 'why' and 'how' facets of workplace ICT adoption as outlined in **Figure 1**.

- An analysis of the interview data elicited five key recurring themes that are discussed and analysed in section 3.3.

FIGURE 1: Collaborative ICT-supported technology adoption in the workplace

WHO
- **WHO is adopting these technologies?**
  - **i.e. the rate of adoption?**

WHAT
- **WHAT can these technologies do?**
  - **i.e. the efficacy of the new technologies?**

WHY
- **WHY should we use new technologies rather than established workplace technologies & practices?**
  - **i.e. what's in it for me?**

HOW
- **HOW are these technologies being adopted?**
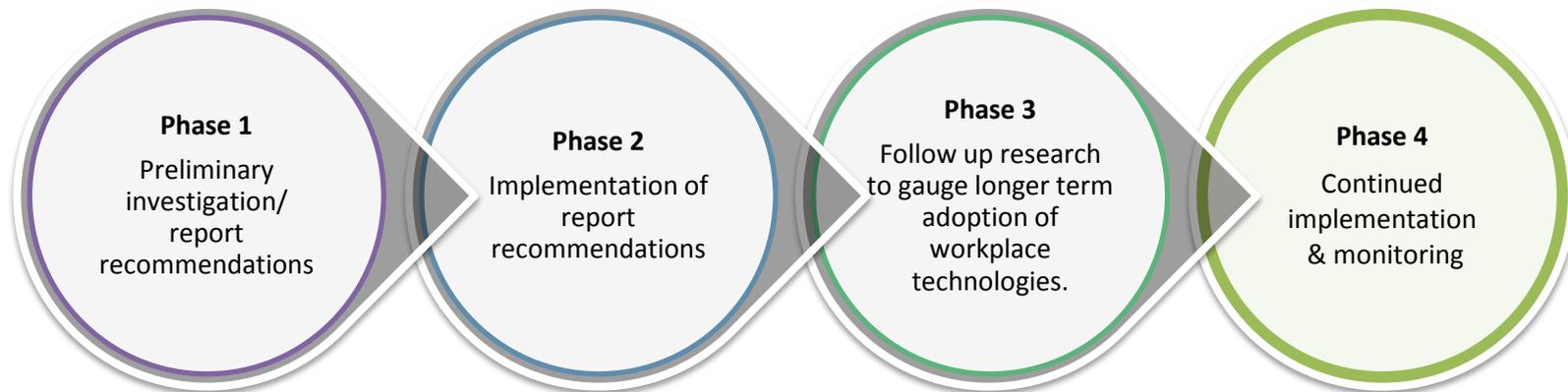 - **i.e. associated required changes to workplace practices?**

- The following section outlines the report's proposed four phase approach to further support the longer-term objectives of the Unified Collaboration Technologies in the Workplace Project.

2. PROPOSED FOUR PHASE APPROACH

The report proposes the adoption of a four phase approach that supports and further develops the aims and objectives of the INS Unified Collaboration Project, coordinates the activities of current major stakeholders and further encourages and supports the ongoing use and adoption of ICT-supported workplace collaborative technologies across the University.

Figure 2 outlines how this four phase approach can take the Unified Collaboration Technologies in The Workplace Project from the preliminary to the implementation and longer-term monitoring phase.

FIGURE 2: UNIFIED COLLABORATION TECHNOLOGIES IN THE WORKPLACE: PROPOSED IMPLEMENTATION PHASES

Phase 1
Preliminary investigation/ report recommendations

Phase 2
Implementation of report recommendations

Phase 3
Follow up research to gauge longer term adoption of workplace technologies.

Phase 4
Continued implementation & monitoring

PHASES

This report considers and examines preliminary investigations and analysis of the issues as outlined above (Phase 1).

The implementation of the report's recommendations (Phase 2), then shift the Unified Collaboration Technologies in the Workplace Project to Phase 3; which proposes further follow up research in the second half of 2015 that is designed to gauge the longer term adoption of collaborative workplace technologies. It is envisaged that this Phase would include both quantitative and further qualitative data collection.

The analysis of the Phase 3 data then forms the basis for Phase 4, which take the project to the continued implementation and monitoring stage.

Moving the project forward from Phase 1 to Phase 4 is of course dependent upon further discussions and INS approval.

- **Phase 1: Preliminary investigation and report;**
- **Phase 2 : Implementation of report recommendations;**
- **Phase 3: Follow up qualitative and quantitative research to be conducted in second half of 2015 to gauge longer term adoption of workplace technologies following CISCO technology rollout. Follow up interviews to be conducted by ICT supported video and/or web conferencing to further promote workplace technology adoption;**
- **Phase 4: Continued implementation, monitoring and ongoing review of project.**

3. PHASE 1: Preliminary Investigation and Report

3.1 BACKGROUND OVERVIEW

> *The true significance of ICT-supported workplace collaborative tools lies in their ability to support new innovative work practices that transcend traditional geographical proximity constraints, improve productivity and allow for more effective use of employee time*

Hossain and Wigand (2004) define **virtual collaboration** as "the use of ICT for supporting the collective interaction among multiple parties involved", as ICT tools make the geographical location of workers and team members increasingly less relevant.

Hellman uses the term **virtual adjacency** to describe these changing work patterns and associated social structures in the current era of rapid technological change (Melissaratos & Slabbert 2010:204-217).

Such new technologies and associated work practices have spawned a plethora of collaborative ICT-supported programs that facilitate workplace coordination and the sharing of information amongst virtual team members.

The term **Unified Communications** refers to strategies to better integrate and exploit these technologies that allow staff to engage in Synchronous (real-time) and Asynchronous (outside of real time) communication and associated collaborative activities.

Unified communication tools include "applications/services, such as instant messaging (chat), telephony (usually IP telephony), videoconferencing (IP-based), e-mail, and data and application sharing (e.g., shared document editing and web-connected electronic whiteboards)." (Bartel et al. 2014:1)

The rapid advent of these new technologies has in part led to much of the literature focusing on **technical** rather than **operational** aspects associated with the adoption and diffusion of new information and communication technologies (ICTs) across organisations, such as cloud computing and ICT-supported collaborative work technologies (Ross & Blumenstein 2012; 2013).

