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Communication and Information Technologies**

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**A Design for the Effective Use of
Corporate E-mail**

by Supriya Singh and Annette Ryan

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The Centre for International Research on Communication and Information Technologies is a research centre at the Royal Melbourne Institute of Technology.

CIRCIT was set up in 1989 to provide independent research and education on information and communication services. The aim is to create new knowledge that is relevant to the community, industry and government so as to increase the social and economic wellbeing of people in Australia and other parts of the world.

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Preface

CIRCIT's research program places strong emphasis on understanding what makes for the effective use of new information and communications technologies. The concept invites an exploration of questions in three domains:

- What relevance and use will the new communications technologies have for individual users?
- What benefits – economic, social and in terms of sustainability – will flow for business and industry from the manufacture and use of the new technologies?
- How will social networks and public polity benefit from the adoption of new communications possibilities?

This study by Dr Supriya Singh and Annette Ryan of how e-mail, the most ubiquitous and popular of the communication protocols made available by the Internet, is used within a large organisation is not only radically consistent with the Centre's research objectives, but is indeed timely and germane.

Under the banner 'The evils of e-mail', Elspeth Wales writes in *The Australian* of 26 September 2000 (IT, p.13) that "...people love sending e-mails, but many managers don't realise they may be liable if an employee misuses company systems". She rightly highlights some of the "top down" issues that also emerge in this study.

But the scope of this work is much broader: it locates difficulties that emerge for individuals and their target audiences and for an organisation as a whole within a broader understanding of how e-mail can be used to improve the communications culture of a "smart" enterprise.

It explores information overload and ambiguity of communication style – two of the bugbears of individual e-mail users – within the context of people preferring e-mail as a mode of communication for certain interactions. The study shows how e-mail can enhance the quality of interaction within an organisation if attention is paid to:

- Training for staff in technical and communication skills;
- Negotiating workgroup practices in relation to, for example, appropriate channels for different types of communication, archiving and etiquette; and
- Establishing clear organisational protocols about matters such as personal use, privacy and acceptable use.

The support of Professor Robin Williams, Dean of the Faculty of Art, Design and Communication at RMIT University, and of the Education and Training Executive Committee of the university, the insight of Reference Group members, and the candour and good grace with which participants spoke about their experiments with e-mail give the study its salience and relevance. To them, we are all indebted.

Assoc. Professor Terry Laidler

Director, CIRCIT

Tuesday, 3 October 2000

Executive Summary

This project examines the use of e-mail in communicating with and between staff of an Australian university. The aim is to design a framework for the effective use of e-mail at all levels of the University. This examination is prompted by concerns about the effectiveness and far-reaching impact of e-mail on the internal communication of the University and its activities.

The University needs to take action at the corporate, workgroup and individual levels so that staff can effectively use e-mail for their activities and communication with varied audiences. At the corporate level, the University should encourage and evaluate the use of e-mail together with discussion groups and the Web to promote a culture of dialogue and participation. The University needs to facilitate discussions at the workgroup level about the preferred use of e-mail within the context of other communication channels, e-mail etiquette, the management of e-mail and the workload, and the development of individuals' skills in communicational and technical competence. The University also should set and monitor user-centred service standards for access, reliability, compatibility and ease of use of University e-mail.

Design focuses on users, activities and audiences

Our approach centres on the users of University e-mail, focusing on their activities and audiences. This focus on users, activities and audiences delivers a design that takes into account the way staff with different skills and needs use e-mail within the context of other communication channels in the cultural context of their workgroups. This approach differs from the business re-engineering approach previously taken by the University to automate discrete business processes such as accounting, electronic messaging, and academic management.

Staff use of e-mail

E-mail is one of the principal channels of communication and is now integral to all activities of the University. Most e-mail communication between staff – other than support services and research staff – is within the workgroup. E-mail is however not the dominant communication channel for all activities.

The key issues of e-mail use arise from the tension between the way the automative and transformative characteristics of e-mail interact with activities and audiences. E-mail is a speedy and asynchronous communication channel that can be cost-effective and can automate existing processes of business communication. On the other hand, e-mail is also transformative. It is direct. It can extend a conversation to a large number of participants. It straddles written and spoken communication. It has the potential to transform the nature of communication and redefine work and roles in the organisation.

The importance of the key issues that emerge from the study of staff e-mail use differs according to staff roles. Key issues include:

- Managing the volume of e-mail

- Judging the appropriateness of e-mail as a communication channel for different activities
- Promoting university-wide discussion of the core activities of the University via e-mail, discussion groups and the Web
- Retaining records and the management of e-mail
- The blurring of the boundaries between work and home

Building a communication culture of participation and dialogue

The University needs to harness the participatory potential of e-mail, for it can widen conversations staff and students have about teaching, learning, internationalisation and the use of the new information and communication technologies. Strategies need to be put in place particularly at the corporate and workgroup levels to encourage a culture of dialogue and participation.

The University should build on initiatives in flexible learning and teaching, where e-mail together with discussion groups and the Web have at times drawn in a larger number of participants to initiate and/or continue conversations. This greater participation is not solely a function of the new technologies; it has to be accompanied by a communication culture of dialogue.

As most e-mail communication is within the workgroup, the University needs to facilitate workgroup discussion of the effective use of e-mail. Workgroups need to openly address the communication dimension of their activities. They need to consider issues of access, response, copying and forwarding, volume, cost, impact on workload, the appropriate use of e-mail, what records need to be retained electronically and/or physically, the filing and archiving of e-mail and e-mail etiquette.

The University and the workgroups also need to set in place flexible programmes to develop individuals' communicational and technical competence in the use of e-mail. These programs need to take into account the varied expertise and needs of staff, particularly in the context of their workgroups. Formal training is important but workgroups also need to encourage peer-to-peer support and guidance.

Enhancing the usability and functionality of e-mail

There is a gap between the technical evaluation of the use of corporate e-mail systems and individual users' perceptions of its usability and functionality. The issues are clustered around four main areas – access, reliability, compatibility and ease of use.

The University needs to supplement the technical monitoring of the e-mail system with user-centred and activity-centred monitoring and performance measures. This shift involves articulating service standards for issues important to individual users, comparing these standards with the level of performance presently delivered and monitoring lines of action to narrow the gap. User-centred monitoring will require constant feedback from users and non-users about their satisfaction with University e-mail together with data on the technical performance of the e-mail system at the corporate, faculty and individual levels.

1 Introduction ¹

E-mail is a fraught issue in many organisations. The speed, ease and reduced cost of sending e-mail have led to e-mail becoming an important way of communicating within large organisations. In Australia 85 per cent of organisations with more than 100 employees had e-mail access in 1997-1998 (Australian Bureau of Statistics, 1999).² However, e-mail has also led to information overload and changes in the nature of organisational communication and work. The challenge for organisations is to reap the benefits of speedy and cheaper communication while ensuring that communication is effective. The most far-reaching change will be to harness the potential of e-mail together with discussion groups and the Web to promote an organisation that encourages participation and dialogue.

There are widespread concerns about the effectiveness of e-mail use in organisations. The measurements however have been about productivity rather than effectiveness. Ferris Research for instance has estimated that the overall benefit in increased productivity equals about \$US9,000 per employee. This includes time not spent on dealing with snail mail minus the extra time spent on non-productive e-mail. This survey however does not deal with the area of non-quantifiable costs and benefits such as decision making.³

Research on the use of e-mail in organisations has dealt mostly with the behaviour of the sender rather than the behaviour of both sender and recipient. Where the recipient's behaviour has been the focus of study, the emphasis has been on the "effects of information overload... and the ability of the sender to ...persuade the recipient" (Williams, 1999, p.1).

Many organisations have formulated policies and guidelines for the use of e-mail. One of the important drivers is to protect the legal and commercial interests of the organisation. Guidelines on e-mail etiquette are necessarily broad. Various models have been suggested. (See Allen and Bell, 1997, *Electronic Communications at work, 2000*; National Archives of Australia, Year unknown, Sherwood, 2000).

In this report, we focus on the user of e-mail in the context of his or her activities and audiences. This emphasis on the user leads to recommendations at the corporate, workgroup and individual levels. The recommendations emphasise two areas of action: building a communication culture promoting dialogue and participation, and enhancing the usability and functionality of e-mail.

¹ We would like to acknowledge the advice of the Reference Group which comprised Erle Bourke, John Burke, John Haynes, Paul Kennedy, Terry Laidler, Norbert Nimmervoll, Sandra Oxley and Robin Williams. We would also like to acknowledge the work of David Prater, Researcher, CIRCIT at RMIT. He participated in the literature search on the use of e-mail in organisations, and helped with the later interviews and the workshop.

² There are no ABS data on the percentage of employees in large organisations with e-mail access. The closest approximation is that 12 per cent (307,000) of the employees in organisations with 100 or more employees have Internet access.

³ E-mail productivity gains +\$9,000 per employee, 'Investors Business.Daily 25 May 2000, cited in NewsScan, 25 May 2000.

1.1 Aims and significance

This project examines the use of e-mail in communicating with and between staff of an Australian university. The aim is to design a framework for the effective use of e-mail at all levels so that the University can deliver world-class international education. The University like other business organisations has to move “from a ‘product push’ organisation to a ‘client-centred’ or market-oriented organisation” where “the needs of the clients must be understood and catered for” (Dunkin, 2000, p. 6).

This examination is prompted by concerns about the effectiveness and far-reaching impact of e-mail on the internal communication of the University and its activities. Though the focus is on internal communication, staff-student communication is an important part of the University’s activities. This project however does not delve into the wider pedagogical issue of the use of online channels for teaching and learning.

This project is significant at three levels.

- First, it is important for the University as a corporate organisation to communicate in the most effective way possible.
- Second, it is particularly important for the University, which strives for excellence in the study of new communication technologies, to understand its own use of these technologies.
- Third, this study will contribute to the understanding of the use of e-mail for corporate communication in general.

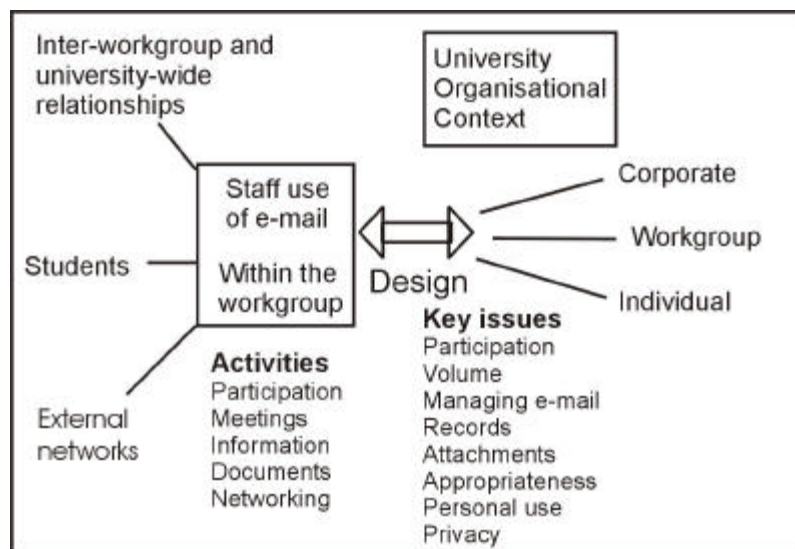
2 The design focuses on users, activities and audiences

Our design for the effective use of corporate e-mail focuses on the users of university e-mail, their activities and audiences. The user and his or her activities are placed at the centre of the questions. The questions and concepts then focus on the process and nature of communication rather than on the technologies and channels that are being used. Communication and the use of channels are studied within their social context.⁴ The social context of communication is particularly important, for ignoring that context produces “tunnel design” (Brown and Duguid, 2000).

