Computer-assisted reporting in Australia: diffusion of the internet at daily newspapers

Stephen Quinn
University of Wollongong

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COMPUTER-ASSISTED REPORTING IN AUSTRALIA:
Diffusion of the Internet at daily newspapers

A thesis submitted in fulfilment of the requirements for the award of the degree

PhD

from the

UNIVERSITY OF WOLLONGONG

by

Stephen Quinn BA, MA

in the Graduate School of Journalism, June 1999.
Table of contents

CHAPTER 1: INTRODUCTION AND OVERVIEW 1
A definition of computer-assisted reporting (CAR) 3
Australian adoption of the Internet 9
American journalists' use of the Internet 15
Key research questions 17
Scope of the research 22
Chapter summaries 24

CHAPTER 2: THE THEORY BASE 27
Theoretical summary 27
Diffusion of innovation theory 31
Role of change agents and opinion leaders 34
The role of perception in adoption 36
Who makes the adoption decision? 39
Personality of adopters 40
Communication technologies 41
Methodology 46
Data sources 48
Issues of reliability 51
Limitations of the research 52
Why deep CAR has not evolved in Australia 54
Summary 66

CHAPTER 3: NEWSGATHERING TECHNOLOGIES 67
The telegraph and the railway 67
The telegraph in Australia 71
Cable links from England 72
Reporting Parliament in London 76
The evolution of news agencies in Europe and England 78
The evolution of US news agencies 80
<table>
<thead>
<tr>
<th>Chapter 3 (continued)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>News agency reporting and news as commodity</td>
<td>82</td>
</tr>
<tr>
<td>The typewriter and reporting</td>
<td>83</td>
</tr>
<tr>
<td>Shorthand and reporting</td>
<td>84</td>
</tr>
<tr>
<td>The telephone and reporting</td>
<td>85</td>
</tr>
<tr>
<td>The development of the facsimile</td>
<td>88</td>
</tr>
<tr>
<td>The facsimile and reporting</td>
<td>89</td>
</tr>
<tr>
<td>The early history of the computer</td>
<td>90</td>
</tr>
<tr>
<td>The first example of computer-assisted reporting</td>
<td>95</td>
</tr>
<tr>
<td>War and reporting</td>
<td>97</td>
</tr>
<tr>
<td>Technology’s influence on newsgathering</td>
<td>99</td>
</tr>
<tr>
<td>Summary</td>
<td>102</td>
</tr>
</tbody>
</table>

| Chapter 4: Computer-Assisted Reporting in the United States                          | 103  |
| The development of the Internet                                                     | 103  |
| The development of email                                                             | 105  |
| Data transmission                                                                    | 107  |
| The information highway and Web browsers                                            | 108  |
| Development of personal computers                                                   | 110  |
| Computers in newsrooms in the USA                                                    | 111  |
| The development of deep CAR                                                          | 113  |
| The Internet and American journalism                                                 | 118  |
| Summary                                                                              | 124  |

| Chapter 5: Australian Journalists and the Internet: A Macro View                   | 127  |
| Australia's national dailies                                                        | 129  |
| Metropolitan dailies                                                                | 132  |
| Capital-city versus regional dailies                                                | 144  |
| Australia's regional dailies                                                        | 145  |
| Australian Provincial Newspapers (APN)                                              | 149  |
| Rural Press                                                                          | 158  |
| Fairfax regional dailies                                                            | 165  |
| News Ltd regional dailies                                                           | 166  |
| Independent Newspapers Limited                                                      | 168  |
| Western Australian Newspapers                                                       | 172  |
| Barrier Trades Council                                                               | 172  |
| The Independents                                                                     | 173  |
| Australian Associated Press                                                          | 178  |
| Re-invention and actual use of the Internet                                         | 180  |
| Degree of actual use of an innovation                                               | 181  |
| Summary                                                                              | 181  |
CHAPTER 6: *AGE JOURNALISTS AND THE INTERNET: A MICRO VIEW* 186

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information sources at <em>The Age</em></td>
<td>187</td>
</tr>
<tr>
<td>Journalists’ Internet links with the world</td>
<td>190</td>
</tr>
<tr>
<td>Journalists’ information-seeking habits</td>
<td>193</td>
</tr>
<tr>
<td>Diffusion theory tested at <em>The Age</em></td>
<td>198</td>
</tr>
<tr>
<td>Journalists and information overload</td>
<td>215</td>
</tr>
<tr>
<td>Actual use of technology?</td>
<td>219</td>
</tr>
<tr>
<td>Personality factors/profile of <em>Age</em> Internet users</td>
<td>221</td>
</tr>
<tr>
<td>Staff attitudes to technology training at <em>The Age</em></td>
<td>225</td>
</tr>
<tr>
<td>Category of journalists: the ‘wait-and-see’ type</td>
<td>228</td>
</tr>
<tr>
<td>Category of journalists: the ‘pro-active’ type</td>
<td>230</td>
</tr>
<tr>
<td>Summary</td>
<td>233</td>
</tr>
</tbody>
</table>

CHAPTER 7: *THE RELATIONSHIP BETWEEN TRAINING & EDUCATION, AND INTERNET DIFFUSION* 236

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR training at American newspapers</td>
<td>236</td>
</tr>
<tr>
<td>CAR education at American universities</td>
<td>241</td>
</tr>
<tr>
<td>CAR training at Australian daily newspapers</td>
<td>249</td>
</tr>
<tr>
<td>Training at Australian newspapers</td>
<td>253</td>
</tr>
<tr>
<td>Internet training at metropolitan dailies</td>
<td>254</td>
</tr>
<tr>
<td>Internet training at regional dailies</td>
<td>255</td>
</tr>
<tr>
<td>The Internet at Australia’s journalism programs</td>
<td>256</td>
</tr>
<tr>
<td>Educators’ attitudes to CAR from 1996 survey</td>
<td>259</td>
</tr>
<tr>
<td>Educators’ attitudes to CAR from 1998 survey</td>
<td>262</td>
</tr>
<tr>
<td>Development of CAR in Australia</td>
<td>266</td>
</tr>
<tr>
<td>Summary</td>
<td>269</td>
</tr>
</tbody>
</table>

CHAPTER 8: *CONCLUSION* 271

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved technology and the millennium bug</td>
<td>273</td>
</tr>
<tr>
<td>Indirect access to the Internet</td>
<td>274</td>
</tr>
<tr>
<td>Increased public awareness of the Internet</td>
<td>275</td>
</tr>
<tr>
<td>Recruitment of Internet-aware graduates</td>
<td>276</td>
</tr>
<tr>
<td>Issues for further research</td>
<td>278</td>
</tr>
<tr>
<td>Summary</td>
<td>280</td>
</tr>
</tbody>
</table>

References 281

- Books and book chapters 281
- Journal and magazine articles 285
- PhDs and MAs cited 289
- Newspaper articles, letters and published reports 290
- Articles found on the World Wide Web 291
- Interviews: email, fax, personal and telephone 293

Appendices 300
LIST OF FIGURES

Chapter 1
Figure 1: Levels of computer-assisted reporting 2
Figure 2: Top 15 Internet users in 1997 11
Figure 3: Internet use in 1997, expressed in terms of population 12

Chapter 2
Figure 4: Moore's technology adoption life cycle 44
Figure 5: Moore's revised technology adoption life cycle 45
Figure 6: Variables that determine an innovation's adoption rate 47
Figure 7: Number of metropolitan dailies and owners, 1903-98 66

Chapter 4
Figure 8: Growth of servers on the Internet, 1969-98 106
Figure 9: Four generations of computer technology 110
Figure 10: CAR desks reported at US daily newspapers, 1994-97 117
Figure 11: Mention of the word Internet in NewsLink, 1986-1998 125

Chapter 5
Figure 12: Internet use at metropolitan dailies in June-July 1997 128
Figure 13: Internet use at metropolitan dailies in April 1999 129
Figure 14: Regional papers' Internet use at three largest states 177
Figure 15: Internet connections at daily papers from 1997 to 1999 183
Figure 16: Internet use at regional dailies in June-July 1997 184
Figure 17: Internet use at regional dailies in April 1999 185

Chapter 6
Figure 18: Editorial staff numbers at The Age 193
Figure 19: Information requests March-August 1998 196
Figure 20: Information requests journalists could have done 198
Figure 21: Age journalists' attitudes to the Web as newsgathering tool 200
Figure 22: Age journalists' attitudes to email as newsgathering tool 201
Figure 23: Age journalists' discussions with colleagues 209
Figure 24: Reporters' thoughts on amount of information received 216
Figure 25: Number of emails sent and minutes of Web usage 220

Chapter 7
Figure 26: Comparison of data between 1996 and 1998 surveys 262
Figure 27: Comparison of educators' responses 1996 and 1998 263
LIST OF APPENDICES

A1a: Phone study of daily newspapers, 1997 and 1999 300
A1b: Questions used for qualitative interviews at The Age 302
A1c: Quantitative survey used at The Age, September 1998 303

A2: Definitions of terms 305

A3: Facsimile study of Australian daily newspaper, 1998 311

A4a: Technology used at Australia’s daily papers 313
A4b: Email addresses of regional daily newspapers 314

A5a: Chiefs of staff at Australian daily newspapers 1997 315
A5b: Chiefs of staff at Australian daily newspapers 1999 316

A6: Internet guidelines for (the US) Associated Press 317

A7: Follow-up questions used in 1998-99 study 319

A8: Publications available on the NewsLink text archive 320

A9: Email survey sent to journalism programs, 1996 and 1998 321
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NOTES ON STYLE AND CONVENTIONS

Note the conventions used in referencing this thesis:

E refers to an email interview. For example: (Ryan 1998 E).

F refers to a facsimile interview. For example: (Rehbein 1999 F).

P refers to a phone interview. For example: (Pollock 1998 P).

TS refers to an unpaginated transcript of a personal interview. For example: (Forbes 1998 TS).

U refers to a URL or uniform resource locator — that is a document from the World Wide Web. For example: (Reavy 1996 U).

World Wide Web and electronic mail
To save words, all references to the World Wide Web have been contracted to the Web, and all references to electronic mail use the term email, without the hyphen.
**ABSTRACT**

Australian journalists have been using computers to produce news bulletins since the early 1980s and some research on computers as production tools has appeared. Almost no research has been conducted on computer-assisted reporting (CAR) in the context of the Internet's influence on newsgathering. This thesis contributes to new knowledge by presenting the first comparative national studies of the adoption of email and the Web at Australian daily newspapers. Dailies are the country's largest single group of newsgatherers, and they are analysed as two distinct groups: metropolitan and regional dailies.

The Internet diffused widely in Australia after the introduction of Web browsers about 1994; by late 1998 about a third of adults had accessed the Internet in the previous year. Research conducted in 1997 and 1999 showed that adoption of the Web and email at daily newspapers also rose markedly. During the first research study in mid 1997, Internet adoption at regional dailies was very low. Only a third of the 37 regional dailies were connected to the Internet and usage for newsgathering was minimal. Inadequate training and low management support were the main reasons. Diffusion was more advanced at some large capital-city dailies; noticeably those that had more resources and management support.

Adoption had risen markedly by early 1999. Diffusion at regional dailies quadrupled, though from a very low base, while at metropolitan papers it almost doubled. One reason for the increase was the hiring of recent graduates with Internet skills. Surveys of journalism educators in 1996 and 1998 showed they were more aware of the Internet's value than newspaper managers. All journalism programs taught some CAR and students at some programs were producing sophisticated news features. This thesis concluded that the Internet's potential as a newsgathering tool would not be realised until newspapers put more effort and resources into training.
CHAPTER 1
INTRODUCTION AND OVERVIEW

Australian journalists have been using computers to produce newspapers and broadcast news bulletins for more than a decade. In a literal sense, then, Australian journalists have been doing computer-assisted news production since the early to mid 1980s. But computers in this context were — and are — used mainly as production tools to replace the typewriters, copy paper, razor blades and paste pots of an earlier era. Some research has been conducted in Australia on the introduction and use of computers in this context (Ewart 1997; Henningham 1995). But almost nothing has been written on the introduction and use of computers for the newsgathering process. This thesis looks at reporters’ adoption of technology solely from this newsgathering perspective. To that end this thesis adopts the phrase computer-assisted reporting as a specific term to refer to newsgathering that is aided by computers, and it uses the acronym “CAR” as shorthand for the phrase.

CAR practitioners in the United States and Canada perceive that CAR operates at several levels. As Figure 1 shows, those levels range from basic CAR through to deep or investigative CAR, and the degree of complexity and the amount of time needed for training increases with each level. Basic CAR involves little more than reasonable skills with a personal computer and a Web browser. At the other end of the scale, investigative CAR is a specific type of reporting that evolved in the United States. DeFleur described it as “a specialised area of study within the field of journalism” that introduced “an important new era in the history of the press” (1994: 5-6).

Interest in CAR grew in the United States between 1989 and 1998. In each of those years reporters who used computers “significantly” in gathering and analysing data for their
stories won the Pulitzer Prize for investigative or public service journalism (Garrison 1995d: 10; LaFleur 1998 [personal interview]; Miller 1998: 5-7). Yet in the late 1970s and early 1980s, the idea of using a computer to analyse government databases or collect information from the Internet was “virtually unheard of in most journalistic circles” (Reavy 1996 U). By 1995 Editor and Publisher magazine was calling CAR “the newsgathering tool of the 1990s” and describing it as “swarming over daily newspaper newsrooms” (Garrison 1995a: 14). The author later noted:

As the middle of this decade passes, reporters [in the United States] are becoming part of this new digital reporting age. Sophisticated new tools are in the hands of journalists who once depended only on their senses and a pen and paper to gather news. It could be argued that the typewriter, the telephone, or television was as significant in its impact on journalism. But journalists are only now beginning to understand how significant the computer has become in the daily lives of journalists and, it follows, those who use the products of journalists (Garrison 1995d: 2).

Figure 1: Levels of computer-assisted reporting
By 1999, the *Columbia Journalism Review* featured a series of reports on CAR, the cover of its March/April edition proclaiming that “We’re all nerds now”. It said that a “real revolution” in reporting was taking place with CAR — “not only on the big analytical projects but also in nuts-and-bolts newsgathering” (Simon and Napolitano 1999: 19). The training director at the National Institute for Computer-Assisted Reporting (NICAR) from 1997 to 1998 pointed out in the article that CAR was, until recently, “a bottom-up movement” driven largely by “a few mid-sized newspapers and by individual reporters”. But by early 1999 reporters with CAR skills were “everywhere” (Cohen quoted in Paul 1999: 17).

**A definition of CAR**

Garrison said that CAR was simply “the use of computers to gather information for a news organisation” (1995d: 4). For him it meant the use of computers of all sizes, from mainframes to PCs to personal digital assistants (PDAs). When it came to enhanced reporting, he suggested that CAR involved the use of computers “on two levels”. Note that his definition appeared before the mass popularity of the Internet in 1995-6:

> First, it includes use of computers to search for information and retrieve it from other computers and their databases. This is referred to as online research. Second, the term includes use of computers to analyse original databases and databases from other sources for information for news stories. This is sometimes referred to as database journalism. The term computer-assisted reporting is often used interchangeably with the term computer-assisted journalism (1995d: 4).

Miller adopted Garrison’s notion of two levels. Her definition, while similar, features the Internet first — a reflection of the growth of the Internet from 1995-6. This thesis concentrates on the first part of Miller’s definition, in an Australian context:

> CAR has two basic parts: 1. Doing research [and newsgathering] using the Internet and other online services. Cyberspace, where information is shared among computers around the globe, offers a wealth of information, serious and silly, useful and not . . . Reporters also find story ideas and people to interview, experts and everyday people, by searching online.
2. Searching and/or analysing a collection of information, a database, that comes in electronic form (online, on a floppy disk, on a CD-ROM, or on magnetic tape), or that you create yourself by typing data from paper records into a computer file . . . CAR also entails using reference works such as directories, atlases, and encyclopaedias that come on CD-Rom (1998: 2-3).

Houston preferred a three-part definition for CAR that involved “the use of database managers, spreadsheets and online [Internet] resources to analyse electronic information” (1996: xi). For him, three basic tools for computer-assisted reporting have emerged over the past decade: “spreadsheets, database managers and online [Internet] resources” (1996: 6). Houston was the executive director of Investigative Reporters and Editors (IRE), which administered NICAR, the National Institute for Computer-Assisted Reporting. His 1996 book Computer-Assisted Reporting — which he repeatedly referred to as a “practical guide” — concentrated on the first two tools. But it also provided “tips for the productive use of the Internet in the preparation of news stories”:

Computer-assisted reporting . . . is not a sidebar to mainstream journalism. It is essential to surviving as a journalist in the twenty-first century The tools of computer-assisted reporting won’t replace a good journalist’s imagination, ability to conduct revealing interviews or talent to develop sources. But a journalist who knows how to use computers in day-to-day and long-term work will gather and analyse information more quickly, provide more context, and develop and deliver a deeper understanding of the story’s subject (1996: 4).

Only one of the 10 chapters in Houston’s book focused on the Internet. That was also the case in the second edition, published in 1998, though the Internet chapter was longer.

Neil Reisner, NICAR’s national training director from 1995 to 1997, was another advocate of Houston’s three-part definition for CAR. He agreed that Internet or online journalism was the form that would probably evolve in Australia. But he maintained that it should be seen as “one leg of a three-legged stool”:

Online [the Internet] is good for sources, interviews [and] story ideas. The other legs are database journalism [Garrison’s term for the deep, investigative form of CAR using spreadsheets and databases] and the analysis of all this information. The real power of CAR is in the analysis. It’s what lets CAR level the playing field between us and our sources —
who already do this kind of analysis — and lets us do stories that otherwise would be impossible (1996 E).

Johnson maintained that the analytical aspect of CAR was important for democracy and the future of journalism. He suggested that use of the term “computer assisted reporting” was misleading:

I think it is a bit of a misfortune that the term CAR, computer assisted reporting, has come to be the accepted term because I think it is a bit of a misnomer. I prefer to refer to analytic journalism, the reason being that we don’t talk about telephone journalism, although we use the tool. The computer is simply a tool. If we use the term analytic journalism, that I think opens up the space for analytic forms which are not necessarily computer-based, but can be (1998b TS).

Garrison maintained that the computer was simply a tool for doing better journalism:

Perhaps there will come a day, as a lot of people who think about this topic maintain, that we will not have to discuss “computer-assisted” reporting any more than we discuss “telephone-assisted” reporting. Any strong reporting, investigative or otherwise, that uses computers as information gathering or information analysing tools, must be supplemented with other forms of more traditional reporting such as interviewing and case studies (1995d: xi-xii).

Miller suggested that CAR gave reporters more data to build interviews around and “more ways to find people to talk to”, but it was “only one more tool” [her italics] that reporters could use to do “careful, accurate, and revealing reporting”. She concluded: “The computer won’t turn you into a good reporter or writer if you aren’t already pretty good. It’s just a tool. But it’s an important one” (1998: 11). Most CAR practitioners pointed out that the key word in the phrase computer-assisted reporting was “assisted”. While CAR helped produce better journalism, the computer itself was simply a way to boost and accelerate the newsgathering process. Technology did not produce better reporting; it was vital that a brain operated the tool (Garrison 1995d; Houston 1996; Johnson 1998b; Miller 1998; Wendland 1999).
All of the previous information relates to the North American context. This thesis investigates the diffusion of CAR at Australian daily newspapers, and it refines the inquiry to look mainly at journalists' use of electronic mail and the World Wide Web to gather data. For the sake of simplicity, the former will henceforth be referred to as email and the latter as the Web. The decision to base the inquiry on email and the Web arose out of an awareness of the different environments in which Australian and American journalists operate. CAR evolved in the United States from the late 1960s because data there have been relatively easy to obtain, and relatively inexpensive. American journalists have grown up under the aegis of the First Amendment to the US Constitution and they expect access to information as a constitutional right. DeFleur said that America's Freedom of Information Act, signed by President Lyndon Johnson in 1966, created a right of public access to government information, and made that right enforceable (1994: 48).

A parallel factor was the development of powerful personal computers in the 1980s, and the availability of relatively inexpensive spreadsheet and database software that was easy to use. Until personal computers became available, journalists had to rely on huge mainframe computers for data analysis, and this meant that only a handful of journalists with the necessary technical skills could access data (Reavy 1996 U). Johnson agreed with Reavy, though he approached the subject from the angles of cost and ease of access:

Until the digital revolution of the past 20 years, doing quantitative analysis was too expensive and took too much time to gather appropriate data. It was far more efficient for journalists to wait until a sociologist or economist had spent a couple of years on a study of voting/buying/segregation patterns and then go interview him/her. Today, because of the ease-of-access to data (especially in the United States), there is absolutely no excuse for waiting for someone else to do the study of mortgage patterns or campaign contributions. This is, of course, tied to the trivial cost of hardware and software to do the analysis (1998b TS).

The Internet also became increasingly accessible to working journalists around the world after the introduction of icon-based browsers from 1993. While inexpensive hardware and software have also become available in Australia, data are not so readily accessible; neither
is the mindset of expecting information to be readily available. Journalists in Australia have noted the progress of their American colleagues in the use of computers for newsgathering and an isolated handful have attempted to emulate them using investigative CAR methods. The “deep” form of CAR shown in Figure 1 involves the construction and analysis of spreadsheets and databases, and sometimes requires months of training and research before a story is produced (Houston 1996: 190; Miller 1998: 2). Green noted that the deep form of CAR was “almost unheard of” in Australia and predicted that Australia’s news media would eventually adopt CAR — “probably sooner rather than later” — though they would need to become aware of the potential pitfalls and the need for specific training. The advantages were “blindingly obvious” to journalists in the United States and were beginning to become obvious to their Australian counterparts (1994: 219-20). He also suggested that Australia’s media were blinkered by their “parochial orientation” which considered proximity and timeliness to be the “most highly prized news values”. This in turn meant that journalists had “relatively low interest” in information contained in overseas databases (1994: 223).

Tapsall likewise recognised that CAR had not evolved in Australia though she predicted that the basic level would develop:

Australia’s media functions in a similar manner to that of the United States, albeit within the context of a British political and legal system, yet computer-assisted reporting is not currently an identified, utilised factor within most Australian newsrooms. Individual reporters are attempting to incorporate some aspects of the CAR technique, but such efforts are ad hoc and infrequent and would most often entail low level CAR techniques and applications (1997: 73).

Tapsall predicted the deep or investigative form of CAR would not catch on in Australia to the extent it had in the USA, citing several reasons. These included differences in access to information; privacy and legal issues; cost factors; the overall journalistic skill base in Australia; and considerations of newsroom culture (1996b: 2). Factors not on Tapsall’s list also need to be considered: problems with technical integration among the various front-
end computer systems used at Australian dailies; a low level of support among editorial management because of ignorance of technology; and the influence of the concentration of ownership of Australia’s media. Journalists using front-end computer systems such as Atex and Cybergraphic on regional dailies could not easily convert files provided by freelance journalists on floppy disk, and very few had access to the Internet from their desktops (Quinn 1997a: 1). Chapters 5 and 6 will show that some editorial managers at Australian dailies were, in the words of one reporter, “technological troglodytes” and were ignorant of CAR’s potential. Consequently, some did not support the innovation at the papers they edited or managed. American research showed that the most effective way of effecting change with respect to adoption of technology was to get senior management support (Garrison 1995d, 1998; Houston 1996; LaFleur 1997; Paul 1996). All the factors outlined in this paragraph are discussed at the end of the next chapter.

Research discussed in Chapters 5 and 7 confirms that, as of mid 1997, almost all chiefs of staff at Australia’s daily newspapers were unaware of the deep form of CAR, and only two of the country’s 50 dailies practised it. A 27-question questionnaire to the chiefs of staff on all Australian dailies contained a question specifically related to deep CAR. It asked if the chief of staff knew of the concept “computer-assisted reporting” in the American sense of deep or investigative journalism, and if their publication had offered any specialist training in the area. The Age in Melbourne and the Courier-Mail in Brisbane had heard of deep CAR but neither offered any training. One reporter at The Age later said he had produced some stories based on the analysis of Victorian government databases but he had taught himself (Cookes 1998 TS). The Courier-Mail did not offer training because one reporter had come to the paper with spreadsheet skills and had conducted informal lessons for colleagues. Two reporters had produced stories based on analysis of spreadsheets of examination results at Brisbane high schools (Chester 1998 E).
This thesis starts from the proposition that — for the reasons outlined earlier — deep or investigative CAR in the American sense would not develop in Australia, or if it did it would take some years. It began with the hypothesis that the most likely CAR development in Australia would be in the use of email and the Web for reporting. Email and the Web are inexpensive to access — relative to the costs involved for deep CAR — and require relatively little investment in training. A vast amount of information and data are available free on the Internet, while governments and businesses charge high fees for access to commercial databases, traditionally one of the staple sources of data for deep CAR. The amount of free data varied, but the number of networks connected to the Internet started to increase rapidly after the introduction of Web browsers with graphical user interfaces (see Figure 8 on page 106). Lawrence and Giles found that more than 320 million “pages” of information were accessible to search engines on the Web (quoted in Horey 1998: 45). Horey maintained that this figure was radically higher than the range of 80 million to 200 million usually quoted in relation to the Web at that time (1998: 45). As of March 1998, the number of computers (servers) that hosted Internet files was growing by 50 per cent a year, and there were about 29,670,000 servers worldwide — each containing anywhere from a handful to hundreds of thousands of pages (Crowe 1998a: 30). According to Network Wizard’s Internet Domain Survey, there were 45 million host domains on the Internet as of January 1999, probably yielding about 400 million separate documents (Cuthbertson 1999: 11).

**Australian adoption of the Internet**

By world standards Australians were significant users of the Internet by 1995, and a year later access was high and growing. In 1996, the Australian Unix Users Group said that Australians were the fourth-largest users of the Internet in the world, after the USA, Canada and the UK (Paddon 1996: 57). Internet access grew in 1997 and 1998, though it was difficult to find consistently reliable data sources until the Australian Bureau of Statistics
started conducting regular surveys in 1998. On 13 August 1997, *The Australian Financial Review* conservatively reported that at least 1.4 million Australians had access to the Internet, which represented about one in 10 people aged 15 or older. That same month the federal minister for communications said that 2.4 million Australians used the Internet. He predicted the figure would rise to 3.8 million by the turn of the century: “Australia ranks second only to the US in computer use, with 27 computers per hundred people” (Alston 1997: 7). The *Bulletin* of the Pacific Area Newspaper Publishers’ Association (PANPA) reported that as of December 1997 almost five million Australians aged 14 or older had accessed the Internet “at some point”, and almost three million Australians were “regular users” (May 1998: 53). This represented one in five adults. Data came from the Morgan Research Centre, which interviewed 60,000 people over a two-month period (PANPA 1998: 53).

In January 1998, the *Internet Industry Almanac* reported that 3,347,000 Australians were connected to the Internet in 1997, and the publication placed Australia sixth in the list of international Internet users (Almanac 1997 U). See Figure 2. Australia still ranked sixth as of the end of 1998, according to the *Almanac*. The United States still topped the list with 76.5 million users per week, followed by Japan with 9.75 million. Third was the UK with 8.1 million with Germany fourth (7.14 million). Canada was next with 6.49 million and Australia sixth, with 4.36 million (Almanac 1998 U). The full 1998 data were not publicly available and therefore could not be published in chart form in this thesis. The 1997 data from the *Almanac* were more meaningful when the relationship between a country’s population and the number of Internet users was correlated. Analysing the data to reflect the number of Internet users per head of population (expressed as a percentage) changes the ranking shown in the first table. Figure 3 shows the similarity in Internet access between the United States and Australia, expressed in per capita terms: Australia (18.33 per cent) moves from sixth to fourth, only just behind the United States (20.52 per cent). It
would be safe to say that the two countries shared a similar level of access to the Internet, expressed in per capita terms.

**Figure 2: Top 15 Internet users in 1997**


<table>
<thead>
<tr>
<th>Rank in 1997</th>
<th>Country</th>
<th>Users in '000s</th>
<th>% share of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>54,675</td>
<td>54.7</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>7,965</td>
<td>7.97</td>
</tr>
<tr>
<td>3</td>
<td>United Kingdom</td>
<td>5,828</td>
<td>5.83</td>
</tr>
<tr>
<td>4</td>
<td>Canada</td>
<td>4,325</td>
<td>4.33</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>4,064</td>
<td>4.07</td>
</tr>
<tr>
<td>6</td>
<td>Australia</td>
<td>3,347</td>
<td>3.35</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>1,386</td>
<td>1.39</td>
</tr>
<tr>
<td>8</td>
<td>Sweden</td>
<td>1,311</td>
<td>1.31</td>
</tr>
<tr>
<td>9</td>
<td>Finland</td>
<td>1,250</td>
<td>1.25</td>
</tr>
<tr>
<td>10</td>
<td>France</td>
<td>1,175</td>
<td>1.17</td>
</tr>
<tr>
<td>11</td>
<td>Norway</td>
<td>1,007</td>
<td>1.01</td>
</tr>
<tr>
<td>12</td>
<td>Spain</td>
<td>920</td>
<td>0.92</td>
</tr>
<tr>
<td>13</td>
<td>Brazil</td>
<td>861</td>
<td>0.86</td>
</tr>
<tr>
<td>14</td>
<td>Italy</td>
<td>841</td>
<td>0.84</td>
</tr>
<tr>
<td>15</td>
<td>Switzerland</td>
<td>767</td>
<td>0.77</td>
</tr>
<tr>
<td>Top 15 countries</td>
<td>89,722</td>
<td>89.77</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>21,961</td>
<td>21.97</td>
<td></td>
</tr>
<tr>
<td>Worldwide</td>
<td>99,960</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The Australian Bureau of Statistics published three reports on Internet penetration in Australian households in 1998, based on data gathered in February, May and August. A fourth survey conducted in November was published in March 1999. The first report in 1998 came from a survey of 3,266 people randomly selected from private households. According to that survey, just over three million adults (people aged 18 or over) accessed the Internet in the year to February 1998, which represented 23 per cent of adults. The break down of figures was: home, 1,038,000; work 1,302,000; and other locations 1,500,000 for a total of 3,032,000. The figure for home was four times the total reported in the February 1996 survey, which only measured Internet use in the home. About 1.7
million men (26 per cent) and 1.3 million women (19 per cent) accessed the Internet in the year to February 1998. About 770,000 (42.9 per cent) of the 18-24 age group used the Internet, and this was by far the largest single user group (ABS 1998a: 3).

Figure 3: Internet use in 1997, expressed in terms of population


<table>
<thead>
<tr>
<th>Rank in '97</th>
<th>Country</th>
<th>Users in '000s</th>
<th>% share of total</th>
<th>1996 (July) population in '000s</th>
<th>Relationship between users pop as a %</th>
<th>New rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Finland</td>
<td>1,250</td>
<td>1.25</td>
<td>5,105</td>
<td>24.49</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Norway</td>
<td>1,007</td>
<td>1.01</td>
<td>4,384</td>
<td>22.97</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>USA</td>
<td>54,675</td>
<td>54.7</td>
<td>266,476</td>
<td>20.52</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Australia</td>
<td>3,347</td>
<td>3.35</td>
<td>18,261</td>
<td>18.33</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Canada</td>
<td>4,325</td>
<td>4.33</td>
<td>28,820</td>
<td>15.01</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Sweden</td>
<td>1,311</td>
<td>1.31</td>
<td>8,901</td>
<td>14.73</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>Switzerland</td>
<td>767</td>
<td>0.77</td>
<td>7,207</td>
<td>10.64</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>United Kingdom</td>
<td>5,828</td>
<td>5.83</td>
<td>58,490</td>
<td>9.96</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>1,386</td>
<td>1.39</td>
<td>15,568</td>
<td>8.90</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>7,965</td>
<td>7.97</td>
<td>125,450</td>
<td>6.35</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>4,064</td>
<td>4.07</td>
<td>83,536</td>
<td>4.86</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>Spain</td>
<td>920</td>
<td>0.92</td>
<td>39,181</td>
<td>2.35</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>France</td>
<td>1,175</td>
<td>1.17</td>
<td>58,317</td>
<td>2.01</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>Italy</td>
<td>841</td>
<td>0.84</td>
<td>57,460</td>
<td>1.46</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>Brazil</td>
<td>861</td>
<td>0.86</td>
<td>162,661</td>
<td>0.53</td>
<td>15</td>
</tr>
<tr>
<td>Top 15 countries</td>
<td></td>
<td>89,722</td>
<td>89.77</td>
<td></td>
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<td></td>
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<tr>
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<td>99,960</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The next ABS survey, conducted in May of 3,213 people randomly selected from private households, showed that almost 3.6 million Australians aged 18 and over accessed the Internet in the year to May 1998. This represented 26 per cent of the adult population. "Work was the most frequently reported place for Net access (1.5 million people), followed by home access (1.4 million). Other places of access collectively accounted for nearly 1.9 million persons." Of the 971,000 households with Internet access, almost 80 per cent (770,000) were located in capital cities. The survey said that 29 per cent of men (1.9 million) and 24 per cent of women (1.7 million) had used the Internet. The youngest
age group, 18-24-year-olds, represented the greatest proportion of users — almost half (48.6 per cent) — and people aged 25-39 represented the next largest group (34 per cent). Almost 28 per cent of the 40-54 age group had accessed the Internet. The figure of almost 1.4 million people who used a home computer to access the Internet at least once a week had increased 37 per cent compared with the February figure (ABS 1998b: 4).

The third survey, conducted in August, reported that about 4.2 million adults had accessed the Internet in the year to August 1998, which represented 32 per cent of the adult population. Work and home were the most frequently reported places for access (1.9 million at each place, or 14 per cent of adults). The total represented 1,245,000 households or 18 per cent of all households, an increase of 28 per cent on the May survey figures, and a rise of 46 per cent on the February figures. Again, metropolitan areas dominated the access, with 72 per cent of households (900,000) in capital cities. In gender terms, 35 per cent of men (2.3 million) and 28 per cent of women (1.9 million) had accessed the Internet in the previous year. The youngest age group (18-24) continued to dominate with 53.1 per cent (960,000) reporting that they used the Internet. For the 25-39 age group, the estimate was 46 per cent (just over 1.9 million). The 40-54 age group had risen slightly to 29 per cent (ABS 1998c).

In September 1998, ACNielsen reported that Australian use of the Internet had hit a new peak of 3.4 million regular users. The company’s NetWatch Quarter 2 report, based on 10,000 questionnaires, said that 4.5 million Australian residents aged 14 or older had accessed the Internet at some time. Two distinct user groups predominated: teenagers and male business subscribers (Crowe 1998b: 24). The New York Times noted a similar trend with the latter group in the United States, confirming that young men with university degrees and professional jobs obtained their news from the Internet at work, rather than newspapers or television. The percentage of adults who got their news online had risen
from 4 per cent in 1995 to 20 per cent in 1998 (Barringer in NYT 1998: D8). Data from The Age show evidence of a similar pattern in Australia, though they were not specific about gender. Software linked to the paper’s online site, known as the Daily Snapshot, tracked the number of people who visited the site and the time of the visit. The pattern of people coming to the site was relatively consistent between 2am and 6am. It then started building noticeably from 7am, peaking at mid morning and forming a plateau until about 4pm. This suggested that large numbers of people were accessing the Web from work. The pattern was also true for The Sydney Morning Herald and the AFL sites, and probably could be extrapolated to other Australian sites (Morison 1998 TS).