While technical efficacy remains important, the technologies themselves provide the ***underlying infrastructure*** that may ***facilitate*** virtual work and social interaction.

From an operational perspective, in contrast, ***the true significance of ICT-supported workplace collaborative tools lies in their ability to support new innovative work practices that transcend traditional geographical proximity constraints, improve productivity and allow for more effective use of employee time*** (see Kobama 2012; Ross & Blumenstein 2013).

As such, the provision of supporting ICT infrastructure needs to be combined with associated ***virtual team development*** and ***virtual team task focused training*** (Gibson et al. 2003:10), as workers need to practice and build associated expertise and skills in these new technologies.

It further requires **Transformational Management Leadership** to drive these changes.

3.1.1 Transformational Management Leadership

FIGURE 3: Management Leadership
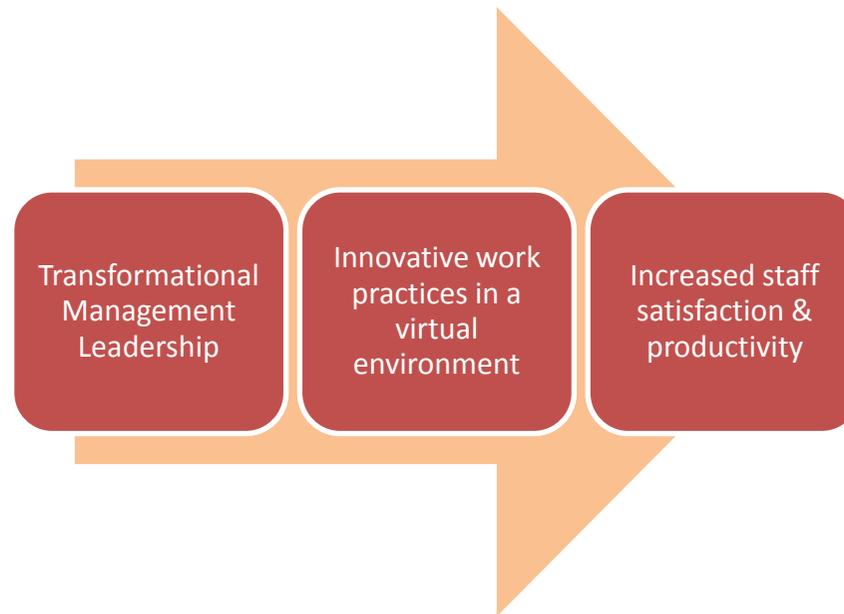
Figure 3 outlines the primary role of management leadership in driving the changes required to transform and create innovative workplaces in virtual environments.

Transformational and empowerment leadership styles may foster the creation and sharing of knowledge amongst individuals and teams through the creation of an organisational climate and vision that encourages workplace collaboration and the sharing of new ideas (Bryant 2003:32-35; Merat & Bo 2013).

Management leadership and decision making in a virtual context therefore goes beyond ICT infrastructure purchasing decisions. Rather, it requires transformational management leadership that creates and shares knowledge through complex geographically diverse and technologically mediated workplace relationships, including in-house, self-employed, and offshore workers (Bryant 2003; Brunelle 2013; Ross & Blumenstein 2012).

Further, the use of analytics and collaborative tools/work centres is not sufficient unless it demonstrably changes the quality of managerial decision making and workforce competence for the better.

The adoption and on-going development of ICT-supported collaborative workplace practices across the organisation needs to be seen as a 'journey not a destination'.

> "Coming together is a beginning
> Keeping together is progress.
> Working together is success."
> (Henry Ford)

3.1.2 Technological versus Geographical Proximity

As geographical proximity gives way to technological proximity, new technologies are making where you sit increasingly irrelevant. Rather, your workplace is becoming defined by where you log in!

Thus, **technological proximity** amongst workers is increasingly superseding **geographical proximity**.

Technological proximity differs from other communication mediums in that it allows workers:
1. greater access to potential collaborative teams/partners; and
2. to converse simultaneously with multiple group members (Whitty & Carr 2006:245).

technological proximity

geographical proximity
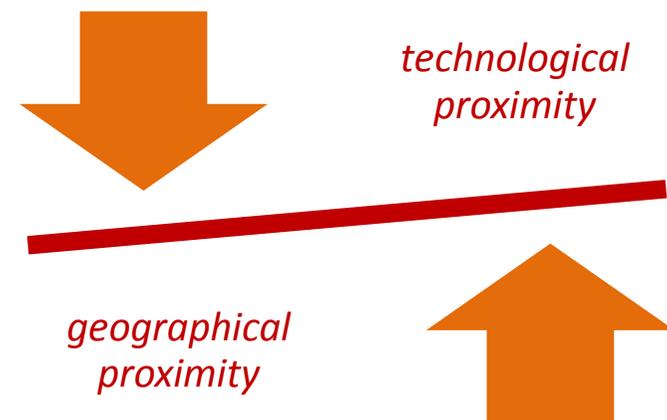
3.1.3 Innovation and Knowledge Creation

Extensive literature links innovation and knowledge creation to knowledge sharing amongst cross-functional team members (Bissola & Imperatori 2014; Folkestad & Gonzalez 2010; Hoegl & Gemuenden 2001).

Folkestad and Gonzalez (2010:115) further differentiate between teamwork in the earlier *industrial* age compared to the contemporary *internet* age, with teamwork in the former being closed and in-house as it 'rewarded organizations that cloistered scarce information, creating closed secretive organizations'.

Successful organisations in the age of the internet, in contrast, are those that can 'create innovative solutions from within this information-abundant ecosystem' (Folkestad & Gonzalez 2010:115).

This information abundance creates its own problems as workers are faced with the challenge of analysing increasingly large amounts of data.