The focus is on the staff as the main user group. The University’s main activities are teaching, research, management, administration and the provision of support services. These functions are addressed to different audiences – staff in the workgroup, staff throughout the University, students and external associates. The activity areas have many component activities in common, such as participating in meetings and discussions, transmitting and receiving information, sending, receiving and working on documents, and networking.

This emphasis on users, activities and audiences differs from the business re-engineering and technology approach taken by the University in automating discrete business processes such as accounting, electronic messaging and academic management. Figure 1 depicts our approach:

Figure 1: Approach to designing for the effective use of e-mail



⁴ We draw on the users’ perspective used in previous CIRCIT research – Singh, S., Bow, A., and Wale, K. (1996). *The Use of Information and Communication Technologies in the Home*. Policy Research Paper No. 40. Melbourne: CIRCIT Ltd; Singh, S. and Slegers, C. (1998). *Small Business and Electronic Commerce*. Policy Research Paper No.44. Melbourne: CIRCIT at RMIT; Singh, S. and Ryan, A. (1999). *Gender, Design and Electronic Commerce*. Research Report No.25. Melbourne: CIRCIT at RMIT. Also see Kling, 2000; Silverstone and Haddon, 1996 and Singh, S. (forthcoming).

2.1 A qualitative study

We start with a qualitative study of the use of e-mail by 30 staff with varying responsibilities and levels of computer expertise. The interview sample includes a selection of senior and middle level managers, staff primarily involved in teaching and research, and administrative and support staff. In the sample, we include staff from varied faculties, together with a deeper examination of the culture of a range of workgroups. The interview data were analysed using NUD*IST (Non-numerical Unstructured Data Indexing Searching and Theorising), a computer program for the analysis of qualitative data.⁵

This is a “grounded study” in that the data drive the emerging theory, rather than validate a pre-conceived design. Mid-way through the interviews, we conducted a workshop with 14 staff drawn from areas supplementing those covered in the interviews. We asked the workshop participants to comment on our interim understandings and point to additional areas for investigation. This enabled wider consultation and helped bridge the study of use and design. Subsequent interviews – some with workshop participants – probed the design issues. Throughout the study, we also periodically consulted with members of our reference group which comprised senior and middle managers with relevant expertise in the use of e-mail. The participants in the study also had the opportunity to comment on the draft papers arising from the project. (See Attachment 1 for the spread of the interviews, workshop and reference group)

⁵ For a detailed examination of NUD*IST and the research process, see Singh, S. (1996). Money, Marriage and the Computer. *Marriage and Family Review*, Vol. 24 (3/4), pp. 369–398.

3 Staff use of e-mail

E-mail is one of the principal channels of communication and is now integral to the administrative processes and activities of the University. E-mail is however not the dominant communication channel for all activities. Most e-mail communication between staff – other than support services and research staff – is within the workgroup. The workgroup may include staff from across faculties as in University committees or may comprise a section of a department or school.

The key issues of e-mail use arise from the tension between the way the automative and transformative characteristics of e-mail interact with activities and audiences. E-mail is a speedy, asynchronous communication channel that can be cost-effective. Its transformative character draws on the directness of e-mail. It can extend a conversation to a large number of participants. It straddles written and spoken communication. It has the potential to transform the nature of communication and redefine work and roles in the organisation.

This categorisation of the automative and transformative characteristics of e-mail builds on Zuboff's (1988) earlier distinction between the automating and informing effects of the computer on business processes. In her study of the introduction of the computer in a range of service and manufacturing organisations, she found that the computer not only automated business processes, but it "informed" business processes. The computer gave additional information about the processes which made possible a different way of doing business.

The importance of the key issues that emerge from the study of staff e-mail use differs according to staff roles. Key issues include:

- Managing the volume of e-mail
- Judging the appropriateness of e-mail as a communication channel for different activities
- Promoting University-wide discussion of the core activities of the University via e-mail, discussion groups and the Web
- The retention of records and the management of e-mail
- Blurring the boundaries between work and home

3.1 Managing the volume of e-mail

The tension between the automative and transformative characteristics of e-mail is illustrated by the contradictory effects of e-mail on the volume of communication.

On the one hand, the ease of e-mail transmission and its partial substitution for the telephone, fax and snail mail is said to have led to an increase in productivity. However, this very ease of transmission has also led to a sometimes burdensome increase in the volume of communication, so that e-mailing is emerging as an activity that is increasing staff workload and further blurring the boundaries between the workplace and home. A Morgan and Banks survey (2000) which asked employees to rank the top stress factors in the workplace found that respondents ranked e-mail as the seventh most stressful part of their job – ahead of performance reviews, new technology and meetings.

It is difficult to resolve whether e-mail has led to increased productivity. It is also not clear whether this increased productivity is because of the comparative ease of communication or because it has increased staff workload. Because of its asynchronous nature, e-mail can increase the volume of interaction. Beatrice, an administrative assistant, finds that “Things that used to take a phone call are now taking half a dozen e-mails”. At the same time, e-mail also has the contrary effect of making it easier to arrange a meeting with a large group.

It is also difficult to speak exactly of the time spent on e-mail. For the most part, staff say that e-mail adds up to an hour to their workload. In our interviews, some middle managers tell us that e-mail and its accompanying attachments take up 50 to 90 per cent of their working day. Later in the interview they re-assess that estimate, for they have not differentiated the activity from its communication dimension.

Organisations do not generally measure or allocate time for the communication dimension of activities. A McKinsey study finds that though average Americans spend 51 per cent of their time in the office interacting, interaction “tends to go unmeasured and unmanaged” (Uren, 1998). So we do not have any benchmarks as to how much time was taken on the telephone, in face-to-face meetings, on mail and fax. It is easier to identify the time taken on e-mail because of its asynchronous nature. The workload also increases because e-mail does not go away and can be addressed outside working hours and the office. It is clear however that managing the volume of e-mail will become a greater challenge as the use of e-mail in organisations increases. Ferris Research estimates that by 2002 staff “will spend more than four hours each day reading and answering an average of 50 work-related messages” (Zhou, 2000).

The volume of e-mail differs according to the role of the staff member and according to his or her personal preferences. We found that:

- Staff receive between 20 and 80 e-mail messages a day. The senior staff we interviewed reported 30-100, middle managers 15-80, administrative and support staff 10-20. Staff involved mainly in teaching receive 10-30. When subjects are being taught online, the volume can go up to 160 e-mails a day before student assignments are due.
- It is known that the University receives about 80,000 external messages a day. The University’s e-mail system does not provide information about internal message traffic. Senior management staff spend most of their working time in face-to-face meetings. Their approach to e-mail varies. Some have their e-mail screened by their personal assistants (PAs) in the same way that their telephone calls and mail are managed. Others prefer to deal with their e-mail personally. Their PAs then have a back-up role and deal with the e-mail only when the managers are not available. In some cases, both the senior executive and the PA have an active role in responding to e-mails.
- Middle managers without administrative assistance feel most strongly that e-mail has created a communication overload. It is not unusual for them to respond to e-mails after hours.
- Managing the volume of e-mail is particularly important in student-staff communication. Student-centred learning emphasises open communication between staff and students, and between students and students. To deliver this open communication and manage staff time efficiently, the best practice in the University involves using discussion groups (with associated Frequently Asked Questions) to reduce the number of routine enquiries e-mailed to staff and

encourage student-to-student communication. Tutors or teaching assistants can also help manage the volume of e-mail that results from such open communication.

- The volume of e-mail varies widely within different workgroups. The communication style of the head of the workgroup is the single most important factor influencing the amount of e-mail generated within the workgroup.

3.2 Matching communication channels, activities and meaning

E-mail is an important medium of communication and is now integral to the administrative processes and activities of the University. This has been particularly evident in the last two years. As Sophy,⁶ a senior executive, says, we have moved to the point “that if you haven’t read your e-mail, if you haven’t sort of read the material that’s sent to you, then you’re not really doing your job”.

Though e-mail has become the preferred communication medium for a number of staff, e-mail is not the dominant communication channel for all activities (see Figure 2). For effective communication, staff need to understand the inherent characteristics of the channel, the needs of their activity, the communication choices of their audience and the social and cultural meanings of e-mail communication.

In matching the characteristics of the channel to the activity, we use aspects of the “information richness” theory and the social theory of information. The information richness theory stipulates that channels have inherent characteristics which make them rich or lean. Face-to-face interaction is the richest media as it allows the opportunity for immediate feedback, conveys multiple cues tailoring messages to personal circumstances and offers language variety. Similarly, oral media – face-to-face and the telephone – are richer media than mail and written reports for they provide immediate, multi-dimensional feedback (Markus, 1994).

The information richness theory however presupposes a transmission approach to information, seeing information in input and output terms. It also assumes actors will rationally match medium to activity. We place equal importance on the communication choices of the audience and the social and cultural meanings associated with the activities and channels of communication in different activity contexts.

Our approach thus has a greater similarity with the social theory of information which emphasises the “sense-making” dimension of information, seeing information as a construct of the user (Dervin & Dewdney 1986). Markus (1994) and Ngwenyama and Lee (1997) have highlighted the social context, arguing that the choice of media and their perceived “richness” and “leanness” are influenced by the social context and meanings ascribed to activities and channels.

The fit between channel, activity, and meaning leads to some common patterns of use and some usage patterns that differ according to staff roles.

As depicted in figure 2, we found that for all staff:

- Face-to-face interaction continues to be the most important communication channel for developing policies and processes, solving problems and resolving

⁶ The names of all the respondents in this report are pseudonyms to preserve confidentiality.

conflict, developing a team approach, conveying complex ideas, and for gaining incidental information that is important for understanding the context of work activities.

- E-mail is most effective for sending short, simple messages, interim communication between face-to-face meetings, question and answer exchanges, working on common documents, and extending and enriching networks. Discussion groups and mailing lists enable discussion of specialist topics with a wider group than is possible through other communication channels.
- E-mail has largely replaced fax transmissions, which are now used primarily for transmitting documents that are not available in an electronic form.
- E-mail has replaced telephone calls and mail (both internal and external) to a significant extent. This change has been particularly advantageous for overseas communication. Like mail, e-mail provides a written record. The asynchronous nature of e-mail also makes it a more efficient medium than the telephone for many transactions. However, the telephone is still the preferred channel for highly interactive communication.