The Australian Bureau of Statistics reported little change in the number of people using the Internet in the year to November 1998, compared with the August 1998 survey. In its final report for 1998, published in March 1999, the ABS said that 4.2 million adults had accessed the Internet in the previous 12 months — the same figure reported in the August survey. But at 31 per cent of the adult population this meant a significant proportion of Australia’s population was using the Internet. Work was again the most frequently reported place for access (1.9 million people, or 14 per cent of adults), with 1.7 million logging on from home. The survey estimated that 18.6 per cent of all households had home access, a slight increase on the August survey (17.9 per cent).

The proportion of households with home Internet access increased with household income: Nearly 42 per cent of households with annual incomes greater than $66,000 had home access. The youngest age group (18-24) continued to dominate Internet use, with 62 per cent (1.1 million) reporting that they used the Internet in the year to November 1998. For the 25-39 age group, the estimate was 40 per cent (1.7 million). The 40-54 age group remained the same as the previous survey — 29 per cent. Just over 42 per cent of adults employed full-time (2.6 million) had accessed the Internet in the previous year. Of those,
37 per cent used it daily and 25 per cent logged on two to six times a week. Thirty-nine per cent of unemployed adults (230,000) also went online (ABS 1998d: 3-4).

American journalists’ use of the Internet

Professor Steven Ross of Columbia University’s Graduate School of Journalism and public relations executive Don Middleberg have conducted an annual survey of American journalists’ use of the Internet since 1994. The first survey was called “Media in Cyberspace I”, and subsequent surveys were entitled respectively “Media in Cyberspace II, III, IV and V”. (All have been published on the Web and details of surveys II to V can be found in the References under Ross and Middleberg.) Data from these surveys have been included in chapter 4 to show the extent of American journalists’ adoption of the Internet. Chapter 6 includes research from the City University in London that describes how English journalists find information on the Internet. Both are included to provide an international perspective to Australian journalists’ adoption of the innovation.

Based on their fourth survey, released in February 1998, Ross and Middleberg found that 93 per cent of American newspapers provided Internet access for reporters in 1997. Their conclusion: “The Internet is now part of the very fabric of journalism in America”. The survey went to 1,436 daily newspapers editors, the managing editors at 2,000 magazine and 2,510 broadcast news editors. The response rate was 10 per cent. Respondents reported a rapid rise in the number of journalists who used basic to mid level CAR methods. In 1997, 45 per cent of total respondents reported that they or their staff went online “every day”. This figure was significantly higher than in 1996 (34 per cent) and among newspaper respondents, 54 per cent said they went online “continuously (once a day or more)”.

Again, this figure was a significant increase on the 39 per cent reported in 1996. Ross and Middleberg found that 89 per cent of their 1997 respondents or their staff went online at least once a month, and only 7 per cent said they “never or almost never” used online
services. It is interesting to compare these data with their first survey in 1994, when more than a third of survey respondents said they “never or almost never” went online. Ross and Middleberg concluded:

The increase [in Internet use] is particularly startling in newspapers, reflecting installation of new equipment [PCs] over the past two years. It can be said that in this regard the practices of journalists, in how they research stories, have changed more in the 40-month period represented by our four surveys [since 1994], than in the previous 40 years (1997 U).

By their fifth survey, released in March 1999, Ross and Middleberg found that growth in Internet access among journalists had increased even more and at 98 per cent “now approaches universality”:

Only 2 per cent of the respondents to this year’s survey either said they had no [Internet] access, or did not answer the question at all . . . After hours or in a crisis, journalists for both magazines and newspapers were most likely to call “other interested parties/community groups/ emergency services” first. Magazine journalists were most likely to call industry experts next, and go to the company’s Web site third. Newspaper journalists said they’d go to the Web second, and call industry experts third . . . Journalists still get their story ideas the old-fashioned way — from sources, story leads provided in-person, and from press releases; however, there has been a slight increase in journalists using story ideas from the Web (1998 U).

In a separate survey, the Newspaper Association of America (NAA) reported that 76 per cent of 122 newspapers it surveyed provided email access to “some or all newsroom employees”. They provided Web access to about 71 per cent of journalists (TechNews 1998). Garrison also concluded that the Web was becoming journalists’ “dominant” online research tool, saying it had “saturated” newsrooms by 1997:

In terms of frequency, daily use has almost doubled at 52 per cent. About 92 per cent of newspapers using computers for newsgathering reported using the Web, making it the leading online source. Furthermore, online research by reporters has increased to 48 per cent from 25 per cent two years earlier. Among Web use patterns, AltaVista and Yahoo! are the leading newsroom Web search tools, but local and state government sites are most used for reporting (Garrison 1998a: 1).

It is reasonable to surmise, then, that the potential exists for Australian journalists to use the Internet as intensively for newsgathering as their American colleagues do, given the
similarity in Internet access per head of population. The factors mitigating against the
development of investigative CAR outlined earlier suggest that the form of CAR most
likely to evolve in Australia would be the more basic levels — with journalists mostly using
email and the Web. This thesis proceeded, then, from that premise.

Research questions

Based on the context outlined earlier — a rapidly growing number of Australian Internet
users and the hypothesis that CAR in Australia would focus on basic CAR involving email
and Web access — this thesis considers two key research questions. Each suggested a
group of related questions.

Key question 1

Given the relatively high use of the Internet among the general population, and the
increased reliance on technology for producing daily newspapers, were Australia’s daily
newspaper journalists using basic to mid level CAR methods for newsgathering? Basic to
mid level means journalists’ use of email for locating and interviewing people, their
searching of Web search engines and directories, and their monitoring of Web-based
publications and listservs — in effect, the first three levels of Figure 1 on page 2

Related questions

If Australian newspaper journalists were using CAR methods, who and where were they,
and which organisations did they work for? Was it possible to develop a profile of them in
terms of education, gender, age and media experience? How did they regard electronic
newsgathering methods, compared with traditional methods? Which did they prefer and
why? How did Australian journalists learn CAR skills? Did their editors and managers
encourage them? What influence did CAR practitioners have on their colleagues? Were
they training others?
The first question introduced the work of Johnson (1994) and others who found that surveys of journalists in the United States and elsewhere indicated a perception of two broad strata of news organisations. Johnson labelled them “A” and “B” organisations. The “A” team generally appreciated complex issues in the community, the nation and the world, and were willing to devote resources to reporting them, while “B” organisations were the rest (1994: 57-8). Editorial staff in any newsroom could also be classified informally as members of the “A” or “B” team. “A” reporters could deal with the intellectual challenge of a complex story and develop skills to deal with them. “B” reporters were, at best, pedestrian in their approach to any story:

Anyone who spends any time [in a newsroom] quickly comes to understand that there is a group of employees . . . who can be counted on to deliver a higher quality of work more promptly, more accurately with much more depth or richness of both content and style than another group of employees. In sports in America [they are] sometimes referred to as the “go-to guy” when you have a play in football or in basketball and you need to have a score made you go to this guy. Or in newsroom you could have a guy or a woman who, if you have an especially pressing story or a delicate story or one that needs to be done well very quickly, you go to this person or people within this group that I have referred to as the “A” group of reporters. In terms of the newsroom . . . [it is a case of] finding the right individuals who have the vision to look up from whatever it is they’re doing and look out into the future and understand how important this digital change is (1998b TS).

Johnson cited several surveys as examples of this “A” - “B” division among publications, including Namewirth (1970); Rogers (1970); and Kelly & Mitchell (1981). In the United States, CAR tended to begin at “A” level news organisations such as the medium to larger metropolitan newspapers (Johnson 1994; Garrison 1995a, 1995b, 1995c, 1998b). These big-city dailies had the best resources in terms of staff and facilities and were able to devote people and time to developing CAR skills (Garrison 1998b: 3). In terms of circulation, medium-size dailies in the United States would be about the same size as Australia’s big metropolitan dailies. With the passage of time, and as access to the Internet increased, smaller US papers also adopted CAR (Reavy 1996 U).
This thesis defined Australia's "A" publications as the two main national dailies — *The Australian Financial Review* and *The Australian* — and the dailies in the largest cities: Brisbane's *Courier-Mail; The Sydney Morning Herald;* the *Adelaide Advertiser;* and *The Age* in Melbourne. They have more resources and staff than other dailies. Reporters on non-metropolitan dailies tend to be less experienced and are generally expected to write more stories than their counterparts on the big-city papers (Casimir 1999 TS; Holden 1998 TS; McDonnell 1999 P). This thesis, therefore, began with the hypothesis that Australia's "A" group would be the most likely to introduce CAR methods. Chapters 5 and 6 analyse and report on the data collected from the research conducted to answer key question 1 and its related questions.

**Key question 2**

Between early 1995 and early 1998 I monitored a series of email discussion lists. These included Journet, used mostly by US and Canadian journalism educators; NICAR-L, the discussion list of the National Institute for Computer Assisted Reporting; IRE-L, the discussion list of Investigative Reporters and Editors; and CARR-L, the Computer-Assisted Reporting and Research List, used by people interested in the subject. Debate in those three years gave the impression that North American journalism educators who contributed to the lists perceived that CAR was an important journalism skill that was being taught extensively at North American universities and colleges.

But the reality was different — it was more a case of the converted preaching to each other. Despite the development of CAR in the United States in the 1990s, only a relatively small number of universities there had begun to offer specific courses. Almost all of the training had come from professional bodies such as the National Institute for Advanced Reporting (NIAR), the National Institute of Computer-Assisted Reporting (NICAR), the
Transactional Records Access Clearinghouse (TRAC) and Investigative Reporters and Editors (IRE). All were affiliated with a university, which could explain the apparent connection between CAR and the academy (Lee 1995: 2). But in reality, most of the universities that offered courses did so, and continue to do so, because of one or two individuals dedicated to the subject. The prominent names in this area were Steve Ross at Columbia University's Graduate School of Journalism, Philip Meyer at the University of North Carolina at Chapel Hill, Stephen Doig at Arizona State University, Tom Johnson at San Francisco State University, Jeff South at Virginia Commonwealth University, James Brown at the University of Indianapolis, Elliott Parker at Central Michigan University, Christopher Callahan at the University of Maryland, Christopher Simpson and Wendell Cochran at the American University, and Bruce Garrison at the University of Miami. In effect, individual journalists at newspapers and a handful of journalism educators have taken responsibility for promoting CAR in the United States. But educators remained a small group, compared with the increasing number of CAR practitioners.

The University of Indiana at Indianapolis organised the first CAR conference for journalism educators in October 1990 but cancelled it because only 14 people registered (Johnson 1998a: TS). In August 1991 more than 1,600 journalism educators attended the annual convention of the Association for Education in Journalism and Mass Communication in Boston. But only 11 of the 365 papers presented had any remote connection with CAR. The one paper with a direct link — “Computer instruction in journalism” — attracted an audience of nine people (Johnson 1992: 31). Australia's Journalism Education Association (JEA) invited me to co-run a CAR workshop before and after the JEA's annual conference in Sydney in December 1997 but cancelled the workshops a week before the conference because only four people registered. When NICAR, America's National Institute for Computer-Assisted Reporting, ran its first conference in San Jose in California in 1994, about 110 journalists attended, along with a
handful of educators. Only 41 academics attended NICAR’s 1999 conference in Boston, out of the 560 registered participants (Green 1999 TS). The relatively low number of people teaching CAR reflects, in part, the fact that good CAR practitioners can earn more than double the salary of a mid-range academic (Lanson 1999 TS).

The second key question asked: What was the relationship between the development of CAR in Australia and the role and availability of training at newspapers, and education at university? Rogers noted that appropriate training was vital for technology that involved software (1995: 178). Outside of the United States and Canada, deep CAR was almost unknown at Australian daily newspapers (Quinn 1997b: 134-5). Given the complexity of the upper levels of CAR (see Figure 1), what kind of training was provided at daily newspapers? What other forms of training were offered to reporters using the Internet?

**Related issues**

Between 900 and 1,000 people graduated each year from the 22 journalism programs in Australia in 1996, chasing somewhere between 200 and 250 jobs each year. The number of graduates was expected to increase but the number of jobs was not (Patching 1996a: 63). Ciotta (1996), Feola (1996) and Paul (1996) — among others — have shown that to get a job in the changing world of American journalism, new graduates have to demonstrate that they have more skills than other people applying for the same jobs. It was a simple case of supply and demand: more people were graduating than jobs are available (Feola 1995: 24). All three supported the notion that CAR gave students a unique selling point — an advantage over other job seekers. What, then, were Australia’s journalism programs doing about teaching CAR? What levels of CAR were taught? As of 1998, 21 public universities and one private institution offered journalism programs out of the 42 public universities, and more than 20 private educational institutions in Australia. How many of the 22 journalism programs had introduced CAR? What levels were offered? What opinions did
educators hold about CAR? Chapter 7 analyses the data collected from the research conducted to answer key question 2 and its related questions.

**Scope of the research**

Data for this thesis came from research conducted at 49 of the 50 daily newspapers in Australia, plus the national news agency, Australian Associated Press (AAP), in 1997. One of the three national dailies, the *Daily Commercial News*, was excluded. Its narrow scope — shipping and transport — and small circulation (about 6,000) meant that it was effectively a specialist trade paper and not a daily in the context of providing general news. In 1999 the *Daily Commercial News* merged with another shipping and insurance publication, *Lloyd’s List*, and the combined publication continued to appear tri-weekly. This meant that the 1999 study covered all 49 daily newspapers plus AAP.

Reporters at Australia’s daily newspapers and the national news agency represent more than a third of all Australian journalists, according to the journalists’ union, the Australian Journalists Association (AJA). It became part of the Media Entertainment and Arts Alliance (MEAA) after a merger of three unions in 1992. In 1996, the joint federal secretary of the journalists’ section of the MEAA, Chris Warren, said the section had somewhere between 11,000 and 13,000 members made up of full-time journalists, freelancers and related professions such as media and corporate relations. The figures were “ball park” because no accurate totals were kept. The “bulk” — somewhere between 80 and 85 per cent, depending on the individual state — worked in print, with about a third of all journalists working on daily papers. Of those daily paper staff, about 2,500 to 3,000 worked on Australia’s 13 capital city dailies, compared with about 800 to 1,000 employed on the 37 regional dailies (Warren 1996 P). The 1996 Census reported that 14,354 people said they worked “in journalism and related professions” with 52 per cent of the total (7,455) working as journalists. Henningham suggested that about 4,200 journalists worked in
Australia but he admitted that he only looked at “mainstream media” and he conducted the research for his survey in 1992 (1996: 228). Two years later Warren still noted that it was difficult to produce exact figures but estimated that Australia had somewhere between 8,000 and 10,000 working journalists. The “bulk” of them worked in the capital cities of the states and territories, Warren estimating that somewhere between 2,500 and 3,000 journalists were employed on metropolitan dailies with another 800 to 1,000 working on country dailies. Warren noted the figures were an “accurate guesstimate” (Warren 1998 TS).

Reporters represented somewhere between a third and a half of the editorial staff on a metropolitan daily, with the balance made up of sub-editors, designers, photographers, cartoonists and technical support staff. Figure 18 on page 193 shows that reporters made up half the editorial staff at *The Age*. On regional dailies, reporters represented slightly more of the staff complement — somewhere between two fifths and 60 per cent — though these papers had lower staff numbers overall (Tidey and Knowles 1986: 22; Tidey 1998 TS). Spreadsheet calculations for this thesis showed that as of April 1999 about 1200 people were reporters at the 13 metropolitan papers and about 660 were reporters at the 37 regional dailies and the national news agency. Based on these data, the lower of Warren’s “ball park figures” in 1998 was reasonably accurate. Warren’s *Newsletter* of November 1998 reported that 8,336 of the 11,000 members of the AJA section were financial, and 2,664 had not paid their dues. By way of historical background, Lloyd said that by the mid 1980s, the AJA was a “relatively buoyant, moderately-sized, white-collar trade union with more than 12,000 members” (1985: 306). Editorial numbers have dropped in the past decade because of the downsizing of Australia’s media after the 1991-92 recession, and union membership has declined because of the trend towards Australian workplace agreements (Lockwood 1997 TS).
Research into journalism education was conducted via two email surveys to the heads of all 22 journalism programs in Australia. The first was sent, and repeated a further four times, between October and November of 1996. The second was despatched seven times in total between June and September of 1998. As complete a response as possible was considered necessary because of the small sample — hence the number of repeats. Fifteen out of the 22 journalism programs responded to the first survey; all but one replied to the second.

Chapter summaries
As well as this introductory chapter, this thesis contains another seven chapters plus nine appendices and 27 figures.

Chapter 2 introduces the theoretical framework and methodology employed for the original research. It outlines the main sources of theory: the work of media historian Anthony Smith, and Everett Rogers’ theories on the diffusion of innovation relating to communication technologies. It also includes Geoffrey Moore’s writings on the “gaps” among Rogers’ innovator groups. This chapter also discusses the quantitative and qualitative research methods used, the data sources investigated, and issues of reliability. It concludes with a more detailed look at the reasons for the premise that began this chapter — the hypothesis that the most likely forms of CAR to develop in Australia would be the basic to mid levels.

Chapter 3 proceeds on the basis that it is helpful to consider the present and the future by looking at the past. Smith said that to discern areas in which change was likely to occur within society because of changes in the dominant information medium “inevitably entails examination of the past”:

The development of printing in the fifteenth century was inextricable from the whole social and cultural process known as the Renaissance.
Gutenberg’s printing press was partly the product of the new thinking, partly its instigator. The switch from stone inscription to papyrus and handwriting signalled new patterns of thought and social organisation. The switch from a scribal society to a printing one changed the whole focus of knowledge in the West and created new locations for information in society. The transition from paper to telecommunications systems can hardly prove to be less important, necessitating the development of new skills and new equipment, a new kind of text and a new method of text storage (1980a: 322).

Consequently, Chapter 3 discusses specific innovations — what Rogers (1995) calls “tool technologies” — that affected the newsgathering process. The tools considered in this chapter are the telegraph, the typewriter, shorthand, the teleprinter, the telephone and the facsimile. The early history of the computer is also discussed. This chapter looks at what some people consider the first example of computer-assisted reporting (in 1952). The 1830s were chosen as the starting point because that decade marked the start of a series of major technological and historical events in the United States and the United Kingdom that had a significant impact on daily newspapers.

Chapter 4 begins by discussing the development and evolution of the Internet and email, and then outlines the history of the personal computer and its adoption in newsrooms. The chapter concludes with a short history of CAR in the United States and discusses the developing relationship between the Internet and reporting in that country.

Chapter 5 considers the first of the two key research questions outlined in this introduction. It traces the evolution of basic to mid-level CAR at Australia’s daily newspapers between mid 1997 and early 1999. It adopts a macro approach by providing a national overview of use of the Internet at all but one of the country’s 50 dailies and the national news agency, Australian Associated Press.

Chapter 6 adopts a micro view of Australian journalists and the Internet via a case study of reporter’ use of the Internet at one major metropolitan daily, The Age in Melbourne. The
Age was chosen because in terms of providing Internet and online information access to journalists at their desktop, it remains one of the three most advanced daily newspapers in Australia. Reporters had lower workloads and they received some technology training. If journalists at The Age were not using the Internet for newsgathering, it was not likely that their less-endowed regional colleagues would be doing so.

Chapter 7 considers the second of the key research questions outlined in this introduction by looking at the relationship between the provision of CAR training and education, and its adoption. It begins by investigating CAR adoption at newspapers in the United States and discussing how it is taught at America’s university journalism programs. The chapter then considers the situation at Australia’s daily papers and the country’s journalism education programs.

Chapter 8 notes the significant adoption of the Internet at Australian daily newspapers between the two research studies, despite poor or non-existent training, and considers the reasons. It looks at the role of recent graduates with Internet skills, and the impact of news organisations’ decisions to upgrade technology to avoid problems with the so-called millennium bug. The chapter concludes with the point that in the information age, knowledge and learning are the only things that separate successful news organisations from unsuccessful ones. It also makes suggestions for further research.
Australia's journalism academics have noted the lack of a theory base specific to journalism, as opposed to communication or media studies. Stuart identified the need for an Australian theory text at the annual conference of the Journalism Education Association (JEA) in December 1996. Two proposals for books to deal with this gap emerged a little over a year later. Early in 1998, Tapsall and Varley of Queensland University of Technology proposed a book to Oxford University Press, to be called *Journalism: Theory in Practice*. About the same time, Breen proposed a book to Macleay Press, *Journalism: Theory and Practice*. Breen's edited collection was launched in December 1998 at the JEA's annual conference in Yeppoon, Queensland. The theme of that year's conference was "Towards a Journalism Theory":

> Journalism has lacked a specific theoretical basis that is relevant to its practice in the field and in teaching journalism. While we continue to draw from a variety of fields including media studies, cultural studies and communication studies (to name but three), the question that now needs to be asked is: What would a journalism theory encompass? Is it possible to develop a new journalism theory or do we continue to draw on the bits of other theories we find acceptable? Is a journalism theory necessary? (Ewart 1998 brochure).

**Theoretical summary**

This thesis draws on "bits of other theories" — specifically the work of Smith, Rogers and Moore — because they provide an apposite theory base for discussing technological change in a historical context. Specific books to be referred to are Smith (1977, 1978, 1979, 1980a), Rogers (1983, 1986, 1995) and Moore (1995), with particular reference to Smith and Rogers. Smith was a newspaper historian and Rogers has written extensively about the diffusion of innovation. Diffusion theory is appropriate because the Internet is an
innovation that has entered Australia’s workplaces and homes relatively quickly (ABS 1998a; 1998b; 1998c; 1998d). Smith provides a historical perspective on the adoption of earlier technologies relevant to journalism. Polyani wrote that all theory “may be regarded as a kind of map extended over space and time” (1958: 4). Kuhn also used the map analogy when he noted that paradigms provided “a map whose details are elucidated by mature scientific research” (1970: 109). This thesis proposes to investigate a specific journalistic practice — namely Australian reporters’ adoption of basic CAR for newsgathering — and map it against Rogers’ theories. To continue the map analogy, Rogers’ theories will provide a map for the thesis, and quantitative and qualitative data obtained from research at Australia’s daily newspapers will elucidate the research questions outlined in the previous chapter.

Smith studied newspapers from the end of the seventeenth century to the late 1970s, noting the changing role of reporters at British papers and American publications’ adoption of front-end computer systems. His work makes predictions about the diffusion of new technologies by looking at the past, and Chapter 3 in this thesis adopts a similar approach. Rogers also studied the diffusion of innovation, and this thesis proposes his theoretical framework as one of the best maps for explaining the adoption of CAR methods in the newsrooms of Australia’s daily newspapers. Rogers’ variables that determine the rate of adoption of an innovation are mapped against the reality of working in a daily newspaper newsroom in the late 1990s. Moore developed Rogers’ ideas — interestingly, without attribution — to link the innovation life cycle and adopters’ personalities with the diffusion of computer-based technologies. Of the three theoretical bases, Rogers’ work is particularly relevant to the diffusion of the Internet, and so he provides the principal theory base.
Smith suggested that the journalist is the “software” supplied to run the “hardware” of the newspaper system. He noted that all changes in daily newspaper newsgathering involved a shift in one or more of five “dimensions” which determined the “nature of journalism”. These dimensions were themselves “the results of many other strands of social, technological and political history”. Examination of the five dimensions threw light on the ways in which the profession of journalism had developed for the past 350 years, and would also help to show “how journalism is evolving in the period immediately ahead” (1978: 199-203). The five dimensions involved changes in:

1. audiences
2. levels and arrangement of content
3. journalists’ skills and techniques for performing their work
4. printing technology

Newspapers continually face the reality of changing and diminishing audiences, but that is beyond the scope of this thesis. Smith’s fourth and fifth dimensions are also beyond the scope of this thesis. However, in terms of the second dimension (content), Smith noted that newspapers could only publish “available material”. That is, a newspaper depended on its sources of information and data, and was thus not a “mirror of reality” but the result of the “potential of its sources”:

It might seem merely obvious to say that journalism depends upon the available sources of news. Much of the literature of the press, however, takes it for granted that to journalists within the English tradition, the same range of matters have always been of equal relevance. In fact, journalism in any given period has functioned mainly as the processor of certain available kinds of material (1978: 208).

Smith concluded that a newspaper’s chief function was the “selection, arrangement and reformulation of information passing to it through regular channels” (1977: 181-2; 1978:
209). CAR newsgathering techniques provide journalists with an opportunity to broaden the sources of information, and to make those sources part of the "regular channels" that publications access. In part, this thesis explores the extent of this broadening of opportunities via CAR techniques.

In relation to the third dimension (journalists' skills for doing their work), Smith noted that every new technological device — for example, the telegraph, typewriter or telephone — tended to act as the "defining catalyst" for the emergence of a "new brand of journalism" (1977: 186). The devices need not be mechanical; they could also relate to a special skill "not directly related to a piece of machinery" (1978: 213). The role of the reporter in the early to mid nineteenth century, for example, demanded a range of new skills that included powers of observation, validation of statements, and the rapid and accurate recording of information acquired: "The profession of journalism has been marked by a seemingly endless process of re-demarcation of specialisms and sub-professions" (1978: 213).

Acquisition of new skills such as Pitman shorthand from about the 1850s produced what Smith described as "a new era" in reporting (1977: 185-7). "With the coming of Pitman and the first easily acquired and transferable shorthand system, a new era in reporting was brought about" (1978: 214). [DeFleur echoed Smith when she described CAR as "a specialised area of study" within journalism that introduced "an important new era in the history of the press" (1994: 5-6).] Smith continued the analogy of journalists as software, as parts of a machine producing news: "[Reporters], like other parts of the machine, are constantly re-professionalised, as it were, to new tasks, as each formulation of a medium succeeds its predecessor". He concluded that the "great evolution" of journalism had not ended, meaning that more changes were likely (1978: 222).
The context in which change occurs is always important. The theories here are tested (mapped) against a background of the information age and the increasing digitalisation of the media and information. Of particular interest is Smith’s concept that new technology acted as the “defining catalyst” for a new type of journalism and the notion that innovations produced new forms of reporting (1977: 185-7). Journalists may have expressed concerns about how new technology impinged upon their jobs, but once a technology had been adopted journalists tended not to look back. This was certainly the case with the introduction of “cold type” technology in Australia in the early to mid 1980s (Henningham 1995: 225). At the time, many journalists fought the introduction of word processors but 10 to 15 years later most were reluctant to return to manual typewriters (Holden 1998 TS).

**Diffusion of innovation theory**

Rogers’ analyses of the diffusion of innovation provide the main theoretical base for this thesis, guiding it through the complexity of the diffusion of CAR as a newsgathering technology. Rogers identified four main elements in the diffusion process: the innovation itself; the channels through which information about it was communicated; the time involved for the innovation to be adopted; and the social system in which the innovation was located.

He defined an innovation as an idea or practice that a group or individual perceived as “new”. It mattered little, he said, in terms of the way that people behaved towards an idea whether it was “objectively” new “as measured by the lapse of time since its first use or discovery”. The “perceived newness” of an idea or innovation determined an individual’s reaction to it: “If the idea *seems* new to the individual, it is an innovation” (1983:11). This issue of perception is important: Any innovation has five attributes that influence its
adoption and these characteristics "as perceived by the members of a social system" determined its rate of adoption (1995: 36).

Rogers quantified this statement by saying that "from 49 to 87 per cent of the variance in rate of adoption" was explained by these five attributes. Thus the perceived attributes of an innovation were "one important explanation of the rate of adoption" (1995: 206) and these perceptions "drove" the diffusion process. Any evaluation of an innovation was "subjective" because it derived from individual's personal experiences and perceptions and was "conveyed by interpersonal networks" (1995: 208). Consequently, perception is discussed at length later in this chapter. Rogers labelled the five attributes that drove the diffusion of an innovation as:

1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

Relative advantage

Relative advantage is the degree to which an innovation is perceived as being better than the idea it replaces, often expressed in terms of time or money saved (though other benefits are also involved). The nature of the innovation determined what type of relative advantage was important to adopters "although the characteristics of the potential adopters also affect which subdimensions of relative advantage are most important" (1995: 212). If an individual perceived the innovation as advantageous it was more likely to be adopted: "The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is going to be" (1983: 13). Past investigations of the perceived attributes of innovations "almost universally" reported a positive relationship between relative advantage and the rate of adoption:

Diffusion scholars have found relative advantage to be one of the best predictors of an innovation's rate of adoption. Relative advantage indicates the benefits and costs resulting from adoption of an innovation. The
subdimensions of relative advantage include the degree of economic profitability, low initial cost, a decrease in discomfort, social prestige, a saving in time and effort, and the immediacy of the reward (1995: 216).

Compatibility

The second attribute that influences adoption is compatibility. It is defined as the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters: “An idea that is more compatible is less uncertain to the potential adopter, and fits more closely with the individual’s life situation.” Thus compatibility helps the individual “give meaning” to the new idea so that it becomes more “familiar” (1995: 224). Rogers concluded that the rate of adoption of a new idea was affected by its compatibility with the old idea it replaced: “In other words, the more compatible an innovation is, the less of a change in behaviour it represents” (1995: 227). A faster rate of adoption occurred when an innovation was perceived as “meeting the needs of the client system” (1995: 228). The compatibility of an innovation, as perceived by members of a social system, was positively related to its rate of adoption (1995: 234). Any idea that was not compatible with the prevalent values and norms of a social system would not be adopted as rapidly as a compatible innovation: “Adoption of an incompatible innovation often requires the prior adoption of a new value system” (1983: 14).

Compatibility of an innovation with a preceding idea can either speed up or retard its rate of adoption. Old ideas are the main mental tools that individuals utilise to assess new ideas. One cannot deal with an innovation except on the basis of the familiar, with what is known. Previous practice provides a familiar standard against which an innovation can be interpreted, thus decreasing uncertainty (1995: 225-6).

An innovation’s incompatibility with an organisation’s or an individual’s cultural values and beliefs can block its adoption. For that reason, journalists’ values and attitudes regarding technology needed to be considered. Henningham conceded that little was known about Australian journalists’ responses to technology. The successful implementation of front-end newspaper production systems may have occurred because the new technology used the terminology of old machinery. For reporters, the tools remained
relatively similar and the transition had been “relatively painless” because they had to do “little more than exchange typewriters for word processors” (1995: 225-33). But Wright and others maintained that Australian journalists disliked computers: “I think that Australian journalists actually hate technology” (1997: 20). Consequently it was important to design research tools for this thesis to ascertain journalists’ attitudes towards technology.

Role of change agents and opinion leaders

A change agent is an individual who aims to influence an organisation’s decisions about an innovation in a direction that an organisation’s bosses deem desirable. In business environments — and newspaper owners regard their publications as businesses — organisations employ “change agents” to change attitudes within that organisation (1995: 37). They are not always successful. Rogers found that perceptions remained important: “The receiver’s perceptions of the attributes of an innovation, not the attributes as classified by experts or change agents, affect its rate of adoption” (1995: 209). Change agents frequently overlooked the fact that almost every innovation was evaluated by clients in terms of their prior experience with something similar — that is, its compatibility (1995: 241). Rogers noted that any change agent had to comprehend a client’s “indigenous knowledge systems” (1995: 241). In short, change agents had to understand the environment in which an innovation was being introduced, and had to be aware of the power of compatibility in the adoption process.

Opinion leaders influence the attitudes and behaviours of other individuals in an organisation towards an innovation. Opinion leadership is earned and maintained by the individual’s technical competence, and how available they made themselves to their colleagues — what Rogers called social accessibility. Rogers noted that people modelled
their adoption behaviour on the attitudes of opinion leaders and concluded that the success or failure of diffusion programs often rested on the role of opinion leaders (1995: 89):

The most striking characteristics of opinion leaders is their unique and influential position in their system's communication structure: They are at the centre of interpersonal communication networks. A communication network consists of interconnected individuals who are linked by patterned flows of information. The opinion leader’s interpersonal networks allow him or her to serve as a social model whose innovative behaviour is imitated by other members of the system (Rogers 1995: 27).

Complexity
In the 1983 edition of Diffusion of Innovation, Rogers defined complexity as “the degree to which an innovation is perceived as difficult to understand and use” (1983: 14). Rogers inserted the word “relatively” in the 1995 edition: “Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use” (1995: 242). Any new idea can be classified on the complexity-simplicity continuum: “Some innovations are clear in their meaning to potential adopters whereas others are not.” Thus the complexity of an innovation, as perceived by members of a social system, was “negatively related to its rate of adoption” (242). That is, the more difficult an innovation appeared to be to use, the less likely it would be adopted. In general, a new idea that was simple to understand would be adopted more rapidly than an innovation that required the adopter to develop new skills and understandings (1983: 15).

Trialability
Trialability is the degree to which people can experiment with an innovation. A new idea that can be tried “on the instalment plan” is generally adopted more quickly than an innovation that is not. Some innovations are more difficult to try out than others, but the personal trying-out of an innovation was “a way to give meaning to an innovation, to find out how it works under one’s own conditions”. A trial is also a way to dispel uncertainty about a new idea: “An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing.” Rogers
offered the generalisation that the trialability of an innovation, as perceived by members of a social system, was positively related to its rate of adoption (1995: 243). That is, if Australian reporters were able to experiment successfully with an innovation such as the Web — preferably in an environment of encouragement rather than criticism — they would become accustomed to it, and consequently more likely to adopt and use it.

Observability

Rogers defined observability as the degree to which the results of an innovation are visible to others. The results of some ideas were easily observed and communicated to other people, and these tended to be accepted more quickly compared with innovations that were difficult to observe or describe to others:

The easier it is for individuals to see the results of an innovation, the more likely they are to adopt [it]. Such visibility stimulates peer discussion of a new idea, as friends and neighbours of an adopter ask him or her for innovation-evaluation information about it (1983: 14-16).

All computer-based technology has two components: hardware and software. Hardware consists of “the tool that embodies the technology as material or physical objects” while software is the “information base” of the tool. The software component of a technological innovation is not as easy to observe as the hardware, and “innovations in which the software aspect is dominant possess less observability, and usually have a relatively slower rate of adoption” (1995: 244). Rogers generalised that the observability of an innovation, as perceived by members of a social system, was “positively related to its rate of adoption”. Thus if reporters could see colleagues using an innovation successfully, they would be more likely to adopt it themselves, and to tell their peers.

The role of perception

Perception is a key concept in the diffusion of an innovation. Diffusion is influenced by people’s perception of the “value” of a product. It is a qualitative issue, which is the
reason that qualitative methods have been used as much as quantitative in the research for this thesis. People’s discussion about an innovation — their internal thoughts and external conversation — are important factors in the communication of their perceptions. The peer discussion mentioned in the previous paragraph is a vital part of the communication process about an innovation. Thus “word of mouth” recommendations play a significant role in the acceptance of an innovation, especially its software element. Communication is the process by which participants “create and share information with one another in order to reach a mutual understanding” (1983: 17). Rogers introduced the concepts of homophily and heterophily in relation to interpersonal communication:

An obvious principle of human communication is that the transfer of ideas occurs more frequently between two individuals who are alike, similar, or homophilous. Homophily is the degree to which pairs of individuals who interact are similar in certain attributes, such as beliefs, education, social status, and the like. In a free-choice situation, where an individual can interact with any one of a number of other individuals, there is a strong tendency for him [or her] to select someone who is most like him- or herself (1983: 18).