ICT-supported workplace collaborative tools help to address this problem by allowing technologically-mediated groups to analyse large amounts of material on a **collective** rather than **individual** basis (Lang 2001; Dooly 2008; Whitty & Carr 2006). This then **creates** new knowledge

3.1.4 Virtual water cooler

Informal discussions and conversations around the water cooler (and/or company kitchens/lunchrooms) provide a 'natural knowledge sharing environment' that often generate new thoughts, ideas and associated collaborative projects.

The associated social interaction also helps to build **trust**, an important consideration outlined in further detail below.

These 'water cooler' conversations therefore add value to organisations.

While such face-to-face discussions are often taken for granted, these social interactions need to

become *virtual conversations* in geographically diverse organisations (Koenig 2012).

The development of *virtual water cooler* strategies and technologies can therefore help to bridge the challenge of recreating these face-to-face conversations online. Chat groups and instant messaging provide obvious examples of this occurring in practice.

This suggests that some degree of on-line social interaction that is not immediately work-related may in fact have benefits for the organisation over time.

This may be of particular benefit for employees engaging in telework, such as employees working from home, who run the risk of becoming 'socially isolated' from their fellow work colleagues (see Ross & Ressia forthcoming).

3.1.5. Telework/Flexible work practices

ICT-supported collaborative workplace technologies encourage telework and flexible working practices, as mentioned above.

The potential benefits of telework, flexible work practices and associated 'family friendly policies' are well researched (Caproni, 1997; Eaton, 2003; Roehling et al., 2001; Rothausen, 1994; Scholarious and Marks, 2004) and include:
- reduce absenteeism and labour turnover;
- Increased employee loyalty and organisational commitment;
- increased productivity levels;
- reduced commuting times and costs (and associated reduced employee stress); and
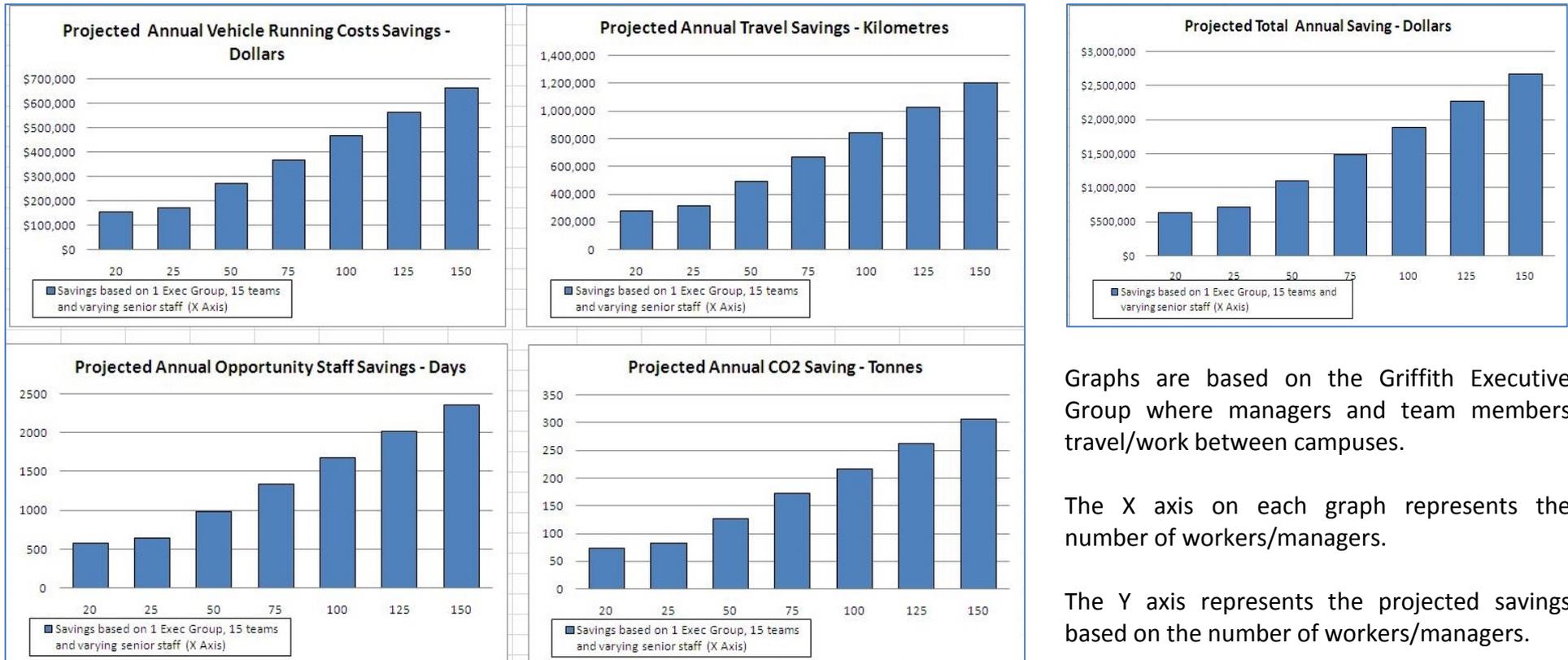- access to a wider pool of potential talent. (see Roehling 2001; Eaton, 2003)

As could be expected, women with school age children place a relatively high value on flexible working arrangements (Roehling et al., 2001:164).

Researchers further suggest that younger workers, such as Gen Y, also place a high value on work-life balance, including an *expectation* of flexibility in their working hours (Kelly Services, 2013:4).

3.2 QUANTITATIVE SAVINGS AND EFFICIENCIES

Data provided by the INS Unified Collaboration Project team quantifies some of the projected benefits of greater utilisation of ICT-supported workplace collaboration tools across the University.

FIGURE 4: PROJECTED QUANTIFIED BENEFITS: GRIFFITH EXECUTIVE GROUP

Graphs are based on the Griffith Executive Group where managers and team members travel/work between campuses.

The X axis on each graph represents the number of workers/managers.