Behind these common patterns of use are stories of inappropriate use. Many staff glory in e-mail being short, direct, and straddling written and spoken conversation. As Gillian, a senior executive, says, it allows her “to cut to the chase”. This delight in the directness of e-mail is expressed by men and women in the organisational context. But Ramona, a manager who is relatively new to e-mail, is becoming aware of some of the ways in which the lack of context to e-mail can lead to misunderstanding. She says,

One of the biggest problems with e-mail – it’s like writing anything – is that you know what you meant to say, you know the tone you meant to say it in.... but it may be received in a totally different way, because we haven’t got the face-to-face [communication].

Francis, a senior executive, talks of how the immediacy and potential cost-effectiveness of e-mail, if not used properly, can disable an organisation. He says,

You have got a meeting at four o’clock so there is a belief that you can send paperwork up to half past three by e-mail because there is this notion that it is time and geography independent and therefore I have sent it, my responsibility is over... So the notion of when people might read their e-mail or how they might engage in it, the notion that somebody might be off campus all day up to that four o'clock meeting doesn't feature into the originator’s mind. The fact that it is sent means it is received.

Umberto, a senior manager, has also experienced the debilitating effect of late paperwork on decision making. He thinks there are a lot more ad hoc meetings today than there used to be. Getting papers 15 minutes before the meeting he thinks has led to a deterioration in “quality decisions in the meetings”. He says, “I can remember sitting down and reading through a stack of documents preparing for a meeting and making the comments on the papers as you go and then going into the meeting and having something to contribute on those points. Now the [papers] tend to come later”.

Often the cost effectiveness of e-mail for the transmitter does not translate into cost-effectiveness for the recipient. Francis says if you are sending a stack of 15 papers to 10 people (in the same campus) instead of e-mailing them to the photocopier, it is

much better producing the lot on a multiple photocopier and hand-delivering the papers. The dynamics change when one considers buildings distant from the city campus. It often translates into using e-mail to back up the internal mail. As Sophy, another senior executive, points out, it is these concerns which have made for a move in some committees back to hard copies.

It is difficult to resolve the issue of cost effectiveness. E-mail is cheaper than internal mail, but one has to take into account the shift of printing onto the recipient. When an e-mail is not received, it also translates into time being wasted at high level meetings while the papers are photocopied, so that everyone can refer to the same document. In some cases, the lack of preparedness of the staff has meant that meetings have been deferred.

Is it more cost-effective to e-mail the copies or to refer to files on an accessible computer drive or a Web site? The question is pertinent particularly in regard to files in excess of 10MB as with digital photography or post-graduate theses. However, here the workgroup also has to take into account the interests of people working remotely. This may lead to using a mixture of e-mail, files on the local server and documents on the Web.

The appropriateness of e-mail, as with any other communication channel, varies according to staff roles. As we noted in section 3.1 the time spent on e-mail and the volume of e-mail differ according to staff roles. The two other main differences are in the use of jokes and mailing lists.

Senior staff do not send jokes to their colleagues, whereas jokes are seen as the networking glue for many administrative and personal assistants. Gillian, a senior executive, says, "I would never joke on e-mail... Just as you wouldn't commit yourself in writing a memorandum to saying things that are inappropriate, so I don't have any jokes in my e-mail at all". No senior or middle managers reported sending jokes or paying any attention to jokes that may be received.

In contrast to this pattern, for administrative assistants jokes can be a large proportion of e-mail and essential for networking. Deborah, an administrative assistant, says she keeps in touch with staff at other Victorian universities mainly through lunches and exchanging e-mail jokes. She says her jokes folder is probably her biggest e-mail folder. Karen, also in administration, says when she gets e-mail from staff at another campus, "It might be a bit of business or it might be jokes... They're very sociable". She likes jokes but has had to cut them back because reading them and passing them on "was taking over" her life.

Administrative and support staff in our sample see mailing lists as clogging up the e-mail. For some management staff and all teaching and research staff, the mailing lists they have selected are essential parts of their networking. There is an overlap at times between mailing lists and friendship networks. They offer effective ways of getting current information about specialist interests.

Michael a sessional teacher, says that e-mail and mailing lists have enabled him to contact colleagues working in his discipline overseas. He says, "It allows for a multi-national conversation to take place that otherwise wouldn't have been possible".

It is important to recognise this difference in the use of e-mail between different groups of staff. Senior staff may be hasty in dismissing the social and personalising role of jokes for organisational communication, because jokes are not an important

part of their day. However, this raises the important policy issue of defining “personal” communication in a way that includes the social context of communication.

Figure 2: Preferred communication channels for specific activities

ACTIVITIES	CHARACTERISTICS OF ACTIVITY AND PREFERRED CHANNEL	MOST APPROPRIATE.....			LEAST APPROPRIATE
Meetings						
Arranging meetings	Interactivity, reaching the appropriate people, timeliness	Telephone	E-mail			
Sending short, simple documents	Instant transmission, asynchronous reception	E-mail	Mail*	Fax		
Sending long documents or graphics	Cost effective, document control, cross-platform compatibility	Web site or local server	Mail	E-mail (PDF format)	Fax	
Reaching understandings of process and policy	Interactivity, negotiation, consensus	Face-to-face	Telephone	E-mail		
Interim communication	Short communication in context	E-mail	Telephone			
Information						
Question and answer exchanges	Informality, speed, short communication, record	E-mail	Telephone	Face-to-face		
Sharing information						
Conveying complex information	Interactivity, clarity, context, sense-making	Face-to-face	Web	E-mail	Telephone	
Confidential information	One-to-one communication, no record	Face-to-face	Telephone			
Gaining important incidental information	Comfort, shared context	Face-to-face	Telephone	E-mail		
Formal notification	Written record, reliability of delivery	Mail	E-mail			
Accessing information for research	Immediacy, relevance, currency	Web, e-mail, mailing lists**	Face-to-face	Mail	Telephone	
Responding to students' complex queries	Interactivity	Face-to-face	Telephone	E-mail		
Responding to students' simple and routine queries	Efficient use of staff and students' time	Discussion groups***	E-mail	Face-to-face		
Information circulation – one to many	Reaching all students and/or staff, cost effective, time sensitive	Discussion groups, mailing lists, group e-mail	Mail	Face-to-face	Telephone	

ACTIVITIES	CHARACTERISTICS OF ACTIVITY AND PREFERRED CHANNEL	MOST APPROPRIATE.....LEAST APPROPRIATE			
Documents					
Working on common documents and reviewing them	Easy to edit or annotate documents	E-mail	Fax	Mail	
Different versions of the document	Keep track of the changes	Mail	Fax	E-mail	
Receiving assignments	Certainty	Face-to-face	Mail	E-mail	Learning Hub
Networking					
Within the workgroup	Comfort, shared understandings	Face-to-face	Telephone	E-mail	
Keeping in touch with a wider group	Comfort, continuity of contact, interactivity	E-mail	Telephone	Face-to-face	
Networking for research	Shared understandings, sense of community	Face-to-face	E-mail		
Participation/Discussion					
Within the workgroup	Interactivity, trust, coming to shared understandings	Face-to-face	E-mail		
At the university-wide level and beyond	Wide reach, interactivity, trust	Discussion groups and mailing lists	E-mail		

* Mail refers to 'snail mail', internal and external

** Mailing list messages are sent to a number of people who can reply to the list.

*** Discussion groups are threaded discussion groups like the WebBoard. They are also known as newsgroups.

3.3 E-mail can lead to more participation and dialogue

There is a reasonable use of e-mail for two-way communication between students and teachers, between staff in some departments and between staff and some external networks. In some departments the use of e-mail to follow up issues raised in meetings has reduced the need for more meetings.

E-mail has made it easier to do collaborative work. Gillian, a senior executive, says, "A lot of documents are developed through collaborative activity". A person works on a document, sends it to another, who makes changes and sends it back by e-mail. "So it really facilitates wider participation if you're open to the idea... People can get into the conversations and comment on drafts."

For researchers, e-mail and the Web have increased access to information and to other researchers. Terence, who does scientific research, says, "I use e-mail 100 per cent of the time for communication with colleagues. Most of my research is done with people outside the department. So it's my main conduit to writing papers".

However, at the level of the University as a whole, e-mail is mainly used for top-down dissemination of information. E-mail has not yet been significantly used for University-wide discussion about key issues and future directions, such as changes in teaching and learning, the continuing internationalisation of curriculum and its development into an international university.

3.4 Managing e-mail and the retention of records

The potentially wider participation that is possible with e-mail leads to redefining the document and record in the context of the University. It means having to revisit traditional understandings related to retaining records.

The directness of e-mail is changing the management of communication and the role of the personal assistant. New ways of keeping track of communication need to be devised. Some staff expressed occasional difficulty in identifying the authentic version of a document. A useful practice seems to be to circulate the final version of a report or similar document in a read-only PDF file. The wider issue here is to ensure that corporate knowledge is recorded in a way that is accessible and retrievable.

One of the important roles of personal assistants used to be to channel, track and register in-coming and out-going communication. E-mail communication which goes directly to the senior executive and is wholly or partially dealt with by the senior executive means that the personal assistant is not as easily able to track communication.

Where the senior executive deals wholly with his or her e-mail, the personal assistant is kept out of the loop. There is a residual role for the assistant in that he or she is expected to alert the senior executive to any urgent issue that appears on e-mail in the executive's absence.

The greatest confusion in roles happens when both the senior executive and the personal assistant are managing the senior executive's e-mail. Deborah, a personal assistant to a senior executive, is in this category. She says,

The e-mail's got me at the moment. With normal mail you get it, give it a number and then D [her boss] will send it to whoever for action. But the e-mail, I might never see it. So I can't record it or give it a number.

Deborah has access to her boss' e-mail, but D looks at it herself also. Moreover, Deborah also doesn't know what direct communication D has had with someone else on the matter. It gets particularly awkward when D is away and still looking at her e-mail. "So it's a lot of doubling up and losing track of things... You are never sure which version of anything is up there... It gets very messy." For instance, she found out from a room booking that D should probably be attending a meeting in the afternoon. She says,

But it's not in the diary because nobody's let me know that this meeting's on. It would have been in the last lot of minutes they received which had been sent to D. So I'm just pretending ignorance on that one. I don't think she wants to go anyway.

Deborah thinks there may be a way of letting D know what actions she has taken, by annotating the original e-mail. But as yet, she hasn't figured out how to do that on the

University e-mail system. The changes in communication management, Deborah thinks, are leading to D taking on more than she should. Looking at D's e-mail, she notes that D has 17 e-mails awaiting attention. "I'm sure at least half of those she doesn't need to even see."

3.5 Blurred boundaries between work and home

The increased volume of e-mail combined with remote access is blurring the boundaries between work and home. This redefinition means reconsidering "personal use" within the legal frameworks of the privacy of electronic communication.