Heterophily is the mirror opposite of homophily. Rogers defined it as “the degree to which pairs of individuals who interact are different in certain attributes” (1983: 18). One of the most distinctive problems in the communication of innovations is that participants are usually quite heterophilous. Chapter 5 shows that reporters on regional newspapers often complained that the IT support staff who were assigned to show them how to use the Internet “spoke another language”. Rogers noted that more effective communication occurred “when two individuals are homophilous”: “The very nature of diffusion demands that at least some degree of homophily be present between the two participants” (1983: 19). Consequently, networks play a “very crucial role” in diffusion (299). Individuals in networks “tend to be linked to others who are close to them in physical distance and who are relatively homophilous in social characteristics”. Chapter 6 shows that Internet adoption at The Age developed more rapidly in pockets among reporters who worked closely together, such as on the IT desk or the investigation team.
Time is another factor in the acceptance of an innovation. Smith pointed out that acceptance of the computer in American newsrooms took time:

> Reporters and editors had to be trained and made to feel that the instrument added to, rather than detracted from, their professionalism . . . It took time, therefore, for the front end [computerised production system] bandwagon to roll and for the new technology to extend itself into the newsrooms of the [United] States (1980a: 78).

Rogers contended that the time element of the innovation-decision process has five stages: knowledge; persuasion; decision; implementation and confirmation. Knowledge occurred when an individual was exposed to an innovation. Persuasion took place when an individual formed a favourable or unfavourable attitude towards the innovation. Decision occurred when an individual engages in activities that led to the decision to adopt or reject the innovation. Implementation took place when an individual put an innovation into use. And confirmation occurred when an individual sought reinforcement of an innovative decision that had already been made. According to Rogers, the innovation-decision process — the five steps outlined in this paragraph — usually occurred in a time-ordered sequence (1983: 21).

Rogers also noted that it was important to remember that diffusion occurred within a social system, so the social structure of that system affected the innovation’s diffusion in several ways: “The social system constitutes a boundary within which an innovation diffuses.” Rogers defined a social system as “a set of interrelated units that are engaged in joint problem solving to accomplish a common goal”. This could safely be taken as a description of a daily newspaper newsroom. All members co-operate “at least to the extent of seeking to solve a common problem in order to reach a mutual goal. This sharing of a common objective binds the system together” (1983: 24). Cole touched on this notion of a “common objective” when concluding that the production of a daily newspaper “was a restless process, creating a permanent atmosphere of excitement in which everyone in a
newspaper office . . . can share” (1963: 28). Chapter 6 considers how social structures and the roles of opinion leaders and change agents at *The Age* influenced the Internet’s diffusion at the newspaper.

**Who makes the adoption decision?**

Rogers identified three main types of individuals or groups who make the decision to adopt an innovation — that is, who make an “innovation-decision”. The first is the individual — what Rogers called an “optional innovation-decision”, where an individual makes choices “independent of the decisions of other members of the system to adopt or reject an innovation”. The second is based on group choice, or what Rogers called “collective innovation-decisions”. These are choices made “by consensus” among the members of a system. The third occurs when the decision is imposed from above, by someone in authority. Rogers called these “authority innovation-decisions” because they are made “by relatively few individuals” in a system “who possess power, status, or technical expertise” (1995: 37). Chapters 5 and 6 consider the significance of editorial authority figures in controlling the decision to adopt the Internet at Australian dailies, given that research indicates that newspapers are controlled from above (Bowman 1988; Cole 1963; Tidey 1986, 1998). At *The Age*, for example, the decision to implement the new Cybergraphic front-end system came from Fairfax headquarters in Sydney. All Fairfax reporters were required to attend a two-day training course, with sub-editors getting a further three days to learn about pagination and design. Because the front-end system was so important for production of a paper seven days a week, editorial executives took training seriously. Lists of staff who had completed courses were placed on noticeboards and executives chased untrained staff to attend. The decision to provide Web browsers and email at the desktop also came from headquarters. But many *Age* journalists who signed up for training courses did not turn up (Ryan 1998 TS). The situation deteriorated to the point that, early in 1999, the managing editor responsible for training asked trainers to keep a roll
of course participants, and the editor personally admonished staff who failed to attend (Cheng 1999 TS).

**Personality of adopters**

Rogers divided the people who adopt an innovation into five groups, depending on their personality (1995: 248-51). [Moore preferred the phrase “unique psychographic profile” of the people (1995: 12).] Rogers’ five groups are:

1. innovators
2. early adopters
3. early majority
4. late majority
5. laggards

Each group has specific characteristics. Innovators exhibited “venturesomeness” and, for them, gaining access to new technology was almost an obsession. They were “eager to try new ideas” (1983: 248). Early adopters had the greatest degree of opinion leadership and potential adopters looked to them “for advice and information about the innovation”. The early majority adopted new ideas “just before the average member of a social system” and their position between early adopters and the late majority made them “an important link in the diffusion process” (249). People in the late majority adopted new ideas “just after the average member of a social system”. Adoption was often an economic necessity and the answer to increasing pressures from bosses and colleagues. These people approached innovations with a sceptical and cautious air and did not adopt “until most others in their social system have done so” (249). The last group was the laggards: “When laggards finally adopt an innovation, it may already have been superseded by another more recent idea that is already being used by the innovators” (250). Rogers added that it was a mistake to infer that laggards were somehow at fault for being late to adopt. Rather, this was an illustration of how individuals were blamed when it was more appropriate to blame the environment or “system”. System-blame was Rogers’ phrase to describe the situation where an organisation inhibited or failed to encourage staff to adopt an innovation (251).
Many innovations required a “lengthy period” — often many years — between when they become available and when they are widely adopted. Rogers cited the example of the disease, scurvy. A solution was available as early as 1601 but the British Navy did not adopt the innovation of lime juice until almost 200 years later, and the Merchant Navy did not follow suit until 1865. Captain James Cook, the man who discovered the east coast of Australia, prevented the spread of the disease by providing his crew with sauerkraut during the voyages of 1768-71 and 1772-75. “Most innovations, in fact, diffuse at a surprisingly slow rate” (1983: 9).

Communication technologies

Rogers also studied new communication technologies such as email to see if these emerging technologies had any “distinctive qualities” that would lead researchers to expect a different process of diffusion for these technologies (1986: 120-1). Along with the factors already outlined, he identified three key features:

• the importance of a “critical mass” of adopters and users
• existence of a high degree of adaptation, or re-invention
• the significance of the actual use of the innovation, rather than its mere adoption

New communication technologies require a critical mass of adopters before the innovation is widely adopted: “The usefulness of a new communication system increases for all adopters with each additional adopter.” A classic example was the diffusion of the telephone from the 1870s. One phone on its own was useless. But as each new phone joined the network, the usefulness increased. Rogers said this critical mass was “a crucial factor” for adoption of communication technologies (1986: 120-1). Chapter 1 outlined how the Internet has developed a critical mass in Australia (see ABS 1998).
Rogers' second key feature concerned the "tool technology" nature of new communication media; as with tools, people adapted and used them in different ways. Invariably this produced a high degree of modification from what was originally-intended. Rogers used the term "re-invention" to describe this process and noted that computer-based technologies were frequently characterised "by a relatively high degree of re-invention". This was the process by which an innovation was changed or modified by the user in the process of its adoption and implementation. The adopter "customises" the innovation to fit his or her conditions, rather than playing a passive role in accepting a standardised innovation (1986: 121).

Diffusion scholars once believed that adopters were passive acceptors of an innovation but once scholars made the conceptual breakthrough of recognising that re-invention could happen "they began to find that quite a lot of it occurred" (1995: 174). Rogers noted that researchers had drawn a distinction between invention and innovation. Invention was the process by which a new idea was discovered or created, while innovation was a decision to make full use of that invention. "Thus adoption of an innovation is the process of using an existing idea, which may have been previously invented by someone." But this difference between invention and innovation was not so clear-cut "once we acknowledge that an innovation is not necessarily a fixed entity as it diffuses with a social system" (1995: 174-5). The issue of perception arises again: "Whether re-invention is considered good or bad depends on one's point of view" (1995: 176). Rogers concluded that the process of re-invention had six characteristics:

1. Innovations that are relatively more complex and difficult to understand are more likely to be re-invented. In fact, re-invention may be a "simplification of the innovation". 
2. Re-invention can occur because of an adopter’s lack of full knowledge about the innovation. Rogers noted that re-invention “sometimes happens due to ignorance and inadequate learning”. Training thus becomes a key issue.

3. An innovation that is an “abstract concept” or a tool such as a computer software program “with many possible applications” is more likely to be re-invented. Training is also a key issue here.

4. Re-invention is more likely to occur when an innovation is implemented “to solve a wide range of users’ problems”. The amount of re-invention is greater “when a wide degree of heterogeneity exists in the individual and organisational problems with which the innovation is matched”.

5. An innovation is often modified in “certain rather cosmetic or minor ways” so that it appears to be a local product (1995: 178). Rogers calls this situation — where the innovation is simply given a new name — “pseudo-re-invention” (179). “A strong psychological need to re-invent seems to exist for many individuals” even though in many cases the changes are minor.

6. Finally, re-invention may also occur because a change agency “encourages its clients to modify an innovation” (179).

Recognition of the existence of re-invention necessitates a different view of adoption behaviour. Potential adopters are often active participants in the adoption and diffusion process as they “struggle to give their own unique meaning to the innovation as it is applied in their local context”. Adoption of an innovation is thus a process of “social construction” (1995: 179). This thesis suggests that re-invention certainly occurs in the way that reporters on Australian daily newspapers use the Internet. Chapter 5 shows that in 1997 Australian regional reporters had not adopted the Internet for newsgathering in the ways that their American colleagues had, despite similar diffusion levels in the community. But some regional reporters had adapted or re-invented the Internet for other purposes. The
final section of Chapter 5 considers the extent of re-invention, especially on Internet-connected regional dailies.

The third key feature that Rogers outlined in the diffusion of communication technologies was the degree of actual use of the innovation, rather than a situation where the decision to implement was followed by minimal or no use. Rogers said the decision to adopt an innovation was not the same as the actual implementation. The degree of actual use, rather than the decision to adopt, was more significant because implementation was frequently the key factor in the diffusion of new communication technologies (1986: 122). Chapter 6 considers this factor at *The Age* in Melbourne. Some reporters perceived that the Internet was difficult to use, compared with existing newsgathering technologies such as the telephone and facsimile, and did not use it despite the fact that it was available on their desks. The issue of perception directly influenced journalists' reactions to new technology.

**Moore re-invents Rogers**

Moore reformatted Rogers’ five groups of adopters — innovators, early adopters, early majority, late majority and laggards — to fit them into the standard bell-shaped curve. That curve is shown in Figure 4.

**Figure 4: The technology adoption life cycle (Moore 1995: 12)**
Moore maintained that each group had a "unique psychographic profile" — a combination of psychology and demographics — that meant each responded differently to computer technology (1995: 12). Adoption went in stages corresponding each groups' "psychological and social profiles" (1995: 14). Moore has a marketing background and he runs a consultancy company in California that shows high-tech industries how to sell innovations. His ideas are useful for what they say about the influence of personality on adoption, but most of his other ideas are rehashed from Rogers without acknowledgement. Moore refined the life cycle shown in Figure 4. His reformatted life cycle, illustrated in Figure 5, pointed out the "cracks" between the "psychographic" groups. These "cracks" represented the "dissociation" between each group, and the need for different forms of marketing when dealing with them (1995: 17).

**Figure 5: The revised technology adoption life cycle (Moore 1995: 17)**

For Moore, the real point of interest was what he called the "chasm" — the pronounced gap that separated the early adopters from the early majority. Thus the title of his book, *Crossing the Chasm*: "This is by far the most formidable and unforgiving transition in the technology adoption life cycle" (1995: 20). He labelled the innovators as "technology enthusiasts" (29), the early adopters as "visionaries" (33), the early majority as "pragmatists" (41), the late majority as "conservatives" (46) and the laggards as "sceptics" (54). Moore's opinions may be simplistic but they confirmed Rogers' idea
that word-of-mouth networking was a significant factor when people adopted computer equipment: "High-tech markets are made up of people who reference each other during the buying decision". Inter-group conflict must also be acknowledged. Moore said that "pragmatists" did not trust "visionaries" because they saw them as more interested in technology than their industry; "pragmatists" believed "visionaries" failed to recognise the importance of infrastructure. Similarly, "pragmatists" expected "visionaries" to grab all the credit for introducing an innovation (54).

The theories of Rogers and Moore are useful for testing the diffusion of CAR among journalists on Australia's daily newspapers. In terms of Rogers' five groups — innovators, early adopters, early majority, late majority and laggards — Chapter 5 shows that as of mid 1997 many of Australia's regional newspapers were included in the last two categories. Reporters on some of the big capital city papers were in the innovator and early adopter groups but more than half of them, like their country cousins, had had nothing to do with the Internet. As for crossing Moore's "chasm", the vast majority of Australian journalists had yet to encounter it as of mid 1997. The situation had changed by the second research study in 1999, and this is discussed in Chapters 5 and 6.

Methodology

This thesis employed a combination of quantitative and qualitative research methods. Bryman noted that the choice between quantitative and qualitative research methods should be made "in terms of their appropriateness in answering particular research questions" (1988: 6-7). Both methods were engaged because different types of data were needed to answer the different parts of the research questions. The first key research question outlined in Chapter 1 asked how many journalists used the Internet for newsgathering, and in what ways. This question necessitated the use of quantitative methods.
But other questions related to that key question looked at issues of perception and attitude, and therefore needed data that only qualitative research methods could supply. For example, when mapping Rogers’ theories of adoption on Australian journalists’ acceptance of innovation, the issue of their perception of technology was significant and only qualitative research could provide the data. The second key research question looked at the relationship between training and the development of CAR in Australia. The best way to discover the number of courses offering CAR subjects was to conduct a survey, which meant using quantitative methods. But the attitudes of educators were also important, and that suggested a need for qualitative methods. This thesis, therefore, adopted a dual approach to data collection.

Rogers described a series of variables that determined an innovation’s rate of adoption (1995: 207). These variables can be broken into four parts, illustrated in Figure 6. The research methods aimed to illuminate these variables, and research tools were designed to obtain data to answer the research questions. The survey used at The Age, for example, was modelled on Figure 6. Appendix 1 shows the research tools.

**Figure 6: Variables that determine an innovation’s rate of adoption**

Part I: Perceived attributes of innovations
1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

Part II: Type of innovation-decision
1. Optional
2. Collective
3. Authority

Part III: Communication channels and nature of the social system

Part IV: Extent of opinion leaders’ promotion efforts
Data sources

Data for this thesis came from a wide variety of sources. Magazines and journals, plus documents obtained from the Web and via email, provided the bulk of the literature review. The review included some books, but because of the contemporaneity of the subject matter there was a shortage of relevant books. Online sources included electronic versions of professional journals, listservs, email, e-zines and Web sites. Where an online version was used, the email address or uniform resource locator (URL) from the Web and the date visited are included in brackets in the References. Definitions of terms are included in Appendix 2.

Data were collected by interviews and surveys. Telephone, email, facsimile and face-to-face interviews were conducted. Research into Australia's daily newspapers began with a phone study of the country's 49 daily papers plus Australian Associated Press (AAP), the national news agency, in mid 1997. A daily was defined as a publication which appeared at least five days a week. AAP was included because of its importance as a supplier of copy to regional dailies; many rely on AAP copy to fill pages and could not produce a paper without it. Initial contact with the 49 dailies was made by phone with the chief of staff – the senior journalist responsible for overseeing the work of all reporters. Names and phone numbers came from the Annual Newspaper Yearbook of the Pacific Area Newspaper Publishers' Association (PANPA) and the most recent editions Margaret Gee's Media Guide. The latter appears every six months.

The first phone study to chiefs of staff took place in June and July of 1997, using a standard 27-question questionnaire. The questionnaire consisted of quantitative and qualitative questions. The quantitative questions sought information such as the total number of reporters (including sport) on each daily and the number who used the Web and/or email for newsgathering. Some of the chiefs of staff on the big-city dailies could
only provide the number of news reporters. They did not know the total number of
reporters on their publication. (This was one of the limitations of the study discussed later
in this chapter.) The study took almost two months because of the difficulty in finding
occasions when chiefs of staff could devote time to answer all of the 27 questions. One
said he was too busy to co-operate regardless of when I called back. To ensure I obtained
accurate information, I also contacted computer support staff, other senior journalists, and
editorial assistants on news desks.

To try to save time in a follow-up study a year later, the same questionnaire was faxed to all
chiefs of staff to ascertain any changes in Internet use. Despite reminder telephone calls
and email, only three replies were received. The paucity of responses indicated how busy
chiefs of staff are at a daily newspaper; it also suggested that these journalists were not
overly efficient at returning academic inquiries. This necessitated a return to the telephone
for the follow-up study, and it was conducted between December 1998 and April 1999,
with a break from late February until mid March while I was overseas.

One of the original objectives of the first phone study was to collect the names and email
addresses of Internet-connected reporters in this country, with the intention of surveying
them via email. But most chiefs of staff refused to supply them, for reasons of privacy or
reporters’ reluctance to make them public. This required a change of tack. As part of the
field work for this thesis, I spent five weeks in 1998 at The Age in Melbourne, from August
24 until September 25. This provided an opportunity for a high degree of participant
observation. Observations and notes were written in the evening of each working day, and
detailed interviews conducted with journalists. During the five-week period, I sent an email
survey to 94 of the reporters at The Age to assess their attitudes to new technology and the
diffusion of innovation. The Fairfax organisation adopts a regimented system for allocating
email address using the reporter’s first initial plus their surname, followed by
©publication.fairfax.com.au. For example, reporter Gary Barker’s email address is gbarker@theage.fairfax.com au, so it was relatively easy to construct a list of reporters’ email addresses by obtaining names from a list in *The Age* staff directory and reading the newspaper.

Gender, age and education were likely to be important factors in reporters’ adoption of the Internet as a newsgathering tool, so questions that covered these areas were included. In the early years of the Web, men made up about 65 per cent of Internet users. Estimates of the proportion of women Internet users rose from about 34 per cent in September 1995 to 42 per cent in January 1997 (Salamon 1997 U). ABS figures for November 1998 showed that gender levels had almost balanced out, with 34 per cent of men and 28 per cent of women accessing the Internet in Australia (ABS 1998d: 5). Smith believed that age could influence journalists’ acceptance of new technology: “Older journalists are probably going to be more bewildered than previous generations as they watch a new cohort of reporters emerge” (1980a: 206). Education was considered a potential contributing factor because most journalists new to the profession obtained a university degree first, and universities are probably the biggest general providers of Internet access in the country. Thus, most young journalists gained initial access to the Internet at university or high school. The survey asked for reporters’ highest education level, gender, age and how often they send email and used the Web.

Only 12 out of 94 *Age* reporters responded to the email survey. Half of those replies contained questions about how to complete an email survey, or asked me (some politely, others not so politely) to refrain from sending further email. This result gave some indication of a small number of reporters’ attitudes to email. Because of the small return rate, I decided to conduct the survey using paper. I distributed an A4-size questionnaire, printed on both sides, to 143 reporters in *The Age*’s Spencer Street headquarters (see
Appendix 1c). Figure 18 shows that at the time *The Age* employed 163 reporters. I did not survey another 20 reporters based in other parts of Melbourne or other cities. The paper survey was specifically designed to measure *Age* reporters’ perceptions and attitudes towards technology and the Internet. It used a Likert-type scale — asking people to rate most questions on a range from 1 to 5, ranging from strong dislike to neutral to strong appreciation. The theoretical base was Rogers’ list of variables that determine an innovation’s rate of adoption in Figure 6. The paper survey attracted 76 replies, a response rate of 52.45 per cent. A paper survey was also conducted of the 19-member editorial management team and — after three reminders — nine replies were received, a response rate of 47.37 per cent. The results of these surveys are discussed in Chapter 6.

**Survey of journalism courses**

Email surveys were sent to the heads of all of Australia’s 22 journalism courses in 1996, and again in 1998. The aim of the first survey was to measure the levels of CAR taught and to ascertain educators’ attitudes to CAR. The second survey noted changes and developments. Educators’ attitudes were considered important, given that these people were in a powerful position to influence the opinions of the next generation of Australian journalists. The first survey took place in October and November 1996. It was sent five times, while the second was despatched seven times between June and September 1998. The need for the repeats — each succeeding survey was only sent to those educators who had not replied — was based on an attempt to obtain as many responses as possible, given the relatively small number of journalism programs. Fifteen out of 21 programs responded to the first survey, and all but one replied to the second.

**Issues of reliability**

A reliable piece of research is one in which the measuring instrument produces the same result, within reasonable boundaries, each time it is used. For this reason, each piece of the
research methodology mentioned in the previous section (apart from the participant observation at The Age) was repeated, and results compared. Interviews with chiefs of staff provided a form of fail-safe because of the chief of staff’s role. Newspaper managers specifically choose them because chiefs of staff know the strengths and weaknesses of their reporters. A chief of staff is almost always a senior journalist with several years experience; they understand the culture of their organisation and thus are admirably placed to answer the questionnaire thoroughly and accurately.

The paper survey of The Age’s reporters was conducted as neutrally as possible, in the sense that I did not stay near the reporters while they completed the form. Copies were left in reporters’ pigeonholes or on desks, and collected the same or the next day. The email survey to journalism academics was sent to the head or co-ordinator of each program with a request that the survey be completed by the person best suited to complete it — that is, the staff member most cognisant with CAR issues. On almost all occasions the heads or co-ordinators of programs replied themselves: 13 of the 15 replies to the first survey came from the course co-ordinator or head of department, and 18 of the 21 replies to the second.

**Limitations of the research**

The people answering the various questionnaires represent one of the limits of this research. The first to be considered are the chiefs of staff, the individuals who answered the phone studies in June and July of 1997, and again in 1998-99. On small daily papers, with a reporting staff of perhaps half a dozen people, it is easy for the chief of staff to know the names, whereabouts and skills of each individual reporter. On large papers, such as in Sydney and Melbourne, the possibility exists that a chief of staff may not know everyone as well as their colleagues on small dailies. In situations where their answers were vague — for example “between six and eight” — the average was taken. Because of the need to produce a paper at least five days a week — often six or seven — perhaps four or five
people share the role of the chief of staff. Some of these people may be more aware of online developments than others. Each phone study asked to speak to the chief of staff at each publication with the best knowledge of technology.

The chief of staff is the linchpin of the reporting staff. All reporters report to them and consequently chiefs of staff are very busy people. They must attend specified meetings at fixed points during the day where they outline the stories that are likely to appear in the next day's paper (all of Australia's 50 dailies are morning publications, so the staff are always working towards tomorrow's paper). Chiefs of staff are constantly on the telephone, answering reporters' and managers' questions. The time that chiefs of staff had available to talk was therefore another limitation of this thesis. The study aimed to phone each chief of staff during the late morning — between 10am and noon — because this was likely to be their least busy time. Chiefs of staff were asked to provide 15 minutes of their time. Another limitation was the simple fact that to complete all 27 questions in the questionnaire; little time was available for building rapport. Some chiefs of staff were wary of being asked to complete a questionnaire — their professional experience consists of asking questions rather than answering them — and some were hostile to the Academy in general. These factors of wariness and hostility were other limitations on the study. In cases where I suspected I had incomplete information, I located other staff members at the publication who could substantiate and develop the answers to some of the questions. For this and the reasons outlined above, the 1997 study took almost two months to complete. The second study was slightly easier because some replies came via email but it took almost as many hours of telephoning, spread over four months.

Another limitation was the sheer pace of change in the media industry, and confusion about the Internet and digital communication industries in Australia. Key issues for the media industry were the development of digital television and issues of control of the digital
spectrum. The business editor of *The Australian Financial Review* noted that computers and modems would “eventually be overtaken by digital television as the preferred delivery for the Internet and other data and interactive services” when high definition digital television (HDTV) begins in the year 2001 (Kohler 1998: 35). Some journalists interviewed admitted ignorance of the Internet and related digital tools while others expressed concern about the perceived rapid pace of change and confessed to a dislike of technology. These factors are explored in the next section of this chapter.

**Why deep CAR will not evolve in Australia**

Chapter 1 outlined briefly why the most likely form of CAR to evolve in Australia would be the basic to mid levels shown in Figure 1. This section explains the reasons in more detail. To recap: Green (1994: 219) and Tapsall (1997: 73) concluded that deep or investigative CAR would not develop in Australia to the extent it had in the United States because of limited access to information in this country relative to the United States, and issues of privacy. Cost factors, the overall journalistic skill base in Australia and considerations of newsroom culture would also play a part. This thesis suggests that management inertia and incomplete technology at some dailies, inadequate training, journalists’ dislike of technology (in some respects related to newsroom cultures), and the concentration of media ownership also need to be considered. Each factor is elaborated upon here:

**Access to information.** CAR evolved in the United States because of that country’s long tradition and culture of freedom of information. The 1966 Freedom of Information Act required government agencies to provide information to the public, based on the “people’s right to know”. The Act had real teeth. If records were not released, citizens could register a complaint in court and the court could then order the production of records that were improperly withheld. The Act was amended in 1974 to set a time limit for responding to
requests and to establish uniform fees. Those fees could be waived or reduced if the information was considered "as primarily benefiting the general public" (DeFleur 1994: 50). The Act was amended again in 1986 and this FOI Reform Act established categories of requestors for the assessment of charges and granted preferred status to the press, educational and non-commercial users. Groups with preferred status could receive records without charge or with reduced charges if disclosure was "in the public interest" or contributed "significantly to public understanding of the operations or activities of government" (DeFleur 1994: 51).

Parallel with this right of access was the responsibility of the US federal government to keep records. The Administrative Procedure Act of 1946 required government agencies to publish in the Federal Register descriptions of each organisation and the places, methods and procedures by which the public could make requests for, or secure, information. DeFleur noted that the US federal government consequently became the largest producer and publisher of information in the world (1994: 46). Because of the huge volume of information, moves were initiated to store data electronically, beginning with the Paperwork Reduction Act 1979 that required the electronic storage of federal data (Briggs 1994). Later the National Infrastructure Act of 1993 amended and broadened Senator Al Gore’s High-Performance Computing Act of 1991. These Acts, along with amendments to freedom of information legislation, combined to make public and government information available easily and freely in various electronic forms, including CD-Roms, the Internet and huge online databases. Because of the increased digital storage of data over the past 20 years, some journalists in the United States developed skills to collect, analyse and report on that data. DeFleur noted that this was a direct factor in the development of investigative CAR. Garrison (1995a, 1995b, 1995c, 1995d, 1996, 1997, 1998a), Houston (1996) and Miller (1998) have detailed how CAR developed in the United States because of the widespread availability of data and relatively cheap personal computers. Garrison, for example, wrote:
American society has been inundated by a flood of computerised public and private records. Databases are being compiled on all aspects of life. Many records formerly kept on paper are now stored in computers. And many records that were never before kept are now retained in databases. This development has made news reporting increasingly computer oriented during the past decade. Much, if not most, news reporting depends on knowledge and use of computers. Knowledge of how to access and use computer databases is essential for the journalists of the future (1995d: xi).

And later:

The single most important focus is on the changing nature of news reporting in the wake of the fast-changing power of business-type desktop and portable computers. Numerous new approaches to reporting and research have developed in the past decade in parallel with the evolution of personal computers (1995d: xii).

Several commentators have pointed out that when newspapers first started using computers for production, they started with dumb terminals attached to mainframes that were essentially "glorified word processors" (Holden 1998 TS; McKercher 1995b: 213). But Garrison noted that as personal computers became available in newsrooms from the early 1980s their costs dropped, they became more sophisticated and the need for mainframes also became less important:

Hardware and software improved. The tools became more powerful and capable. The first PC spreadsheets were developed in the early 1980s and the first database software was introduced about the same time . . . By the beginning of the 1990s, personal computing had become the means of publishing newspapers and magazines for many companies. The dedicated word processing systems are being gradually phased out and PCs are replacing them . . . It seems we are only beginning to see the potential for these tools for reporting and for news gathering in general (1995d: 14).

Green (1994) and Tapsall (1996b, 1997) demonstrated the potential for the spread of CAR in Australia, though both noted that most Australian journalists were unaware of the scope or availability of electronic information:

Journalists in Australia appear to be largely unaware of database and discussion group possibilities. Editors who are told about the US moves [in CAR] seem to believe the number of useful databases in Australia is too small to make the investment in CAR hardware and training worthwhile (Green 1994: 222).
One former editor of a quality metropolitan daily newspaper said CAR had not been "part of the culture" in Australian journalism in the way it had been in the United States.

Editors have not had the resources — nor probably the inclination — to pursue long-term and complicated projects that may in the end produce very little. Apart from a brief flirt with Sunday Times style investigative journalism, Australian papers have tended to rely on the dump of documents or the whistleblower to provide the impetus for investigation (Schmidtke 1996 E).

**Privacy.** The widespread electronic availability of information has not yet occurred in Australia, partly because privacy issues are more strongly monitored in Australia. Victoria, however, intends to make a vast amount of government data available on the Internet by the year 2001 (see next section). While Australia has freedom of information legislation — primarily the federal Freedom of Information Act of 1984 — pre-existing legislation stops public servants from releasing information in a broad range of categories. Tapsall concluded this meant that Australian journalists did not have legal access to large amounts of raw data (1997: 73). Privacy issues are partly connected with cost factors.

**Cost factors.** Tapsall found that the cost of access to online databases became an issue for CAR practitioners in the United States (1997: 74). DeFleur said that to recover costs, American government agencies sold their records to private businesses. These businesses in turn placed the records into databases that were offered as online services (1994: 47) and users had to pay an access fee. In Tapsall's view, costs were likely to be "as much an issue" for potential CAR practitioners in Australia. Australian state and federal governments "own" the data they collect and charge to supply it, so "cost constraints" were likely to emerge both at the level of obtaining raw data and when journalists needed to resort to freedom of information legislation to find it. The Age in Melbourne, for example, spent almost $40,000 for access to online services in 1997. The paper's manager of library and information services said that one search of a commercial online database such as Dialog could cost $40, while one search to download an article from Dow Jones could cost
$35 (Ryan 1998 TS). The Australian Securities and Investment Commission charges $4.50 for an online company or personal search even if there are no results; the fee rises to $19.50 with a result. Lexis-Nexis charges an average of $20 per search (Ryan 1998 TS).

A climate of cost cutting pervaded at Australia’s metropolitan dailies in the late 1990s — the Fairfax group, for example, instigated Project Hercules in June 1998 to cut $40 million from operating expenses (AFR 20 June 1998: 13). Small regional dailies with small budgets had even less prospect for making online searches, compared with their capital city cousins.

The Commonwealth Freedom of Information Act came into effect on 1 December 1982. It required the Government to disclose information and ensure that government departments and statutory authorities published information showing how they operated. But the law allows for some documents to be exempt “to protect the workings of government”.

Victoria was the first state to introduce a FOI law, in 1983. But in the years since, Victorian journalists have maintained that politicians from both sides have eroded the legislation to the point that it was unworkable. Applicants found that seeking documents was a costly and time-consuming process:

On top of a $20 application fee, departmental freedom of information officers are imposing further processing charges and upfront deposits before they will even begin to search for documents. Should applicants request the fees be waived, they are asked to provide evidence of overriding public interest. After such an argument is mounted, the waiver is invariably denied (Boreham 1998: 6).

The Age of 1 September 1998 referred to the potential “crippling costs” for FOI under new procedures the Kennett government introduced in Victoria earlier that year. The government abolished a section of the FOI Act that exempted applicants from paying costs that arose from appeals. The paper reported the Opposition as saying the move would “close down FOI” in the state because the “threat of soaring legal cost” would discourage appeals when government agencies refused access to documents (Hannan
1998: 3). Prior to the amendment, it cost $20 to lodge an FOI request under section 17, with a fee of $165 to apply for any review by the Administrative Appeals Tribunal. Under the Commonwealth FOI Act, it costs $30 to lodge an FOI request under section 15, plus search costs of $15 an hour, decision-making time at $20 an hour and $4.40 per page of photocopied transcript. If the request is refused, it costs $40 to apply for an internal review (regulation 5) and $368 to apply for an external review by the Administrative Appeals Tribunal (Minter Ellison briefing papers 1997).

Journalists have noted problems with FOI in other states. On 14 November 1996 the South Australian Ombudsman expressed regret that five years after the introduction of that state’s FOI legislation, some government agencies were “still pre-occupied with excessive secrecy”. On 12 July 1998 the Queensland premier, Peter Beattie, wrote to all his ministers urging them to avoid using a loophole in that state’s FOI law that exempted any document from FOI if it was presented to state Cabinet. Some journalists suggested it was simply Beattie’s way of encouraging his ministers to use the loophole (Boreham 1998: 6).

In 1995 the Australian Law Reform Commission (ALRC) recommended that the Commonwealth FOI Act be strengthened and improved to provide for better public access to information. The next year the commission released a scathing review of the implementation of the Act, along with 106 recommendations. As of early 1999, those recommendations were still “under consideration” by the federal Attorney-General’s Department. In a reshuffle of the department in 1997, the FOI unit became part of the newly-created Information and Security Division, which also handled administration of the Australian Security Intelligence Organisation, ASIO. Journalist Annabel Hepworth commented: “A unit that is itself secretive, overseen by public servants who are specialists in plugging leaks, hardly seems in the spirit of the legislation the ALRC had in mind” (1998: 32).
Australian journalists perceived that the number of commercial online databases was small and costs were high (Green 1994). But information on the Internet was free, and the volume of data was rising in some Australian states. Late in 1997 the Victorian government introduced a policy to make a vast amount of information freely available via the Internet by 2001 — 24 hours a day and seven days a week via a service known as Maxi Multi-media. In January 1998 the state’s treasurer and minister for multi-media described “Maxi” as a “major milestone in the Government’s plan to have all Government services online by 2001”. It aimed at making the State Government a “best practice user of information while building a strong global communications and multi-media industry” (Stockdale 1998 letter to the Geelong Advertiser). Microsoft CEO Bill Gates, on a tour of Australia in March 1998, congratulated the federal government on its development of the “digital nervous system”. Gates described the phrase “nervous system” as his term for “how governments and business can use technology to manage and use information to provide better and richer information”. Some of the benefits included “providing better and faster services, publishing information for citizens, [and] providing access to knowledge from all over the world via the Internet” (Gates 1998: 2).

**Journalists’ skill base.** Journalists need to understand the data they are analysing before they can produce a story. Investigative CAR is predicated upon journalists’ skills with mathematics, and database and spreadsheet technology. Australian journalists do not have a tradition of deep numerical analysis; indeed some have never used a word processor and a mouse, let alone a spreadsheet (Holden 1998 TS). It would be a safe generalisation to say that many entered journalism to use words and avoid numbers. Tapsall said the mathematical nature of CAR “can make it the subject of some apprehension for reporters and news editors” (1997: 74). This thesis will show that — apart from word processing — the level of computer skills among reporters is not high and journalists have traditionally
been slow in embracing new technologies. McKercher reported a similar tardiness towards technology among journalists at Canadian dailies:

Despite a massive increase in the range of technologies available in the last few years, most reporters at two newsrooms studied still tend to use computers to perform traditional functions (1995a U).