The Y axis represents the projected savings based on the number of workers/managers.
.

Source: Michael Deayton – Program Manager, Unified Collaboration Project (2014)

Figure 4 is based on projected savings across the Griffith Executive Group if managers and team members were to elect to use ICT-supported workplace collaborative tools, such as web and video conferencing, in lieu of travelling/working between campuses. It suggests that potential *savings* could reach more than **$2,000,000** through greater adoption of collaborative workplace tools from just this one group; even participation at the lowest end of the scale still produces projected potential savings of over $500,000.

These savings also go beyond financial gains and include:
- projected decreases in staff time related opportunity costs and associated greater productivity and better work/life balance; and
- reductions in CO_2 emissions, which supports the University's sustainability initiatives.
- reduction in private or University vehicle use and associated reduced capital expenditure on University vehicle procurement.

TABLE 1: ESTIMATED VIDEO-CONFERENCING COST SAVINGS - 2014

Metrics	Q1	Q2	Q3	Q4	Total (2014)
Distance saved (in kms)	65,970	100,856	104,852	93,718	365,396
Time saved (in hours)	4,161	6,291	6,608	5,687	22,747
CO_2 saved (in tonnes)	13.03	19.92	20.71	18.51	72.17
Estimated costs saved (including both staff & travel costs)	$357,568	$541,406	$567,919	$491,226	$1,958,119

Source: Quarterly University Videoconferencing Statistics provided to Vice Chancellor's Office 2013-2014.
Notes: Statistics are based on a 2012 model Toyota Corolla and calculated in accordance with *Carbon Neutral*, a carbon solutions provider (see CarbonNeutral.com.au).

Table 1 further highlights the estimated cost savings linked to videoconferencing across the University during the four quarters of 2014, while INS data confirm that these figures are all above historical averages. This supports the premise that videoconferencing can be a highly effective cost reduction tool.

However after an initial relatively large increase in videoconferencing in early 2014, Table 1 suggests that the videoconferencing participation tended to plateau in the last three quarters.

This in part likely reflects:

1. An increase in University activity following the traditional slow period in the first quarter which includes the summer break. A levelling off period following the quite large increase between the first and second quarters could therefore be expected.

2. The relatively recent and ongoing rollout of new voice and video conferencing collaborative technologies, such as Jabber and Webex, which has not as yet allowed sufficient time for staff to begin using and exploiting these new technologies in large numbers. A similar adjustment period could also be expected before staff begin to more fully exploit the opportunities offered by the roll out of IP video phones.

The above data suggests that older, more established ICT collaborative workplace tools, such as video conferencing rooms, are now well utilised, although participation may to an extent have plateaued.

This then begs the questions of how does the University *shift to the next phase* and increase the adoption of its *newer* collaborative technologies?
In this regard the current rollout of these more recent workplace collaborative technologies is being conducted by the Unified Collaboration Project Team in a highly professional and organised manner. Anecdotal feedback and personal observations further support the high quality of the work being done to disseminate information via the Unified Collaboration Project Team 'Roadshows' and on-line support.

Interviewee feedback however suggests that further ongoing strategies may need to be put in place if the use of ICT-supported workplace collaborative tools, such as computer-based video-conferencing, are to increasingly become the norm.

Further, many of these technologies have only recently been rolled out and their potential benefits still do not appear to be widely understood (see further discussion below).

This in turn reinforces the need to conduct an ongoing campaign that will shift the deployment of these technologies from Phase 1 to Phase 4 as outlined above. Otherwise the University risks a plateauing of the above gains, once the initial stages of the Unified Collaboration Technology roll out are completed. This further has the potential to negatively impacts on the above *projected savings* associated with the use of these technologies.

3.3 THEMES

This section analyses and discusses five key underlying themes elicited during the qualitative research stage of this project that have the potential to impact on the wider spread adoption of ICT-supported workplace collaboration tools (see Figure 5).

FIGURE 5: KEY UNDERLYING THEMES

1. TRUST & OWNERSHIP

2. WORK/LIFE BALANCE & TELEWORK

3. TRAINING ISSUES

4. FACE TO FACE VERSUS VIRTUAL COLLABORATION

5. CURRENT ESTABLISHED *DEFAULT* ICT TOOLS VERSUS NEW TECHNOLOGIES

3.3.1 TRUST & OWNERSHIP

Research suggests that the widespread adoption of ICT-supported workplace collaborative tools is ***dependent*** on organisational strategies that promote **trust** and a ***shared vision*** amongst the major stakeholders (Hossain & Wiggan 2004).

Hossain and Wiggan (2004) further advise that trust is critical for:
a. for the development and *sustainability* of virtual collaboration; and
b. to ensure the *optimal* use of ICT.

In this regard, this research suggested that trust levels between staff and senior management in relation to ICT deployment could be improved, with respondents advising that, from their perspective, new technologies seemed to be rolled out in a top-down manner with little staff consultation.

This in turn can lead to **passive resistance** to new practices and processes**.**

Rising workloads were also associated with a degree of scepticism on the part of some respondents in relation to the underlying goals of management in relation to the roll out of new technologies.

Previous roll outs of new technologies, for example, have been rightly or wrongly associated with a reduction in administrative support and work intensification, with academic staff in particular having to assume much of their own administrative work via new intranet-based software programs.

The introduction of new federal government and accreditation requirements has also increased administrative workloads that are linked to the roll out of ICT technologies such as the ALEC software system, that sometimes do not link to existing software programs.

A common response from interviewees in relation to the new collaborative workplace technologies therefore was "**what's in it for me?**"

Such perceptions negatively impact on employees taking ***ownership*** of new collaborative workplace technologies.

"WHAT'S IN IT FOR ME?"

A study by Pare et al. (2006:197) found that practitioner perceptions of the **utility** of new ICT systems (i.e. in terms of the **benefits to the user**) and **user friendliness** were **crucial** in relation to psychological ownership and acceptance of new clinical ICT programs amongst physicians.