In our sample, senior management staff were more likely to assert they do not attend to their work e-mail at home. But they also have administrative assistants who more often than not are checking up after a day off or before Monday morning that there are no surprises waiting for them.

Working on e-mail at home is most characteristic of management staff with significant organisational responsibilities but no dedicated administrative assistance. Abigail, who has significant managerial responsibilities at the faculty level, spends two hours some nights plus an hour before work in the morning to get through her 20-80 e-mails a day. She says, "I often get replies from people saying, 'It's nine o'clock at night. What are you still doing at work?' In fact I'm at home 'working'".

Umberto, one of the senior support personnel in the University, says that at a particularly heavy period he responded "to an awful lot of e-mails on Sunday afternoon because I didn't have time during the week... I did it for over two and half months".

The alternative to taking work home is to put in long hours at work. Ramona, whose work is mainly management but with some teaching responsibilities, receives approximately 30 e-mails a day. She spends a couple of hours doing the e-mails after 5.30 pm and yet it is frustrating "that at the end of the day you haven't been able to at least answer 10, 12 of them". She says, "A couple of months ago I was going through a stage here when I was working till 12 at least once a week. I try not to do it". Despite the long working hours, she e-mails from home too.

This blurring of the boundaries between work and home influences staff perception of the use of University mail for personal use. Cyrus, a manager, says he uses his own PC and Internet Service Provider when working at home, so there should be no objection if he does some personal e-mail in the office. It is more a matter of principle, for most of his personal communication is on the phone.

In the next two sections we argue that in order to address these key issues of e-mail use the University needs to build a communication culture which can harness the participatory potential of e-mail. The University also needs to enhance the usability and functionality of its e-mail system so that e-mail is accessible, reliable, compatible and easy to use. It is these transformative aspects of e-mail that need to be addressed from the users' perspective at the corporate, workgroup and individual levels to build an effective communication culture.

4 Building a communication culture

There is a tension between the technological and organisational perspective on the one hand and the users' perspective and social context on the other. The technological/organisation perspective most often goes in tandem with an emphasis on the automative aspects of e-mail. In the technological and organisational perspective that is most common in organisations, e-mail is seen as an electronic messaging system. At times it is also seen as an "electronic post office" and an "electronic photocopying" system.

To realise the potential of the new technologies, the University needs to address the transformative aspects of e-mail from the users' perspective at the corporate, workgroup and individual levels. This approach will encourage a culture of dialogue and participation. Greater participation is not solely a function of the new technologies; it has to be accompanied by a communication culture of dialogue.

At the corporate level, the University should build on the initiatives being developed in flexible learning and teaching, where e-mail together with discussion groups and the Web have at times drawn a larger number of participants to initiate and/or continue conversations.

The University also needs to facilitate workgroup discussion about the effective use of e-mail. As most e-mail communication is within the workgroup, workgroups need to openly address the communication dimension of their activities. They need to consider access, response, copying and forwarding, volume, cost, the appropriate use of e-mail, what records need to be retained electronically and/or physically, the filing and archiving of e-mail and e-mail etiquette.

The University and the workgroups also need to set in place flexible programmes to develop individuals' communicational and technical competence in the use of e-mail. These programs need to take into account the varied expertise and needs of staff, particularly in the context of their workgroups. Formal training is important but workgroups also need to encourage peer-to-peer support and guidance.

4.1 Corporate initiatives

The major change at the corporate level is to supplement the technological and organisation-centred approach with a user-centred perspective which takes into account the social context of communication. The users' perspective is not usually at the centre of organisational strategy. As Ruth Dunkin, RMIT's Vice Chancellor, says, her University's strategy has been one where proven technologies and business practices have been used to "overlay" and substantially upgrade the "efficiency and effectiveness of existing operational practice" (Dunkin, 2000, p. 8).

Adopting the users' perspective will mean that different issues will come to the fore in policy. This perspective also alters the way issues such as personal use and privacy are addressed.

At present, the main aim of the University's Electronic Communications Policy (Electronic Communications, 1999) is to protect its legal and commercial interests. The Electronic Communications Policy that applies to University staff and students acknowledges the importance of the "use of electronic communications in the conduct

of University business and affairs”. The Policy acknowledges the privacy of e-mail while stressing that e-mail generates legal records which have to be submitted, if required. The Policy also acknowledges the legitimacy of limited personal use of e-mail at the University. It is also clear about inappropriate and offensive use such as the transmission of confidential material, pornography and spamming.

We recommend the policy aims be widened to address the address the key issues arising from the use of e-mail. As detailed in figure 3, the University needs to have corporate policies in place regarding dialogue, the management of the volume of e-mail and the retention of records, and the blurring of the boundaries between the home and work.

4.1.1 Encouraging participation and dialogue

The users’ perspective reveals that e-mail is a different way of having a conversation, where the conversation itself is the major part of the activity. It is similar to the argument made in the *Cluetrain Manifesto* where the markets are the conversation (Levine et al, 2000).

As detailed above in section 3.3, there is reasonable use of e-mail for two-way communication between students and teachers, between staff within departments, and between staff and some external networks. To harness the transformative aspects of e-mail, the University needs to actively encourage participation and dialogue. Francis, a senior executive, says when there is dialogue via e-mail, it becomes “part of a free flowing conversation” between meetings.

The dialogue has not transferred from face-to-face meetings to the electronic medium. Cathryn, a manager in the learning services area tells of their attempt to set up a clearing house of good examples of teaching through the Library. She says,

That was not taken up. People did not want to publicise what they had done. They did not want to share it. I don’t know if we have gone further than letting people look at each other’s work. I don’t think we have actually tried to set up a conversation where they can talk about their work and the work of others.

A culture of participation and dialogue is needed for e-mail to be used in a participatory way. Quercus, a senior executive, says that if a project team has developed some confidence in its team work and there is clarity about tasks, then e-mail can facilitate project work and even substitute for meetings. You can then “build ideas and contribute to the building of ideas... by e-mail”. But first there is a need to put in the time to build up the understanding and trust.

These conclusions are substantiated by an ethnographic study of a virtual discussion forum and organisational support system (OSS) based on e-mail and the Intranet in an Australian university in 1997. Cecez-Kecmanovic et al. (1999) of the University of Western Sydney, Hawkesbury, Australia, found that the OSS was at first used for top-down communication and the dissemination of documents “to support existing power structures and relations” (p. 25). At the group level, there were varied practices. Staff feedback was co-ordinated by the manager of the unit in some cases. In others, there was more open group communication that was summarised and sent to the OSS or individual representations. However, as the University let go its control over policy documents, draft documents pertaining to the academic and research structure went on

the Intranet. Despite some scepticism about the process, “a real, deep, yet subtle change was slowly occurring” (p. 25). They say,

This change is about the control and ownership of the channels for knowledge communication and sharing. It has implications for the ways knowledge is created and accepted as valid organisational knowledge (by top Executive versus knowledgeable participants). These changes are potentially powerful in affecting the painful transition from a bureaucratic, authoritarian type of organisation to a more democratic and participative one (p. 25).

4.1.2 The management of e-mail

The management of e-mail includes being able to manage the volume of e-mail and retain corporate records. The use of the Intranet, discussion groups and mailing lists together with e-mail should decrease the extent and number of e-mail messages directed at individual staff. However, a more participatory culture will also potentially increase the volume of e-mail messages. A greater dialogue, particularly around draft documents, will also bring up the question: What is a corporate document? Can drafts be published or can only final policies be published?

As depicted in figure 3, the University needs to give direction on the kinds of records that need to be kept at the corporate and workgroup levels. A digital resource strategy is important not only for record-keeping but for ensuring a continuity of corporate memory. With electronic communication, this clear articulation of policy is more essential than with non-electronic communication. As Beulah of the Human Resources Group says,

I think at the University level there should be very clear guidelines about what e-mails are kept on the University’s records, because it’s never been articulated before... The University has legal obligations, especially when you think about laws relating to Freedom of Information ... and the Public Records Act.

She fears that the gap in the tracking and recording of corporate e-mails is potentially dangerous. She says the worry is that one day there will be documents that the courts want but the University will not be able to deliver.

4.1.3 Redefining privacy

There is a difference between the way staff talk of the privacy of e-mail communication and the focus in the University’s policy.

The main aim of University policy is to articulate all the aspects of privacy and monitoring so that it is legally covered. The University seeks to protect personal privacy of e-mail communication. This protection is subject to the University’s compliance if a court subpoenas e-mail records. It is also subject to federal and state legislation applying to the privacy of personal information.

Though monitoring staff e-mail is not a University practice, the University reserves the right to monitor e-mail records:

- if it suspects that e-mail has been used to transmit objectionable content, that is pornography, content containing “racial vilification, cruelty or violence” and content that is defamatory;

- to track lost or misdirected mail.

It must be noted that deleted files can be recovered and used in court proceedings. There is no way however that internal e-mails can be tracked by the University, for they are encrypted.

Staff speak of privacy more in terms of recognising when e-mail should not be used for communicating a certain kind of information to a specific audience. Staff say:

- It is important to recognise the public nature of e-mail as a communication channel, primarily because you cannot control how e-mail is forwarded.
- Though e-mail is recognised as a public and insecure channel, often the urgency of the matter requires e-mail. Confidential material is more often e-mailed between senior people.

Staff we spoke to did not question the right of the University to monitor staff e-mail, and were confident that the University did not do it as a matter of routine. Staff we interviewed were also convinced that if the University did do it, they would not find anything of great interest.

4.1.4 Personal use

University policy aims to put boundaries around staff's personal use of the University's IT systems. The general policy is that the University's IT systems must be used:

- by staff for the purposes of their employment and their professional development; and
- by students for purposes directly related to their studies.

The policy goes on to state that staff are allowed to use the IT systems for personal use outside work hours and for less than half an hour per day. It is widely believed that this clause is a catch-all clause to cover issues that are not otherwise covered in the policy.

The University policy needs to address the personal nature of professional communication. The reported personal use of e-mail while at the University is minimal. For the most part, the boundaries are blurred when University work is done at home using external Internet Service Providers. The University needs to address this blurring of the boundaries between work and home.

4.2 Workgroup practices

The University needs to facilitate workgroup discussion of the effective use of e-mail. As most e-mail communication is within the workgroup, workgroups need, perhaps for the first time, to openly address the communication dimension of their activities. They need to consider issues of access, response, copying and forwarding, volume, cost, implications for staff workload, the appropriate use of e-mail, what records need to be retained electronically and/or physically, the filing and archiving of e-mail and e-mail etiquette (see figure 3). The need to maintain a balance between work and home needs to be addressed as e-mail increasingly blurs the boundaries. Moreover, the workgroup needs to put in place ways in which e-mail can be used for more participation and dialogue rather than merely automating previous communication activities.

Workgroup managers also need to ensure that employees are aware of University policies on offensive mail, personal mail and privacy. There is often a lack of awareness on the part of employees of corporate policy on these matters (MISweb, 2000).