These traditional functions included the use of computers as electronic typewriters and for checking electronic clippings files. McKercher found that both functions were extensions of the "traditional part of the reporter's job" and concluded that "reporters use computers as new tools to do the same old journalism". Garrison agreed:

It was not that long ago, if time is taken to think about it, that computers were introduced into newsrooms as fancy electronic typewriters, and that was just about all they did as far as journalists were concerned (1995d: x).

Along with low levels of technology skills among American journalists, Johnson and Garrison also found a profound ignorance of mathematics. Garrison wrote:

One reason some reporters may shy away from database-oriented reporting is their aversion to anything involving numbers. This is especially true if the numbers are so small or so large most people cannot comprehend them (1995d: 259).

Johnson suggested that journalism had traditionally been "the refuge of the mathematically phobic":

Bright people, with broad curiosity, found their way to journalism because they found multiplying fractions a challenge in middle school or the quasi-abstractions that are algebra and geometry daunting. Consequently, because of the way arithmetic and math are taught in the [United S]tates, they never were exposed to the creative revelations and insights that even simple descriptive statistics can bring (Johnson 1992: 34 and 1998a E).

Houston confirmed Johnson's prognosis:

Unfortunately, many journalists have been reluctant to go high-tech because of computer phobia, math phobia, and — until the 1990s — the difficulty and expense of learning how to use computers and computer software (1996: 3).
Johnson also suggested that many journalism educators — especially those who came out of a professional track rather than an academic track — entered a business that was “in many ways anti-intellectual” and did not penalise educators who lacked quantitative skills. “Consequently, they [educators] don’t see the value in the new tools, and because they haven’t taken the time to learn them they don’t teach the tools or perspective.” He concluded that this had unfortunate consequences for journalism education (1992: 34 and 1998b TS).

**Newsroom culture.** Studies in the United States have shown that time, resources and newsroom priorities were areas of concern as CAR evolved (Feola 1995; Garrison 1995a, 1995b; LaFleur 1997; Paul, 1995). Investigative reporters need time to learn software packages, and to develop skills and contacts. Newsrooms at Australia’s regional dailies have devoted almost no time and resources for CAR training; indeed, most forms of training have been neglected, especially since the demise of the federal training levy in 1992. Even a prosperous daily like *The Age* had neglected training in the past three years (Ryan 1998 TS). Chapters 5 and 6 outline this lack of training at Australia’s daily newspapers.

Factors other than those advanced by Tapsall and Green need also to be considered. All of Australia’s 50 daily papers use computers to produce their publications: reporters write their stories on word processors and subeditors process the copy, adding headlines and adjusting text, using the same front-end technologies. The most common are Atex, Cybergraphic and Systems Integrators International (SII), though some dailies use a hybrid system consisting of off-the-shelf software and personal computers. Off-the-shelf software can be purchased from almost any retailer, rather than specific front-end systems devoted solely to producing newspapers. The most common off-the-shelf package is
Quark XPress. Appendix 4 lists the 49 daily newspapers included in the research for this thesis, and details the front-end technology they used.

**Incomplete technology.** At some regional dailies, many of the terminals supplied with the Atex, Cybergraphic and SII systems do not have CD-Rom or floppy-disk drives, and if they do, they are disabled or locked (Holden 1998 TS). Newspaper managers on some regional dailies decided against providing floppy drives because of the cost involved, or had them locked because of fears that staff might introduce viruses via floppy disks. This meant that reporters could not access information supplied on CD-Rom or floppy — two of the most common forms of assembling online data in the United States — without going through a complicated and time-consuming process to get the files converted (Slattery 1998 TS). This lack of a mechanism for inputting data may change as publications upgrade their systems but, as of late 1998, journalists in newsrooms using oldish technology had limited access to the specific personal computers and related software needed to conduct the investigative forms of CAR. One editorial manager referred to the inadequate technology that he had to deal with at a chain of regional dailies:

> ... one of the problems has been the technology that we've had from site to site. Rural Press has ... made a lot of acquisitions in a relatively short space of time. While that is good for overall growth, what is has meant in technical terms is that we have inherited a lot of systems. And a lot of them are dogs (Gillies 1998 TS).

Garrison noted that IBM-compatible personal computers were the most common technology in business in the United States, and “the most widely used in the news business”:

> The single most important focus [in this book] is on the changing nature of news reporting in the wake of the fast-changing power of business-type desktop and portable computers. Numerous new approaches to reporting and research have developed in the past decade in parallel with the evolution of personal computers (1995d: xii).

And he concluded that:
These new tools and ways of gathering and disseminating information have wide and deep implications for reporters and their editors. The newsroom is undergoing a radical metamorphosis, but it is occurring rather slowly and, perhaps, imperceptibly, at present. But as technological breakthroughs occur — ones as significant as the introduction of the PC a little more than a decade ago — the changes accelerate geometrically (1995d: 15).

**Dislike of technology.** The evolution of the personal computer in the USA and Australia — and journalists’ attitudes to it — is another significant factor. Millions of PCs have been sold since the early 1980s when desktop versions first appeared; millions more continue to be sold. DeFleur said that American journalists acquired and began to use their own personal computers from the early 1980s. At first, they were mainly replacements for the typewriter and many brought them to work because their employers were reluctant to supply them (1994: 72). The presence of desktop computers, first for word processing and later for database searching, made them a familiar device for American reporters (1994: 77). Dumb terminals entered Australian newsrooms from the early to mid 1980s, in many cases to be replaced by personal computers in the early to mid 1990s for pagination (the design of newspaper pages on computer screen, rather than on paper).

By 1998 almost all Australia’s metropolitan dailies had adopted the Cybergraphic front-end system, as part of the trend towards using powerful PCs on the desktop rather than the mainframes and dumb terminals of the 1980s (Holden 1998 TS). Seven of the 37 regional dailies had taken the same route. Almost no research has been done in Australia on this technology’s impact on the newsgathering process, but some has appeared concerning the influence of computers on the sub-editing process. In a case study of *The Morning Bulletin* at Rockhampton in Queensland, Ewart said that sub-editors experienced increased stress after the introduction of pagination systems because of inadequate training (1997: 54-55). Ewart quoted one senior Australian journalist as saying that “the majority of people in the newspaper industry are stand-offish to the new technology. They are frightened of it” (49).
Green noted that some journalists had reservations about technology, based on their experiences of the conversion from hot metal to computers in the early 1980s. These reservations remained in relation to the introduction of new computer systems and the Internet. "Some journalists confess a certain amount of trepidation at the prospect of . . . coming to terms with cyberspace, gopherspace, and the . . . Internet" (1994: 222). A senior editorial manager involved with the introduction of technology at the Fairfax group in the 1980s told a 1997 Freedom Forum conference in Sydney that most journalists he encountered were "absolutely horrified by it [technology]":

Although journalists in Australia use technology, you could scarcely say that they embrace it. I think that Australian journalists actually hate technology . . . Computer-assisted reporting in Australia scarcely exists . . . Overseas journalists, particularly American, are getting the point that technology can be used in positive ways . . . Australian journalists, comparatively, are Luddites (Wright 1997: 20).

Concentration of ownership. The concentration of ownership of Australia’s media is another factor that has influenced the adoption of CAR. As of February 1998 four groups controlled 99 per cent of Australia’s metropolitan and national daily newspapers by circulation — News Ltd (66 per cent); the Fairfax Group (22 per cent); West Australian Newspaper Holdings Ltd (10 per cent) and Kerry Stokes (1 per cent). News Ltd owned seven and Fairfax three of the 12 metropolitan dailies. Six groups controlled 88.4 per cent of Australia’s regional dailies by circulation: Australian Provincial Newspapers (30.7 per cent); News Ltd (22.8 per cent); Rural Press (14.9 per cent); the Fairfax Group (14.8 per cent); the Harris Family (4 per cent) and West Australian Newspaper Holdings Ltd (1.2 per cent). Figure 7 places the number of capital city dailies and the number of owners in historical perspective, from 1903 to 1998. The data from 1903 to 1963 came from Mayer (1968); the rest came from Communications Update (February 1998: 22). At the end of 1998, only one major media group — Fairfax — provided Internet access for metropolitan journalists on their desks at The Sydney Morning Herald, The Australian Financial Review and The Age. But in April 1999 News Ltd provided an email account for all 120 reporters
on *The Australian*, and Web access for a quarter of them (Beesley 1999 E) and proposed doing the same at others of its metropolitan dailies. This also shows the capacity for rapid change in the metropolitan press because of the relatively small number of owners.

**Figure 7: Number of metropolitan dailies and number of owners, 1903-98**

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<tr>
<td>No. capital city dailies</td>
<td>21</td>
<td>24</td>
<td>26</td>
<td>20</td>
<td>17</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>19</td>
<td>13</td>
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<tr>
<td>No. owners</td>
<td>17</td>
<td>21</td>
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Sources: Mayer (1968); *Communications Update* (February 1998: 22).

**Summary**

The last section of this chapter illustrated the rationale behind the statement that deep CAR — in the American sense of investigative journalism — will not evolve in Australia. This produced the hypothesis that the most likely form of CAR to develop in Australia would be the basic to mid levels shown in Figure 1 — that is, the use of email and the Web for newsgathering. The Web and email are relatively inexpensive compared with the costs involved for deep CAR. Newspapers are businesses and journalists in the late 1990s operate in an environment of reduced editorial budgets and expectations of increased productivity. Training was an early casualty of cost cutting, or was simply never offered. Any reporter seeking to acquire Internet skills had to teach him or herself. The next chapter shows that news organisations have always operated as businesses, and news managers have tended to introduce technology to accelerate the newsgathering process rather than to improve the editorial product.
CHAPTER 3
NEWSGATHERING TECHNOLOGIES

This chapter tracks the history of a group of technologies that news organisations have adopted to accelerate the reporting process. It also considers the impact these tools had on newsgathering. The specific tools covered are the telegraph, the typewriter, Shorthand note-taking, the teleprinter (an amalgam of the telegraph and the typewriter), the telephone and the facsimile. The early history of the personal computer is also discussed. Each device is considered chronologically, beginning with the telegraph. This chapter begins in the 1830s because that decade saw the start of a series of developments that had a significant impact on the daily newspaper. These developments included the spread of the railway and the telegraph, and the evolution of news agencies. The chapter ends with a look at how technology has influenced the newsgathering process.

The telegraph and the railway

The development of the telegraph in Britain and the United States followed the spread of each nation’s railway system. Kieve and Schwarzlose noted that the “stimulus” for the telegraph in each country was expansion of the railway (1973: 13; 1974: 595). The 1830s in Britain were marked by a boom in railway development, and between 1840 and 1870 the country’s investment in rail track grew from about 2,400 kilometres to almost 21,000 (Campbell-Kelly and Aspray 1996: 18). England’s first working telegraph line opened in July 1839 on the Great Western Railway, from Paddington in west London to the town of West Drayton — a distance of almost 20 kilometres. William Fothergill Cooke’s Electric Telegraph Company installed the line: The copper cable of the telegraph line was wrapped in a muslin sheath, placed inside a metal tube and buried alongside the track. Cooke’s success brought applications from foreign
countries to put up telegraph systems, and by 1845 his crews were working on 880 kilometres of line (Kieve 1973: 29-30).

In the United States, railway construction started in the early 1840s. The telegraph followed the rail and by 1846 the country had almost 1,800 kilometres of telegraph line. Samuel Morse’s eponymous code was first used with the telegraph in the United States in 1844. Morse invented a hand-operated key or switch that allowed operators to stop and re-start electric signals, which enabled them to send either a short or long signal (a dot or a dash). These dots and dashes were put together in various combinations to form letters and numbers, and it remained the basic form of telegraphic communication for more than a century (Pownall 1973: 5-6). Schwarzlose maintained that the telegraph transformed American journalism “into a news-hungry industry” between the mid 1840s and the American Civil War of 1861-65: “A craving for the freshest news grew hand-in-hand with the new technologies of steam and electricity” (1974: 595). Hudson noted that by 1872 the United States had 288,000 kilometres of telegraph line, Europe about 720,000 kilometres and India 22,400 kilometres (1968: 603).

Livingston suggested that the telegraph was the “most significant international communication medium” in the world between the 1840s and the 1920s. Indeed, this was “the age of the telegraph”. In a relatively short time it encompassed the world, boosted by British capital, labour and enterprise. Lines of cable reached out from the world’s great commercial and diplomatic centres, “fostering the growth of nationalism within countries, along with faster business and media transactions” (1996: 6). Kieve maintained that the telegraph’s “glory days” were between 1850 and 1914:

The telegraph, like the telephone after it, has proved a potent force in international understanding and peace, just as internally it quickened the pace of economic life and bound the country into a coherent whole. In the closer organism of the body politic the telegraph, together with the cheap press which it largely created, and the railway, brought together the people (1973: 268).
By the mid 1840s the commercial world was slowly realising the telegraph’s significance, governments became aware of its strategic implications, and the press was “awakening to its potential” (Kieve 1973: 44-45). On 3 January 1845, a newsworthy incident occurred that made the telegraph famous in England. John Tawell murdered his mistress in the town of Slough, about 24 kilometres west of London. Slough was one of the stations on the Great Western Railway. Tawell fled by train to the anonymity of London, dressed as a Quaker, but police arrested him at London’s Paddington station. Kieve said that the transmission of Tawell’s description by telegraph to Paddington “was largely responsible for his rapid arrest”. Publicity around the arrest heightened public awareness of the new device and the telegraph became famous as “the cords that hung John Tawell” (1973: 39). A similar incident occurred in Australia on the eve of the opening of the telegraph that linked Portland in western Victoria to Melbourne on 5 February 1858. The owner-editor of the Portland Guardian reprinted an item from a Hobart newspaper that recounted the capture of a prisoner who had escaped from police custody in Hobart and who had escaped north to Launceston. Police arrested him there because of the description provided over the telegraph (Livingston 1996: 53).

These were notable events because news and information travelled slowly in the eighteenth and nineteenth centuries compared with the early twentieth century. The American Declaration of Independence of 4 July 1776, for example, was not reported in England until August 21 of that year. People in England only became aware of Nelson’s victory at Trafalgar — on 21 October 1805 — on November 2 (Kieve 1973: 39). News of the Allied defeat of Napoleon in February 1814 was not reported in the United States until March 22, when a ship carrying French newspapers published on February 8 arrived in Boston. Details of Napoleon’s abdication on April 11 took until May 31 to reach New Hampshire (Stephens 1989: 210). Closer to Australia, Turnbull
noted in his history of the *Straits Times* in Singapore that one of the first items of direct cabled news the paper reported was the result of the Oxford and Cambridge boat race in April 1871: “Up to this time readers often received news in letters from home before (my italics) they read it in the newspaper” (1995: 47).

London’s newspapers of the eighteenth century contained mainly foreign news because “local news was for the most part left to word of mouth” (Stephens 1989: 169). Some aspects of the Internet are a modern form of word-of-mouth delivery of news — except on a wider and faster scale, with technology serving mainly to widen and accelerate the scale. Stephens alluded to this when he wrote: “Journalism’s progress along the road from busybody to newscaster has depended on an increasing ability to amplify the news — to endow it with the power to travel farther [and] faster” (1989: 27). Word-of-mouth delivery of news is significant in the history of journalism. Stephens pointed out that discussion was, and is, just as important for the spread of news as “the conventional media”. The coffee house — “a particularly lively forum for the exchange of news by word of mouth” — flourished in England well after the development of the newspaper (1989: 8): “Much of the history of journalism can be understood as a long struggle by written and printed forms of news to compete with that first news medium — word of mouth” (1989: 165).

By the start of the eighteenth century London had “hundreds, perhaps thousands, of [coffee] houses” where patrons could sit around large tables “and obtain coffee at a penny a cup, warmth, camaraderie and news”. Stephens noted that each London coffee house developed its own character:

Lloyd’s attracted ships’ officers, traders, merchants and bankers, and specialised in shipping news. Ship insurance contracts were auctioned off at a latter incarnation of the house; eventually it was taken over by its patrons — who would form the powerful corporation of insurance agents that still uses the name Lloyd’s. Will’s coffee house was known for its collection of “wits”, including John Dryden and Joseph Addison. In Mile’s coffee house the topic was politics. London was so saturated with coffee houses that, like our modern magazines, they were forced to seek out narrow audiences (1989: 42-3).
These early coffee houses were early examples of niche markets. Certainly the “cybercafes” of the late twentieth century provide an interesting link with earlier times — modern technology and software feature coffee-based puns about “Java” and “mocha”. McNair maintained that new technologies such as the Internet could create a new version of the “coffee-house culture” of the eighteenth century, allowing readers “to escape from the clutches of media barons such as Murdoch, Berlusconi, Springer or Black” (1998: 142). McNair echoed Sampson who suggested that the “best elements” of the [British] media had always arisen from natural discussion, curiosity and questions:

If mass communication has become too distorted and corrupted, it may be thought that the Internet and email will provide the new technologies to rescue [readers] from the old ones, to build up more reliable systems of information across the world (1996: 51).

The telegraph in Australia

The railway was not as important a factor in the telegraph’s development in Australia as it was in the United States or Britain. The main reasons were the huge distances involved in linking cities, the in-fighting between states and the fact that most of the population was located on the coast. The telegraph wires linking Adelaide, Melbourne and Sydney were joined on 29 October 1858, and the Sydney to Brisbane link opened three years later. But it took another 30 years before the same capitals were united by rail, and even then track gauges varied (Livingston 1996: 44).

The first telegraph transmission in Australia — from the centre of Melbourne to the port of Williamstown, a distance of about five kilometres — occurred in 1854. Samuel McGowan built the line (Livingston 1996: 44). Noting the success of the Melbourne-Williamstown telegraph line, the South Australian government recruited Charles Todd from England as superintendent of telegraphs. Todd arrived in Adelaide in November 1855, and a month later began work on a telegraph line between Adelaide and Port
Adelaide. That first line was laid underground but Todd — like Cooke in England — soon discovered that overhead lines were cheaper and easier to install. In 1856 Todd travelled by ship to Melbourne to negotiate construction of a line between Adelaide and Melbourne and returned overland to select an appropriate route. The line opened two years later on 21 July 1858, and a connection between Melbourne and Sydney opened in October that year. Tasmania was linked to Melbourne in 1864 (after a failed attempt a decade earlier). The connection of Adelaide, Melbourne, Sydney and Brisbane by telegraph cable in 1861 created “a market for internal news” (Smith 1979: 130-31).

Australian telegraph operators adopted Morse code from the early 1850s. Much of the population was illiterate at the time, but that situation changed after the 1870s with the introduction of education reform acts (Smith 1979: 131). Mayer noted that the 1872 and 1893 Education Acts “led to a sharp decrease in illiteracy” which boosted the potential audience for newspapers (1968: 15).

From the mid 1850s, colonial press and business interests — notably the chambers of commerce in the major capital cities — continually urged the colonial governments and private British cable interest to extend their networks as rapidly as possible. Three major players — the colonial governments, the metropolitan press and private sector commercial interests — were the major beneficiaries of the new and expanding telegraph services during the 1860s (Livingston 1996: 50-1). This was an early example of newspapers using their power to advocate for their own interests.

**Cable links from England**

Work on the first telegraph cable under the British Channel to Europe began on September 1851, and by 1866 a telegraph connection ran all the way from London to India. It went under the sea from Dover to Ostend in Belgium, then overland from Europe to India. After many false starts, the first ocean cable linking Bombay with the
United Kingdom via Suez was laid in March 1870 (Turnbull 1995: 47). For the first few months “cabled” news had to travel the last stage from Ceylon (now Sri Lanka) by steamer, with many teething problems. The line was extended from Bombay via Madras and under the ocean to Penang, and then south to Singapore by January 1871 and north to Hong Kong in June that year. The British-Australian Telegraph Company established an undersea cable from Singapore to Batavia (now Jakarta, the capital of Indonesia on the island of Java), in 1872. The company ran a line overland through Java to Banjuwangi on the eastern tip of the island, considering that it would be a relatively simple task to connect that line via an undersea cable to Port Darwin in Australia.

Pownall said that several other telegraph companies in England were willing to establish a cable link to Australia, with at least four routes proposed for the Australian leg. These included bringing the cable under water to Perth, then across the Nullabor Plain to Adelaide; bringing the cable to the North-West Cape of Western Australia and then across to the Gulf of Carpentaria and on to Queensland; having the cable brought ashore in the Gulf of Carpentaria near Normanton and then run overland to Brisbane; and running a wire from Port Darwin south to Adelaide (1973: 11).

In 1872, Francis Gisborne in Brisbane sought funds to lay a cable from Banjuwangi in Java to Moreton Bay near Brisbane. South Australia discovered that Queensland was pressing hard for the third option — from the Gulf of Carpentaria overland to Brisbane. Todd was South Australia’s post-master general by 1870, and he pushed for the last option — an overland telegraph from Darwin to Adelaide. The state government signed an agreement with the British-Australian Telegraph Company, and in 1870 quickly passed legislation to provide for a loan of £120,000 to pay for the line. Work began in mid 1870 with the project scheduled to be completed by 1 January 1872. The link to Indonesia was completed at Port Darwin on 20 November 1871 but bad weather
delayed part of the overland section. By mid June 1872 the contractors still had to complete 419 kilometres of telegraph between Daly Waters and Tennant Creek in what is now the Northern Territory. A form of pony express service bridged the gap until the last join was made on 22 August 1872, and horses were needed for another two months because of teething problems with the line. William Whitfield Mills, a surveyor, was in charge of the “C” sub-section of the overland telegraph between 1871 and 1873. His diary reports that the telegraph wire was eight-gauge galvanised iron. Holes for the poles had to be dug by hand to a depth of 1.3 metres, and labourers cleared a path three metres wide on either side of the line, as a passage for drays and to stop trees from crashing onto the line. The work was hard — often the line went through thick virgin bush. Poles came from trees that Mills marked with paint as he rode ahead to survey the next part of the route. The gangs that followed him dug the holes and tied the wire. Mills approved each join before it could be strung (Mills 1993: 12).

About 36,000 poles supported the telegraph wire from Darwin to Adelaide. Some were made from local timber; others had to be hauled upwards of 900 kilometres. The line was a great boost to settlement because it provided some form of security and communication for settlers. Historians noted several examples of stranded or ill settlers who cut the wire to attract help from the men who maintained the line. The aborigines called the telegraph the “singing wire”; hence the name of Pownall’s book (1973: 61). By 1872 Australia had 16,000 kilometres of telegraph line (Hudson 1968: 603). The Adelaide to Darwin telegraph link, which connected Australia to London, officially opened on 21 October 1872. The Melbourne Argus of 23 October 1872 marked the achievement with a congratulatory editorial, but at the same time requested that the line’s owners cut the price of telegrams:

It [the Argus] called on the authorities to follow the “almost universal custom” of offering a 75 per cent discount to the press, not only because newspapers constituted the “largest customers by far” but also because the circulation of news was a public benefit (Livingston 1996: 85).
On November 16, South Australia’s *Advertiser* newspaper noted:

The nineteenth century will be known in future ages as the era of the application of electricity to telegraphic communications. Wonderful as have been various scientific discoveries of this period, and stupendous as may be some of the political events its history will record, none of these things will be sufficient to overshadow the honour pertaining to its work of transmitting the electric telegraph for the use and benefit of future generations.

According to Pownall, Todd described the electric telegraph was part of “the grand electric chain which unites all the nations of the earth” (1973: 61). Australia’s non-indigenous population at the time was about 1,743,000 of whom almost two-fifths (673,517) had been born in the United Kingdom. It took two to three months to sail from London to Sydney, and by this time most of the passengers were keenly interested in news from home. From the 1850s most of the people who came to Australia arrived as free men and women. Livingston noted that newspaper readers at the time had “an insatiable interest” in the latest news (1996: 57). The telegraph later became an important factor in the federation of Australia and unification was “the first example of technological nationalism in the new century” (1996: 184-5):

...when the citizens of the Commonwealth of Australia came to celebrate the opening of the first parliament in Melbourne’s Exhibition Building on 9 May 1901, there were signs of a new awareness of themselves as an “imagined community”, when their federalised communication system reflected their political and social consciousness ... Thus, the “imagined community” of Australians was brought together at the one moment to rejoice in the new national Parliament that promised much for their future: the first example of technological nationalism in the new century (1996: 184-5).

The telegraph joined Perth and Adelaide in 1877, completing a circuit of all state capitals. By 1880 nine cables crossed the Atlantic, representing an investment of more than £14 million and about 156,000 kilometres of cable (Kieve 1973: 116). Extension of the telegraph line to Australia’s major cities had an impact on newsgathering methods. Almost all early Australian newspapers were established in coastal cities and towns (Walker 1976: 3, 6). Reporters could find news locally but foreign news arrived only as fast as the fastest ships. When ships did arrive, the papers published major
supplements: “When the clippers came in, special supplements with the ‘latest news from Europe’, ten to fourteen weeks old, were printed” (Mayer 1968: 11). When no ships arrived, space was filled “by long extracts from English papers” which “minimised the need for reporters” (12). An early example of news executives’ attempts to minimise costs?

Before the extension of the national telegraph line to Perth and the opening of the international line via Port Darwin, journalists from the main papers in Adelaide, Melbourne and Sydney would travel by ship to Albany in Western Australia. Albany was the first port of entry of mail ships arriving from Europe, and therefore the first place to collect news from that part of the world (Livingston 1996: 51). The journalists continued to Adelaide aboard these ships, scouring the overseas newspapers and magazines to prepare their copy. On arrival in Adelaide they would telegraph reports to their newspapers and competition to get first use of the wires was intense. Similar scenes occurred in Melbourne, where journalists hired fast whaleboats to row to and from incoming ships. Before visiting the ships, reporters secured the telegraph in advance:

In spite of the long wait for overseas news, competition to print it once it arrived was keen from the first among major papers. . . . Once the telegraph connections were made, reporters attempted to monopolise the wire. Argus reporters, before rowing out to the mail steamer, handed in the Bible with orders to telegraph it to the paper [the Argus] until their return (quoted in Mayer 1968: 14).

**Reporting Parliament in London**

The history of reporters’ coverage of Parliament in London provides a useful case study of the role of the reporter before and after the arrival of the telegraph. The House of Lords first provided a reporters’ gallery on 15 October 1831. Prior to that, reporters took notes secretly in the Stranger’s (public) Gallery. Officially this was forbidden, but it became an accepted practice in the early nineteenth century. Public interest in the Second Reform Bill was so strong in 1831 that the Lords established a committee to
consider what extra accommodation could be provided for the public. The Bill had already passed the House of Commons and the committee recommended that a gallery for “strangers” be erected over the main entrance. The Lords accepted the recommendation unanimously but also continued the farce of not mentioning the Press because technically it was a breach of Parliament’s Standing Orders to report their debates; unofficially the Lords welcomed the reportage. *Hansard* of 15 October 1831 noted:

The erection of this gallery is an epoch in the history of the House of Lords. In it, by their Lordships’ approbation, was provided accommodation for the reporters of the Public Press, though according to their Lordships’ Standing Order it still remains a breach of their privilege to report their Debates (quoted in MacDonagh 1913: 356).

The gallery was first used on 6 December 1831 for the opening of Parliament, with the entire front bench set aside for reporters. Both Houses of Parliament burned down on 16 October 1834 and when the House of Commons was re-built, reporters were provided with a Press Gallery immediately behind the Speaker’s Chair. They also had a small room behind the gallery where they could transcribe notes. Reporters first used the Commons Press Gallery on 19 February 1835 and they also had exclusive use of the front row of the public gallery in the Lords, with a broad writing desk provided in front of their seats (MacDonagh 1913: 357). Only reporters on London papers were permitted access to Parliament; regional papers had to rely on news agencies or private individuals. Many regional newspapers used subterfuge to gain access. Wemyss Reid said that on his appointment as London correspondent of *The Leeds Mercury* in 1867 he offered his services free to *The Morning Star* (a London daily) to obtain “the coveted Gallery ticket” (quoted in MacDonagh 1913: 121). By the mid 1850s more than 120 provincial newspapers received parliamentary news, stock prices, other market movements, the day’s horse racing and other sporting news from two telegraph companies — the British & Magnetic, and the Electric & International. Each company provided a small staff of reporters in London (MacDonagh 1913: 412). According to Kieve, the provincial papers disliked this duopoly because it gave London papers a
major advantage (1973: 71). He also noted that a large proportion of the news in every leading provincial newspaper was received by telegraph, which they regarded as expensive (1973: 217).

On 1 April 1868 the Chancellor, Ward Hunt, introduced the Telegraph Bill to nationalise the industry, the first time in British history that the government had proposed to take over a private enterprise. The Bill provided for a uniform rate of one shilling for 20 words, irrespective of the distance. The Bill became law on 31 July 1868 (Kieve 1973: 138) and the British government completed the purchase of the nation’s telegraph lines in 1870. The 1868 Act to nationalise the telegraph lines had one major benefit for newspapers: The tariffs it established were favourable to newspapers and produced an expansion in press work (Kieve 1973: 217). In the three years from 1868 the number of words transmitted during Parliament’s sittings increased from 42,000 a week to 140,000 a week. An 1876 report to a Commons Select Committee on the Post Office (Telegraph Department) said that the national telegraph line was transmitting 220 million words a year for the Press at an average price of 4d per 100 words, and 180 million words at the 2d per 100 words rate, which represented about eight million words a week (1973: 218). By the early 1900s the Post Office was transmitting 110 million words a week for the Press (221).

**The evolution of news agencies in Europe and England**

Telegraph lines linked Belgium, France and Germany by the end of 1850. Julius Reuter’s motto of “follow the cable” led to the establishment of bureaus throughout Europe, and he established a London office in 1851. By the end of 1858 *The Times* of London and several other English dailies had purchased Reuter’s service. The agreement with *The Times* included a clause under which the paper paid only half as much for copy which carried Reuter’s catchline. This was a powerful marketing ploy because it gave credibility to Reuters (Fenby 1986: 32). Michael Bloomberg used a
similar ploy in the early 1990s to entice newspapers to take his service by offering free use of the “Bloomberg terminal” provided that papers printed his organisation’s catch-line on stories. It is also possible to argue that the free distribution of Netscape’s Web browser contributed to the company’s early domination of the browser market.

The impact of the telegraph on the English provincial press was “substantial” because it was able to compete with the London newspapers in terms of reporting Parliament (Kieve 1973: 72). In October 1865 the owners of the provincial daily newspapers formed what was to become, by 1868, Britain’s Press Association. The Press Association and the Central News supplied most of the news that appeared in the regional papers for several years after 1870 (MacDonagh 1913: 412; Smith 1979: 126). The copy was largely collected and distributed by the Press Association and the Central News, the latter founded in 1871 by William Saunders, MP. The next year saw the establishment of the Exchange Telegraph Company (Extel) which soon gained exclusive rights to report news and data from the London Stock Exchange. A direct result was a boom in the number of newspapers. In 1854 the total circulation of daily papers in Britain was under 100,000 and The Times accounted for 51,000. Because of telegraphy, circulations boomed and by the mid 1870s the Daily News alone had a daily circulation of 150,000. By 1900 the eponymous Daily Telegraph was selling 300,000 copies daily (1973: 229). Smith maintained the telegraph was indispensable to provincial papers because it levelled the playing field:

> By means of the telegraph a provincial paper could receive a complete flow of foreign news and also publish in full the speeches of local politicians in Parliament, two elements with which they were able to hold their own against metropolitan newspapers (1978: 209).

He also noted that the provincial press in Britain grew profusely in the mid to late nineteenth century:

> In 1821 there had been 267 newspapers in the United Kingdom as a whole, including weeklies. Forty years later the total had leapt to 1,102. By 1880, London had 18 dailies, the English provinces 96, Wales four, Scotland 21 and Ireland 17 (1979: 127).
The evolution of US news agencies

News agencies evolved in the United States because of the development of the telegraph and the public’s growing demand for news, plus news organisations’ need for cheap content and their desire to reduce costs. News “brokers” operated for several years from the mid 1840s, selling news items to newspapers until the formation of the New York Associated Press in 1848 (Schwarzlose 1974: 600-1). The founders of this press association believed they could save money by pooling resources. Fenby suggested that they were driven by a recurring item on their newspapers’ budgets — increasing costs:

Representatives of six New York papers met at the office of the Sun in 1848 to form the Harbor News Association and the New York Associated Press. Other papers joined as they established (the New York Times in 1851, the World in 1859). The association only included papers that published in the metropolis of New York. Groups of other papers formed similar associations. The assembled whole became known as the Associated Press (1986: 610-11).

Desmond agreed that costs led directly to the formation of the New York Associated Press, members combining forces with regional agencies to lease time on telegraph lines. This meant that members paid for the time the lines were used rather than the number of words moved (1980: 79). So did Schwarzlose:

When telegraph lines began to go up in earnest in 1845-46, it became increasingly clear that the old news-gathering methods — one correspondent sending his dispatch by the best available means to one newspaper — could not survive. The newspaper that controlled a telegraph line had a decided edge on its competitors, but despite special press rates, control of a telegraph line was beyond the financial reach of a single newspaper (1974: 596-7).

Hudson maintained that the Associated Press — currently the world’s biggest news agency — “belongs to the telegraphic era” in the sense that it grew out of the development of the telegraph and the demand for information (1968: 608). The Associated Press (AP) evolved out of the New York Associated Press. AP opened its first bureaus in Washington and Albany, New York in 1851, applying the wire service
dictum that they should always follow their communication links. O'Loughlin confirmed that agencies followed communication links:

When the telegraph cable was laid to London AP opened a bureau there. In 1875 AP established the first leased wire dedicated exclusively to news transmission, linking New York and Washington and carrying up to 20,000 words a day. Expansion then, as now, followed improved communications (1996 TS).

The Associated Press established a monopoly with the Western Union telegraph company. Newspaper owners in Western America organised to beat this monopoly by forming the Western Associated Press in 1862. It changed its name to the United Press in 1893 (Taft 1968: 72). E.W. Scripps started the United Press Association in 1907 and William Randolph Hearst founded International News Services in 1909. By 1918 International News Services had about 400 clients and in 1958 it merged with the United Press Association to form United Press International (UPI). At the time, UPI was the fourth largest news agency in the world, after AP, Reuters and Agence France Press (AFP). By 1873 the AP supplied news to more than 200 daily newspapers.

Telegraph costs were high and the AP’s bill for cable telegrams alone was $US200,000 a year (Hudson 1968: 616). Transmission charges were initially set on a per-word basis, with a “word” interpreted as 10 or fewer characters, at the standard or “regular” rate. Priority could be obtained by paying the “urgent rate” or the “double urgent” rate, and newspapers and news agencies used these urgent rates for major stories, or as deadlines loomed. Telegraph companies set their rates somewhat arbitrarily. Competition sometimes kept rates down, but competition did not always exist because some companies fixed rates between them. Prices on long lines were high: in 1866 it cost $US10 a word for cables between London and the United States, with charges based on a minimum of 10 words (Desmond 1980: 77-78).

International regulation of communications

Regulation of international communications became necessary after telegraph messages began to cross national frontiers in the 1840s. From 1865 regulation was centred in a
permanent bureau of the International Telegraphic Union (ITU) with headquarters in Berne, Switzerland. All governments recognised it; they also recognised the International Postal Union, established at Berne in 1875 (Desmond 1980: 77). The ITU set a special Press rate of half the “regular” rate at its 1875 meeting in St Petersburg, Russia, but messages were sent at the lowest priority; that is, they were moved only after regular-rate deliveries (1980: 89).