Figure 6 outlines how **perceived usefulness** and **ease of use** of new ICT program(s) leads to positive worker attitudes, which in turn helps to create psychological ownership. This then leads to increased worker take-up and ongoing use of the new ICT program(s) and workplace practices.

FIGURE 6: ICT ADOPTION: PSYCHOLOGICAL OWNERSHIP FACTORS
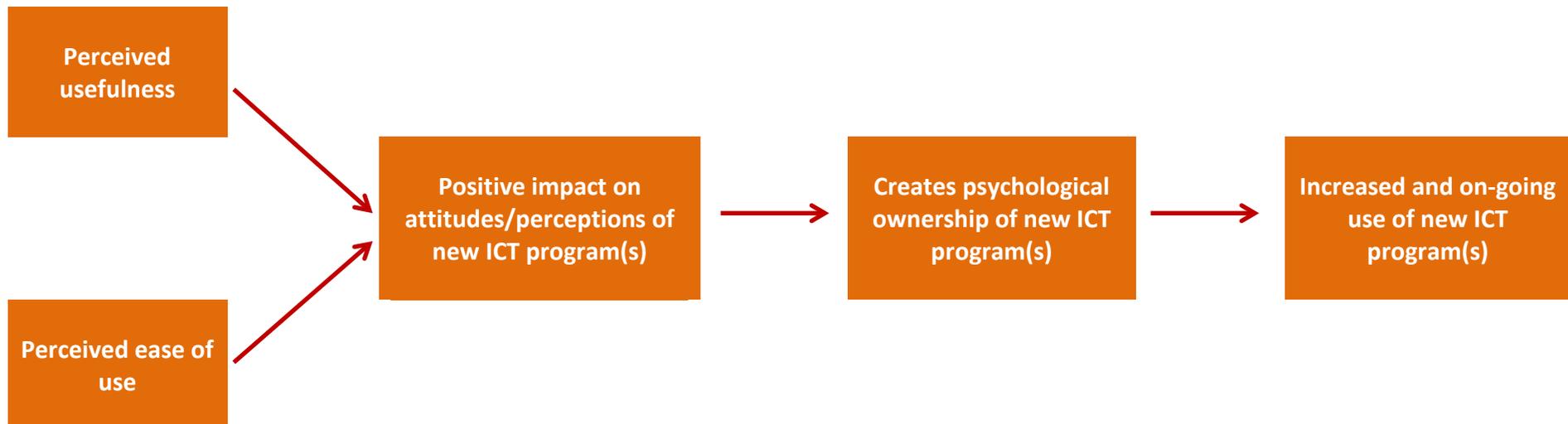
Source: Developed from Pare et al (2006:198)

The above findings were reflected in this research.

Interestingly, despite the pervasive impact of new technologies across modern lifestyles, most of the respondents were not early adopters of new technologies. Rather, the respondents self-selected those workplace technologies that:

i. they were required to use – a ***primary*** respondent response;

ii. that they saw ***value*** in using (i.e. as suggested in Figure 6); and/or

iii. that would provide ***better support or assistance than existing technologies and processes***. However a proviso here was the '***opportunity costs***' associated with learning new technologies in terms of the time it took to learn new processes and systems.

3.3.2 WORK/LIFE BALANCE & TELEWORK

The advent of Cloud-based technologies, including Apps, has been supported by the rapid uptake of smartphones and tablets amongst Australian workers (Ross & Blumenstein 2013).

Research suggests that 76 per cent of Australians use a smartphone and 45 per cent use a tablet (Demasi & Huntley 2014:4). By 2014 Australia also had more mobile telephone services (around 31 million) than citizens (Demasi & Huntley 2014:4).

These technologies allow for greater flexibility in how we conduct work, however, they have blurred the lines between work and personal life.

The ability of new technologies to positively or negatively impact on work/life balance however is not so much concerned with technology per se. Rather, it depends on how we decide to use these technologies.

For example, while more than 40 per cent of Australian employees are now doing work related activities before or after work via their mobile devices, a similar percentage are also using these devices to conduct leisure activities during working hours (Demasi & Huntley 2014:16); the latter is sometimes referred to as 'cyberslacking'.

In line with the above statistics, most interviewees owned a smartphone and/or a tablet that they used to check emails either at home and/or outside of normal working hours, although one respondent advised that they deliberately did not own any of these devices as they did not wish to be distracted by work-related matters outside of normal work hours.

In general, academic staff are also able to work from home via University laptops or their own home computers.

All respondents understood the positive and negative aspects of being able to access work related material via some form of telework.

The latter included the potential for University employees being linked up to work 27/4, leading to staff burn-out. The use of email has also raised student expectations, with students routinely emailing academic and general staff outside of normal working hours. Some interviewees responded by setting up strategies to deal with these issues, such as only answering emails at certain times, but this was often difficult in practice.

Despite the above negative aspects, **most respondents considered that the positive factors associated with using ICT tools that supported telework outweighed the disadvantages**.

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"TECHNOLOGY ALLOWS ME TO DO MY JOB ON MY TERMS"

"IT (TECHNOLOGY) PROVIDES A WORKAROUND WITH THE FAMILY"

</div>

The above quotes were typical of how respondents viewed the positive aspects of ICT-supported teleworking activities.

This included its ability to *empower* workers:

- **to work at *times* of their choosing; and**
- **to work at *places* of their choosing.**

As could be expected, respondents with families greatly valued the ability of these technologies to support more flexible working hours.

Being able to conduct their work outside of 'normal business hours', for example, allowed them to engage in activities with their children during 'normal' work hours, such as picking them up from school.

New technologies therefore gave some respondents more flexibility to engage in external activities (including spending time with their families), while still allowing them to do their job.

3.3.3 TRAINING ISSUES

Training is designed to increase worker efficiency and productivity and align worker outputs and goals with overall organisational strategies and objectives. Training therefore seeks to improve an organisation's effectiveness and bottom line.

Training is however expensive. Organisations then need to balance training costs and benefits.