Our study shows there is a wide variation of workgroup practices in the University. These range from e-mail being the primary mode of communication to e-mail being used as a matter of last resort. Central to these practices are shared understandings about preferred ways of communication. A key role is played at this level by the senior manager and his or her communication preferences. This conclusion is in tandem with Markus' (1994) study of organisational e-mail where the importance of e-mail reflected the chief executive's preferred way of communicating.

Each workgroup has its own priorities. Etiquette is obviously an issue that worries many senior executives. Sophy, a senior executive, says that in her group one of the major concerns is that staff do not understand that e-mail is business communication.

They say things with e-mails that they would not say on the telephone or face-to-face or in a letter... Some of the e-mails I've seen are obviously just someone pouring out what they think... So there needs to be perhaps more guidance than is provided by our procedures on the use of e-mails for staff to think again about how they're communicating with each other.

Umberto, a senior executive in the support services, says he feels there is a need to work out an etiquette within the context of their workgroup. He says,

I was thinking about the concept of the blind copies. It actually can breathe mistrust in the organisation if people are using that sort of technology. I find I seldom, if ever, use a blind copy scenario... You would have to be very cautious about the receipt when you have been blind copied in terms of a bureaucratic environment... If I receive a blind copy of something... it says to me I have to be conscious of that information (but) not to use it in such a way that people know that I know what the difficulty is or the problem or the issues in relation to something. Maybe ... it has been settled at a different level and I'm not supposed to know.

We present three case studies that illustrate the variation in group practice and the important role of the head of the workgroup in the use of e-mail.

4.2.1 Computer Science – E-mail is the preferred means of communication

E-mail is the preferred means of communication for staff and students in the Computer Science Department, Faculty of Applied Science. It is a group of expert users with most of the 80 to 90 staff having used e-mail for 10 to 15 years. The department has its own active Unix newsgroups for staff announcements and general issues. Staff interaction is so dominantly via e-mail that the staff meeting room has been taken over by their graduate students.

The head of the department said in the Corporate E-mail Project workshop in July 2000 that you build a communication culture in similar ways as you build any other form of culture. You do that "...to some extent by management, by pointing out that somebody is using bad practice".

It is expected that staff and students of the department will access their e-mail at least once a day, so there is some certainty that messages have been received. That is not overtly stated, says Arthur, the Co-ordinator of the Open Learning Australia program in the department, but “it’s almost second nature”.

There are some protocols established about the clarity of subject headings and the length of the message. A discussion may not exceed a page. When a subject has been discussed in two e-mails, then it is time for a meeting. This is more of a guide than a rule. Arthur says, “It’s not a written-down set of rules. It’s a feeling more or less”. He says that with issues such as time-tabling, he varies it and might go to and fro for four or five e-mails without a meeting. It probably has to do with staff levels, Arthur says. With senior staff, face-to-face meetings are more important.

As for the tone of the e-mail, Arthur says:

We have this implicit rule... I know sometimes I get angry about something and I’ll give it what we call the overnight test... The other rule I use too is that if what I’ve got to say is going to take paragraphs, then ... I’ll have to say it on the phone or direct. It’s just too time consuming to put it into e-mail.

E-mails are filed by individual staff in e-mail folders, but any e-mails that pertain to matters of department record are forwarded to the administrator to be logged in the appropriate place. This practice has resulted in a nearly paperless office. Arthur looks at his filing cabinets and says there is hardly anything there that is after 1995. There is little printing of e-mail, with documents being read on the screen. For meetings, they go with their notes and rarely with the documents.

There is a continuity between the culture of the workgroup and e-mail practices in flexible teaching and learning. Each of the four semesters has 500 students taking a variety of subjects. The department’s Open Learning Australia (OLA) Web site notes, “The preferred means of communication between staff and students is e-mail. Phone contact is intended only as a backup when e-mail is unavailable”. With students spread all around Australia and coming from as far as Mongolia, e-mail is more effective than the phone.

Students are given clear instructions of whom to contact. The Web site has a Frequently Asked Questions section on the Web site. Students are asked to post questions there if they think the answer would be of general interest. The aim is that other students would answer the questions. This section is monitored and once for every five questions, the instructor or the tutor has to give the answer.

Assignments are marked on the screen with embedded comments. The e-mails the students send directly to their instructor usually have to do with their assignments and are the channel for intensive tutorial consultation. Students are given specific contact addresses for their subject. They are expected to put a clear subject heading including their course number. Given that these conditions have been met, the department’s Web site manager says, “We aim for, and indeed average, four-hourly turn-around of e-mail, 24 hours a day, seven days a week”. Zoë, one of the lecturers, says she probably does better than four hours. Arthur says,

I think a lot of students who go online... feel that they’re on their own... One thing that will make them come to us is if they believe they’ll get good service.

For Arthur, the e-mails vary from 20 to 80 a day for a subject taken by 150 students. These 80 e-mails take up to four hours a day to address and monitor. Arthur says these four hours can be slotted in during the day and the intensive periods don't last long. The department fulfils its service charter by having a group of two to 10 tutors monitoring and responding to e-mail. The tutors are in Melbourne and other parts of Australia and one is in Hong Kong. The instructor scans the e-mails, picking up those that refer to new subjects. The group copies their responses to e-mails to the whole group. This adds to the volume of e-mail received, but ensures they all know how the e-mails are being handled. The group would have preferred a multi-user system, but this brings security concerns. Hence the trade-off between volume and security.

The e-mail communication feels so real and friendly that after two or three weeks, Arthur says, you get an e-mail from a student saying, "Hi, it's Alex here". They do not know that we may have two Alexes and get some 100 e-mails a day. But even for the instructors, these e-mail relationships feel more personal than face-to-face communication with students. There is one-to-one communication with all the online students, whereas it is only with students who seek out the lecturer that such personal communication takes place.

4.2.2 E-mail is written communication – Human Resources Group

Staff in the Human Resources Group started using e-mail four or five years ago. In 1994, there was only a sprinkling of computers, unlike the present situation where every staff member has one. Hence most staff in the department do not have a long history of computer and e-mail expertise. In this department, e-mail is used as a way of more efficient record-keeping and information dissemination.

Staff in this department are in e-mail communication with staff throughout the University. In addition to one-to-one communication, the department uses e-mail to circulate information by mailing lists to keep relevant staff throughout the University informed of administrative changes. An example is the mailing list of 400 people who were responsible at the local level for the implementation of the new accounting system in 1999.

Manuals and forms that can be accessed by University staff are placed on the department's pages of the University Web site. E-mail is used mostly for its automative characteristics and is welcomed because of its speed, directness, privacy and efficiency. A lack of clarity about the status of e-mail use for some activities comes from its informality and the fact that it can straddle written and spoken communication. At present there are no formal policies about the retention of e-mail records.

The prevailing view of e-mail in the Human Resources Group is expressed by Umberto, a manager. He says, "E-mail is akin to any form of formal written communication and that's how we ought to address it". The department treats print-outs of e-mail as written records. Yet for some of the formal communication initiated by the department, letters are still used in preference to e-mail.

Though the department's e-mail audience is University-wide, the department has distinctive workgroup practices in relation to e-mail. Staff are acutely conscious of the legal status and implications of many of the documents they receive and transmit by e-mail. Almost all messages sent and received are printed and filed to maintain a record of communication and to ensure the continuity of corporate memory.

Because e-mail is written communication, it is “fantastic” for providing records, says Doris, a branch manager. She prefers e-mail to the telephone because e-mail is a more reliable and accurate way of generating file notes and memos than writing notes of telephone conversations. E-mail is also more private for confidential communication than the telephone. She says,

If you’re working in an open-plan office, the telephone is a very non-private instrument to talk either about a problem you may have or to deal with a client who’s got a problem... E-mail I think is brilliant for privacy and confidentiality... I think it’s the best thing we’ve got going short of the old-fashioned letter. It’s safer than a fax unless you’ve got somebody standing there [to receive it].

When more interactivity is required, a meeting is arranged. At the end of the meeting, the practice is to send an e-mail message noting the agreements and the issues discussed. E-mail is embraced unambiguously because of its efficiency. Doris says that after a conciliation meeting, when she gets back to her desk, she e-mails to the effect that,

‘We think it’s been very successful. You realise this is what we’ve agreed to do and we’ll be in touch...’ Otherwise, we would had had to come back, done a memo... printed it out, sent it off. Two days later it might arrive.

E-mail also records that both parties to a conflict receive the same advice. Doris says, “We don’t want one person to be getting different advice, so it’s a terrific thing for them to see ‘Jane Brown CC John Smith’”. This practice is one of the reasons that in this workgroup sending blind copies is seen as “devious”.

E-mail as a written record can have its down-side. Umberto tells of a particularly sensitive case. After certain allegations about a staff member had been disproved, the staff member in question sent Umberto an e-mail saying that the department must ensure that nothing about the allegations would be included in his file. He did not know that nothing relating to the allegations was already on his file but of course all e-mail relating to personnel matters is printed and filed.

Group practices relating to the control of documents are well developed in this department. Umberto gives an example – “Umberto Xxx organises this meeting so he is responsible for every paper associated with this meeting, and you set rules and time lines and everything else about doing that”. All documents for meetings are sent as attachments. At the meeting though, hard copies of the documents are also available.

The practice for working on common documents is that working documents must have “Draft” on them and the date. When documents are finalised, previous versions are deleted.

For dealing with staff appointment and termination, it is clear that only formal letters are acceptable. Beulah, a manager in Personnel Services, says, “We have templates for all these key activities”. However, for some kinds of communication there is some uncertainty about whether e-mail is always appropriate. Beulah says,

In many instances e-mail has become more efficient than memo writing. But there are still certain circumstances where I’ll fall back on memos... if I were preparing an agreement or if I were to write ... to say all the Deans and the top management...It may be ...[considered] improper to use e-mail, which seems very informal, and what I want to

say may be fairly formal... I myself would like some clarification on whether management would deem it inappropriate to use e-mail, given that e-mail is really very efficient”.

The legal status of e-mail remains unclear. At present, for casual payment claims, the auditors require the paper form signed by the supervisor. Other documents which require signatures are also transmitted in paper form.

It is clear however that e-mail in this department is written, considered communication. Beulah says,

I do like my e-mails to have the right spelling, right sentence structure... While e-mails are less formal than memos, I would still like them to be properly written, because to me it's an official document.

The other side of the formality of e-mail is that jokes are often sent around the workgroup. Beulah says she received a very offensive one, which had been sent to her by mistake. She says, “It tells me that it must be something very commonplace within the workgroup... When the person found out, he said, ‘I haven't lost my job, have I?’” Though there is a University policy about inappropriate e-mail, this is an instance when the policy has to be reinforced at the workgroup level by the manager.

Unlike letters and memos, for which there are templates, there is no agreement within the department on formats for formal e-mails. Doris usually writes letters on letterhead and in the appropriate format and sends them as e-mail attachments. To expedite pending matters that require a signature, Doris will often e-mail the letter and follow it with the signed, posted copy. But she notes that even large firms of solicitors are now beginning to send advice in the body of an e-mail message rather than attaching a formal letter or memo or mailing a letter.