With time, prices decreased and the $US10 a word for trans-Atlantic cables in 1866 was down to 75c a word by 1884. The ITU conference in Berlin in 1885 dropped the rate further to 10 cents, effective from 1886 and this price continued until World War One (1980: 79). Kieve concluded that improvements in technology were a major reason for the rapid fall in costs. The Western Union Company in the United States introduced duplex, quadruplex and multiplex circuits that allowed double, quadruple and multiple transmission of messages on a single wire. In 1870 a speed of 60-80 words a minute was the highest available. By the end of the century 600 words a minute was standard. All transmission speeds were eventually introduced into the United Kingdom but it took time; the duplex, for example, was not introduced until after 1880 (1973: 234).

**News agency reporting and the news as commodity**

Stephens argued that news agencies grew in the nineteenth century because they were run as businesses: “The business in which these news agencies were engaged disposed them to treat news as a commodity — rather than as a political weapon. Indeed, partisanship had to be excised from the stories”. He concluded that the leading agencies — Havas, Wolff, Reuters and the Associated Press — distributed news that was “suitable for use by newspapers of all stripes” (1989: 259). Shaw suggested that the rise of telegraph services contributed to development of an “objective” style of journalism. He noted that news via telegraph was almost non-existent in the United
States before 1847 (Morse unveiled his telegraph in 1844), but rose to 8 per cent of all stories between 1847 and 1860 (1981: 39-41). Mindich noted that wide dissemination of telegraph news led to the realisation that “facts were more safely marketed than opinion” (1998: 68). Rantanen concluded that news agencies transformed news “into a global commodity that was bought and sold on a mass scale” (1997: 608).

Invention of the teleprinter

An Australian engineer, Donald Murray, invented the printing telegraph, or teleprinter (a fusion of telegraphy and typesetting) in 1899. It did not diffuse widely until after World War One when the Teletype Corporation in the United States adopted it (Smith 1980a: 81). Desmond said that teleprinters were sufficiently perfected after about 1912 to be considered reliable. They were used by newspaper offices and newsagencies, and by telegraph companies moving commercial messages (1980: 74). By the 1970s electronic teleprinters had achieved speeds of 1200 words per minute.

The typewriter and reporting

Christopher Lathan Scholes, editor of the Milwaukee Sentinel from 1861 until his retirement in 1863, built the first effective typewriter in 1867 (Campbell-Kelly and Aspray 1996: 31). The rifle manufacturers Remington and Sons in New York started making the machine in large quantities in 1873, and by 1880 Remington was making more than 1,000 machines a year and had a virtual monopoly on the typewriter business (Desmond 1980: 72). Twenty years later at least a dozen manufacturers were making a total of 100,000 typewriters a year. Sales continued to soar right up to World War One, with typewriters accounting for half of all office machinery sold in the 1900s (Campbell-Kelly and Aspray 1996: 32-3). Newspapers found developments such as the provision of capitals and lower case attractive because staff could work faster. Until the 1870s no machine came close to the 25 words a minute that a copyist could write by hand, but with improved typewriters in the 1880s operators could reach about 40
words per minute. This increased to 60 words a minute in the 1890s and 1900s. Training was considered important for typists because without it a typewriter operator “was not much more effective than an experienced writing clerk” (Campbell-Kelly and Aspray 1996: 13).

At first, typing was considered women’s work, and it was “a generation or more” before the typewriter became a general tool of journalism, at the time almost entirely a male profession. Smith concluded that the typewriter was an innovation “of huge importance” for journalists because it conferred new functions on reporters and made the work of typesetters less onerous (1980a: 79). For much of the nineteenth century almost all business documents were handwritten. Newspaper editors and sub-editors had to decipher them, which was time-consuming: “The major attraction of the typewriter was that type-written documents could be read effortlessly at several times the speed of handwritten ones” (Campbell-Kelly and Aspray 1996: 30). Desmond contended that the typewriter was triply important: Newsmen could write their reports more rapidly and legibly; telegraphers could transcribe Morse code messages directly into typewritten form, with carbon sheets added to produce duplicates; and after about 1912 typewriter technology was adapted to the teleprinter. The last was useful for news agencies because they could provide the automatic delivery of typewritten news reports between news agencies and newspaper offices (1980: 70). For many years, historians of information technology neglected the typewriter as a “progenitor of the computer industry”:

But now we can see that it is important to the history of computing in that it pioneered three key features of the office machine industry and the computer industry that succeeded it: (1) the perfection of the product and low-cost manufacture; (2) a sales organisation to sell the product; and (3) a training organisation to enable workers to use the technology (Campbell-Kelly and Aspray 1996: 34).

**Shorthand and reporting**

Until the availability of tape-recorders that were sufficiently compact and rugged to use
in every-day journalism, shorthand was the main form of note taking. It was never an easy skill to learn. Charles Dickens was a journalist before he became a successful novelist, beginning his career as a Parliamentary reporter on *The True Sun* in 1831 and later the *Morning Chronicle* (Drabble 1985: 93). Dickens spent the two years before starting as a reporter teaching himself shorthand while a solicitor’s clerk. In his autobiographical novel *David Copperfield*, Dickens marked his mastery over shorthand: “I have tamed the savage stenographic mystery” (quoted in MacDonagh 1913: 348). Smith noted that shorthand gave reporters a status “comparable to that of scientists, explorers and historian” because it provided a “dimension of irrefutable truth” (1980a: 161):

The journalist’s profession has brought with it into the late twentieth century a little of the eighteenth century rationalism into which it was, as an occupation, born. It has grafted onto this a large quantity of Victorian objectivity, of Mr Gradgrind’s ‘Facts, hard facts’, and has attempted, with this scanty and fraying intellectual equipment, to sustain itself through the era of Einstein and Heisenberg, of rationalised doubts and relativities (Smith 1978: 197).

The telephone and reporting

Alexander Graham Bell is credited with inventing the telephone. He and his assistant, Thomas Watson, applied for a patent in 1876. Soden described it as “possibly the most valuable patent ever issued” (1976: 11). The telephone was quickly adopted in Australia. The *Geelong Advertiser* of 10 January 1878 reported that:

A number of ladies and gentlemen [in Elizabeth Street Melbourne] were entertained with a very distinct conversation which was carried on between themselves and some persons in Bourke Street [Melbourne]. Tunes were played on the violin and flute in Bourke St, all of which were heard distinctly in Elizabeth Street (quoted in Soden 1976: 22).

Australia’s first commercial telephone service began on 2 January 1878 between the head office of McLean Brothers & Rigg, hardware importers, in Elizabeth Street, Melbourne and their Spencer Street store about a kilometre away (1976: 24). Henry Byron Moore started the first telephone company in Australia in 1880, the Melbourne Telephone Exchange Company Ltd. It is interesting to note the early links between the
telephone and racing, with officials of the greyhound racing tracks at Werribee and Melbourne using pigeons to relay race results to Melbourne. The pigeon loft in Melbourne was in the roof of the old stock exchange building, and the latter became the location of the first telephone exchange in August 1880 (1976: 24-5). A telephone subscription cost £32 a year, with the first phone directory issued in June 1880. The Age, the Argus and the Daily Telegraph all had lines from their main offices to Parliament House, according to the first directory (1976: 30). The telephone began to replace the pigeon-post on Australian newspapers by the 1880s (Mayer 1968: 15).

By March 1882 the Melbourne Telephone Exchange Company Ltd had 300 subscribers and had opened exchanges at Ballarat and Bendigo. The Victorian government took over the company in 1887, when it had 887 subscribers and 21 staff. A further nine exchanges opened in Melbourne between 1889 and 1901. By 1924 the number of subscribers had increased to 12,000 (Soden 1976: 41-2). Australia’s first inter-capital trunk line opened between Melbourne and Sydney in 1907, and between Melbourne and Adelaide in 1914. The first automatic exchange in the southern hemisphere opened in Geelong in 1912; it was only the second in the British Empire. The telephone “quickly replaced the telegraph for everyday communication” (Soden 1976: 45).

Reddick maintained that the telephone had a profound impact on American journalism in the early twentieth century because journalists could collect information more quickly. Reporters at the news scene would phone in their reports, shortening the time between the event and the printed article. A new job classification, known as the re-write person, subsequently emerged in the United States, and as telephone technology improved, so its impact on journalism continued:

Instead of reporters calling in information to newspapers, they could call out to sources as well. For Washington-based stories, for example, reporters could tap sources across the country or even the world. Telephone interviews became a standard reporting procedure. The Internet will have a similar impact on journalism. Currently, the Internet
is about at the same level of development as the telephone system in the 1890s. There is no universal access. It is not easy to operate. And only a select number of reporters currently use it (Reddick 1995: 71).

All European capitals were linked by telephone by 1915, and that same year a circuit opened between New York and San Francisco. Desmond noted that the technology was not perfect:

There remained great frustration in the use of the instrument in some cities and countries of the world. Not until the late 1920s and early 1930s was service between capitals in Europe sufficiently advanced to provide prompt connections and clarity of tone (1980: 81).

By the mid 1920s it was relatively common practice for newspaper reporters in the United States to use the telephone to gather information locally. The practice was rare in other countries because of the shortage of telephones and the limited experience the public had of receiving calls (Desmond 1980: 450). The telephone enabled reporters to stay at the scene and relay important developments, and it allowed correspondents in other cities and countries to file copy for individual papers:

By about 1926, British, French, German and Italian correspondents in the various capitals telephoned their home offices regularly in the evenings to convey or dictate their reports, but still with some difficulties. By the early 1930s, however, the clarity of the connections was near perfection (Desmond 1980: 450).

From the early 1930s Associated Press started using toll calls for copy distribution. A bureau in a major city would establish a circuit with a group of newspaper offices within a radius of about 160 kilometres. At a scheduled time, an editor in the AP bureau would read a prepared bulletin of news. A reporter at each of the newspaper offices would copy the items, and in-house staff would then rewrite them in house style. This so-called “pony service” became popular throughout the United States in the 1930s (1980: 71).

By the mid 1930s, with parts of Europe in crisis, American correspondents began to rely on the telephone to get their reports back to the office safely. At about the same
time it was possible to record telephone reports on a disk or a wire-recorder — “a first step toward the introduction of tape-recording” (Desmond 1980: 450). Reporters would write their reports, telephone their office, and the report would be recorded at the receiving end. A senior wire service journalist confirmed that communications were the “single most important aspect of a reporter's job, apart from getting the story. If you could not find a way to get your story out you may as well not have been there” (O’Loughlin 1996 TS).

The development of the facsimile

The technology that became the facsimile was available as early as the end of the nineteenth century. Edouard Belin, a French engineer, began to experiment with facsimile transmission in 1897, and Arthur Kom, a German engineer, conducted similar tests about the same time. In terms of technological advances, their careers played leapfrog. In 1904 Kom sent the first wireless transmission of a photograph. In 1907 Belin transmitted a photograph from Paris to Bordeaux and back to Paris. This impressed the French authorities so much that they eventually agreed to adopt his system commercially. The same year, Kom sent a photograph from Munich via Berlin and Paris to London — the first international facsimile transmission.

One of the driving forces behind the development of the facsimile was newspapers’ need for high-quality photographs. In 1921 Belin sent the first trans-Atlantic picturegram, from Paris to Annapolis in the USA. Korn followed suite in 1923 with a transmission between Rome to Bar Harbour in the USA (Telecom 1994: 2). The Australian Post Office had been monitoring developments but it took a cautious approach, deciding to wait until better quality equipment was available before establishing a picture-gram facility. The Australian system opened on 9 September 1929 when the first photographs — of the Sydney Harbour Bridge, then under construction — were transmitted between Sydney and Melbourne, and reproduced in
daily newspapers. During the 1950s, more picture-grams came into Australia than were despatched, by a factor of more than two to one. The one exception was 1956, when Melbourne hosted the Olympic Games. That year 2,110 picture-grams of the Games were sent out of Australia, together with 1,516 others. News organisations began to install and operate their own picture-gram equipment, seeking autonomy and believing they could control prices by owning the equipment. This decreased the demand for services from the Australian Post Office, and from the 1970s the Post Office gradually abandoned its picture-gram service. At the same time, various improvements to facsimile machines occurred, especially with the introduction of Group Two technology. Enhancements of the transmission protocol, called Group Three, increased transmission speeds to a maximum of 9,600 bits a second and allowed one A4 page to be sent in less than a minute. Group Three has become the international standard. Group Four technology, with transmission speeds of up to 64,000 bits per second, is used extensively in Japan, where it was widely promoted (Telecom 1994: 8).

Growth in the general acceptance of facsimile transmissions among businesses increased so rapidly in the late 1980s that national and international fax networks all but replaced telex networks. By late 1993 Australia had about 360,000 facsimile machines — the third-highest penetration in the world after Japan and Hong Kong. By 1997 the number of fax machines in Australia had grown to about one million. Of those machines, 85 per cent were in the business sector, with the rest in homes (Barrett 1997 F).

The facsimile and reporting

The fax became an established piece of technology in Australian newsrooms in the 1990s. Yet in the early 1980s it had been a relatively under-developed innovation. One senior reporter at The Age said that the paper had only one facsimile machine in the early 1980s:

As a reporter . . . I first used it [the fax] in the early 1980s . . . I think in those days we would always rely on the office fax machine and there
was one number for everything to come through. Certainly when I was chief of staff in the mid 1980s we got a lot of faxes in those days (Birnbauer 1998 TS).

By comparison, in early 1999 *The Age* had 10 facsimile machines in the newsroom alone, with at least another 20 machines in other editorial departments. Another senior reporter at *The Age* remembered starting as a copy boy at a regional daily in Tasmania, where the paper had only one fax machine:

> When I first started work [at] my first paper they had one fax machine. That would have been 1986. Faxes were well in use in offices, but not in newspapers. My main task was to change the paper in the fax, because I was the copy boy at that time, but it was a secretarial function (Mulcaster 1998 TS).

The fax provides a useful reference point for the adoption of the Internet in newsrooms, in the sense that it is an example of an innovation that journalists have adopted thoroughly. But it took more than a decade for the innovation to reach saturation levels in newsrooms. Now most daily newspaper reporters could not operate efficiently without one.

**The early history of the computer**

Blaise Pascal (1623-62) invented the world’s first “calculating machine” — the Pascaline — between 1642 and 1644. It did not sell because clerks and accountants advised their bosses against buying it. The fate of the Pascaline is an early example of self-interest controlling the advance of technology. The Pascaline was expensive and while its running costs were almost zero — it ran by cranking a handle — “its repair and maintenance would not be cheap” (Evans 1981: 25). Gottfried Wilhelm Leibniz (1646-1716), a German philosopher and scientist, modified and improved Pascal’s calculating machine. Leibniz also perfected the binary system of notation, later essential for the development of computers because it became the basis of digital transmission of data. Pascal’s device could calculate but it lacked three functions of the modern computer: it had no memory; it could not make decisions — in modern computers this
is done by the central processing unit — and it was not programmable (1981: 26-7). A machine that Charles Babbage (1791-1871) invented, the “Difference Engine”, was capable of doing all of these, albeit in rudimentary form. For this reason some historians regard him as the “father of computing” (Evans 1981: 33). The word “computer” had a very different meaning in the early nineteenth century. It referred to the people employed in making calculations by hand, such as constructing astronomy tables. From 1820, Babbage’s work involved preparing a set of tables for the Astronomical Society, in collaboration with John Herschel, son of the astronomer who had discovered Saturn. Britain’s Navy needed accurate navigation aides. Babbage’s concern about the number of recurring errors led him to invent a manual device to construct tables. He modelled his device on the machines that French silk weavers used to make elaborate designs, his machine using cards to program the calculating machine.

During the mid 1820s Babbage scoured the factories of Europe seeking technology that he could use. The British government continued to advance money and eventually the total reached £17,000 — the equivalent of somewhere between $A500,000 and $A1 million in today’s money (Campbell-Kelly and Aspray 1996: 13-14). Babbage produced a prototype in 1833 but needed more funds to build a full-scale machine. The same year he developed an idea for a new kind of calculating device that he called the “Analytical Machine”. Evans maintained that at that moment “the concept of the computer was born”. This machine was a programmable computer that consisted of a number of distinct and partly autonomous units “which are very close to the functioning units of all modern computers”. It had a memory, a control section and a printer (1981: 41). But the British government refused to provide more funds and Babbage’s project lapsed. Campbell-Kelly and Aspray agreed with Evans that Babbage was the “father of the personal computer” because his Analytical Machine “had the same logical organisation as the modern electronic computer” (1996: 15).
Another innovation related to the development of the early computer and CAR was the invention of the adding machine. The United States Congress has conducted a Census every decade since 1780. But because of the rapid population growth from the end of the nineteenth century, Census calculations became a nightmare for Census Office staff. Evans noted that data from the 1880 Census, the eleventh, were still being processed seven years after the data had been collected. The Census Office held a competition to select a machine to automate the process for the 1890 Census. Herman Hollerith’s punch-card system won and it became a landmark in the development of calculating machines. The 1890 Census was completed in record time — six weeks after Census day Hollerith announced that the population of the USA stood at 62,622,250 (1981: 53-4).

To satisfy the subsequent demand for his machines, Hollerith established the Tabulating Machine Company in 1890. Hollerith’s company merged with two other office machinery companies to become the Computer-Tabulating-Recording Company (CTR) in 1911. Thomas Watson Sr became CTR’s president from 1914. He renamed the company International Business Machines (IBM) in 1924 and IBM prospered under Watson’s leadership, especially during President Franklin Roosevelt’s New Deal from 1935 (Campbell-Kelly and Aspray 1996: 51).

World War Two accelerated the drive to improve the speed of calculating machines. They were needed for a range of functions such as calculating the trajectory of artillery rounds, the deployment of radar and the Manhattan Project at Los Alamos in New Mexico to develop the atomic bomb. Campbell-Kelly and Aspray concluded it was a “scientific war”, with the drive for speed leading directly to what we now know as the modern computer (1996: 79). Evans used the phrase the “spur of war” to show the impact of the conflict on the development of computers (1981: 73). The military was willing to spend “whatever it would take” to develop the kinds of calculating machines
it needed: “Millions of dollars were spent, resulting in the production of the first
electronic, stored program computers” (Campbell-Kelly and Aspray 1996: 3). Shurkin
noted: “If necessity is the mother of invention, then war can be said to be the
grandmother” (1984: 139).

Calculating firing tables involved a long and arduous process. Wulforst noted that
between 2,000 and 4,000 trajectories had to be plotted for every new piece of artillery:
“Computing one trajectory . . . took a skilled operator using a desk calculator about 12
hours to complete” (1982: 16). Vannevar Bush and colleagues at the Massachusetts
Institute of Technology in the United States invented a differential analyser that took 10
to 20 minutes to do the same job. Wulforst said Bush’s differential analyser had a
major impact on the war effort: “Without the differential analyser, the Ballistic
Research Laboratory could not have produced the record number of firing tables that
were delivered to the fighting fronts during World War Two” (1982: 15). As an
indication of the vast increase in computing power, later machines took three seconds to
do the task (1984: 103). Evans also credited Bush with being the first to use valves to
replace some of the mechanical components and vacuum tubes in these computing

Bush was appointed chairman of the National Defence Research Committee in 1940,
with responsibility for co-ordinating scientific research to help the war effort. He wrote
the report that recommended the establishment of the Manhattan team who developed
the atomic bomb. In 1945, Bush published an influential article in the Atlantic Monthly
called “As We May Think” in which he outlined a system he termed “Memex” —
short for memory extender — which was a “mechanised private file and library”.
Bush was concerned with keeping track of the accelerating advances in scientific
information, which made it difficult for specialists to stay on top of their disciplines
In 1962, Bush wrote another key article “Augmenting Human Intellect: A Conceptual Framework” that sought to define and implement the functions necessary for computers to augment human abilities. One part of this system was a feature known as the NLS, or oN-Line System, where researchers could share their work in a “journal” facility. This permitted cross-referencing within their writing — in effect, an early form of hypertext. Ted Nelson coined the word hypertext in 1965 and started a project called Xanadu, his form of hypertext (Nielsen 1995: 37). Other versions flourished in the next 20 years, leading to the work of Tim Berners-Lee, who is discussed in the next chapter.

United States scientists developed two significant calculating devices during World War Two: the ENIAC (Electronic Numerical Integrator and Calculator), begun in April 1943, and the EDVAC (for Electronic Discrete Variable Automatic Computer), which became operational in November 1945. Evans said that ENIAC was the world’s first general-purpose digital computer and it “triggered the postwar computer boom” (1981: 84). It was designed to calculate ballistic trajectories but could be adapted to perform other calculations. ENIAC was unique because it could be switched to other tasks — that is, it was programmable (Campbell-Kelly and Aspray 1996: 96-7). In December 1947 Eckert and Maunchly, who had worked at the Moore School at the University of Pennsylvania, formed the Eckert-Maunchly Computer Corporation but they encountered financial problems two years later and the Remington Rand Corporation took them over. Eckert and Maunchly built the UNIVAC (Universal Automatic Computer) for Remington Rand and delivered the first model in June 1951. It sold for $US1 million and was the “first successful commercial computer” (Hennessy and Patterson 1998: 36). The next year, Remington Rand achieved a spectacular publicity stunt for UNIVAC, and the computer industry in general, by using it in what some historians consider was the first example of CAR.
The first example of computer-assisted reporting

In late 1952, Remington Rand persuaded the CBS television network to use the UNIVAC to predict the outcome of that year’s presidential election. With the help of a statistician from the University of Pennsylvania, Maunchly wrote a program that used early returns from a number of key states to predict the result. The programmers based their work on the corresponding voting patterns in the two previous elections, in 1944 and 1948 (Campbell-Kelly and Aspray 1996: 121). Walter Cronkite was CBS’s anchor on election night, 4 November 1952. The UNIVAC printed its first prediction at 8.30pm and Cronkite appeared on air later that night, saying “It’s awfully early, but I’ll go out on a limb”. With only 3,398,745 votes cast, UNIVAC predicted a landslide for Eisenhower. This completely contradicted the Gallup and Roper opinion polls taken the previous day that had forecast a close result. Campbell-Kelly and Aspray noted that the successful prediction was a “convincing demonstration of the apparent infallibility of the computer” (1996: 123).

Reavy and Shurkin tell the story slightly differently. Reavy maintained that a CBS representative approached Remington Rand with a proposal to barter on-air time for the use of Rand typewriters and adding machines that the network could use to cover the election (1996: 121). Rand returned with a counter-proposal, as Wulforst described:

Sustaining viewer interest during the tedious hours of reporting the vote, precinct by precinct and state by state, was a tough challenge for broadcasters. Break the monotony, said the [TV network’s] publicist, by predicting the winner with an electronic computer and viewers will stay with you all night to see if the computer is right or wrong. This extra bit of show biz, which might possibly add some life to a slow-moving story, was enthusiastically endorsed by CBS management (1982: 163).

Shurkin wrote that UNIVAC predicted an Eisenhower landslide by 9pm that night but Remington Rand’s staff were reluctant to announce it, so they “tweaked” the program to make the computer agree with the experts and polls. With 7 per cent of the vote in,
UNIVAC gave Eisenhower 438 of the electoral votes. The final total was 442; the computer was out by only 1 per cent (1984: 252-3).

It could be said that when Cronkite announced the computer’s prediction he became journalism’s first computer-assisted reporter. But Cronkite and his colleagues were not innovators in the field of CAR: “Rather, they were reporters doing their best to make the best of what was essentially a marketing decision” (Reavy 1996 U). UNIVAC’s appearance on television was a pivotal moment in computer history:

> Before that date, while some people had heard about computers, very few had actually seen one; after it, the general public had been introduced to computers and had seen at least a mock-up of one. And that computer was a UNIVAC, not an IBM (Campbell-Kelly and Aspray 1996: 123).

A new word, UNIVAC, subsequently became a “prominent fixture in the American vocabulary” (Wulforst 1982: 171). IBM’s desire to regain the ascendancy from Remington Rand was a major factor in its move away from calculating machines into computers. Watson, IBM’s president, realised that IBM “had to be seen as an innovator” and decided to develop a data-processing computer “whether or not it made money” (Campbell-Kelly and Aspray 1996: 125). From the early 1950s, business organisations and manufacturers effectively “reconstructed” the machines that were then regarded as computers or calculators. Thereafter computers became electronic data-processing machines rather than instruments for doing mathematical calculations. This was one of the major leaps that transformed the computer as calculator into the technology we know today, and started the process that eventually led to the development of personal computers which became the base machines for CAR.

Once IBM recognised the need for change, it rapidly re-oriented its research and development approach, and changed its manufacturing and sales organisations. IBM used its traditional business strengths “to dominate the industry within a period of five
years" (Campbell-Kelly and Aspray 1996: 105). The first IBM computer, the IBM 701, shipped in late 1952. In 1964, after investing $US5 billion, IBM announced the System 360, calling it “the most important product announcement that this corporation has ever made in its history”. IBM “bet its company” on the success of this computer family and won (Hennessy and Patterson 1998: 38). IBM subsequently came to dominate the large computer market. The scope and power of computers continued to expand rapidly throughout the 1950s and 1960s: “Never in history had an aspect of technology made such spectacular advances” (Evans 1981: 96). By the late 1950s the military powers of the world had become “highly interested in harnessing the power of computers to their own ends”. The major motivators were the space race and the Cold War, plus what Evans called “commercialism” — the desire to make money from these inventions (1981: 97).

War and reporting

Journalists’ coverage of war has generally provided a series of watersheds in terms of changes in newsgathering. Some historians have suggested that the American Civil War from 1861-1865 was an early example of how telegraph technology influenced journalists’ newsgathering methods. The Northern and Southern governments took control of most of the telegraph lines early in the war. Stephens suggested that restrictions in access to the telegraph and limits to the number of words in telegrams were major factors in the development of the short summary lead, and concise writing. Another factor was a fear that the line would die without warning:

During the American Civil War in particular, journalists rushing to transmit their most newsworthy information over often unreliable telegraph lines had begun to develop the habit of compressing the most crucial facts into short, paragraph-long dispatches, often destined for the top of a column of news . . . [This form of writing] organises stories not around ideas or chronologies but around facts. It weighs and shuffles the various pieces of information, focusing with remarkable single-mindedness on their relative news value. This style of news writing had taken decades to establish its dominance (Stephens 1989: 253-4).
Stephens suggested that the inverted-pyramid style of reportage evolved in the decade after the war (254). Stensaas found that the inverted pyramid was not widely used in agency news until the 1880s, noting that four years of war reporting prior to Lincoln’s assassination were “chronological and self-conscious” in style (1987: 12). Mindich maintained that “at the earliest, the [summary] lead was born with the coverage of Lincoln’s death” after the last battle of the war (1998: 68). His research produced what he described as a “surprising conclusion” — that the earliest examples of the inverted pyramid form “may have been written not by journalists, but by Edwin Stanton, Abraham Lincoln’s secretary of war” (1998: 66).

It would be hasty to suggest that Stanton developed the inverted pyramid; however, it does appear that he was writing inverted pyramids at a time when most news writing was still chronological and narrative. The two most widely held theories of the development of the inverted pyramid are (1) that the war and unreliable telegraphs pushed reporters to put their most important news in their first paragraphs; and (2) that wire services, notably the Associated Press, used the inverted pyramid because they had to be impartial (1998: 91).

Mindich maintained there was no evidence to suggest that the telegraph or the wire services produced a basic shift in the way stories were written until after the Civil War: “Telegraphs and press agencies may have influenced the form, but as Stensaas found, this probably did not happen until the 1870s and 1880s” (1998: 93). Taft said that much of the war reporting was inaccurate, accidental, and sloppy: “Objectivity had little place. Some reporters served officially, others unofficially, as aides to senior officers. Reporters had to make their own casualty counts” (1968: 29). Reporters also found it difficult to separate news from rumours and facts from speculation. Stories were often slanted back at the office to follow the paper’s editorial policy towards the war, and the practice of giving by-lines developed as a way of allocating responsibility (30).

Nevertheless, newspapers experienced a huge public demand for information during the war. The circulation of the New York Herald reached 100,000 by 1865 and The New York Times’ circulation grew to 75,000. Some issues of the New York Tribune topped 200,000.
Technology’s influence on newsgathering

The telegraph was probably the first technology that directly influenced the practice of modern journalism. News agencies, discussed on pages 78 to 83, accelerated the delivery of news and also turned it into a commodity. Kieve concluded that the telegraph increased the speed at which journalists worked, which in turn changed the journalistic mindset. The telegraph meant that news arrived all the time, rather than in isolated blocks such as when a ship or train arrived: “Within newspaper offices editors now had to make up their minds quickly and be ready to rethink in the course of a single night, as news no longer came all at one time, but continuously” (1973: 72).

The permanent telegraph cable under the Atlantic Ocean that connected the United States and the United Kingdom from 1866 accelerated journalists’ and the public’s expectation of the speed at which news would arrive. News of the defeat of Napoleon III shows how the time element in newsgathering and reporting had been contracted. The Prussians defeated Napoleon III’s army on 2 September 1870 and two days later the French people proclaimed a republic in Paris. The New York Tribune carried the story of the republic on September 6. Reports came from the Tribune’s special correspondents with the Prussian and French armies. They filed first-hand battle reports via telegraph and the trans-Atlantic cable. Stephens concluded that this was a “significant moment” in the history of reporting (1989: 227).

Another consequence of the development of the telegraph was the fact that journalists grew increasingly to rely on it, just as modern journalists have come to rely on computerised front-end systems to produce newspapers. The Sydney Morning Herald reported on 17 March 1859 that interruptions of only a day or two were regarded “as an intolerable annoyance” (1996: 51). On October 5 that year, the paper reported that:

... telegraphic communication is one of those improvements which, when introduced, cannot be parted with again, or arrested in its progress. From being a novelty and a scientific curiosity, it becomes a
social necessity, and we shall soon come to feel that it would be as possible to do without our post offices as without our telegraphs (quoted in Livingston 1996: 51).

Newspapers were able to receive cable reports, but they also complained about the cost. When the line to London opened in 1872 it cost £9/7/7 for 20 words. Mayer noted that the cable content of The Sydney Morning Herald the next year was only 18,250 words a year, or 50 a day: “The high rates possibly explain the low coverage of foreign news” (1968: 27). Australia’s daily papers negotiated a discounted rate for the Press in 1886, and costs decreased with technological improvements. The volume of news grew rapidly by early in the twentieth century. But because of competition and improved technology the cost of cables decreased significantly and continued to fall. In 1936, Australian Associated Press provided more than 20,000 words a week from London alone — that is, it supplied more in a week than the Sydney Morning Herald had received over the whole year half a century earlier (Mayer 1968: 27). By 1966 the general rate for cables in Commonwealth countries was down to one penny a word (1968: 107).

The only blip in the downward trend in cable prices occurred during World War One when costs rose because of increased demand. The Sydney Daily Telegraph’s cable charges, for example, rose about 600 per cent:

Both the volume of news and the hunger for detailed news from the front grew, and the competition to be first increased; hence many messages which would ordinarily have been sent at ordinary rates were now sent at urgent rates (Mayer 1968: 27).

Despite the increased volume of news, proprietors had to cut the size of newspapers because of the high price of newsprint. One consequence was a drive for better edited and more concisely written newspapers. The war forced papers to be “pithily written”. Mayer quoted a memo from Sir Keith Murdoch to his staff: “Always the need will be for condensation — all the news pointed, clear, terse — never an unnecessary word” (1968: 28).
Smith noted that during the early part of the twentieth century the telephone brought about further subdivision among American journalists: “There were ‘legmen’ who went about the city collecting news and phoning it in, and ‘rewrite men’ who stayed in the office and tailored the news to fit the personality of the paper” (1979: 150). The telephone switchboard transformed the nature of reporting in the 1920s and 1930s:

Until the switchboard arrived, it was almost impossible for a multi-sourced form of information to pass along the telephone, for example, the results of a large number of football games played simultaneously in different parts of the country or the results of a national election. In many countries, pigeons were widely used for such complex stories until about 1930, and many well-organised newspapers kept their own pigeon-lofts (Smith 1980a: 79-80).

A senior agency reporter provided an amusing and insightful anecdote about pigeons, based on his coverage of the Olympics in Japan in 1964: He was “amazed” to see Japanese photographers carrying baskets of carrier pigeons into the press room at Enoshima where he was covering the yachting. The photographers used them to fly film back to Tokyo 80 kilometres away:

It was quicker than road or rail and more reliable than any other communications available. Over the two weeks I was there I often wished I had brought some myself, so often did the communications collapse (O’Loughlin 1996 TS).

Garrison noted that communication scholars — “as well as beat reporters” — realised that technology “changes the way things get done”. The invention of the typewriter, for example, “changed the way people thought during the writing process” (1995d: 12). Houston similarly pointed out that computer technology changed thinking patterns: “Working with computers requires a different way of thinking. It is more methodical and initially less intuitive” (1996: 7).

Summary

Task-driven journalists, keen to get their copy to base, have been willing to adopt
various technologies to get the job done as quickly as possible. Smith suggested that these technologies caused journalists to be constantly "re-professionalised" — forced to learn new skills — and the process was still evolving (1978: 222). Peter O'Loughlin, Associated Press’s bureau chief for Australia and the Pacific region, explained the evolution of technology in relation to his colleagues:

AP has moved from hand-written dispatches, carrier pigeons, to Morse code, the first leased telegraph service and the telephone; then to digital delivery, radio and now the Internet. AP coverage of the [American] presidential elections last week [October 1996] went on the Internet as a multi-media package of text, graphics, photos, audio and video (O’Loughlin 1996 TS).

Stephens noted that reporting technologies would continue to develop and “practise their magic” on journalism (1989: 299). Discussion of their impact on newsgathering continues into the next chapter, which covers the history of the Internet and email, the development of the personal computer and its introduction into newsrooms, and the evolution of deep CAR in North America. The developing role of the Internet as a CAR tool is also described. The history of early newsgathering technologies outlined in this chapter highlighted two main themes: the desire on the part of newspaper managers to reduce costs, and journalists’ willingness to adopt technologies that accelerated the newsgathering process. These themes recur in later chapters in the description of how Australian journalists have adopted the Internet as a newsgathering tool.
CHAPTER 4

COMPUTER-ASSISTED REPORTING IN THE USA

Computer-assisted reporting has had a relatively short history. It has been around for less than two generations in terms of human life span, but several generations in terms of computer technology. This situation is reflected in Moore’s law — named after one of the founders of chip maker Intel, Gordon Moore — which says that computing capacity doubles every 18 months. This chapter provides an overview of CAR. It begins by describing the development of the Internet and email, and moves on to discuss the history of the personal computer and its introduction to American newsrooms. It concludes with a short history of investigative CAR in the United States and details the developing relationship between the Internet and reporting in that country.

The development of the Internet

In October 1957, the Soviet Union launched the first successful satellite, Sputnik, effectively starting the space race. Sputnik’s success caused “something close to panic in political and scientific circles” by throwing into question the United States’s dominance of science and technology. President Eisenhower responded with massive new support for scientific education and research (Campbell-Kelly and Aspray 1996: 212). This support included the Advanced Research Projects Agency (ARPA), which received what Campbell-Kelly and Aspray described as “lavish funding”.