Whether rightly or wrongly, the perception amongst many respondents was that new technologies were often rolled out across the University with little or no associated training for the staff that had to use them – rather the perception was that they would simply often receive a bulk email to say this was the new system that they had to use.

While positive feedback was received from those respondents who did attend ICT training programs, *time constraints and opportunity costs* were the major reasons given in relation to staff not attending publicised ICT training sessions; the latter sometimes also clashed with academic teaching and/or other commitments.

Decisions on whether to adopt ICT tools in the workplace (and attend relevant training sessions) were also heavily dependent on whether it was a work requirement or not.

> **TIME CONSTRAINTS & OPPORTUNITY COSTS**
> "it's not because I'm not interested in the new technologies, it's because I don't have the time!"

The University also provides extensive ICT training resources online. When quizzed on these resources, those respondents who accessed University on-line training programs were generally *quite positive* about the *quality and ease of use of the on-line training programs themselves*. However, they often *found these resources difficult to locate* in an increasingly complex University intranet site. Frustration with trying to find the required site along with time constraints then meant that some respondents simply gave up the search before they could find a specific site.

Some respondents also advised that "we don't really know what resources are available for us to use."

Many of the respondents would therefore prefer:
- more access to 'one on one training' (i.e. more personalised training); and/or
- an ICT 'solutions' approach that could be tailored to the specific needs of individual and/or group circumstances (i.e. as opposed to more generic one-size-fits-all technologies). However it was recognised that there were cost implications for providing these kinds of services.

Unified Collaboration Team Roadshows

Feedback and personal observations of the Unified Collaboration Team Roadshows were very positive. However despite the expertise and professionalism of the roadshows many respondents did not attend the sessions. Reasons included:
- Too busy – i.e. many staff are often busiest towards the end of the semester;
- Simply feeling burnt out – i.e. can't face another new thing that they have to learn;
- Need to balance the opportunity cost of attending these training session against other commitments;
- Suspicion amongst staff – i.e. a suspicion of 'this is just another thing that management want us to do';
- Failure by staff to see how these new technologies are going to assist them to better do their job?
- Fear that these new technologies will just add to existing workloads by making staff more available/on-call at all hours.

This then begs the question, how does INS overcome the above and provide more universal/widespread training across the University in relation to the roll-out of new ICT-supported workplace collaborative technologies?

Possible approaches include:

1. Provision of more individual **one-on-one training** and or **tailored** training for individual, groups or sections – has resource implications.

2. **Follow ups/phone calls** to individual staff members? (i.e. emails often just get lost amongst the multitude and/or put to the side) – again, has resource implications.

3. **Psychological ownership –** as outlined above, psychological ownership has repercussions on *training* strategies **(see Figure 6)**, as workers that take *ownership* of ICT programs are more likely to use and fully exploit the ICT program's capability (Pare et al. 2006). Pare's above study is further supported by this research which suggests that the two main antecedents of psychological ownership of new ICT programs are perceived ease of use and usefulness.

> "I'm the type of person who stays out of new technologies until I find it's important. But once I find it's of value then I go completely in".

As one respondent quipped, **"I'm the type of person who stays out of new technologies until I find it's important. But once I find it's of value then I go completely in".**

Given that modern day ICT programs are generally designed to be intuitive by nature, this suggests that **staff ICT training strategies should focus on concrete material user benefits rather than more technical underlying aspects of the program, as workers are unlikely to use and fully exploit new collaborative technologies unless they can see very real benefits to their working lives in terms of greater utility, for example:**

- **more efficient use of their time;**
- **reduced work-loads; and/or**
- **the ability to create a better work/life balance (as outlined above).**

3.3.4 FACE TO FACE VERSUS VIRTUAL COLLABORATIVE TOOLS

Despite the uptake of new ICT collaborative technologies both in their work and private life, in general terms respondents still tended to prefer face-to-face communication as opposed to virtual communication and collaboration tools.

However there were some provisos here, as respondents tended to distinguish between the types of activities that suited different communication modes.

ACADEMIC RESEARCH

Academic respondents generally considered face-to-face communication to be the preferred option for developing collaborative research projects.

One respondent, for example, advised that ideas 'flew' during face-to-face collaboration to a far great extent than over a computer.

Other respondents also thought that ideas flowed better during face-to-face meetings, in part because people were more relaxed and could engage in more 'brainstorming' and discussion.

Researchers further concur that face-to-face communication can be an important factor in developing higher levels of trust between the parties (Hossain & Wiggan 2004).

Computer video linkups, in contrast, were seen as being more formal and/or more stilted, with people thinking that they were on a fixed time period - i.e. once the video meeting begins the clock's starts ticking for a set time period.

Respondents also complained that video technologies in particular often did not work properly and or took a long time to organise, including arranging for everyone to log in. In this regard it's difficult for team members to be relaxed and/or swapping thoughts if the system keeps breaking down. It further links into the *ease of use* requirement discussed earlier.

ICT based collaborative technologies in this context were therefore seen as ***support tools***, that allowed face-to-face meetings to be organised and/or allowed for more basic follow up meetings once the original ideas for the collaborative research project had been explored during earlier face-to-face meetings.

Other academic respondents advised that they will use these technologies 'if they have to', such as to coordinate activities with overseas based researchers, with Skype as their preferred ***default*** ICT collaborative medium (outlined in further detail below).

This suggests the need to:

- **Further develop strategies that seek to change academic staff attitudes/culture on the potential benefits of ICT-supported collaborative work technologies;**
    - For example, points for the need to further encourage people to better use and/or exploit new University video and communication technologies that have better functionality than older technologies such as Skype.

- **Ensure that these technologies are easy to use and work on a seamless basis.**

OPERATIONS/ADMINISTRATIVE WORK

Both academic and general staff respondents appeared more open to using ICT-supported collaborative workplace technologies for conducting general meetings and day-to-day operational type work.

Respondents also saw value in being able to use these technologies in lieu of travelling between campuses and/or not having to travel across campuses.