4.2.3 “I do not read copies” – Changed e-mail practices at a research centre

Most of the ten research and administrative staff of a multi-disciplinary research group have an extensive history of using e-mail. However most staff do not see themselves as technically expert.

The recent change of Director and the implementation of the University e-mail system at the Centre in July 2000 provided an opportunity for the group to openly articulate its understandings of the use of e-mail. The main difference from previous practice was that the new Director said he would not read anything that was copied to him. This was a continuation of practice from his previous workplace. His strong preference was for face-to-face communication. With a small group spread over two floors, he said it was possible to come and talk to each other rather than sending multiple e-mails between the contiguous offices. Moreover, he made it known that he will read his e-mail before 10 in the morning and before he left the office, not in-between.

After discussion, it was decided that e-mail attachments would be used mainly to transmit documents where there is a team of internal and external researchers working on a project. For communication within the Centre, reference is given to the working documents in folders on the local server. The group has not yet decided how to deal with this activity when one of the staff is working at home. Putting documents on the

website is not an immediate solution as only the Webmaster is permitted to modify the Web pages on the centre's site. She is also the only person with the PDF software to convert Word files to PDF documents.

As for records relating to accountability, e-mail between a project manager and funders is to be filed not only by the project manager but also placed in the central filing system.

The open discussion of the issues of access, copying and forwarding, and keeping records has meant in general a two-thirds decrease in the use of e-mail within the research centre. The use of e-mail for internal communication has to be justified. One staff member says, "I wouldn't have any e-mail some days if I didn't subscribe to a couple of mailing lists".

4.3 The varied skills of individual users

There is a great range of e-mail expertise among University staff between departments and within departments. In our study we had staff members who spoke confidently of translating PC files for Macintosh use and vice versa, whereas for others, this was their point of greatest difficulty. Some staff regularly filed their e-mail for easy retrieval, whereas others had more than 1,000 messages in their in-box. The variation in skills is most evident between departments such as Applied Science and Engineering, which have been using e-mail for more than a decade, and departments such as Business, Arts and Social Science where many staff have started using e-mail relatively recently.

There are also variations in the level of skills within departments. These "internal" variations seem to be influenced by three factors: the level of general computer skills, the aptitude for working with systems and the personal preference for communication channels.

Staff recognise the influence of the level of general computer skills. Abigail, who has used computers for many years, says that her information technology skills give her "a context for e-mail use". Julie, a teacher, admits, "I'm not really technically advanced", and similar perceptions were expressed by a number of staff who recognise they are not using e-mail as effectively as they could. Staff who are experienced users of specific applications but have little or no experience of using the Internet usually need more skills development before they can use e-mail effectively.

The level of keyboard skills also influences the use of e-mail. Staff who touch-type or have used a keyboard for a long time find e-mail a more comfortable medium than those whose typing is laborious. As Naomi, a teacher, says, "It's an issue about your skills, your computer skills and your typing skills. It's very easy to lift the phone and talk". Horace, a middle manager, says, "I never typed back in the typewriter era, and of course I've had assistants who do a lot of things".

Staff who are experienced users of systems use and control e-mail without problems. Lucy, a librarian, and Elaine, an executive assistant, approach e-mail in the same way they organise the rest of their work. Elaine says she didn't accept the offer of training last year because "I'd already worked out things, because I think it's a fairly simple system".

The third type of variable that influences the level of e-mail skills is the personal preference for communication channels. Personal preference seems to have as much

influence on e-mail use as the staff member's role and the appropriateness of the different communication channels for particular activities. Staff who are "text-based" communicators find e-mail a very satisfactory medium. Those who have always preferred face-to-face interaction to other forms of communication use e-mail much less because they find it impersonal. They find e-mail lacks the context they get in face-to-face or telephone communication – an interactive context which they like for everything more than the simplest exchange of messages.

4.3.1 Developing skills

A range of strategies is required to develop staff communicational and technical competence in e-mail. These strategies include a user's manual, training and informal peer support and mentoring. Technical support is an essential component for success.

A small, printed user's manual should be an option for staff who are accustomed to developing their skills in that way. The online Help is not user-friendly for users who are unfamiliar with the terminology used for a particular application; it does not provide the same overview as a printed manual; and it is physically less easy to use. A manual also reinforces and supplements training sessions.

Training should be provided in two forms: formal group training and electronic workbooks. Each form should be available for both beginners and intermediate users. Training sessions should be available at different stages of use, since some staff find it more valuable before using a new application and others prefer to have some experience first. Training sessions meet the needs of the many people who prefer to learn in a face-to-face context.

Another advantage of training sessions is that they overcome the "no time" problem. Several staff are like Beatrice – perfectly capable of learning functions from a user's manual but they haven't had time to get around to it. As Beatrice, an administrator, says, "I haven't had a lot of time to learn the e-mail system properly, so I don't use it to its capacity". A training session is "dedicated" time when the participants' attention is focused.

Training sessions can also be used to improve broader communication skills than simply the use of the features of a particular application. In the case of e-mail, the skills required in addition to using the application include:

- the appropriate use of e-mail in the context of all available communication channels;
- e-mail protocol; and
- managing e-mail.

Training sessions are also appropriate occasions for reinforcing e-mail etiquette. Some of the issues that have tripped up novice users are the use of capital letters, unwittingly spamming the system by putting an out-of-the-office message on e-mail to all, and replying to all when the reply was meant to go to a select group of recipients.

The strategy for skills development that seems to be universally welcomed is the provision of technical support on a workgroup or departmental basis. Technical staff who are personally known to other staff provide advice on using applications in addition to carrying out technical trouble-shooting. Technical, activity-focused assistance at this level is seen as the most valuable adjunct to formal training.

Ramona, who admits she hasn't been able to work out some of the functions of the University's e-mail system and who has been unable to get technical assistance at times of need, says, "I believe every school should have a technical person to provide support for the University's e-mail system and the computers". The workgroups we studied which have such support consider it one of their most valuable resources.

Figure 3: Policies, practices and skills for building a communication culture

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
<ul style="list-style-type: none"> • Improve University-wide communication processes to promote discussion about core issues 	<ul style="list-style-type: none"> • Lead moderated electronic discussion groups which encourage participation rather than top down communication • Openly value participation • Place draft documents on the Web for discussion about issues central to staff work roles and welfare 	<ul style="list-style-type: none"> • Recognise the value of participation in University-wide discussions • Set up discussion groups which deal with workgroup issues where staff have the opportunity to influence the outcomes • Set up discussion groups for student-centred learning 	<ul style="list-style-type: none"> • Participate
<ul style="list-style-type: none"> • Volume of e-mail 	<ul style="list-style-type: none"> • Integrate e-mail with the Web, discussion groups and the local server so that e-mail is used effectively • Put training systems in place so that staff can work on documents on Web sites • Address the communicational dimension of activities and their implications for staff workload 	<ul style="list-style-type: none"> • Specify the role of e-mail in workgroup communication vis-à-vis other channels • Limit the number of messages on the same subject – before a meeting is arranged • Agree on a policy limiting the forwarding and copying messages, including blind copies • Work out ways of limiting time spent on routine e-mail while increasing staff ability to use e-mail for dialogue 	<ul style="list-style-type: none"> • Check whether e-mail is the most effective way to communicate in a particular activity and audience context
<ul style="list-style-type: none"> • Management of e-mail 	<ul style="list-style-type: none"> • Promote exemplars of effective management across a range of workgroups 	<ul style="list-style-type: none"> • Shared understandings of how often e-mail should be read (e.g. daily) • Specify reasonable response periods for internal and external e-mail 	<ul style="list-style-type: none"> • Share with colleagues effective ways of managing e-mail

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
		<ul style="list-style-type: none"> Bring to the workgroup's attention the importance of following e-mail etiquette Agree on expectations of formatting, spelling, subject heading, length and tone of message Organise training to improve skills in using the University e-mail system by providing training and a small, printed user's manual. Periodically monitor the effectiveness of e-mail management procedures 	
<ul style="list-style-type: none"> Retention of records 	<ul style="list-style-type: none"> Policy on the archiving of corporate records Policy on use of letters for specific types of formal communication 	<ul style="list-style-type: none"> Agreement on physical and/or electronic storage of key documents relating to curricula, projects or other core activities of the workgroup Discuss training in electronic and physical filing of messages for retrieval and record Use of off-line folders to minimise the cost of storing e-mail messages Guidelines on selecting folder categories and file headings to assist storage and retrieval 	<ul style="list-style-type: none"> Follow agreements on physical and/or electronic storage of key documents relating to curricula, projects or other core activities of the workgroup
<ul style="list-style-type: none"> Attachments 	<ul style="list-style-type: none"> Put systems in place so that e-mail messages can more easily refer to large documents on Web sites (particularly for remote access) or on shared files 	<ul style="list-style-type: none"> Large, complex documents to be stored on a Web site or a folder on the local server instead of being attached to e-mail messages Make available training for Web authoring Use standard formats for attachments – MS Word, RTF or PDF. Ensure that staff have access 	<ul style="list-style-type: none"> Share with colleagues the most effective ways of dealing with documents for different audiences

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
	<ul style="list-style-type: none"> Advertise the cost of disproportionate use of e-mail storage space particularly for attachments over 10MB 	<p>to the relevant software for PDF conversion from Word</p> <ul style="list-style-type: none"> Policy on the timing of the circulation of documents for meetings or review Documents of more than [n] pages should be sent in hard copy 	
<ul style="list-style-type: none"> Use e-mail appropriately 	<ul style="list-style-type: none"> Specify activities for which e-mail should not be used (e.g. for staff appointment or termination, for formal notification about contractual matters) 	<ul style="list-style-type: none"> Agree on the use of different communication channels for different activities and audiences. Shared understandings of when e-mail should not be used (e.g. when an e-mail message would lack context, can be hurtful, or when a high level of interactivity is required) Specify whether the workgroup will or will not use electronic scheduling 	<ul style="list-style-type: none"> Select appropriate communication channels (e.g. the telephone or face-to-face when complex interaction is required and e-mail for brief messages) Ensure that the communication channel suits the needs of the recipient Use a combination of channels for some activities

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
<ul style="list-style-type: none"> Personal use 	<ul style="list-style-type: none"> Policy that recognises the blurring of the work and personal domains Policy that recognises the social and hence at times personal context to work communication Within this context, specify flexible boundaries of the personal use of University e-mail facilities University policy on inappropriate and offensive use, which particularly specifies pornography, spam and gambling 	<ul style="list-style-type: none"> Personal use of e-mail at work should be discussed. There should be shared and explicit understandings as to when personal e-mail becomes a problem for the workgroup Recognise the personal dimension of work e-mail particularly for some workgroups and networks Ensure that everyone in the workgroup is aware of University policy on inappropriate and offensive use 	<ul style="list-style-type: none"> Recognise that e-mail is a public and written communication channel Be aware that you can be disciplined for the use of e-mail for pornography, spam, gaming and gambling
<ul style="list-style-type: none"> Privacy 	<ul style="list-style-type: none"> Policy which ensures the privacy of e-mail while specifying conditions under which staff and student e-mail can be monitored. <p>Legal use of records</p>	<ul style="list-style-type: none"> Workgroup practices that are clear about the privacy of staff and student e-mail – within the bounds of the legal use of records and policy on the inappropriate use of e-mail Position on blind copies The use of e-mail for confidential matters 	<ul style="list-style-type: none"> Be aware that all e-mail can technically be monitored and retrieved

5 Enhancing the usability and functionality of corporate e-mail

The University has an e-mail system which provides a single corporate identity. In 1997 the University decided to replace 13 different e-mail packages with one corporate electronic messaging service for staff. Other than providing the University with a corporate identity, the decision considered the technological characteristics of the e-mail system and its cost effectiveness. The e-mail system was rolled out to all Faculties in 1999. A pared-down version started for 50,000 students in 2000.