One of ARPA’s major projects in 1962 was a $US7 million program to promote the use of computers in defence. The project’s founding director was J.C.R. Licklider, who convinced his superiors to establish an Information Processing Techniques Office (IPTO) within ARPA. Its budget eventually exceeded the combined funding of all other public research projects in computing (1996: 213). Once more, war or the threat of war (the Cold War) saw large amounts of money channelled into defence technology, which
in turn aided the development of related technology in the civilian marketplace. Between 1963 and 1966 ARPA conducted extensive research into the emerging technology of computer networking. In 1969, Bolt Beranek and Newman (BBN) of Cambridge in Massachusetts won a contract to network four major computer centres at the universities of California at Los Angeles, California at Santa Barbara, Utah, and the Stanford Research Institute. Interestingly, Licklider had been a vice-president of BBN since 1957. The network was operating a year later. It became better known as Arpanet and was the precursor to what we now call the Internet (Ellsworth and Barron 1997: 8). Computers that acted as switching centres — the sites that forwarded messages — were called “nodes” on the Arpanet, and the Internet adopted that term. Other ARPA-funded computer centres soon joined the network and by 1977 the network had 111 nodes. For much of Arpanet’s existence the military, which funded the project, tried to restrict access to the network. This explains Arpanet’s relatively limited growth. But in 1982 the military established its own network, Milnet, which allowed Arpanet to grow with “less restraint” (Campbell-Kelly and Aspray 1996: 289-94). Figure 8 tracks the growth.

As computers developed they became more powerful, and smaller. The modern information revolution probably began with the invention of the transistor in 1948 by John Bardeen, Walter Brattain and William Shockley while they worked at Bell Laboratories. The trio won the Nobel Prize for physics in 1956 (Evans 1981: 100). The Digital Equipment Corporation (DEC) unveiled the first commercial minicomputer in 1965. Minicomputers were the forerunners of personal computers. Probably the most significant single event that led to the mass production of cheap PCs was Ted Hoff’s invention of the microprocessor, the silicon “chip”, in 1971 while he worked at the Intel Corporation. The microprocessor took a series of integrated circuits, which had replaced transistors, and miniaturised them to the point that they fitted on a single wafer of silicon. By the mid 1970s calculators were performing the same functions that had required large mainframes less than 20 years earlier. Intel, founded by Andy Grove and Gordon
Moore, devoted itself to making these new kinds of integrated circuits and in 1970 Intel announced a new chip, the 1103, which contained more than 1,000 bits of information:

The best way of describing the impact of the microprocessor is to say that by the mid 1970s it was possible to buy a hand-held calculator that could run circles around ENIAC or UNIVAC. The calculator cost under $1,000 (Shurkin 1984: 310).

The development of email

In 1971, two programmers at Bolt Beranek and Newman developed what was probably the first software for sending electronic mail (referred to in this thesis as email) and the software was trialed on Arpanet. Electronic mail soon exceeded all other forms of network traffic on the network, and by 1975 there were more than 1,000 registered email users. Arpanet’s founders originally considered that only researchers should be allowed to log on and run programs on remote computers via the network (Gilster 1994: 16). At the time, email was considered “an insignificant add-in to network capabilities” and no-one anticipated the high volume of traffic that would begin to flow as scientists exchanged ideas with geographically-distant colleagues (1994: 24). By the mid 1980s, the Internet included tens of thousands of researchers and scholars in private industries and universities:

Net culture took on a global, youthful, often heavily American flavour as so many colleges world wide come online, starting in the United States. Thousands got hooked on Usenet, Multi-User Dungeons (MUDs), Internet Relay Chat (IRC), and electronic mailing lists (Rheingold 1995: 68-9).

Campbell-Kelly and Aspray described the demand for email facilities as “a major driving force for the first non-ARPA networks” (1996: 294). One of the most important of these was Usenet, a network formed in 1978 by universities that had been excluded from connection to Arpanet. By 1991 there were 35,000 nodes on the Usenet system and millions of subscribers (Campbell-Kelly and Aspray 1996: 295).
Internet protocols: TCP/IP

One of the jobs of Licklider's Information Processing Techniques Office was to establish "protocols" by which networks could communicate. (A network protocol is the electronic exchange that enables one network to talk to another, regardless of the technology involved — a form of network Esperanto.) In 1982 ARPA programmers devised a system that became known as the Transmission Control Protocol/Internet Protocol — or simply TCP/IP. While international communications committees discussed establishing a world standard, TCP/IP established itself as the de facto standard, and it remains so today (Ellsworth and Barron 1997: 9). The number of host computers on the Arpanet surged in the next decade and Figure 8 shows the extent of the growth:

In 1980 there were fewer than 200 hosts [computers] on the Internet, and as late as 1984 there were still only 1,000. A broad community of users appeared in the late 1980s, mainly because of the spread of the personal computer in homes and offices. By 1988 there were over 50,000 hosts. A year later there were three times that many (Campbell-Kelly and Aspray 1996: 297).

By 1992 the number of hosts exceeded 1 million for the first time. The next year it exceeded 2 million, and the year after that there were 3.8 million (1996: 299).

Figure 8: Growth of servers on the Internet, 1969-98


<table>
<thead>
<tr>
<th>Year</th>
<th>Number of servers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>4</td>
</tr>
<tr>
<td>1977</td>
<td>111</td>
</tr>
<tr>
<td>1984</td>
<td>1,024</td>
</tr>
<tr>
<td>1989</td>
<td>159,000</td>
</tr>
<tr>
<td>1992</td>
<td>1,136,000</td>
</tr>
<tr>
<td>1996</td>
<td>9,472,000</td>
</tr>
<tr>
<td>1998</td>
<td>29,670,000</td>
</tr>
</tbody>
</table>
By 1996, Fulton reported that email traffic in the United States — 95 billion that year — exceeded the number of letters posted (1996a: 19). Significantly, Houston noted the power of email to get journalists involved with the Internet:

Email is often the means by which journalists become comfortable with the online world . . . Email is a good place to get comfortable online because you can use it to contact friends, family members, and experts. Thus, it provides the initial satisfaction of making contact (1996: 109).

Data transmission

Data are delivered over the Internet as individual “packets” which are switched or channelled where appropriate on the network. In packet switching, information is transmitted through a network in sporadic bursts as a series of “packets” of data. Each packet comprises three parts: the introductory information, called a “header”; the data being sent, up to a maximum of 1,024 bits; and a tail which contains an error-checking code, to confirm that no mistakes have been made in sending the data. If an error is detected at any link of the network, the last link is automatically instructed to retransmit the packet. This improves the overall accuracy of the system enormously. The “header” contains information about the destination, source and type of the communicating mechanism. Within Australia’s packet switching network, data can travel at speeds of 48,000 bits per second. At this rate, both books of the Bible — about 770,000 words — could be transmitted in about 14 minutes (Telstra 1996 U).

Donald Davies, who worked at one of the most prestigious research centres in the United Kingdom, the National Physical Laboratory, coined the term “packet switching” in 1965. He recognised that the packet-switching concept was similar to technology used by the telegraph in the nineteenth century (1996: 290). Telegraph engineers had already worked out how to avoid the need to have every city connected to every other one. Connections were maintained by using a number of switching centres located in major cities:

In the early days of the telegraph, during the last decades of the nineteenth century, at each switching centre [in the United States] an incoming telegram would be received on a Morse sounder and written out by a telegraph clerk. It would then be retransmitted by a second telegraph clerk to the next switching centre. This process would be
repeated at each switching centre, as the telegram was relayed across the country to its destination (Campbell-Kelly and Aspray 1996: 291).

An incidental advantage of creating a written copy of the telegram was that it could be stored. If a build-up of traffic occurred, or if the onward switching centre was too busy to receive the message, it could be delayed until the lines became clear. This was known as the “store-and-forward” system. Technology replaced manual switching centres and telegraph clerks in the 1930s. Incoming messages were automatically recorded on perforated paper tape and then re-transmitted mechanically. Computers performed the same function from the 1960s, using hard disk storage instead of paper (1996: 291). Store-and-forward packet switching on the Internet was a simple elaboration of these old telegraph ideas. A packet is like a short telegram, each packet containing the address of the destination — a long message can be broken into a stream of packets, each of which is sent individually on the network. A single communications line can transmit many packets in each direction and the computers that act as the switching centres receive packets and pass them along to the next node on the route towards the destination. A computer at the destination reconstructs the original message from the packets (Campbell-Kelly and Aspray 1996: 292).

When full packet switching was introduced in Australia at the end of 1982 it was recognised as the most sophisticated data communication method then available: “Care was taken to ensure that the system could continue to develop into the next century and that it would remain compatible with similar systems around the globe.” Nineteenth-century technology provided the ideas for networking; with time the technology improved to the point where it was faster and more reliable (Telstra 1996 U).

**The information highway and Web browsers**

Senator Al Gore, a journalist on the *Tennessean* in the 1970s, introduced the High Performance Computing Act to Congress in 1990. It proposed the creation of high-speed fibre-optic networks across the United States to supplement or replace existing
copper wires. Gore’s Act required the government to develop wide-ranging computer networks: “Just as rural America was provided with postal services in the 1860s and with telephone services in the 1920s, on the same basis as the city dweller, so must all America be linked to the superhighway on essentially equal terms” (Campbell-Kelly and Aspray 1996: 299). The “information superhighway” became a key issue in the Clinton-Gore presidential campaign of 1992. After they were elected the rhetoric was given substance in the National Information Infrastructure program. The Act became law in 1993.

In the early 1990s at CERN, the European Centre for Nuclear Physics Research in Geneva in Switzerland, physicist Tim Berners-Lee and colleagues produced the specifications to allow information to be presented as hypertext on the Internet (Nielsen 1995: 36). Berners-Lee was trying to enable easy collaboration between physicists in different parts of the world. Marc Andreesen built upon Berners-Lee’s work and wrote the program for the first Web browser, Mosaic, releasing it in January 1993 (Whittle 1997: 297). Mosaic Communications, founded by Jim Clark, became Netscape and within a year its eponymous browser had replaced Mosaic as the most popular software for surfing the Web (1997: 360-1).

In 1995, The Economist reported that in the previous year the Internet had doubled in size “as it had done every year since 1988” (Anderson 1995 U). The magazine estimated that about 100 million people used the Internet around the world and predicted that the Internet, especially the Web, would continue to grow — “the result of a digital free market”. It noted that no communications medium or consumer electronics technology — not even the fax or the PC — had grown as quickly (Anderson 1995 U).

In April 1998 American vice-president Gore unveiled plans for what he called the “Next Generation Internet”. The Bloomberg news agency reported that half of the $US1 billion funding for the project would come from three high technology
companies, with the balance contributed by the Defence Advanced Research Projects Agency (1998: 3). Gore said that the new Internet would be capable of transmitting the 30 volumes of the Encyclopaedia Britannica in one second. Bloomberg did not mention the start date but one of the three partner companies, Qwest Communications, started building a $US1.8 billion fibre-optic network to connect 125 American cities early in 1998.

Development of personal computers

The first personal computers emerged in the late 1970s. While no one person can be credited with its invention, Wozniak and Jobs set the standard for low cost, high volume and high reliability when they released the Apple II in 1977. IBM’s Personal Computer, announced in 1981, became the best-selling computer of any kind. Figure 9, from Hennessy and Patterson, summarises the four generations of computers, and the technology that resulted from the development of each new generation (1998: 42).

Figure 9: The four generations of computer technology

Source: Hennessy and Patterson 1998: 42

<table>
<thead>
<tr>
<th>Generation</th>
<th>Dates</th>
<th>Technology</th>
<th>Main new product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1950-59</td>
<td>Vacuum tubes</td>
<td>Commercial electronic computer</td>
</tr>
<tr>
<td>2</td>
<td>1960-68</td>
<td>Transistors</td>
<td>Cheaper computers</td>
</tr>
<tr>
<td>3</td>
<td>1969-77</td>
<td>Integrated circuits</td>
<td>Minicomputers</td>
</tr>
<tr>
<td>4</td>
<td>1978-?</td>
<td>Large scale integrated circuits</td>
<td>Personal computers &amp; work stations</td>
</tr>
</tbody>
</table>

Reavy maintained that if mainframes had remained the computing standard, then CAR would probably have only been available only to reporters with the time and money to undertake in-depth investigations with those computers:

Technology also served to limit the spread of this new reporting technique. Few newspapers were willing to grant their reporters time on a mainframe computer, which cost anywhere from $75 to $500 an hour at the time. The projects themselves also tended to be quite time-consuming. Reporters had to locate and obtain the data, arrange to have it somehow transferred onto a computer, then wait while others manipulated it. During the course of this process, they rarely even saw the data. Such a “hands off” process would undoubtedly deter many non-investigative reporters (1996 U).
But by the mid 1970s calculators were performing the same functions that large
mainframes had done less than two decades earlier. And they were doing it faster:

Calculators were obviously a boon to reporters, but even more so were
the new microcomputers that emerged in the . . . early 1980s. While
some tend to view microcomputers as mainframes in miniature, they are
actually based on an entirely different concept. Mainframes were
created for large businesses. As such, they were built with the idea that
the business would hire computer specialists to design programs
specifically for that business. Microcomputers were designed to use
generic software. Thus, a piece of software written for an Apple II
computer could be sold “off the shelf” and used in any Apple II
(Reavy 1996 U).

Reavy concluded that this development represented a “revolution” for the computer
industry and a “blessing” for journalists (1996 U).

Computers in the newsroom in the United States

The United States pioneered the introduction of computers into newsrooms. Several
factors such as union opposition, the high cost of the technology and the need for
training meant that the transition was not smooth, but it was inexorable. Many
publishers saw the computer “as a weapon for breaking union power, and one that paid
quickly for itself” (Smith 1980a: 132). The “evolution” of the computer in the
newsroom took several years because reporters and editors needed to be trained, and
made to feel that computers improved their work: “It took time, therefore, for the front-
end bandwagon to roll and for the new technology to extend itself into the newsrooms
of the [United States]” (1980a: 97) [Front-end is the industry term for direct input by
reporters, and the use of computers for newspaper production.]

Several writers (Briggs 1994; Brown 1997; Reavy 1996) have shown that American
journalists used computers to help report the news after computers first entered
commercial production in the early 1950s. But they were limited examples, such as
CBS’s use of UNIVAC in 1952, discussed in the previous chapter. A more
sophisticated use of computers at newspapers developed in three “overlapping and
occasionally symbiotic” phases from the 1960s with Reavy describing them as the
business, production and information phases. This thesis concerns itself with the last
phase, so discussion on the first two will be brief. The business phase began in the early 1960s when newspapers started using mainframe computers primarily for accounting, and to track circulation. A few years later, newspaper managers discovered that computers could save money and time in the production process. The Intertype Company had introduced a computer especially designed to handle typesetting functions. Reavy said that this hastened the spread of computers on the production side (1996 U).

Within a few years newspaper managers saw the financial benefits of technology and by 1966 computers were handling everything from inventory control to wire editing at newspapers throughout the United States. Smith said that the computer reduced setting costs “but at the same time introduced the possibility of a further series of changes (which is far from complete) which would, in the long run, change the whole nature of the medium” (1980a: xii). He was referring to the information phase mentioned in the previous chapter, which Reavy traced to 1967:

In 1967, fresh from his year as a Niemann Fellow, [Philip] Meyer found himself temporarily assigned to the Detroit Free Press during the height of that city’s summer riots. Following the riots, Meyer conducted a survey of Detroit residents to test theories about who did and did not participate. With the help of John Robinson and Nathan Kaplan at the University of Michigan, Meyer used an IBM 360 main frame computer to analyse the survey results and produce a data picture out of chaos. Meyer’s work helped the paper win a Pulitzer for its overall riot coverage. It was the first Pulitzer earned, at least in part, through computer-assisted research. It also signalled Meyer’s investiture as an innovator in the field of computer-assisted reporting (1996 U).

A significant factor had been Congress’s passing, in 1966, of the Freedom of Information Act which allowed citizens and foreign nationals to request any records from the executive branch of the federal government (DeFleur 1994: 50). The Act created what Reavy called a “sweeping change” in public access to records by switching the burden from the citizen to the government, which consequently had to justify why people should not be allowed access to information:

It also sparked what would later become the staple of [early] computer-assisted reporting — analysis of magnetically-stored government data.
Yet the dawn came quietly. More than a decade passed before reporters fully combined the technology and the access to directly analyse government data stored on computer (Reavy 1996 U).

The development of deep CAR

Within a few years of the 1966 Act, Reavy said that reporters at about 100 US daily newspapers were using mainframe computers for investigative CAR. Meyer introduced the term "precision journalism" with his 1973 book of the same title; it was a form of journalism with roots in the social sciences that attempted to use scientific techniques to obtain more "pure" data for reporting. Demers and Nichols introduced their version of precision journalism 14 years later, in 1987, but even then it necessitated access to large mainframes and special skills on the part of the journalist.

Meyer reported that in 1972 he tried to teach reporting staff at the Philadelphia Enquirer how to do programming and analysis on a mainframe:

I failed. Enquirer reporters won many prizes after that, but they did it with shoe leather and less powerful computer tools. The inaccessibility of mainframes at the time — both physically and conceptually — was part of the problem. Today, a bottom-of-the-line personal computer can do everything that the ancient mainframe could do, and a major barrier has been removed (1991: 193-4).

At the time of writing Meyer maintained that mainframes were still needed for building and analysing complex databases "but it seems likely that [they] could become irrelevant for most journalistic work at some point during the shelf life of this book" (1991: 84-5). Later sections of this thesis will show that he was right.

By 1995 Garrison announced that the evolution of personal computers into the newsroom from the late 1980s and early 1990s — mainly because of the significant fall in costs — made mainframes much less important:

The first PC spreadsheets were developed in the early 1980s and the first database software was introduced about the same time . . . By the beginning of the 1990s, personal computing had become the means of publishing newspapers and magazines for many companies. The dedicated word processing systems are being gradually phased out and PCs are replacing them . . . It seems we are only beginning to see the
potential for these tools for reporting and for news gathering in general (1995: 14).

Houston noted in 1996 that powerful number-crunching personal computers could be purchased for less than $US1500 and many reporters were buying them for home use:

Small and large news organisations already have such computers, although they [mainly] use them only for word processing or pagination. At the same time, software for data analysis is available for less than $100 and software and equipment for online communication often comes with the computer ... In addition, the language of computers and software and online databases is becoming less threatening (1996: 3-4).

Interest in deep CAR developed among a small group of dedicated journalists and academics in the mid to late 1980s in the United States. Bill Dedman of the *Atlanta Journal and Constitution* — with the aid of database specialist Dwight Elliott — examined Census data and Federal Reserve System records that the Home Mortgage Disclosure Act of 1975 required federal bodies to make public. The resulting stories, which ran from 1-4 May 1989, revealed that local banks were discriminating against black people in granting home loans. The series won that year’s Pulitzer Prize for investigative reporting (DeFleur 1997: 89-90). Perhaps more importantly it also “proved the potential of computer-assisted reporting to a generation of American journalists” (Reavy 1996 U). Garrison suggested that Dedman was one of the opinion leaders in CAR in the United States:

Perhaps the current generation of CAR was inaugurated by the Associated Press’s CAR editor, Bill Dedman, who was then a reporter for the *Atlanta Journal and Constitution*, and his series “The Colour of Money”, which revealed racist policies behind lending practices of Atlanta-area financial institutions (1995d: 10).

Dedman remained an important figure in the CAR world in the United States in the 1990s, as did Elliott Jaspin. Dedman became the Associated Press’s CAR editor and later taught CAR at university. Jaspin shared a Pulitzer for investigative reporting with Gilbert Gaul in 1979, while at the Pottsville Republican. Later he became a reporter with the *Providence (RI) Journal*. According to Reavy, Jaspin “spread the word in the Journal’s newsroom”, before he received a grant from the Gannett Center for Media
Studies that enabled him to take time off to develop software. Jaspin co-wrote ‘‘9-Track Express’’, an early utility program that allowed PCs to interpret information on tape drives from mainframes (Reavy 1996 U). After completing the software package, Jaspin accepted a position with the journalism school at the University of Missouri at Columbia. In 1989 he founded the Missouri Institute for Computer-Assisted Reporting, MICAR, which became NICAR, the National Institute for Computer-Assisted Reporting in 1994 (Briggs 1994: 1; Campbell 1997 email; Garrison 1995d: 13; Houston 1996: xiii). MICAR became a ‘‘centralised knowledge bank’’ for all information dealing with electronic government records, from negotiation and the law to equipment purchase and maintenance (Reavy 1996 U). Jaspin currently runs the new media section of Cox Newspapers in Washington, DC. Dedman and Jaspin are examples of the ‘‘opinion leaders’’ Rogers described in Chapter 2: the people who influence the adoption of an innovation through their technical competence and the peer respect they engender.

In 1991 Meyer published a fresh version of his book *Precision Journalism*, inserting the adjective ‘‘new’’ into the title because he believed there was sufficient new material to justify it. By this time personal computers were becoming available, along with off-the-shelf software that took less time to learn than the specific software for online database searches and mainframe computers. American journalists became increasingly aware of the power of CAR from the early to mid 1990s, and many sought training in it. By this time CAR was no longer considered just a useful additional skill acquired by computer ‘‘nerds’’, but ‘‘a major component in every news organisation and reporter’s toolkit’’ (Tapsall 1997: 69). CAR was making a visible difference, both to the way journalists approached their jobs and the quality of the news story. Tapsall said that the CAR process involved journalists working through a number of stages, ‘‘roughly’’ in a specific order: The reporter gathered data (information), then ‘‘interviewed’’ that data looking for possible story angles, then validated and verified the data to check for
accuracy, put a “human face” to the story by interviewing people, and finally wrote the report:

Such a process could [also] describe the traditional work of a journalist. The break from tradition occurs in the first stage – the gathering of data. In the United States, millions of records are available in many thousands of databases which can be accessed online, via CD-Rom or Internet, or in hard-copy format. Without a rudimentary knowledge of the advantages and disadvantages of computers, it is difficult for a journalist to understand and report on how the world now works . . . This shift in the information-gathering process allows the profession to become less dependent on official sources or analysts and to add a depth and authority of understanding and analysis to their reportage (Tapsall 1996b TS).

By 1996 Reavy reported that CAR was “beginning to reach the majority” of American newspapers, though he suggested that it represented an innovation “still diffusing within its community”. Most journalists admitted its advantages and agreed that it offered reporters a unique method for advancing their professional principles. As well, new technology and new teaching techniques had reduced its complexity “to the point that reporters can pick up the basic skills in a single weekend”. Heightened interest in the Internet “could well lower that complexity even further”. Costs had also decreased in recent years: “Using personal computers and applications already in their possession, even small newspapers can launch small CAR projects for less than $US100”. This was a radical change from the 1970s when access to mainframe computers cost up to $US500 an hour (Reavy 1996 U).

Reavy’s assessment appears to have been more opinion than a conclusion based on research. Garrison was more cautious, and accurate, in his estimation of the diffusion of CAR in American newsrooms, which was based on national surveys of daily newspapers he conducted between 1994 and 1997. These showed an increasing number of publications were using computers for newsgathering — from 66 per cent in 1994 to 88 per cent in 1997. But these data related to computers in general rather than specifically to CAR. The percentage of papers with a CAR desk was more revealing (see Figure 10). Garrison concluded:
Some newsrooms are far along in developing CAR programs whereas others have virtually no plans for using the tools in coverage of their communities. Most newsrooms are somewhere between these two extremes. Getting management support is not always a very real expectation for many average-sized newspapers — given that there is seldom cash available for such programs, that editors often do not know much about computers, and Pulitzer-winning projects frequently are too big for the average newspaper to consider trying (1998c: 34).

Figure 10 (reproduced from Garrison 1998c: 33) also showed that the number of publications offering some form of CAR training had risen significantly, as had the number of full-time staff devoted to CAR.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer some type of CAR training (expressed as a %)</td>
<td>30</td>
<td>44</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Number of full-time staff used for CAR</td>
<td>3.5</td>
<td>4.7</td>
<td>6.3</td>
<td>7.9</td>
</tr>
</tbody>
</table>

States. Internet skills had become “part of all [American] reporters’ approaches to their assignments” (Garrison 1998b U).

The Internet and American journalism

Various commentators have noted that CAR practitioners used three main technologies. Reisner referred to CAR as a “three-leg stool” (1996 E) while Houston and DeFleur spoke of three “tools” (Houston 1996: 6, DeFleur 1994: 5-6). The three parts were spreadsheets, databases and the Internet. The widespread expansion of the Internet since about 1995 meant that the Web and email became significant tools among CAR practitioners. Ross and Middleberg noted that American journalists’ use of the Internet had risen each year since 1994, jumping to an “almost universal” figure of 98 per cent by their fifth survey (1998 U). Garrison supported this trend though he concluded the diffusion had been slightly less intense. Between 1994 and 1998 he surveyed all US dailies with a circulation of more than 20,000 to discover the extent of their Internet use. He noted a rapid increase in the number of newspapers using the Internet for newsgathering — from 25 per cent in 1994, to 45 per cent the next year, to 67 per cent in 1996, to 91.6 per cent in 1997 and 92.4 per cent in 1998. The frequency of Internet access also rose. In 1994 only 27 per cent of reporters said they used the Internet daily or more often than daily, but in 1996 the figure was 37 per cent and by 1998 it had jumped to 63 per cent (Garrison 1999: 12-3). Any discussion of CAR in the United States, then, must involve the Internet.

In 1998 Garrison also analysed the relationship between newspaper circulation and CAR adoption, and concluded that papers with a daily circulation of more than 50,000 were generally the greater users of the Internet for newsgathering. He found that large newspapers devoted more staff to CAR, with an average of 11 full-time people working in the CAR area on large papers compared with an average of four people on smaller papers. As well, large papers were more likely to offer CAR training, with 72 per cent of large papers providing some form of training, compared with 35 per cent of small papers (1998b: 11).
Traditionally, large daily newspapers tended to get involved with CAR earlier than small dailies and non-dailies. But smaller dailies began using CAR in the early 1990s via the Internet. Leccese noted that the Internet had “proved to be a boon for [small paper] journalists” such as those on the Newtown Bee in Connecticut (1994: 25). Curtiss Clark, the paper’s managing editor, said the Bee (circulation 7,000) was too small to afford a Washington correspondent and it therefore had difficulty getting access to basic information such as copies of politicians’ speeches. The 1993 National Infrastructure Act solved this problem because it required a vast amount of information, including all speeches given in Congress, to be available to the public via the Internet, where Bee staff could download them (1994: 25).

Reddick noted that the White House round has traditionally been considered the most prestigious. The role of the White House reporter “was defined by access to information from the White House”. In the early 1900s, President Theodore Roosevelt began meeting formally with reporters and his actions gave those reporters “a certain status”. From then on, White House reporters had private access to information that reporters in other cities could not get “on a timely basis”:

That situation is rapidly changing. With the development of commercial databases, computer bulletin boards, and the Internet, journalists working anywhere can have the same access to much of the information once restricted to White House reporters. Today, any reporter with access to the Internet can visit the White House briefing room at <www.whitehouse.gov/> and obtain White House press releases, transcripts of press conferences and speeches, summaries of reports generated by Federal agencies, and a host of other material (Reddick 1997: 3-4)

Callahan wrote that when used efficiently the Internet could be an important tool in a reporter’s toolbox, giving “instant access to the richest mine of information in the world”. The major problem with the Internet was its “helter-skelter nature” which posed serious obstacles on deadline. “You can spend hours searching for something and never find it, and never really know if it’s on the Net or not” (1997: 38). Noack contradicted Callahan about the availability of information on deadline, suggesting that
plenty of data was available once people knew where to look. He related an anecdote from *Tennessean* reporter Heather Newman and her need to contact spokespeople after business hours. The local representatives of the organisations Newman needed information about were not available and it was late at night. But she found data on the Internet, via the Securities and Exchange Commission’s archives. Noack concluded:

That example points up the power and versatility of the Internet to provide accurate information quickly, but finding information on the Internet is an acquired skill. It is possible, but Newman and others advised not waiting until near deadline (1996: 31).

Noack also cited Patrick Lee, a business reporter for the *Los Angeles Times*, who said he found the Internet a “useful resource” for financial and government data. Lee’s advice for reporters seeking to use the Net was to become familiar with a variety of search techniques, “know what you’re looking for and rely on primary sources of data”. Lee noted that he generally did not use corporate sites or sites with government press releases: “I bypass press releases and canned statements and head straight for the statistics, official reports or full documents” (1996: 31). Monitoring CARR-L between 1995 and 1998 provided much of the material for the Internet section of this chapter. CARR-L illustrates the free flow of information among journalists in North America and other parts of the world.

By the mid 1990s, the Internet had become a major tool for American journalists. Neil Reisner, NICAR’s former national training director, maintained that sources from the Internet — what he called “online sourcing” — should be seen as “one leg of a three-legged stool”. The other legs were spreadsheets and databases, the traditional tools of investigative CAR reporters:

Online [the Internet] is good for sources, interviews, story ideas and, most importantly, to get data. But the real power is in the analysis. That’s what lets CAR level the playing field between us and our sources (who already do this kind of analysis) and lets us do stories that otherwise would be impossible (Reisner 1996b E).

In 1995, Reddick and King suggested that online reporting methods were the latest development in the evolution of newsgathering. They argued that online was a natural
progression after the telegraph, telephone, and facsimile. As with new technologies of
previous generations, the Internet and other online information networks would
"profundely affect the art and craft of journalism":

Today, "ordinary" reporters using global computer networks have
instant electronic access to important documents, government data,
privately-held information, the world's greatest libraries, and expert
sources and government officials — without ever leaving their desks
(1995: 3).

Reddick and King noted that carefully-worded inquiries to the right email electronic
lists could "quickly net a bountiful harvest of eyewitnesses to some event, of victims to
some plot or oversight, of people with other first-hand knowledge that qualifies them as
a news source". Electronic information sources could help reporters gain expertise
quickly:

Every reporter who has held a beat has had to interview somebody on
topics about which the reporter had little background or expertise. Aside
from being uncomfortable, the reporter is likely to ask ill-informed
questions . . . Again, through network resources the journalist can
quickly locate and download "White papers" on just about any topic
imaginable (1995: 3).

Garrison concluded that the world had experienced a "digital revolution" in the past
two decades and US society had changed rapidly because of it (1998c: 19). For him
the most significant part of the revolution was the transformation of the Internet from a
specialised network into a mass communication system. A "new fourth wave" began
in 1997 with the growing momentum of the Web and its "widespread acceptance as an
information source for millions of people worldwide" (19-20). This had deep
implications for newspapers:

The new ways of gathering and disseminating information have wide
and deep implications for reporters and their editors. The newsroom
continues to experience a radical metamorphosis, but it is occurring
rather slowly and, perhaps, imperceptibly, at present. As technological
breakthroughs occur, however, including ones as significant as the
introduction of the desktop PC almost two decades ago, the changes
In March 1996, the Associated Press recognised the significance of the Internet when it released its Internet policy for all reporting staff. From the middle of that year all AP staff worldwide could send and receive email from their desk or from a notebook PC in the field. By the end of 1996 every AP employee also had access to the World Wide Web, Usenet newsgroups, and other Internet utilities from their desk. Appendix 6 contains a copy of AP’s Internet policy. AP’s CAR director, Bill Dedman, said the Internet policy was intended as a “guardrail” against careless use of the new technology:

Some of the points should seem obvious, because our old values of accuracy and responsibility remain the same. Other rules will seem new, as the technologies are new. But no rules can protect us entirely. In general, use common sense, be cautious, and think before you act. If you’re not sure, ask for guidance. What you do on a computer can be awfully hard to take back. These guidelines will evolve based on experience. A current copy of the guidelines is always available on the main menu of AP’s internal Internet server (Dedman 1996 E).

In March 1996, the Standing Committee of Correspondents in Washington voted to grant press credentials to journalists who reported only in cyberspace — that is, for reporters who do not have a print edition of their publication. The committee accredits reporters from the Washington Press corps with the right to report the White House. Taylor reported the accreditation story online, saying the committee recognised “the emergence of electronic publications as a legitimate extension of the print tradition”. The committee presented a list of qualifying terms: Reporters had to be staff of qualified electronic publications who earned at least half their income from newsgathering; they also had to be “bona fide Washington-based reporters for daily electronic publications”. To gain accreditation to the House of Representatives and Senate press galleries, staff of electronic publications also had to meet the requirements for conventional news organisations, and they were forbidden “to engage in lobbying or publicity activities” (1996 E).
On 5 April 1996, a group of writers, editors and analysts from around the world announced the formation of the Internet Press Guild (IPG). A press release that day said the guild was “uniting to take a stand against shoddy, inaccurate reporting about the Internet”. The guild — which consisted of Internet experts from publications such as *Byte, Internet Life, Internet World, NetGuide* and *The Washington Post* — described itself as “a non-profit organisation dedicated to promoting accuracy and excellence in reporting on and about the Internet”. Guild chairman Steven Vaughan-Nichols said members would “strive to promote the highest standards of honest, fair reporting about the online world”. The guild also served as an information clearinghouse for journalists writing about the Internet. It had already lobbied against the Communications Decency Act, claiming the Act “inhibits the ability of journalists at online publications to do their jobs” and was a violation of the Constitutional right to a free press (Vaughan-Nichols 1996 E).

Later that same year, AP released its news programming package, a multimedia service available to online newspapers. Outing previewed the service, noting that its aim was “to bring together in one package — geared for presentation by online services — the range of content produced by the AP”. The package resided on AP servers and could only be accessed by customers — not the general computer-using public. The new service was essentially an extension of AP’s traditional role as an information supplier. The only difference was the new form: “Previously, AP news and photos have been available for electronic re-use by members, and tailored wires have been provided for commercial databases” (Outing 1995: 153 E).

The developments outlined earlier suggest strongly that from about the middle of the 1990s newsgathering via the Internet was becoming recognised in some parts of the United States. The history of the adoption of new technologies for newsgathering over the past century and a half suggests two distinct approaches, depending on the viewpoint of the user. From the perspective of newsroom managers and newspaper
publishers, technology was adopted as much to reduce costs as to improve the news product. Garrison noted that:

Typically, newspaper companies adopt new technologies when it reduces costs, increases revenue, or offers a combination of both advantages. This is often true in news departments, too (1995d: 16).

He later repeated this notion in different words:

Usually, computerisation of a newsroom occurs because of a desire to increase productivity or to save money. Rarely do editors and publishers upgrade technologies to increase quality (1998a U).

As early as 1992 Johnson had suggested that Internet adoption would take time — more than a generation. He criticised the content of most journalism programs in the United States for their lack of leadership in the digital area (1992: 34). Six years later, his opinions had changed little. He maintained that the majority of senior editorial staff “still don’t get it” about digital technology, and he suspected that only time would bring about change:

So until these old dogs die, both in education and in the newsroom, maybe it is not going to happen. Maybe we can’t force it, and you and I will just have to be frustrated for the rest of our careers, shaking our finger at the profession, which I have done for years. I am not optimistic that we can generally force this change (1998a TS).