While most respondents were used to meetings being conducted via video linked lecture theatres and rooms, few respondents were using computer-based video conferencing facilities. Of those that did, Skype was the preferred communication medium.

The exception was some general staff respondents who were using the video capacity of the IP phones in order to reduce travelling times (outlined in further detail below).

This suggests the need to further publicise the benefits and functionality of new computer-based ICT-supported collaborative work technologies, such as Webex and Jabber, and enact strategies to further encourage their use.

WEB-BASED SEMINAR, TEACHING AND SUPPORT SERVICES FOR INTERNATIONALLY BASED CLIENTS

This research further found that some University centres were keen to exploit the potential of ICT-supported collaborative tools to better support their international operations, servicing their international client base, including:
- conducting seminars and workshops overseas;
- accessing overseas expertise (e.g. to help conduct workshops via the internet);
- maintain contact and better support collaboration amongst their members;
- potential extra sources of finance – i.e. increased access to new clients; and
- increased access to industry contacts, including access to external research consultancy tenders and other forms of collaborative research funding.

ICT-supported collaborative technologies were further seen as offering the opportunity to reduce the costs associated with providing off-shore courses and seminars, as delivering courses to overseas based clients on-site is expensive.

3.3.5 CURRENT ESTABLISHED *DEFAULT* ICT TOOLS VERSUS NEW TECHNOLOGIES

SKYPE VERSUS WEBEX/JABBER

Technologies often compete in the marketplace. Following an initial period of diversification, a **market-based preference** for one of these technologies often emerges. This may then lead to a **dominant standard** which will persist until displaced by new technologies (Stoneman, 2002).

The standard technology that emerges may also not necessarily be the most efficient choice, with the dominance of the QWERTY keyboard and the success of the VHS system over the competing Beta video recording system being cases in point. (David 1997).

Similarly, the Skype voice over internet protocol (VoIP), which has existed for a relatively long period of time, has in many ways emerged as the **default standard** for IP calls for many people in both their private and work lives.

This was readily apparent amongst the respondents with virtually all the academic staff reporting that Skype was their primary medium for engaging in IP video conferencing with colleagues and/or project team members outside of the University (particularly for international calls).

Discussions on the superior functionality of new technologies including Jabber and Webex did not generally appear to sway respondents as they:

1. felt that Skype, supported by email communication, was 'good enough' for their requirements;

2. did not want to have to ask their externally-based colleagues to download new software and/or register for Webex, in order to contact them, as most of their external colleagues had already downloaded Skype; and

3. did not have the time or desire to learn a new system or program, with which they had no prior experience – i.e. linked to time constraints and opportunity costs.

How then does the University shift its staff towards using newer INS supported technologies with associated better functionality? Potential strategies include:

- **Further publicising the advantages and superior functionality of these newer technologies, especially how they may better help staff perform their roles; and**

- **Better integrating these communication modes into general in-house University activities, so that staff become better accustomed to using the new technologies. For example, greater use of these communication modes as alternatives to staff having to physically attend School and Department meetings.**
    - **This in turn requires a change in management culture and philosophy, as some managers are currently averse to using web-conferencing tools as they prefer to have staff turn up in person.**

- **Therefore, management support is required in order for these programs to become widely used.**

IP VERSUS ANALOGUE PHONE

General feedback on the roll out and installation of IP Video phones was mixed.

None of the respondents had received formal face-to-face training regarding how to use the IP Phone, which limited their knowledge of its functions. Many respondents, for example, reported that they simply turned up and found a new video phone in their office.

Some respondents however had used the on-line IP phone training programs, which they thought were very helpful.

While some respondents found the video component engaging and useful, others thought it was a distraction and left it turned off. The latter group tended to advise that to them a 'phone was a phone'.   A third group normally left the video on except when they were having a 'bad day!'

Impact on behaviour

Many respondents commented on how the IP Phone video component impacted on user behaviour. Comments included:
- It's harder to hide personal feelings because you can 'see' each other's response;
- You tend to be more careful with what you say, as the callers get instant facial responses;
- It can be like starting a new relationship when you 'see' someone for the first time. Most respondents saw this as a positive as they could often put a name to a face for the first time;

Advantages

- One respondent strongly supported the IP Phone as they estimated that the video-conferencing component had cut down their travelling time between campuses by about two-thirds. This further supports the above premise that people will embrace something if they can see what's in it for them.
    - However, the same respondent wasn't interested in using Webex as they felt that 1) the IP Phone provided all the functionality that they needed and 2) they couldn't see the need to invest the time to learn another program.
- Respondents also advised that in the past a phone call was often simply a way to organise a time to meet up with the person at a later date in order to discuss and finalise an issue (i.e. the phone call simply initiated an "I'll come and see you to discuss the matter…"). In contrast, the video component deepened the interaction between the users which allowed issues to be better sorted out without a follow up face-to-face meeting.

Disadvantages

Typical comments relating to the disadvantages of the IP Phone included:
- not everyone has their video turned on. However this may happen over time, as some respondents reported that they have started to use the video component after an initial waiting period;
- it's frustrating when people don't look at you face to face (e.g. distracted by using the computer etc.). It's also sometimes difficult to face the video camera yourself depending on what other work you're doing at the time;
- IP phone works well, but it's still not a replacement for face-to-face communication

This feedback suggests that further on-going training and support for the IP Phones would assist in the greater optimisation of their use.

3.4 Conclusions

This research outlined potential benefits and challenges related to the adoption and greater use of ICT-supported workplace collaborative technologies across the Griffith Business School (GBS), including the roll out of new technologies under the INS Unified Collaboration Project.

The report highly recommends follow up research to ascertain the uptake and use of these ICT-supported technologies across the GBS over time, as proposed in the report's four phase approach.

The report found potentially significant quantifiable savings linked to the increased adoption and use of these tools across the University, based on reductions in staff travel between and across campuses, associated projected decreases in staff time-related opportunity costs, greater productivity, better work/life balances and reductions in CO_2 emissions. The latter supports the University's sustainability initiatives.