E-mail in the University has been administered as a technical system. Information Technology Services (ITS) is responsible for the University's wide-area network and the e-mail infrastructure systems. The faculties are responsible for the local-area networks, desktop support and administration of the e-mail Post Office (such as adding users). ITS and the faculties' technical personnel sit together on a number of committees. Since mid-2000 there has been more detailed co-ordination between ITS and the faculties to identify the weakest links in an effort to enhance the reliability of the whole system.

The tension between the providers and technological perspective on the one hand and the users' perspective and social context of communication on the other means there is a gap between the technical evaluation of the use of the e-mail system and users' perceptions of its usability and functionality. Users' perceptions vary from an acceptance of the occasional problems they experience to criticism of its reliability and functionality. The technical evaluation of the e-mail system focuses on monitoring the number of e-mail accounts, the volume of external traffic, the 'uptime' and monitoring the performance of the multi-gauge network. Another important issue is curtailing the costs of electronic communication. For users, the major developments in teaching, learning and management will lead to an increasing use of e-mail. Usability and functionality issues for users cluster around four main areas – access, reliability, compatibility and ease of use.

This gap in evaluation can also be seen as a difference between *technological access* and *social access* (Kling, 2000). Technological access in this case would refer to the physical availability of computers, e-mail accounts, the networks at the corporate and the faculty levels. Social access on the other hand refers to the users' ability to use the system.

The University needs to supplement the technical monitoring of the e-mail system with a service charter making the monitoring and performance measures more user-centred and activity-centred. This shift involves articulating service standards for issues important to individual users, comparing these standards with the level of performance presently delivered and monitoring lines of action to narrow the gap. User-centred monitoring will require constant feedback from users and non-users about their satisfaction with the University e-mail together with data on the technical performance of the e-mail system at the corporate, faculty and individual level.

This suggestion builds on recent work in the University to establish customer service targets for Student IT. These customer service targets address what students can expect in relation to access to computers, printing, log-in delay, guaranteed backup and recovery of student work, student assistance, systems availability all the time, and

quality assurance for electronic courseware standards. The measurement of customer satisfaction and priorities is an important part of this monitoring process. Similar work is required across all the activities of the University so that the systems can cope with the increased pressure as teaching becomes more mixed-mode and more electronic administrative processes are implemented.

5.1 Access and availability

There is a difference between access and availability. From the technological perspective, access translates into the number of e-mail accounts and access to the e-mail network. For staff, access means the availability of e-mail for staff and students, at the University and remotely. The system at the corporate level may be working, but because of bottlenecks at the user end, or lack of computer and e-mail access and/or expertise, the user may not be able to access it.

All staff do not have access to computers and so do not have ready access to the Internet in the University. The issue of access to computers is being addressed, but in the meantime some sessional teachers and other casually-employed staff have difficulty gaining access to a computer and hence to University e-mail. The problem is particularly severe in the Vocational Education and Training (VET) or TAFE area where a June 2000 audit showed that 43 per cent of the VET teachers did not have sole computer access. Of the 576 VET teachers in April 2000, 107 staff do not have an e-mail address listing in the University e-mail global address book or in the University's communications directory.

It is difficult to give a definitive figure for e-mail access. This is because the data available are for e-mail accounts rather than staff who have University e-mail. In May 2000, there were 4,500 registered e-mail accounts which represented an estimated 97 per cent of the target group. However the take-up rate in some faculties is as low as 78 per cent.

For students the problems of access are much greater and are particularly severe in VET departments. A librarian estimates that three-fourths of the VET students she deals with would not have Internet access.

Adequate access is also about having available the requisite capacity and speed for teaching, learning, management, administration and support. This is already perceived as a grave problem for the transmission of digital images and for some graduate students who need to work on large shared files. This issue is heatedly discussed with at least one School talking about moving away from the University's e-mail system. The student e-mail system is "just hopeless" for postgraduate students, a teacher in the Faculty of Applied Science says. Postgraduate students need to collaborate with colleagues and their work is time critical. The student e-mail system is "incredibly slow and it's just completely unacceptable", he says. Hence in their department they have given some of their postgraduate students access to the staff e-mail system. They are also considering setting up their own POP server in the Department.

At present students have the capacity of 4MB, which translates roughly into 4,000 messages. Departments can give their postgraduate students a University e-mail account for \$15 a year. Cathryn a manager who is involved with learning issues says the problem is not with the bandwidth. It is an issue of practice. Postgraduate students

...want to use e-mail to send very large files. What they are trying to do is actually very bad practice. If you want to send very large files you should be *ftping* them. The staff are not allowed to attach 5 gbt as an attachment. It just really, really downgrades the performance of the whole system... You need to tell postgraduate students that if you want to send large files you should be using ftp... Ftp is a files transfer protocol which is a way of sending files through the Internet.

At a time when teaching and learning most often involve an online component, demands for e-mail access have increased. However, as Yves, a manager long involved in online learning and teaching, says, the selection of the e-mail system was made on its technological features rather than the needs of staff and students. "It was a decision that was taken based on scalability and storage rather than the needs of the users..." Because the University e-mail system did not take into account the increasing demands of 50,000 students, a pared-down version had to be provided.

The Web-based system means that University e-mail is accessible via the Internet from any remote online computer. However, for the many staff and students who do not come to the University daily and do not have convenient and cheap remote access to their University e-mail, receiving their e-mail can be a problem.

Ramona tells how earlier this year (2000), students had been e-mailed about a substitution exam. Some students had not come in to access their e-mail and so had missed the exam. The Student Union took up the matter and said that e-mail is not appropriate for formal communication. So as e-mail becomes pervasive throughout the University system, the lack of 100 per cent access, reliability and compatibility means that staff have to ask whether e-mail is a suitable way to communicate with their students on formal matters.

5.2 Reliability

There is a gap between the evaluation of the reliability of the e-mail system at the corporate level and the way individual staff speak about it. This gap occurs because the technologists focus on monitoring the "uptime" of different aspects of the system, whereas staff evaluate the system's reliability for their communication.

Staff highlight the instances when the system does not work or the message is not received. Naomi, a teacher, says, "Our system is often so hard to access and problematic that it's often safer to use snail mail..." Xena, a course co-ordinator and involved with teaching, says she had such a difficult time with an online student that finally she took to telephoning to say she had sent an e-mail. Beatrice, an administrative assistant, says when she sends e-mail to group lists she finds that some get the e-mail and some do not. It happens often enough that for agenda and minutes of meetings, she puts them in hard copy in the staff mailboxes.

Deborah, a personal assistant to a senior executive, is also not confident that the e-mails she sends reach the recipients. She says she doesn't always get a notification that the e-mail has not been received. This is true particularly with external e-mail. Often she has to send another e-mail asking "Did you get it?" or phone them. She says she met two people in a week who had not received the e-mail she had sent. "It really worries me. What about those other ones that I've sent?" she asks. Ivan, a

manager, says the system has failed him enough for him to deliver the hard copy by hand when it is important.

The availability statistics for University e-mail in May 2000 (ETEC IT) showed 99.72 per cent “uptime” during business hours (8 a.m. to 6 p.m. on weekdays). ITS notes that this figure does not take into account local-area network issues (outages, traffic congestion, etc.), desktop system reliability (hardware or software failures), or remote access issues (telephone carrier reliability, ISP service, modem reliability).

Staff however do not distinguish between problems that are inherent in or caused by the University e-mail system and those that are caused by faculty networks. As Yves says,

All they're interested in, is that they need access, information or [are able to] participate in some sort of conference situation. They've got to be engaged in their learning..... You can't tell students and staff, 'We're going to provide a 24 hour seven day a week service' but have a network running in such an inconsistent way across the whole [university] and have unreliable service provision.

5.3 Compatibility

The issue of compatibility arises at three different levels:

- Between University and external e-mail systems
- The use of different hardware and software within the University
- Between University e-mail on desktop computers and access to it from palmtop computers

One of the strengths of e-mail as a communication channel is that it can make external communication time and cost effective. However, for external communication to be reliable, e-mail systems have to be compatible with different hardware, software and points of access. As Yves says, “We've got to recognise that the systems that we're setting up, both the technical systems and the people systems, can't afford to have a campus-centred approach... We've got to realise that people coming to our learning programs (come) from a variety of different locations”.

Ramona, a manager and teacher, wanted to communicate with her group of students by e-mail. She says, “I found the communication with them was terrific, except that three of them were on Hotmail and our system wouldn't talk to their Hotmail. That caused a problem because I assumed they'd all got the communication”. This unreliability of communication because of compatibility problems means that when communication needs to be assured, e-mail becomes unreliable.

The use of MS *Word* for attachments to internal e-mails seems to cause few problems, as *Word 2000* is available throughout the University. However its use can cause problems with external communication and when retrieving archived files, because different versions of *Word* have difficulty reading files from much earlier or much later versions.

The issue of compatibility also arises within the University, as some departments use the University e-mail system in a limited way, preferring to use the systems on their

own servers which were set up before and are deemed more effective. Arthur, who is involved in online teaching, says it is not possible to force people into one mould. “So the only thing you can do is build the flexibility.”

There is a particularly large gap in the evaluation of the compatibility of the University e-mail system for Macintosh computers. At the corporate level, the compatibility issue is seen as something temporary that will go away when old Macs are replaced. For Mac users, particularly those without advanced skills, the compatibility issue dominates all other aspects of e-mail use. There is a fear that a substantial percentage of e-mails sent from Macs are not received. The issue of compatibility comes to a head with attachments that do not open.

Even expert users like Abigail, a middle manager who uses a PC/Mac translation program, sometimes give up. She says that attachment problems, plus a difference of paper sizes between Australia and the United States, can get serious. This is particularly “if they’re using an older version of *Word* and running through the University e-mail system and sending from a Windows NT server to your Mac. By the time it gets to me, it’s often a dog’s dinner”.