Garrison predicted that adoption of the Internet and CAR as a common reporting tool would take time, perhaps a generation:

As with any new technology, it will take time, perhaps an entire generation, before these changes have worked their way into all levels of journalism. After all, journalists are, for the most part, wordsmiths [and] not computer “nerds”. Journalists have spent most of their time writing and not crunching numbers or worrying about the electronic “hand-shakes” of modems. Journalists are definitely not computer technicians (1995d: 9).

Summary

Earlier in this chapter, Garrison noted that the world had experienced a digital revolution in the past 20 years which had transformed US society (1998c: 19):

Perhaps most significant was the evolution of the Internet from a specialised network into a mass communication system. The new fourth wave began in 1997 with the growing momentum of the World Wide

He maintained that new ways of gathering and disseminating information would have wide and deep implications for reporters and their editors:

The newsroom continues to experience a radical metamorphosis, but it is occurring rather slowly and, perhaps, imperceptibly, at present. As technological breakthroughs occur, however, including ones as significant as the introduction of the desktop PC almost two decades ago, the changes accelerate geometrically (1998c: 21-2).

The next two chapters show that in Australia, adoption of the Internet reflected this process. In 1997, few journalists on regional dailies had used the Internet as a newsgathering tool, and most knew little about its potential. More metropolitan reporters had used it but the overall adoption level was still low because diffusion was concentrated at one organisation. Chapter 5 demonstrates that by 1999 the number of journalists using the Internet for newsgathering had risen markedly — an indication of the acceleration that Garrison predicted.

Figure 11: Mention of the word Internet in NewsLink 1986-1998

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>0</td>
</tr>
<tr>
<td>1987</td>
<td>0</td>
</tr>
<tr>
<td>1988</td>
<td>1</td>
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<td>1989</td>
<td>4</td>
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<td>1990</td>
<td>2</td>
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<td>1991</td>
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<td>1992</td>
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</tr>
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<td>1993</td>
<td>91</td>
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<td>1994</td>
<td>653</td>
</tr>
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<td>1995</td>
<td>3420</td>
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<td>1996</td>
<td>8697</td>
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<td>1997</td>
<td>12827</td>
</tr>
<tr>
<td>1998</td>
<td>14029</td>
</tr>
</tbody>
</table>

Figure 11 shows that Australian newspaper coverage of the Internet surged from about 1995. A search of the NewsLink database, which houses the full-text archive of almost
every metropolitan daily in Australia from Brisbane to Adelaide, showed that the word Internet was mentioned only 15 times between 1986 and 1992. In 1995 it received 3,420 mentions. By 1998 the figure had increased five-fold, and it was impossible not to be aware of the Internet.

The next two chapters contain the bulk of the results of the research conducted for the first key question in this thesis. Chapter 5 presents a national overview of journalists’ adoption of the Internet via a study of 49 daily newspapers. Chapter 6 adopts a micro perspective by investigating Age reporters’ adoption of the Internet. The Age was one of the best equipped dailies in the country in terms of Internet access, and its owner, Fairfax, provided the most training of any newspaper group. If reporters at The Age were not using the Internet for newsgathering, it was unlikely that their less-endowed colleagues on regional dailies would be doing so.
This chapter provides a macro view of Australian journalists' use of the Internet for newsgathering at 49 daily papers. It looks at two national and 10 capital-city dailies, and then considers the country’s 37 regional dailies plus the national news agency, Australian Associated Press (AAP). Data came initially from a phone study, in mid 1997, of daily papers plus AAP. It was more appropriate to consider AAP among the regional dailies because most of the capital-city dailies could find sufficient local news without AAP copy, but most regional dailies would struggle to fill home news pages without it. In late 1998 and early 1999 a follow-up series of phone calls was made to note changes to the 1997 status. Appendix 1 shows the standardised questionnaires used in 1997 and 1998-99, Appendix 5 lists the chief reporters at Australia’s 50 dailies, and Appendix 7 includes the follow-up instrument used in 1998 and 1999.

This thesis began with the hypothesis that Australia’s “A” publications would be the most likely to provide Internet access for reporters. To recap: Australia’s “A” publications are the national dailies and the dailies in the largest state capitals, while “B” publications constitute the rest. The capital-city publications have more resources and staff than regional dailies so it was likely that they had the potential to introduce basic and intermediate CAR before the regional dailies. In the United States, Garrison noted that large metropolitan dailies were the first to provide Internet access. They were also among the first American newspapers to offer reporters access to commercial online research tools such as Lexis-Nexis or Dow Jones, and the first to build in-house databases. Almost 95 per cent of the newspapers with a circulation of more than 50,000 that Garrison surveyed in 1997 used online research tools and the Internet for newsgathering, compared with 81 per cent of dailies with a circulation under 50,000. The larger papers had an average of 11 full-time staff devoted to various levels of CAR,
compared with an average of four on the smaller papers. Of his national survey,
conducted in 1997 and published in 1998, Garrison concluded:

This study has been exploratory in several ways, but its conclusion that
newspaper size matters in use of computers in newsgathering is useful
towards understanding how computer-assisted reporting fits into the
practice of contemporary journalism (Garrison 1998b U).

Size also matters in Australia. On average — as at July 1997 — three in 10 reporters
on Australia's metropolitan dailies accessed the Web at least once a week compared
with one in 12 regional reporters. With email, one in five metropolitan reporters said
they used it, compared with one in 16 reporters on regional dailies. By April 1999, the
gap had narrowed but was still noticeable. On average, one in two metropolitan
reporters had access to the Web and three in five sent email, compared with one in three
on regional reporters who used the Web and one in four who sent email. Figures 12
and 13 show the data for metropolitan newspapers over the two studies.

Figure 12: Internet use at metropolitan dailies in June-July 1997

<table>
<thead>
<tr>
<th>PUBLICATION</th>
<th>State</th>
<th>No with email access</th>
<th>No with Web access</th>
<th>Number of reporters</th>
<th>% using email</th>
<th>% using Web</th>
<th>Owner</th>
<th>No Web terms in newsm</th>
</tr>
</thead>
<tbody>
<tr>
<td>As at July 1997</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Australian</td>
<td>National</td>
<td>20</td>
<td>10</td>
<td>120</td>
<td>17</td>
<td>8</td>
<td>News Ltd</td>
<td>1</td>
</tr>
<tr>
<td>Aust Financial Review</td>
<td>National</td>
<td>66</td>
<td>26</td>
<td>120</td>
<td>55</td>
<td>22</td>
<td>Fairfax</td>
<td>3</td>
</tr>
<tr>
<td>Sydney Morning Herald</td>
<td>NSW</td>
<td>40</td>
<td>200</td>
<td>240</td>
<td>17</td>
<td>83</td>
<td>Fairfax</td>
<td>150</td>
</tr>
<tr>
<td>Daily Telegraph</td>
<td>NSW</td>
<td>8</td>
<td>6</td>
<td>50</td>
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<td>12</td>
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</tr>
<tr>
<td>Herald Sun</td>
<td>Vic</td>
<td>8</td>
<td>8</td>
<td>245</td>
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<td>3</td>
<td>News Ltd</td>
<td>4</td>
</tr>
<tr>
<td>The Age</td>
<td>Vic</td>
<td>26</td>
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<td>163</td>
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<td>21</td>
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<td>6</td>
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<td>Courier Mail</td>
<td>Qld</td>
<td>3</td>
<td>8</td>
<td>30</td>
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<td>27</td>
<td>News Ltd</td>
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<td>Adelaide Advertiser</td>
<td>SA</td>
<td>8</td>
<td>11</td>
<td>30</td>
<td>27</td>
<td>37</td>
<td>News Ltd</td>
<td>1</td>
</tr>
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<td>Canberra Times</td>
<td>ACT</td>
<td>25</td>
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<td>30</td>
<td>83</td>
<td>93</td>
<td>Rural</td>
<td>15</td>
</tr>
<tr>
<td>The West Australian</td>
<td>WA</td>
<td>5</td>
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<td>57</td>
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<td>9</td>
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<td>1</td>
</tr>
<tr>
<td>The Mercury</td>
<td>Tas</td>
<td>14</td>
<td>6</td>
<td>40</td>
<td>35</td>
<td>15</td>
<td>News Ltd</td>
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</tr>
<tr>
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<td>20</td>
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<td>0</td>
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<tr>
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<td></td>
<td>132</td>
<td>260</td>
<td>523</td>
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<td></td>
<td></td>
<td>1 in 4</td>
<td>1 in 2</td>
</tr>
<tr>
<td>News Ltd only</td>
<td></td>
<td>61</td>
<td>49</td>
<td>535</td>
<td>11</td>
<td>9</td>
<td>9</td>
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<td></td>
<td></td>
<td></td>
<td>1 in 9</td>
<td>1 in 11</td>
</tr>
<tr>
<td>Total metros</td>
<td></td>
<td>223</td>
<td>342</td>
<td>1145</td>
<td>19</td>
<td>30</td>
<td>184</td>
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</tr>
<tr>
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<td></td>
<td></td>
<td>1 in 5</td>
<td>3 in 10</td>
</tr>
</tbody>
</table>


Australia’s national dailies

Sydney is the main media market in Australia. It is the biggest city in terms of population (3.2 million) and headquarters for the country’s three national dailies — *The Australian, The Australian Financial Review* and the *Daily Commercial News*. As explained in Chapter 1, the *Daily Commercial News* was omitted from the research because it is effectively a specialist magazine, and was considered to be outside the scope of this research.

Of *The Australian*’s 260 editorial staff in Sydney — including 120 reporters — 20 senior executives had an email address. About 10 reporters used the Web regularly, as of the first research study in mid 1997. The managing editor, Jeni Cooper, said the number of people who accessed the Web for research was rising “significantly”. The 10 who used the Web regularly had Internet access from a terminal on their desk and

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### Figure 13: Internet use at metropolitan dailies in April 1999

<table>
<thead>
<tr>
<th>PUBLICATION</th>
<th>State</th>
<th>No with email access</th>
<th>No with Web access</th>
<th>Number of reporters</th>
<th>% using email</th>
<th>% using Web</th>
<th>Owner</th>
<th>No Web terms in newsrm</th>
</tr>
</thead>
<tbody>
<tr>
<td>As at April 1999</td>
<td></td>
<td></td>
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<td></td>
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<td>National</td>
<td>120</td>
<td>30</td>
<td>120</td>
<td>100</td>
<td>25</td>
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<td>National</td>
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<td>110</td>
<td>120</td>
<td>92</td>
<td>92</td>
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<td>120</td>
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<td>NSW</td>
<td>200</td>
<td>210</td>
<td>240</td>
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<td>88</td>
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<td>240</td>
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<td>Daily Telegraph</td>
<td>NSW</td>
<td>10</td>
<td>20</td>
<td>50</td>
<td>20</td>
<td>40</td>
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<td>1</td>
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<tr>
<td>Herald Sun</td>
<td>Vic</td>
<td>15</td>
<td>30</td>
<td>245</td>
<td>6</td>
<td>12</td>
<td>News Ltd</td>
<td>5</td>
</tr>
<tr>
<td>The Age</td>
<td>Vic</td>
<td>150</td>
<td>155</td>
<td>163</td>
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<td>200</td>
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<td>28</td>
<td>30</td>
<td>83</td>
<td>93</td>
<td>Rural Press</td>
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<td>1192</td>
<td>62</td>
<td>54</td>
<td></td>
<td>761</td>
</tr>
</tbody>
</table>

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*Note: The data on Internet usage includes reporters who regularly used the Web for research.*
were all senior staff. The managing editor said she hoped all journalists would “soon have immediate access — that is, on reporters’ individual terminals as opposed to shared terminals”. But apart from the senior staff mentioned, the paper had only one Internet-connected terminal in the newsroom available for the rest of the reporting staff, plus two in the library (Cooper 1997 F).

As of April 1999, the paper had 290 editorial staff, of whom 120 were reporters, writers or columnists. They operated from nine Australian newsrooms and nine overseas bureaus but most staff were in Sydney because the paper was produced there. At the end of April, *The Australian* upgraded half of its Cybergraphic terminals from a Unix to a Windows operating system on the Windows NT platform. The paper’s managing editor, Martin Beesley, said this meant those machines had email and Internet access at the desktop: “We gave all our staff [reporters] an email logon and about 25 per cent Internet access.” Almost all of the paper’s 120 reporters received an individual email address, and about 30 had Internet access from their desk. Just before the upgrade, Beesley confirmed that: “We’ll give email access to all on the basis there will be a machine near them that they can use.” After 2000, the paper planned to upgrade the other half of its Cybergraphic terminals. “We are confident the new system is Y2K compliant, but [are] covering ourselves in case it fails” (Beesley 1999 E). As of March 1999, *The Australian* had eight Internet terminals in the Sydney office, and one in each of the other State and territory newsrooms.

I believe all our overseas staff now have Internet access. Use varies — some rounds such as medical and higher education make more use than, say, courts and police. Political rounds seem to be rapidly increasing their use as governments release more reports electronically. I suspect many of our staff are hooked up at home, but that is a matter for them and I don’t know how many (Beesley 1999 E).

*The Australian* received some of its letters to the editor via email and “many” contributed stories. Beesley expected the number of stories would jump “significantly” when all contributors had their own email address. Internet training had operated on a “needs” basis: “If someone finds they need to use it and don’t
know how, they are given training by our IT people, but most are familiar with the
system either from home or other jobs” (Beesley 1999 E).

*The Australian* concentrated on the basic and intermediate forms of CAR. No staff had
spreadsheet or database software on their desktop terminals. In 1996 the paper’s editor
believed that the investigative form of CAR would be adopted in Australia — but
“much more slowly” than had been the case in the United States:

Sophisticated research-based journalism has not been part of the culture in
Australia in the way it has in the United States. Editors have not had the
resources — nor probably the inclination — to pursue long-term and
complicated projects that may in the end produce very little. Apart from a
brief flirt with [British] *Sunday Times* style investigative journalism, Aus-
tralian papers have tended to rely on the dump of documents or the
whistleblower to provide the impetus for investigation. However, times are
changing and editors — certainly this one — are becoming more aware of
the rich pickings in databases. CAR, used sensibly, is a perfect fit for
newspapers. It will enable good newspapers to push the boundaries on
detail and depth, which are the strengths print has over other media. The
to editor-in-chief, Paul Kelly, and I have a commitment to keeping *The
Australian* ahead of the pack (Schmidtke 1996 E).

At *The Australian Financial Review*, about half of the 120 reporters in Sydney had an
email address and one in five used the Web for research, as at the first research period
in mid 1997. All reporters at the paper’s Canberra bureau also had an email address.
The paper’s Web site <www.afr.com.au> showed that the *AFR* Canberra bureau
comprised 12 journalists. Several contributing columnists had email addresses as well.
The paper’s Sydney headquarters had three terminals that allowed reporters to browse
the Web (Walkley 1997 TS). But by mid 1998 almost all reporters had been provided
Internet access from their desks, including staff in the various capital-city bureaus
outside Sydney and the political desk in Canberra. This access included the Web, email
and NewsLink, the online full-text database of previously-published stories (Wright
1998 TS). *NewsLink* is discussed more fully in the next chapter. In essence, it is an
electronic database of copy published in most of Australia’s daily newspapers from
Brisbane to Adelaide, in some cases dating back to 1986. Journalists obtain information
via keyword searching.
Metropolitan dailies

In mid 1997 The Sydney Morning Herald provided an email address to 40 of its 240 reporters as part of a trial for a full roll-out later that year. Previously, only “a handful” of senior staff had Internet access. This 40 apart, about 200 journalists were given access to the Web from their desks. In the previous two years, reporters could only access the Internet from a bank of terminals in the paper’s library, though “most” reporters had surfed the Web at some point and some limited training had been provided (Christopher 1997 TS). The full roll-out was part of a corporate decision by Fairfax — owners of The Australian Financial Review, The Sydney Morning Herald and The Age — to provide Internet access for all staff from their desktop. This included advertising, administration and production as well as editorial. Every staff member received an email address but not all had Web access from their desk. The true figure was about 85 to 90 per cent, because some people never opened their Web browser or sent email (Casimir 1999 TS). (The next chapter discusses these people indirectly, when it talks about their colleagues at The Age in Melbourne.)

Fairfax’s operations manager, Jane Gould — the person responsible for Internet training in Sydney — cited many reasons for the decision to provide the full roll-out. The main reason was that Fairfax had developed its own intranet in 1996, aimed at reducing paperwork and the number of phone calls. This meant that journalists “had become accustomed to online information”. Some reporters were also finding it difficult to get news stories from countries in the northern hemisphere: “Without email, the time difference is too much of a problem” (Gould 1997 E). Some journalists had learned to locate individuals quickly and to gather information via email. They could also get story ideas from the Internet by “interrogating data for trends and information” (Gallagher 1997 E; Gould 1997 E). It’s significant that a major motivation to provide Internet access was a desire to reduce the costs of phone calls by
getting reporters to use email. (This is discussed in more detail in the next chapter, especially in relation to a major cost-cutting exercise — codenamed Operation Hercules — instigated at Fairfax in May 1998 to cut somewhere between $40 million and $50 million from the editorial budget.)

The editor of The Sydney Morning Herald's Online edition, Jon Casimir, noted some increase in reporters' use of online resources after the roll-out. The paper's science and technology writers used the Internet frequently, and had their own dedicated PC: “Increasingly the sports people want to be able to see, say, the London papers online during the Ashes [cricket] tour, and computer writers use it all the time” (Casimir 1997 E). But he repeated an earlier assessment that, by and large, “media people are often the least media literate in society. I still maintain that journalists are almost religiously unwired”. Journalists' use of the Internet was lower than the general level in the community:

To be completely honest, some journalists are hostile towards the Web — they've spent years getting to the positions they're in and they don't want to be told now that the skills they have are not enough. Some embrace it and can't wait to get there. And most are just so overworked that they don't even have time to consider it. [As for the deeper levels of CAR] I would argue that there isn't a media outlet in Australia committed to investigative journalism. They've all been stripped back too much (Casimir 1996 TS).

An associate editor of The Australian Financial Review, Charles Wright, echoed Casimir's assessment: “Journalists are so far behind the community they report that it's not funny.” It was ironic that Australians were significant users of the Internet by world standards, yet the country's journalists were technologically inept: “Journalists appear to have very dissimilar interests to their constituents, which is a sad reflection on the state of the industry” (Wright 1998 TS).

At Sydney's other metropolitan daily, the Daily Telegraph, six of the 50 news reporters surfed the Web “regularly” while eight used their email address “frequently” as of
June 1997. The paper's chief of staff, Michael Cameron, said reporters sometimes used the Web for researching overseas stories. The most recent had been the mass suicide of the Heaven's Gate group associated with the Hale-Bopp comet in San Diego in March 1997. Given the three-month gap between the suicides and the first research study, this suggests that *Telegraph* journalists did not use the Web all that frequently. The paper provided a common email address for reporters, but it was also used for receiving letters to the editor, which significantly reduced the potential for reporters to join and monitor listservs and newsgroups. The *Telegraph* had one Internet-connected terminal in the central area of the newsroom (Cameron 1997 TS).

Cameron was the *Telegraph*'s New York correspondent by the time of the second research study in March 1999. A news desk assistant who preferred not to give her name said “about 20” of the news reporters had surfed the Web at some point, though they were mostly infrequent users. About 10 sent email “spasmodically”. The paper still had only one Internet-connected terminal and all reporters were entitled to use it. But no training had been provided and reporters were expected to work out how to use the terminal themselves (Anonymous 1999 P).

The *Herald Sun* in Melbourne was in a similar situation to the *Daily Telegraph* in Sydney. News editor Shane Burke noted that all of the paper's 80 news reporters had an email address on their business cards but everyone had the same address <hldsun@newscorp.com.au>. In mid 1997 the paper had only one PC with Internet access in the newsroom. The terminal was always busy and reporters had little time to practise online skills. Consequently, even though the *Herald Sun* had about 245 journalists in the Melbourne headquarters, only eight had used email or the Web efficiently for newsgathering. Burke said that the medical roundsperson read electronic editions of medical journals on the Web, and the environment and science reporter accessed journals and press releases via email. At least three others — an industry reporter, an education reporter and a sports reporter — used the Web for research and story ideas.
Some reporters read online editions of overseas publications to find story ideas, and then pursued local versions of overseas stories (Burke 1997 P).

Burke had been News Ltd's Los Angeles correspondent for three years, where he had learned about email, online databases and the Web. He trained reporters who wanted to learn how to use the Web, using what he called a "hands-on" approach. In effect, he showed them the basics and reporters continued from there because of what he called the "intuitive" nature of the browser, Netscape Navigator. Herald Sun reporters had used the Web for researching a handful of news features for major events, such as Pathfinder's landing on Mars. Eight members of the paper's Insight investigative team had been sent on an outside training course about computers but it was "very basic — how to use Windows and a mouse". Three reporters attended an Investigative Reporters and Editors (IRE) conference in the United States in 1996 (Burke 1997 P). The paper had two PCs in the library and another PC in the features area, all with Internet access, making a total of four. But all connections, including the one in the newsroom, were via 28.8-baud modems. The paper's science reporter said they were slow and clumsy, and tended to time themselves out (Owen 1997 TS).

By March 1999, about 30 of the 70 general news reporters at the Herald Sun were using the Web "reasonably regularly" and the paper had five Internet-connected terminals on the editorial floor. About half of those 30 reporters sent email at work while at least 10 surfed the Internet from home and paid for those accounts themselves. Two of the paper's terminals were in the general newsroom, with the rest in private offices "though reporters are entitled to access them". Two were in the offices of the paper's investigative team and two senior columnists shared the fifth. The Herald Sun was converting to the Windows NT version of Cybergraphic and all reporters had to do a three-hour course before gaining access to a new terminal — what the news editor called "Windows 101". An IT lecturer from Swinburne University in Melbourne provided Internet training, along with the news editor. "There's a fair bit of co-teaching
and sharing of resources among reporters” (Burke 1999 E). The paper’s editorial development manager, Chris McLeod, said that all journalists’ terminals at the Herald Sun would be connected to the Internet by late 2000 as part of a News Ltd-wide program (McLeod 1999 TS).

At Melbourne’s other daily, The Age, 26 of the 38 news reporters had email access in 1997, and 34 of them surfed the Web (O’Connor 1997 P). They had access to six PCs in the newsroom. Age journalists were part of the roll-out to all Fairfax staff in late 1997 and early 1998, giving almost every journalist an email address and Web access from a terminal on their desk (Holden 1998 TS). The Age provides an example of the diffusion of innovation at a daily newspaper, and is discussed in the next chapter. As of late 1998 it was one of the richest newspapers in Australia in terms of online resources (Ryan 1998 TS, 1999a: 2).

In Brisbane, eight of the 30 news reporters at the Courier-Mail accessed the Web “almost daily” for newsgathering and research, during the mid-1997 study, and three used email regularly. The paper’s computer and science writer, Rodney Chester, said the investigative team insisted on Internet access when they were established. They used the Australian Stock Exchange database (ASCOT) frequently and the Telstra Web site “probably daily”. Some reporters used ProfNet for finding experts and conducting email interviews, and others went to the Web to obtain extra information after interviewees told them about sites: “Every week reporters here connect to databases to do company searches” (Chester 1996 E). All searching was done from one PC in the library with an Internet connection. The library also had access to more than 50 CD-Roms for specialist information such as medical databases and dictionaries. In 1985 the Courier-Mail’s publisher, North Queensland Newspapers, started a database of all text published in the Courier Mail, the Sunday Mail and The Australian. It was known as QUNIS — Queensland Newspapers Information Services. Reporters accessed it
“constantly” from the Cybergraphic terminals on their desks or via Toshiba laptop computers and modems in the field (Chester 1996 E).

Two years later, only three reporters had email and Web access from their desktop — the computer editor, the motoring editor, and the science & technology editor. The other five reporters who sent email used a Web-based free email account such as Hotmail, or the single email address the Courier-Mail used for accepting email letters to the editor. The paper’s literary and features editors received freelance book reviews and features this way. Some reporters had Internet connections at home that they paid for themselves (Chester 1998 TS).

In Adelaide, chief of staff Nigel Hunt said that “about a quarter” of the 30 news reporters at the Advertiser used email for newsgathering, and almost all reporters used the Web for newsgathering. But he did not know what software was used, and expressed his distaste for computers: “I hate the things; can’t help you there” (Hunt 1997 P). He was ill informed about the level of technology skills at the paper. The Advertiser’s editorial systems manager, Rob Klima, knew more about what was going on: The paper had “several” email accounts through OzEmail for receiving letters to the editor and press releases. Most reporters had not taken advantage of the option to send email, as of the 1997 study. The 11 reporters who surfed the Web regularly and the eight who sent email were “largely self taught”. They had access to only one Internet-connected PC in the newsroom. Technical staff used another three Internet-connected terminals elsewhere in the building. Klima said the paper’s computer staff had taught a handful of reporters how to browse the Internet, and they had passed on their knowledge to colleagues. Reporters favoured the Web more than email because of the colourful screens and the simplicity of the Web’s icon-based navigation system. A handful of reporters had Internet access at home and all were self-taught. All reporters had access to PressCom — an electronic database of previously-published material similar to NewsLink — via the Cybergraphic terminals on their desks. Reporters often
copied and pasted from PressCom into the stories they were writing. Australian businesses also subscribed to PressCom (Klima 1997 P).

By March 1999, the situation had changed radically at the Advertiser. In late 1998, 124 journalists' terminals were connected to the Internet “although not all journalists have accounts allowing them to do so” (Klima 1999 E). This applied both to the Advertiser and the Sunday Mail. Reporters accessed the Internet on the Cybergraphic system:

These terminals run Windows NT4 with Internet Explorer version 4 as the browser. They have access to the Advertiser Newspapers’ intranet, the News Ltd national intranet and, via a firewall in Sydney, the Internet. There are another 100 terminals running [the] Unix [operating system], which are not capable of accessing the intranet or Internet. They are scheduled to be upgraded to NT4 next year [2000] (Klima 1999 E).

The Internet-connected terminals were located in all departments — news, sport, features, finance and supplements. All journalists using the Windows-based NT4 network had access to the PressCom library archive, News Ltd’s library archives and an electronic form of Hansard, plus the organisation’s style book and company information via the intranet (Klima 1999 E). Of the 77 reporters and writers at the Advertiser, 39 journalists and editorial assistants had Web access. (Another 15 on the Sunday Mail had individual connections but they were not included in the research data.) Editorial assistants or staff in the editorial systems area helped journalists who needed to search the Internet but who did not have an individual account. As well, 64 journalists and editorial assistants had individual email accounts. The paper’s sections also had generic email accounts for receiving letters to the editor, images for the pictorial and artists’ departments, along with crosswords, comics and racing data.

There are also generic email addresses for each paper for contributors’ stories, press releases and general information to journalists. Messages sent to these mailboxes are transferred to desks in the Cybergraphic system where they can be accessed by all journalists (Klima 1999 E).

Many reporters had used the Internet for newsgathering “at some time”:

This may have been a one-off need to look for a document on a government site or get more information from a site mentioned in a press release. There are probably 10 who could be considered heavy users of
the Internet for researching stories and keeping up with their fields, such as technology, arts and motoring (Klima 1999 E).

The only formal training provided for using the Internet was as part of an introductory course on the Windows NT4 operating system provided to all staff: “This is a basic introduction to Internet Explorer version 4.0 and not specifically about Internet reporting” (Klima 1999 E). Journalists used a browser interface to access the library archives, so they were familiar with the concept of browsers. Editorial systems staff had produced hand-outs on how to use search engines and had compiled a series of suggested bookmarks: “Staff with email accounts are given a half-day training in using Microsoft Outlook [an email package]” (Klima 1999 E).

In Canberra, all of the 30 reporters at The Canberra Times had used individual email addresses for more than a year, as of the 1997 study. Chief of staff Mark Metherell was too busy to discuss details on the phone, regardless of when I called back. The editorial assistant who provided the information was reluctant to divulge the email addresses because most reporters were concerned they would be “bombarded” with press releases: “PR companies are keen to get reporters’ email addresses”. The paper had separate email addresses for receiving letters to the editor <letters.editor@canberratimes.com.au> and freelance features material <features.editor@canberratimes.com.au>. Most reporters had the capacity to surf the Web, but the actual number could not be quantified (Bliss 1997 P). The paper’s editorial technology manager, Peter Knight, said The Canberra Times had 15 terminals in the newsroom that could provide Web access, and a total of 40 throughout the building. Most reporters knew how to use email because they had laptops for when they were on the road or worked from home, but most sub-editors did not use email. Almost all of the 30 reporters used the Web for research and sent email, though some were “more technologically aware than others” (Knight 1997 P).
In Perth, five of The West Australian's 57 news reporters regularly used the Internet as of mid 1997 (Winterton 1997 P). These included the medical reporter, the state political reporter, the technology editor and the paper's communications writer. The last, David Utting, said that reporters had access to the Internet via one terminal in the newsroom, but few used it regularly because most did not know how to operate the browser. Others were put off because there was no printer attached to the terminal. These journalists preferred working from hard copy (Utting 1997 P). One former reporter, Nathan Cochrane, said "a handful" of reporters used the Internet as a newsgathering tool but mostly from home (Cochrane 1998 TS). A junior reporter who joined The West Australian from university in 1994, Shaun Anthony, said he felt as if his paper was being "left behind". His main access to the Internet was from home:

Since I joined CARR-L [the email list for people interested in CAR] and some other newsgroups over a year ago I have been intrigued by the kind of work they are doing in the United States. It [CAR] seems to be standard fare for papers right across the spectrum there but I hear almost nothing about it here in Perth. I am still waiting for practical Internet access and email at work (Anthony 1997 E).

The situation had not changed much by February 1999. The paper had one Internet terminal for reporters in the newsroom, and another in the library. The editor, deputy editor, chief of staff, night editor, foreign editor, computer writer and several senior sub-editors had Internet access from their PCs. But most reporters did not. The paper had one Internet-connected terminal in its Canberra bureau, which four reporters shared. Most Perth-based reporters used the two available terminals "occasionally" but only a few made "extensive" use of it. About 15 of the reporters surfed the Web and sent email: "A lot of people make more use of Web email, such as Hotmail, than they do Web sites" (Anthony 1999 E). Almost 200 reporters, sub-editors, cartoonists, designers and photographers were employed at The West Australian but no training was provided for using the Net:

There is some way to go before the equipment we have allows us to use the Internet to its full potential. I find myself using the Internet a lot, particularly when reporting on the Federal Government [in Canberra] which makes extensive use of the Net to publish reports and statistics, but
the fact it is not integrated with our desktop terminals makes it time consuming and much less efficient (Anthony 1999 E).

This is an example of how the variables of convenience and complexity, outlined by Rogers, influenced adoption of innovation. Reporters were more likely to adopt the Internet if it was integrated onto the desktop (convenience), just as reporters adopted the telephone more readily once it became available on their desks. Without training, technology can appear more complicated than it really is.

In Hobart, the *Mercury*’s day editor, Ross Gates, estimated that about six of the paper’s 40 reporters used the Web regularly, and about another 14 used email “spasmodically” for newsgathering, as at mid 1997. He had taught most of them the basics, after attending an adult education course on the Internet at the end of 1996. “Younger reporters” tended to “catch on quickly” because many of them had acquired technology skills at school. Gates related an anecdote of the arrival of the US aircraft carrier Kittyhawk into Hobart in May 1997. The *Mercury* planned to run several pages to mark the arrival but could find only a limited amount of information and a small number of photographs. A reporter found the Kittyhawk’s Web site and located “heaps” of information. The paper ran five tabloid-sized pages on the visit, including photographs it downloaded from the Kittyhawk site. The paper’s library had been storing home news electronically since 1991, and journalists accessed these stories from a dedicated terminal in the newsroom. It planned to make these files available on the Cybergraphic terminals on journalists’ desks, but no date had been confirmed. The paper received press releases via email and these arrived in a basket in the Cybergraphic system. The *Mercury* was also looking at introducing an intranet provided by the parent company, News Ltd (Gates 1997 P).

By early 1999, the same core group of half a dozen reporters used the Web for newsgathering and about 15 sent email. The *Mercury* had boosted its number of
Internet-connected terminals from one to five, though only two were available to reporters in the newsroom. The others were on the desks of the editor, deputy editor and day editor. Reporters used the Internet more than they had “when last we spoke” because of the increased amount of government information available online. For example, one of the state political reporters had located an important document on the state government’s Web page and the day editor had downloaded it and moved it into the paper’s Cybergraphic system: “We should find a lot more use of the Internet once we convert to the Windows NT version of Cyber in the next year” (Gates 1999 P). No formal training had been provided, and reporters tended “to teach each other” or attend a course at university or TAFE, which they funded themselves. “Some of the reporters have their own Hotmail email accounts.” Only senior staff had access to the News Ltd intranet, based in Sydney (Gates 1999 P). This is another example of the influence of convenience and complexity on the adoption of technology.

In Darwin, none of the 20 reporters at the Northern Territory News accessed the Web or email from the newsroom as of mid 1997. The paper had one PC in the computer services section in another part of the building and journalists had to ask permission to use it, which was “too complicated a process for journalists on a daily paper to bother about” (Scott 1997 P). Four or five reporters accessed the Internet from home, but all paid for their own accounts (Del Nido 1997 P). One reporter who preferred anonymity said he surfed “almost every night” looking for story ideas and information, but most was for freelance work, which paid for his Internet connection at home.

The News’s chief of staff, Greg Thompson, said the situation had changed a little by February 1999, with three of the paper’s 20 reporters using the five Internet-connected terminals in the systems area. There were still no Internet-connected terminals in the newsroom. One reporter surfed the Web for documents and the other two sent email. Four reporters had Internet connections at home that they paid for themselves. No Internet training had been provided, and none would be until the terminals in the
systems area were moved into the editorial area. The paper had one email address for receiving press releases and letters to the editor but journalists "guarded" the actual address for fear of its getting into the wrong hands: "We throw away nine out of 10 fax messages every day and we don't want the same level of rubbish coming to us from email" (Thompson 1999 P).

Summary

Four groups controlled the two national and 10 capital-city dailies considered during the time frame for this research. Rupert Murdoch's News Limited owned one national and six capital-city dailies while Fairfax owned the other national and two of the capital-city dailies. West Australian Newspapers and Federal Capital Press each owned one capital-city daily. Clearly, News Limited and Fairfax were the major players. Figure 12 on page 127 shows that, as of July 1997, an average of three in 10 capital-city reporters accessed the Web from work, and an average of one in five sent email. When considered by ownership, News Limited was the less generous of the big two employers, with an average of one in 11 reporters given Web access and an average of one in nine able to send email. This was well below the average for all metropolitan papers, and especially significant given that News Ltd employed 58 per cent of all metropolitan journalists. Fairfax employed 34 per cent of all metropolitan reporters at that time. At Fairfax, the average for Web access was one in two, and one in four for email access — clearly showing that Fairfax was the innovator when it came to providing technology for staff.

By April 1999, most metropolitan newspapers provided Internet access to reporters. When Rural Press purchased The Canberra Times from Kerry Stokes for $160 million in August 1998 all reporters already had Internet access. West Australian Newspapers, owners of the Perth daily, provided Net access to about a quarter of reporters. At News Limited, the policy of providing access only to selected senior journalists had changed — by late April of 1999, an average was one in five reporters
had Web access and two in five could send email from the desktop. (See Figure 13 on page 129.) The biggest increase was at Fairfax, where almost nine out of 10 reporters had Web and email access from their desktop. Compared with regional newspapers, metropolitan daily reporters had significant access to the Internet.