The report further outlined and examined the role of ICT-supported workplace collaborative technologies in fostering innovation and knowledge creation.

The research uncovered five key underlying themes amongst University staff member respondents:
- Trust;
- Work/Life balance;
- Training issues;
- Face to face versus Virtual Collaboration;
- Current Established *Default* ICT tools versus New Technologies.

The voluntary uptake and use of new technologies was highly correlated to their perceived usefulness and ease of use. Importantly, the perceived benefits of the new technologies had to outweigh the time and opportunity costs associated with learning new ICT programs and work practices before staff would voluntarily seek to adopt and use new programs.

The heightened ability to engage in telework and operate under more flexible working conditions was viewed positively by employees, especially those with family commitments. This was particularly apparent with female respondents, which reinforces the ability of these tools to support University staff equity goals.

The report found the use of more traditional ICT-supported workplace collaborative tools, such as video-conferencing rooms, to be well established.

Participation in newer collaborative technologies associated with the roll out of *newer* technologies associated with the Unified collaboration Project, however, is still in its early stages.

These new workplace collaborative tools further face *competition* from established ICT tools such as email and Skype.

The report found that barriers to the adoption of new technologies were **not** related to the performance and/or functionality of newly rolled out programs such as Jabber or Webex.

Rather, barriers to adoption were related to the belief that current technologies worked well enough and that the perceived benefits of adopting the new technologies did not always outweigh the associated time and opportunity costs of learning new ICT programs.

This in part was related to a lack of knowledge of the benefits of the new programs amongst some respondents, which is understandable given their relatively recent roll-out.

These results reinforce the need for the University to conduct an *ongoing campaign* that will continue the momentum of the INS Unified Collaboration Project.

It will further require *management leadership* to assist in overcoming organisational cultural barriers, with some managers currently reluctant to embrace and/or support the adoption of virtual group meetings as potential alternatives to face-to-face gatherings.

Failure to maintain the momentum of the Unified Collaboration Technology Project risks a plateauing of the gains outlined above. This could further negatively impact on the *future potential savings* that these new technologies can provide.

The below recommendations therefore outline potential strategies that aim to shift the University to better support the *ongoing* and *widespread* adoption of ICT-supported workplace collaborative technologies.

3.5 Recommendations

1. **IMPEMENTATION OF FOUR PHASE APPROACH AS OUTLINED IN SECTION 2.**

- **Phase 1: Preliminary investigation and report;**
- **Phase 2 : Implementation of report recommendations;**
- **Phase 3: Follow up qualitative and quantitative research to be conducted in second half of 2015 to gauge longer term adoption of workplace technologies following CISCO technology rollout. Follow up interviews to be conducted by ICT supported video and/or web conferencing to further promote workplace technology adoption;**
- **Phase 4: Continued implementation, monitoring and ongoing review of project.**

Please note: this report covers Phase 1 of the above proposed four phase approach.

2. MANAGEMENT LEADERSHIP

Proposed strategies require new workplace and operational practices to better support the adoption and on-going use of ICT-supported workplace collaborative technologies. This requires management (including senior management) to take a leading role in encouraging and supporting these changes.

Proposed strategies include:

i) **Greater adoption of virtual participation (e.g. via staff members' computers or laptops) at group meetings as a potential alternative to staff members having to be physically present.** For example, this alternative could be offered for:
- Departmental Meetings;
- School Meetings;
- Academic Council Meetings;
- Research Seminars.

ii) **Telework**

- Greater management support for staff to engage in telework and/or flexible work practices via ICT-supported collaborative workplace technologies.

3. PROMOTION OF 'EMPLOYEE OWNERSHIP' OF NEW TECHNOLOGIES

The two main antecedents of psychological ownership of new ICT programs are *perceived ease of use* and *usefulness*.

Staff ICT training strategies and associated promotion of these new technologies therefore could focus more on the concrete material user benefits rather than more technical underlying aspects of the program, as workers are more likely to use and fully exploit new collaborative technologies if they can see real benefits to their working lives. For example,

- more efficient use of their time;
- reduced work-loads; and/or
- the ability to create a better work/life balance.

4. WORKPLACE CHAMPIONS

INS could seek to locate staff who are willing to act as '*Champions*' of the new collaborative technologies and encourage their use across their own Departments and/or Research Centres.

This further helps to promote '*Trust*' issues amongst workers, given that their colleagues are using and promoting the technologies.

5. PERSONALISED TRAINING

i. Provision of more '**one on one training**'*.

ii. Provision of a more ICT **'solutions'** approach that can be **tailored** to the specific needs of **individual and/or group circumstances** (i.e. as opposed to more generic one-size-fits-all technologies).*

* The report recognises the cost implications for providing these kinds of specialised services but such requests were not a theme of this research.

6. OVERCOME ENTRENCHED USE OF EXISTING TECHNOLOGIES

Developing strategies that seek to change entrenched staff attitudes/culture in relation to shifting from existing technologies, such as Skype, to *new* technologies presents a challenge. Potential strategies include:

- Greater use of University supported workplace collaborative technologies for internal University activities such as School meetings and research seminars as outlined in '2(i)' above.

- Greater general promotion of the potential benefits/improved functionality of the new technologies (as opposed to existing technologies) as outlined in '3' above.

- Seek to ensure that the technologies are easy to use and work on a seamless basis.

- Use of *workplace champions* to promote these new technologies as outlined in '4' above.

7. IP PHONE

Greater promotion of IP Phones capabilities, including greater promotion of where IP Phone resources and associated training support can be found.

This could include follow ups/phone calls to individual staff members, as 1) these engage workers on a more personal level, and 2) emails often get lost amongst the multitude and/or put to the side.

The report recognises that these recommendations may require additional resources, however the above findings strongly suggest that any additional costs will be more than offset by future potential productivity gains and cost savings associated with the greater uptake and on-going use of these ICT-supported workplace collaborative tools across the University.

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