Ramona, a middle level manager who is not as skilled in e-mail use, says “I’ve got two e-mails sitting there for about two months and I don’t know how to open them. I just leave them there because somebody’ll tell me some time”.

Beatrice, an administrative assistant, does a lot of her work by e-mail. She says, “I work on a PC and they’re usually fine if they’re coming from another PC but sometimes I think, well, I have clicked everything I can possibly click and I still can’t get this thing up... And it seems to be people who use Macs [who] say to me, oh look, I couldn’t open your attachments”.

Horace is in a faculty where about half the staff use Macs, most of which are recent models. Horace says, “The half that use Macs are very severely disadvantaged by the system... it’s just a continuing problem... A large number of users using different platforms are disadvantaged by the current university-wide system, and it’s a chronic problem.”

A problem of compatibility also exists when staff are mobile and trying to connect with their University e-mail or their electronic diary. Portable technologies are being increasingly used, so the issue of compatibility will become more important.

5.4 Ease of use

Staff have identified features of the University’s e-mail system which they find difficult or clumsy to use. This difficulty may relate to staff expertise rather than to limitations of the e-mail system. Examples of difficulties experienced by staff are:

- Forwarding mail without having the previous e-mail message converted to an attachment
- Adding detail to or modifying entries in the electronic diary
- The limited flexibility of the signature function
- Archiving sent messages

- Ability to put an invisible reference tag in a sent message that allows one to connect it to previous communication
- The difficulty of changing details in addresses (which can be done only at Faculty level.)
- Although the University e-mail system provides a redirection facility, two people mentioned the lack of a redirection facility
- Inability to have e-mail with multiple users on one account

No one interviewed to date has used the discussion groups associated with the University e-mail system.

Below, we examine the electronic diary that is a feature of the University e-mail system.

5.4.1 The electronic diary

There are two groups of staff – a minority who use the electronic diary and the majority who resist moving from the paper diary to the electronic diary. Only eight of the 30 staff interviewed use the electronic diary. In all but one instance, the change was initiated by the senior executive in charge of the department. Another three staff interviewed use other electronic diaries, which they prefer for different reasons.

Paper diaries are preferred by some staff for their portability and they are sometimes preferred for their flexibility. Deborah, a personal assistant, says, “We trialled it [the electronic diary] but found it just wasn’t practical. We’ve got two diaries. D [my boss] uses hers a lot for making notes of what’s gone on, and my diary, all the original meetings are kept in it whether they’re cancelled or not, so we’ve got a record of who’s cancelled things. And you just can’t do that on the electronic system”.

Elaine, another personal assistant, says that their department uses the electronic diary for booking conferences. She also tried using the electronic diary for the appointments of her boss, a Dean, but reverted to a paper diary for the following reasons:

“If this was on the [electronic] calendar it wouldn’t be as easy to get an overall view of what was going on as it is here. Now next week’s diary already looks like this and I might want to find a quarter of an hour. Much easier to just do it here. And also we did find I would be working in a particular program and someone would ring up about a meeting, and then I’d have to go over into Eric’s e-mail. It takes time when you’ve got a lot of messages and a lot of things to go through. Then I’d have to put it into the calendar it was just too slow. [With the paper diary] I can be talking to someone and while we’re talking just looking at the diary. Because he’s got so many meetings, it’s easier for us to do it this way.”

Prunella, another personal assistant to a Dean, uses the electronic diary but finds she can’t change details. “You’ve got to delete the whole appointment and start again, which is really frustrating, because you’ve only got one tiny thing to change.”

Ivan, a head of department, finds the task feature of the University e-mail system very useful. He also instructed his staff to use the electronic calendar. However, he finds some of the staff reluctant to use the calendar. He says, “People are much more

comfortable about having paper diaries than a computer-based diary. People have to accept that this is an important communication tool”. The feature seems to be most useful when everyone in a workgroup participates. As Lucy, a librarian, says, “For us it wouldn’t work because until everybody uses it at your level there is always going to be someone you are trying to communicate [with] who won’t even look there, so it would have to be a unanimous decision.”

Figure 4: Policies, practices and skills development to enhance the usability and functionality of e-mail

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
<ul style="list-style-type: none"> • Access 	<ul style="list-style-type: none"> • Monitor availability of computers, printers, e-mail and general Internet access for all staff and students at the University • Ensure that the system can be accessed from remote locations • Set performance standards about the present and future availability of required bandwidth and speed for the University's activities • Specify what users can reliably expect in terms of speed and capacity • Put in place a process whereby users' experiences are part of the way the system is continually improved 	<ul style="list-style-type: none"> • Facilitate access to computers for work • Share expectations of e-mail use when working away from the office • Articulate users' expectations about bandwidth and speed for different activities • Feed back to the corporate level issues about access 	<ul style="list-style-type: none"> • Ensure access to e-mail when working away from the University • Feed back to the workgroup issues about access
<ul style="list-style-type: none"> • Reliability 	<ul style="list-style-type: none"> • Monitor how often users can send messages when they want and how often these messages are received • Set performance standards specifying what users can expect from present systems and how and when total reliability of electronic communication can be achieved. • Work out the impact of the increasing demands of users on the reliability of the network • Continue liaising with the faculties so that the network as a whole is monitored 	<ul style="list-style-type: none"> • Liaise with the corporate level • Arrange for timely technical support • Work out contingency plans to cope with the less than total reliability of the system 	<ul style="list-style-type: none"> • Be aware that the system is not totally reliable. Hence supplement e-mail with other communication channels when necessary

KEY ISSUES OF E-MAIL USE	LEVELS OF USE		
	Corporate	Workgroup	Individual
<ul style="list-style-type: none"> Compatibility 	<ul style="list-style-type: none"> Monitor compatibility with the hardware and software used by staff and students and by external associates Monitor compatibility with multiple ways of access, particularly through mobile devices Set open standards, preferably supported by multiple vendors, to enhance cross-platform support and facilitate external communication 	<ul style="list-style-type: none"> Set guidelines for the use of hardware, applications and output formats Where required, systemise procedures to convert files from PCs to Macs or vice versa Offer training for some of the advanced compatibility issues that arise between text, audio, graphics and video 	<ul style="list-style-type: none"> Use agreed output formats
<ul style="list-style-type: none"> Ease of use 	<p>Address issues relating to forwarding e-mail, modifying electronic diaries, archiving and referencing sent messages and enabling secure, multi-user e-mail</p>	<ul style="list-style-type: none"> Offer training to increase staff expertise so they can get the most out of the present system 	

6 Conclusion

The study of the use of e-mail by staff in an Australian university shows that organisational strategies are likely to succeed if they take into account the transformative aspects of e-mail from the users' perspective. The major change at the corporate level is to supplement the technological and organisation-centred approach with a user-centred perspective which takes into account the social context of communication.

In considering the two main areas of policy – building a communication culture and enhancing the usability and functionality of e-mail – we have shown how this change in perspective allows different issues to come to the centre of policy. It also leads to a re-interpretation of areas that are already being addressed.

Addressing the transformative aspects of e-mail from the users' perspective involves a change in organisational culture and the language of policy-making. A failure to address these issues can prevent an organisation from using the potential of the new communication technologies to create a culture of dialogue and participation.

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Attachment 1

Spread of Interviews, Workshop and Reference Group

FACULTY	SENIOR MANAGEMENT	MIDDLE MANAGEMENT	TEACHING/ RESEARCH	ADMINISTRATION /SUPPORT
Vice Chancellor	4	8		1
Library				1
Applied Science	1	1	3	
Art, Design & Communication	1	5	5	2
Biomedical, Health etc.			1	
Business	1	2	1	
Constructed Environment		1		1
Education, Language & Community Services				1
Engineering	1			
Others	2			
TOTALS	10	17	10	6

Note: Some members of the reference group and workshop were also interviewed

About the Authors

Dr Supriya Singh is a Senior Research Fellow at CIRCIT at RMIT. She holds a Ph.D in Sociology and Anthropology from La Trobe University, Melbourne, a Masters in Political Science from Drew University, Madison, N.J. (USA) in urban studies, a Masters in Sociology from the Delhi School of Economics, University of Delhi, and a Bachelors Honours degree in English Literature from the University of Delhi, India.

Supriya's doctoral study was entitled *Marriage, Money and Information: Australian Consumers' Use of Banks*. She was awarded the Jean Martin Award by the Australian Sociological Association for the best Social Science thesis in Australia for 1993-95. The thesis was published by Allen and Unwin in 1997 as *Marriage Money: The Social Shaping of Money in Marriage and Banking*.

Her previous books drew on her experience as an anthropologist in Borneo, Features Editor, *New Straits Times*, Kuala Lumpur and Editor, *Triple A* (a banking magazine for Asia Pacific and part of the Business Review Weekly group), Melbourne. She wrote a personal account of eight months fieldwork among the Simunul Bajaus in Sabah, Malaysia, entitled *On the Sulu Sea* (Angsana Publications, 1984). Her two books on banking history are entitled *Bank Negara Malaysia: The First 25 Years, 1959-1984* (Bank Negara Malaysia: 1984) and *The Bankers* (Allen and Unwin: 1991).

At CIRCIT, Supriya's work has concentrated on research from the users' perspective in the use of information and communication services, particularly for payments and e-commerce. She is researching the broad area of money, media and communication, focusing in particular on how Internet communication changes the nature of communication and money.

Supriya is teaching MA (Communications) students *Qualitative Research Methods* and *Electronic Commerce: Money, Media and Communication*. She has also taught *Management and Electronic Commerce* to MBA students at RMIT.

Dr Singh has presented her research at the Telecommunications Policy Research Conference in Maryland, USA; at Princeton University's Department of Sociology Workshop on Economic Sociology; at the Center for International Affairs, Harvard University; the India International Centre and the University of Delhi, India; the ARIACO conference in Kuala Lumpur; the APEC Telecommunications Working Group at Bandar Seri Begawan, Brunei and at the Pacific Telecommunications Conference, Hawaii.

Internationally, she is has been a member of the Program Committee for the Pacific Telecommunications Conference (USA) since 1999, a member of the international advisory board of *New Media and Society* and a member of the founding committee for the international Association for Qualitative Research (AQR). Locally, she was the founding Secretary for the Sikh Welfare Council of Victoria.

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Annette Ryan is a Research Fellow and has been working at CIRCIT at RMIT since March 1999. Annette has previously worked on the *Gender, Design and Electronic Commerce* Project. She has also collected and analysed qualitative data for several other CIRCIT projects. Annette has tutored MA (Communications) students in the Research Methods subject at RMIT.

Annette has a BA (Open, UK, 1984), majoring in Philosophy, and a Graduate Diploma in Information Services (RMIT, 1988).

From 1995 to 1999 she was the Executive Officer of the Trust for Young Australians, a philanthropic organisation. Before that, she worked for the Victorian Association of Citizens Advice Bureaus for ten years, in the position of Manager from 1991 to 1995. Recent work includes sessional teaching in the Community Development Diploma at TAFE colleges. Current work includes consultancy in information management to various organisations in the community sector.

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