Research and anecdotal evidence in the United States indicated that management willingness to provide technology and training played a significant role in determining journalists' access to, and subsequent use of, the Internet for newsgathering (LaFleur 1998; Garrison 1995d; Houston 1996; Johnson 1998b; Miller 1998). The Fairfax management's decision to provide almost blanket Internet access from the desktop had a significant impact on reporters' potential to use the Internet for newsgathering. (This is discussed in Chapter 6 with specific reference to *The Age* in Melbourne.)

**Capital-city versus regional dailies**

The gap in Internet adoption between capital-city and regional dailies — extremely wide in mid 1997 — had narrowed by early 1999 but was still noticeable. The 1997 data for regional dailies showed that on average, one in 16 sent email and one in 12 reporters used the Web. Twenty-one months later the situation had improved to the point where one in four sent email and one in three accessed the Web. Figure 16 on page 184 shows the frequency of Internet use at regional dailies as of mid 1997 while Figure 17 on page 185 displays the situation as of April 1999.

One major change between the two studies for regional dailies was the increase in the number of papers with an email address and at least one Internet connection. In mid 1997, only 35 per cent (13 out of 37) had a publicly-available email address or a terminal connected to the Internet. By early 1999 the number of regional dailies with a publicly-available email address had more than doubled to 89 per cent (33 out of 37), and all of the 37 had at least one Internet-connected terminal in the newsroom. Data came from the Pacific Area Newspaper Publishers' Association (published in the

**Australia’s regional dailies**

Australian Provincial Newspapers (APN) was the largest of the eight corporate groups and six independent families who owned Australia’s 37 regional dailies. APN controlled 13 papers — nine in Queensland and four in New South Wales. Rural Press owned seven and had a half share in another, the Launceston *Examiner*. Fairfax and News Ltd each owned three regional dailies and Independent Newspapers Limited (INL) of New Zealand controlled two. News International, the parent company of News Limited, owned 49 per cent of INL.

West Australian Newspapers controlled the *Kalgoorlie Miner* and the Barrier Trades and Labor Council owned the *Barrier Daily Truth* in Broken Hill. Finally, a group which could loosely be described as “independents” owned another six and a half papers. These were mostly family-based organisations and included the Harris family, which owned the Burnie *Advocate* and the other half of the Launceston *Examiner*. The two major metropolitan newspaper groups, News and Fairfax, each owned 43.4 percent of AAP Information Systems, which controlled AAP (Patrick 1999: 3).

**Large regional dailies**

Media commentators suggest that Australia’s regional dailies fall into two distinct groups. A former president of the Pacific Area Newspaper Publishers’ Association (PANPA), John Tidey, concluded that three of the 37 regional dailies could be seen to be in the same category as the metropolitan dailies, in terms of editorial prestige and circulation. They are *The Newcastle Herald*, the *Illawarra Mercury* and the *Launceston Examiner*. The first two have the highest circulation of any daily in New South Wales outside Sydney; The *Examiner* has the highest circulation of any paper
outside the capital in Tasmania (Tidey 1998). These three papers are considered before the rest.

As of June 1997, none of the *Newcastle Herald*'s 36 reporters used email or surfed the Web from the office, though a "handful of the younger reporters" accessed the Internet from home. Most reporters used the NewsLink electronic library service — the paper had one terminal in the library and four in the newsroom (Watson 1997 P). During the June 1997 study, the paper said it was testing an Internet-enabled terminal for possible connection, though management was concerned that reporters would "goof off" and waste time on the Web.

The *Herald* got connected late in 1997. Editorial technology manager Tony Pollock said that as of late 1998 the paper had two Internet-enabled terminals in the library, with another on his desk. About 10 of the paper's reporters searched the Web for information and six regularly sent and received email. These tended to be younger reporters who "grew up with technology" or acquired the skills at university. Most had home accounts before the paper acquired its Internet connections (Pollock 1998 P). Reporters still preferred the NewsLink database of stories, though the fact that the paper had 12 terminals in the newsroom for NewsLink access compared with two Internet terminals in the library probably influenced their choice.

The *Herald* used the Australian Electoral Commission's home page extensively during the 1998 federal election, downloading electorate maps which had "saved the artists hours of work". A reporter had also produced a popular feature comparing cities around the world with the name Newcastle, by searching for relevant Web pages. According to Rogers, convenience is a significant factor in determining people's adoption of innovation. For a busy reporter, a large number of terminals in the actual newsroom was more attractive than a small number of terminals in another part of the building. Rogers noted that one sub-dimension of relative advantage included a saving
in time or effort (1995: 216), which certainly applied in the case of the electoral maps. A “tiny proportion” of letters to the editor arrived by email — “an average of two a day” — since the paper advertised an email address for letters when it converted to tabloid format in July 1998. The “limited” training on using the Internet had come from one of the three library staff (Pollock 1998 P).

In Wollongong in mid 1997, the editorial technology manager at the Illawarra Mercury, Grahame Fothergill, said that five people at the paper had access to the Internet but none was a reporter. If a reporter wanted to send email or search the Web, they had to go through the Macintosh terminal on his desk because other Internet connections were on the desks of editorial managers. The paper received email letters to the editor via that terminal. Another Internet-capable terminal, a PC, was located in the data-processing area, which the two technical staff used. Fothergill said he provided basic Internet training to any of the paper’s 50 journalists (including 25 reporters) who wanted to learn but as of the 1997 study only “a handful” had asked and none used it regularly. He printed replies to email and delivered them to reporters (Fothergill 1997 P).

By February 1999 the paper had a dozen Internet-connected terminals in the building and access was available to all 25 reporters, with perhaps a dozen using the Web for newsgathering. All reporters at the Mercury had email and used it “regularly”. “Reporters don’t have Web access at their own terminals because they have roving log-ons. Their user preferences travel with them to any terminal that they log-on at around the building.” The Internet had “definitely become more popular” compared with the earlier inquiry. Several reporters used the Web to email stories from home and other external sites: “These people generally use the Web more than others who are not as Web wise.” The extent of training was still “minimal” — he described it as “basically none”. Fothergill noted: “It seems that if someone wants to use the Net,
they just do it. If in doubt at any time, their peers seem to sort things out fairly rapidly. Systems people get involved only when asked, and that is rare (Fothergill 1999 E).

In Launceston, the Examiner’s editorial manager, Julian Burgess, said none of the paper’s 20 reporters used the Web or email, but the paper had been accepting letters to the editor via email since 5 June 1997. The email address was <admin@examiner.com.au>. One terminal in the sub-editors’ area had an Internet connection and it was used for downloading photographs and weather maps. A handful of senior managers had an email address but they did not use it for newsgathering. No decision had been made on whether to introduce the Internet to the newsroom (Burgess 1997 P).

By February 1999 the paper had 10 Internet-connected terminals, with five in the editorial area, though those terminals were not on reporters’ desks. Burgess said “most” of the paper’s 20 reporters used the Web for newsgathering at some time during each week and about half sent email: “Because reporters do not have access at their PCs few use email. Web usage is on a demand basis.” About half the paper’s reporters accessed the Internet from home. Training was provided by senior editorial staff, supplemented by specific on-site instruction (Burgess 1999 P).

Summary

The Newcastle Herald and the Illawarra Mercury were both Fairfax subsidiaries, which suggested that Fairfax’s technology policy had spread, at least in part, to their regional dailies. By early 1999 all three of the prestige regional dailies noted a considerable increase in the number of reporters using the Internet; the big difference compared with metropolitan dailies was the lack of access to the Internet from reporters’ desks. Based on Rogers’ theories relating to the diffusion of innovation because of the convenience variable, it was arguable that more reporters would have tried the Internet if they had had access to technology from their desks. Average usage at the Web at these papers — one in three — was about the same as the average for all
regional dailies. About two in five sent email, which was slightly better than the average for all regionals.

The rest of this chapter looks at the remaining 34 regional dailies. These were grouped via owner to ascertain whether it was possible to draw any conclusions about the relationship between the provision of Internet access, training and management approaches to technology.

**Australian Provincial Newspapers**

APN is the largest of the regional newspaper groups with 13 dailies — nine in Queensland and four in New South Wales. In Bundaberg in Queensland, two of the seven reporters at the *News Mail* used email for newsgathering and four searched the Web for research as of the mid 1997 study. The paper had one Internet-connected terminal in the sub-editing area used for a variety of purposes, including receiving email letters to the editor <newsmail@bl30.aone.net.au> and press releases. Sub-editors used the terminal to access weather data from the Meteorology Office and to download photographs. The paper had offered no Internet training because “a monkey could learn how to use it [the Web browser]” (Makim 1997 P). By 1999 the paper had an email address for editorial contributions <nmeditor@ozemail.com.au>. Editor Rod Rehbein said none of the nine reporters used the Internet “regularly” but “a handful used it very rarely”. The paper had one Internet-connected terminal in the sub-editors’ area. One part-time reporter, who left at the end of March, surfed the Internet from home. A “handful” of journalists had attended a training course run under the Regional Journalists’ Education and Training (RJET) award. The editor described the course as being of “dubious value” (Rehbein 1999 F).

In Gladstone, chief of staff Christian Dahl said none of *The Observer’s* seven reporters used email for reporting, but two surfed the Web for research. The paper had two Internet-connected PCs in the computer services area, on the same floor as editorial but
more than 50 metres from the newsroom. Reporters had to access the Web from those PCs. The chief of staff did not know the paper’s email address and did not know how to use the technology. All training came from the computer technicians (Dahl 1997 P). By 1999 *The Observer* had a dedicated email address for the editorial area <newsroom@intertain.com.au> and one of the Internet-connected terminals had been moved to the newsroom. But none of the six reporters used the Web or email for newsgathering — at work or at home — and no training was provided. Chief of staff Michelle Wagner said the paper received stories via email and photographs attached to emails “but we do not have the staff to research stories on the Net” (Wagner 1999 F).

In Ipswich, deputy chief of staff Mark Strong at the *Queensland Times* said four of the 12 reporters and the editor used the Web and email for newsgathering on the paper’s one terminal, which was also used to download photographs. With time, more reporters would become proficient: “The levels vary. Some use it more than others, and some are more able than others.” The paper had an Internet connection because the editor appreciated technology: “The editor is keen on obtaining feedback on stories and issues from the public.” The paper received press releases and letters to the editor via email <qt@ipswich.gil.com.au>, and members of the public connected to the Glocal Information Link (GIL) network, sponsored by Ipswich City Council, often sent story ideas to the paper. Reporters used email for monitoring specific news issues, and for obtaining information about prominent local people such as Pauline Hanson. At the time she was the local MP, so the paper’s political editor monitored the official and unofficial Hanson Web pages. Local police were members of the GIL and used it to network and communicate with the media. People seemed more willing to communicate via email, whereas in the past they would not talk to the media: “They seem to feel as though they’re more in control of the material they’re presenting when they use email” (Strong 1997 P).
This introduces an interesting aside. In his book *Politics on the Nets*, Wayne Rash Jr discussed ways in which American politicians were using the Internet and other computer-based resources to bypass journalists. One of the most persistent themes Rash encountered among the politicians he interviewed was the desire “to get information to voters without a filter” (Rash 1997: 63). Many candidates said the unfiltered access to voters was “the most compelling reason of all to take to the nets. Their word gets out as they intended, without the interpretation of the media” (68). This is an interesting development that deserves further research.

As of April 1999, the *Queensland Times* had seven Internet-connected PCs on a network in the newsroom and three of the 12 reporters were “regular” Web searchers. Seven of the others were “irregular” users. Few reporters sent email but the paper received press releases and letters to the editor via email. Two or three reporters had an Internet connection at home. Deputy editor Sue McVay said editor Mark Hinchliffe was “pro-active” when it came to technology and described the paper as “one of the more switched on regional dailies I’ve worked on”. Hinchliffe planned to provide the Internet on all desks and actively encouraged reporters to use the Web. No training was provided because most regular users “already had the skills” and they tended to “tag up” with new users (McVay 1999 P).

In Mackay, the chief of staff at the *Daily Mercury*, Charlie Payne, said one of his 23 reporters — the paper’s computer reporter — used email and the Web for newsgathering during the mid 1997 study. Payne was unable to talk about the Internet because he said he knew nothing about it: “Our computer writer is the only person who knows how to use the email address or the Web” (Payne 1997 P). The *Daily Mercury* was one of the few Queensland dailies with an email address in 1997 <dmercury@ozemail.com.au>. The number of Internet-connected terminals had trebled by April 1999 but the same number of reporters — one out of 23 — used the Internet for newsgathering. Two of the terminals were in the newsroom and the other was in
editorial reception. No reporters accessed the Internet from home and no training was provided (Payne 1999 F).

The Fraser Coast Chronicle in Maryborough did not have an Internet connection as of July 1997, so none of the paper’s 20 reporters used the Internet. Senior reporter Jim Martin said two sub-editors paid for their own connections at home (Martin 1997 P). By early 1999, the situation had not changed much: one of the reporters used the Web for research and sent email. The acting chief of staff, Ian Short, said the paper had two Internet-connected terminals in the newsroom and an editorial email address <contrib@coastnet.net.au>. No training was provided (Short 1999 P).

At Maroochydore, the chief of staff of the Sunshine Coast Daily, Susan Hetherington, said two of the paper’s 20 reporters accessed the Internet, but from home. The pair paid for their connections because they had a particular interest in computers. The rest of the reporters did not use the paper’s two Internet-connected terminals, which were mostly a vehicle for receiving press releases (Hetherington 1997 P). Only eight of the 20 operated from the paper’s main office in Maroochydore; the rest were based in satellite offices that were not connected to the Internet. By April 1999 the number of reporters who researched with the Web had risen to six, and those same six reporters also sent email. Chief of staff Sean Waddington said the paper’s email address was <edemail@a1.com.au> and it had two Internet-connected terminals in the newsroom. At least two reporters had an Internet connection at home (Waddington 1999 P).

APN’s group editorial co-ordinator, Greg Swain, was based at the paper’s Maroochydore office and was available to train reporters. In a separate reply via email, Swain said all eight reporters at the Maroochydore office used the Web and email for newsgathering, though they preferred using the Web “because it was easier”. Three researched from home: “The newspaper also receives almost all columns for the daily and the large stable of community weeklies, large number of real estate editorials and
remote site spot news coverage through email.” He concluded that daily reporters were “yet to fully tap into the Internet as a research vehicle”. The major obstacle was the lack of available equipment “due to predominant usage of work stations for mass production of paginated pages [which] severely restricts [their] availability to reporters”. He noted that this was the case “at all 13 APN newspapers”. He had trained reporters and sub-editors using a Web page <www.ozemail.com.au/~newslink>” he had constructed:

CAR is the best way to go in the future and perhaps my modest reporter assistance site is a little ahead of its time for Australian regional daily journalists, but at least the infrastructure is now in place. I’d love to see Internet-connected work stations for all reporters in our group, but the reality is that our front-end systems for reporters are Atex and SII. The paginating Macintosh terminals across the APN newspapers group are thrashed pretty heavily by page designers, leaving little time for reporters to use them, though wherever I can I am setting up Internet-connected work stations strictly for reporters. It’s a slow battle but one I’m committed to. Fortunately there’s a lot of development work occurring within the APN group on Internet/intranet and editorial will be able to ride on the back of those developments (Swain 1999b E).

Swain noted that Internet-connected work stations would become available for all APN reporters, group-wide, before the end of 1999. But that still left the problem “of trying to educate local editors and chiefs of staff that CAR is worth travelling with”:

Many of them are either still harbouring fears about the Internet in terms of perceived productivity losses or haven’t taken the time to explore and learn how it can speed and improve our newsgathering capabilities. Educating local management is perhaps even more important than [educating] reporters on efficient Internet usage. Without a commitment by management to CAR, the wheels will fall off (Swain 1999b E).

In Rockhampton, the deputy chief of staff at the Morning Bulletin, Mike Rutherford, said none of the paper’s 12 reporters used the Internet for newsgathering, as of mid 1997. But the paper had an email address for receiving letters to the editor and contributed material <tmbully@ozemail.com.au>. Reporters were “not active” in their relationship to the Internet as a newsgathering tool (Rutherford 1997 P). The paper’s systems supervisor, Paul Blanchfield, confirmed that reporters did not use the Internet. He had shown four reporters how to use search engines that year, but their visits had
been "spasmodic" despite his willingness to show them. The paper had two Macintosh terminals — one in the newsroom and another in the computer services section (Blanchfield 1997 P). The University of Central Queensland, which was based in the city, had sent that year’s graduation results via email: “It’s more efficient than using floppy disks for large volumes of information” (Rutherford 1997 P). By February 1999, three of the Morning Bulletin’s 10 reporters occasionally used the Internet for newsgathering, and the paper had quadrupled the number of Net-connected terminals in editorial to four. Rutherford said most of the time reporters used the email facility. Training was provided internally: “Staff train other staff”. Three reporters also surfed the Internet from home, and paid for access themselves (Rutherford 1999 E).

At the Toowoomba Chronicle, editor Steve Keating said three of his paper’s 18 reporters used email and the Web, admitting that: “We’ve been slow here to take it up”. The main use for the Web was finding information for a motoring supplement that the paper produced each week (Keating 1997 P). By March 1999, 10 of the 21 reporters were using the Web for newsgathering “though not every day”. The Chronicle had one Internet-connected terminal in the newsroom, a Macintosh, which was used to receive email letters to the editor and photographs. The paper’s email address was <toonews@ozemail.com.au>. Said Keating: “More reporters would use the Net if we had more terminals.” Training was provided via the Regional Journalists’ Education and Training (RJET) award, as part of a subject called “information gathering”. Staff either attended the local university, the University of Southern Queensland, or went to Queensland University of Technology in Brisbane (Keating 1999 P).

In Warwick at the Daily News, acting chief of staff Lyn Irwin said none of the paper’s seven reporters had access to the Internet because the paper did not have a connection, though one sub-editor was connected from home. She described him as a “boffin” but he did not use the Web for reporting (Irwin 1997 P). By early 1999 the paper had an
email address for receiving letters to the editor and other contributions <wdn-edit@flexi.net.au> but the situation was unchanged regarding journalists’ online newsgathering habits: “We’re still in the dark ages here.” The paper had two Internet-connected terminals but none of the eight reporters used them for reporting, and none had an Internet connection at home. The paper had offered no training in how to use the two terminals (Irwin 1999 P).

In Coffs Harbour in New South Wales, none of The Advocate’s eight reporters could access the Web or email at work because the paper did not have an Internet connection — though the paper’s editor had an Internet connection at home. Chief of staff Graham Holdstock had a connection at home that he paid for it himself and used for freelance work. The paper had no plans to make an Internet connection available to reporters, as of the June 1997 study (Holdstock 1997 P). By early 1999, the paper had an email address <advocate@key.net.au> on its one Internet-connected terminal. Editor Howard Spencer said that five of the paper’s 12 reporters used the Internet for newsgathering — though “90 per cent of the time it’s for email”. No training had been provided (Spencer 1999 E).

In Grafton, none of the six reporters at the Daily Examiner used email or the Web, and in June 1997 the paper had no plans to get connected. Chief of staff Lauretta Godbee said any decision would probably come from APN’s management in Brisbane. One reporter and one photographer had Internet connections at home, which they funded themselves (Godbee 1997 P). By February 1999, the paper had two Internet-connected terminals in the advertising area, which editorial staff were allowed to use. All six reporters had surfed the Web “on occasion” but few, if any, sent email because of “technical problems” — most could not understand the system. No training had been provided but some formal instruction was “under consideration”. The same two people discussed in the 1997 study still had Internet connections at home (Godbee 1999 P).
In Lismore, three of the *Northern Star*’s 15 reporters used email and the Web for newsgathering but as of the June 1997 study the other reporters had yet to be trained. Acting chief of staff Peter Ellem said a “computer expert” from Sydney had trained some staff “but she was not a journalist”. The paper used email to receive letters to the editor and copy from freelance contributors <staredit@nor.com.au>, and to share copy between publications in the APN group. All six of the paper’s sub-editors had been trained to search the Web for information, and two were regular users. The paper had one Internet-connected terminal near the sub-editors’ desks (Ellem 1997 P). The same three people continued to surf the Web and send email in April 1999 and the paper had increased the number of Internet-connected terminals to three. The terminals were on the editor’s desk, on the desk of the chief of staff and in the sub-editors’ area. These three also accessed the Internet from home and paid for their connections. The training that had been discussed 21 months earlier still had not happened “though we’re still taking about it” (Ellem 1999 P).

In Tweed Heads, none of the 20 reporters at the *Daily News* used the one Internet connection as of June 1997. The paper had an email address for accepting letters to the editor <dnews@onthenet.com.au> via a terminal in the editor’s office. Former management staff at the paper had been anti-technology and preferred not to use email: “Phone and fax are the preferred ways of accepting information here” (Feliu 1997). The situation had not changed by April 1999. The paper’s chief sub-editor, Brian Sutton, said none of the 10 reporters accessed the Web though one occasionally sent email. The sub editors used the one Internet-connected terminal to download photographs from News Ltd: “The reporters are only interested in local news here and can’t see any benefit from using the Web.” None of the reporters accessed the Internet from home and no training was provided for using the terminal, which was located in the sub-editors’ area (Sutton 1999 P).
Summary

As of mid 1997, reporters on seven of the 13 APN dailies had never used email or the Web for newsgathering from work. This was because those papers did not have an Internet connection, or the journalists did not know how to use the technology, or they had no desire to do so. The number of Internet connections was significantly small: Five of the papers did not have a connection; six had one terminal; and only two had two terminals in the newsroom. Thirteen of the 173 reporters on all APN papers had used email, an average of about one in 14. Seventeen of the 173 reporters had used the Web for research or newsgathering — an average of one in 10. Both averages were slightly better than the overall average for regional dailies of one in 16 for email and one in 12 for Web usage. The *Queensland Times* was the main influence, because the four online reporters on that paper represented almost a third of the 13 reporters who used email and almost a quarter of reporters who were Web aware. The *Times*’ chief of staff acknowledged that the editor’s interest in technology drove the paper’s entry onto the information highway. This again suggested that without management support and approval, Australia’s regional journalists were unlikely to extend their newsgathering skills into cyberspace. Six of the 173 reporters employed at the newspaper group had an Internet connection at home, which suggests that only a small number visited the highway in their spare time.

The situation had changed by April 1999. Thirty three of APN’s 167 reporters sent email and 48 went on the Web at least occasionally, which represented an average of one in five for email (20 per cent) and one in three for the Web (29 per cent). This compared reasonably favourably with the national average for regional dailies. All of the 13 APN regional dailies had at least one Internet-connected terminal in the newsroom — the numbers ranging from one to seven, with an average of 2.5 per paper. Many of the terminals were still used to collect email contributions or download digital pictures. Training was minimal in the editorial area, though APN’s annual report for 1998 noted that the company had “continued its heavy investment in training for local
advertising departments" (Steinke 1998: 14) which showed where APN's priorities lay. The group editorial co-ordinator admitted he was "still trying" to make editors and chiefs of staff aware of the Internet's potential.

**Rural Press**

As of mid 1997, Rural Press owned five regional dailies in New South Wales, one in Queensland, one in Victoria and half of a daily in Tasmania. In September 1998 the group purchased *The Canberra Times* for $160 million, and that paper is regarded as the group's flagship. (It is discussed in the earlier section covering capital-city dailies.) In Bathurst in New South Wales, none of the seven reporters on the *Western Advocate* used email or the Web for newsgathering and the paper did not have an Internet connection as of June 1997. Chief of staff Brian Wood said the paper planned to get connected "probably in the next year" but he could not be more specific because it was a management decision, and he described the manager as "computer illiterate". One reporter was familiar with the Internet because she had been a journalism student at Charles Sturt University and she sometimes returned to the university to search the Web. But she was the only reporter who knew how to access the Internet. A journalism academic had shown staff how to do Web searches in 1996, and this had prompted some discussion about the Internet. But it had also highlighted the "clash" between the availability of training and the lack of technology (Wood 1997 P). By early 1999 the paper had obtained an Internet account and had an email address for receiving freelance contributions and letters to the editor, and to download photographs <western@ix.net.au>. But none of the seven reporters used the two terminals in the editorial area for newsgathering and no training had been provided on how to adopt the technology. One reporter had an Internet account at home (Carroll 1999 P).

In Dubbo in mid 1997, none of the six reporters on the *Daily Liberal* used email for newsgathering, though the paper did receive letters to the editor and trotting results via the technology. Chief of staff Kevin Engeles said technical staff surfed the Internet for
computer information, and also provided Internet training to what he described as a "select group"— the editor, the production manager, a sports sub and himself. The paper had one Internet-connected Macintosh terminal in the newsroom, which he used "occasionally". The five Rural Press papers in the state exchanged stories and photographs via modem. An example of the "softer news" that they exchanged was a TV guide provided by a private organisation. It sent the guide to Rural Press headquarters at North Richmond, near Sydney, from where it was distributed to member papers (Engeles 1997 P).

As of April 1999, the paper did not have an email address listed in either Gee's Media Guide or PANPA's annual newspaper survey published in the PANPA Bulletin. A senior sub-editor, Meg Ward, said none of the six reporters sent email or surfed the Web. The paper had one Internet-connected terminal in the sub-editors' area which was mainly used for downloading photographs. "If a reporter needs Web-based information they ask a sub, who searches for them. But that's very rare." No reporter had an Internet account at home and no training had been provided for how to use the paper's one terminal (Ward 1999 P).

In Maitland, editor Norm Worth said none of the Mercury's six reporters used the Web or email for newsgathering as of mid 1997. The paper had just finished installing a new PC-based production system to replace an ageing Atex system and that had received priority in 1997. Non-daily papers owned by Rural Press in the region — the Newcastle Star, the Cessnock Advertiser, the Singleton Argus, the Muswellbrook Chronicle and the Scone Advocate — all shared stories via modem. Reporters in all Rural Press papers could access an electronic library via modem at Rural Press headquarters in Sydney. Because the Internet was not used for newsgathering, no training had been provided. If it did, it would come either from in-house or Rural Press headquarters. One of the paper's sub-editors accessed the Internet at home (Worth
Neither Gee's *Media Guide* nor the PANPA *Bulletin* listed an email address for the *Mercury* as of early 1999.

In Orange, none of the 10 reporters on the *Central Western Daily* used email or the Web for newsgathering as at June 1997. But the paper had established an email address two months earlier <cwdaily@netwit.net.au> to receive press releases and contributors' copy. The paper’s one terminal, an IBM-compatible PC, was in the editor’s office, which created problems for anyone wanting to use it when the editor was working. Internet training for reporters had been minimal because of lack of time. Editor Joanne Crawford described it as “not proper training”. The paper started a Web site in August of 1996 but the CoS found it difficult to update the pages daily because of insufficient staff: “It became an extra thing to do, among lots of things to do, and it ended up on the bottom of the pile” (Crawford 1997 P). By early 1999 the number of Net-connected terminals had doubled. Along with the connection on the editor’s terminal, there was another on a sub-editor’s terminal. A senior reporter who preferred to remain anonymous said three of the eight reporters used the Internet from work “to obtain photos, such as headshots” of Australian and international politicians and celebrities: “Use of the Web depends on how comfortable reporters feel about the technology. The majority appear to be unaware of the information they can obtain.” One reporter had a connection at home. Reporters had adapted the Internet for copy collection: “At the moment we are using email more and more, for such things as contributed columns, advertisements, and receiving press releases and photos. Email use would definitely outweigh Web research use”. The reporter described the training the paper provided as “nil” (Anonymous 1999 P).

In Tamworth, none of the 12 reporters at the *Northern Daily Leader* used email or the Web for newsgathering as of June 1997. The paper had no Internet-connected terminals though it planned to get an email address in 1998. Chief of staff Kelly Norton said she has an Internet account at home. The paper was planning to upgrade its
front-end production system, and this had occupied all discussion about technology (Norton 1997 P). The paper acquired an email address <ndledit@ozemail.com.au> in 1998 but by April 1999 none of the nine reporters sent email and they “rarely if ever” surfed the Web. The paper’s one Internet-connected terminal was behind the chief sub-editor’s desk and was used to download photographs, and receive press releases and letters to the editor — “we’ve just started”. No reporters had an Internet account at home and no training was provided to use the one terminal. “What we get here you could not call training — they tell us to do this or that but it does not make much sense” (Flood 1999 P).

In Queensland, none of the seven reporters on the Gympie Times used the Internet, at work or at home as at mid 1997. The paper had one PC in the newsroom, used for accessing copy via modem from Rural Press headquarters in Sydney. No training had been provided to help people use the terminal — “we just work it out as we go”.

Editor Michael Roser said the paper was investigating getting an Internet connection because he appreciated the value of the Internet for newsgathering. The Australian Weather Bureau provided free daily weather information, and it was worth a connection for that alone (Roser 1997 P). An email request for information was sent to the email address published in the 59th edition of Gee’s Media Guide <gtimes@peg.apc.org>. But an automated reply showed that the account had been closed. Neither the next edition of Gee’s Media Guide — published six months later — nor the annual newspaper survey published in the PANPA Bulletin of January 1999 listed an email address for the Gympie Times. This suggests that the paper’s flirtation with the Internet had ended prematurely (Pegasus 1999 E).

In Victoria, the chief of staff at the Ballarat Courier said three of the paper’s 16 reporters accessed the Internet for newsgathering, via a terminal in the library. Paul McLoughlin said the paper had an email address for receiving letters to the editor and other contributions <courier@netconnect.com.au>. The paper did not have a librarian,
so reporters had searched the paper’s electronic storage system — known as Tracker — themselves since 1996. The three reporters were thus familiar with a form of electronic newsgathering. The chief of staff did the initial Internet training and thereafter reporters found their own way around (McLoughlin 1997 P). The situation was relatively unchanged as of April 1999 though the number of Internet-connected terminals had trebled. Reporter Peter Litras said three of the 16 reporters still surfed the Web and sent email and the paper still received press releases, sports results and photographs via the Internet. It was impossible to discover whether it was the same three referred to in the first research study. Training was still spasmodic and conducted mainly via a form of apprenticeship in which longer-serving staff showed newcomers how to use the technology (Litras 1999 P).

Summary

Reporters on Rural Press’s regional newspapers accessed the Web and/or used email much less frequently than their APN colleagues as of the 1997 study. Three of the total of 84 reporters at the eight Rural Press dailies used email for newsgathering — all were at the Ballarat Courier — and five of the 84 used the Web for research. Two had Internet connections at home. (Note that these data included the Launceston Examiner because of Rural Press’s half ownership.) On average, only one in 28 reporters at APN used email, compared with one in 16 nationally for email among regional dailies. With the Web, an average of one in 17 Rural Press reporters accessed it, compared with one in 10 at APN and one in 12 nationally among regional dailies. Again, three of those five reporters were at the Ballarat Courier. Five of the Rural Press papers had an Internet connection at of mid 1997 but they were mainly used to share copy among sister publications.

By April 1999, the situation had improved to the point where Rural Press reporters were almost on par with the national average for regional reporters. On average, one in five sent email (16 out of 79 reporters, or 20 per cent) and one in three used the Web
(24 out of 79 reporters, or 30 per cent). The figures were influenced by the high number of Internet users at the Examiner in Launceston — most of the 20 reporters — plus three out of 16 at the Ballarat Courier and three out of eight at the Central Western Daily at Orange. A decline in the total number of reporters at Rural Press — from 84 to 79 — influenced the averages as well.

The low number of reporters per paper at APN (an average of 13 per publication) and Rural Press (10.5 per paper) suggested that these journalists endured a higher workload than their colleagues on metropolitan dailies (which had an average of 97 reporters per paper). APN kept editorial numbers down by replicating much of the papers’ content and distributing the same pages to all 13 dailies. For example, the foreign and business pages and racing guides were all produced at one paper and sent to each publication. A senior editorial executive at The Age, Andrew Holden, confirmed the discrepancy in workloads, comparing his experience of Fairfax metropolitan dailies and his time working on regional dailies (Holden 1998 TS). Jon Casimir, a senior reporter at The Sydney Morning Herald noted that salaries were considerably higher at big metropolitan papers, yet workloads were lower than on regional dailies (Casimir 1999 TS). Smaller staff numbers and higher workloads on regional papers also meant that the time available for training was considerably lower than at capital-city papers, unless management made editorial development a priority — which they had not.

Tony Gillies was publishing services manager for Rural Press and responsible for the editorial content of 160 publications, including seven dailies. He said Rural Press’s priority in 1998 had been the delivery of online services, such as the online versions of newspapers, property guides and classified advertising: “Really, where we’re at is in the online delivery of information.” Commercial imperatives — how to make money from the Internet — appeared to be more important than improving editorial content. The organisation was also confused about how to use the Internet for newsgathering, with Gillies admitting that Rural Press was “not quite sure how we’re going to use it”.
He believed his organisation would eventually adopt the Internet, though it was not a priority for many editors:

From my point of view it hasn’t necessarily been [a] priority for them. They [editors] have got a lot of other issues they have to address. We’re not utilising it [the Internet] a lot at this point (Gillies 1998 TS).

Each paper operated as a separate business unit and the 160 publications in the company were “like 160 small businesses”, with each accountable for things like “the bottom line”. Gillies conceded that the shortage of Internet-connected terminals was a problem:

Our newsrooms need access. Our newspapers . . . might [have] just one computer locked away in a production area somewhere, so the journalists don’t necessarily feel compelled to just actually get on there and surf. It is not a part of their daily routine. If we’re going to do that, we recognise that we are really going to need to address that first and foremost (Gillies 1998 TS).

At the time five of the seven Rural Press dailies had an Internet-connected terminal, but many of the non-dailies were not connected, which would explain why Gillies noted that surfing was “not part of journalists’ daily routine”. He also referred to the “enormous cultural change” that needed to be undertaken with the Internet: “We’ve had people, at all levels, thinking ‘What is this all about?’ They’re just trying to get their head around the whole thing.” Another pressing problem for Rural Press was obsolete or mismatched technology. The company had acquired several papers in the past two years. While that “was good for overall growth” it also meant in technical terms that the company had inherited a variety of computer systems — “and a lot of them are dogs” (Gillies 1998 TS).

Issues of year 2000 compliance had also concentrated the minds of Rural Press’s management: “We are now at a point where there is a natural integration between the systems that we are using to produce the papers and all the things that can be attached to it, such as the Internet or our own intranet.” Another key issue — “and one thing we need to address” — was training. “We have to factor into our training schedule the
Internet, how to use it.” But journalists were busy and lack of time was always a factor: “I mean they’ve got their head down, bum up producing an edition day in day out, and the Internet is something more. They can see ‘Gee I’ve got to get into that’ but they haven’t made that commitment, pulled themselves away from what they’re doing and said ‘Right, OK now I’m into it.’ Not many have.” Gillies said Rural Press’s papers would eventually get involved in the Internet.

[But with the Internet] as a research tool we are just not there yet . . . If you ask the same question of us, say one year down the track, I think I’d be happy to report that a big slab of our papers are pretty au fait with Internet applications (Gillies 1998 TS).

By April 1999, all seven of the Rural Press dailies had at least one Internet connection, and an average of three terminals per paper. Again, the Examiner in Launceston influenced the data because that paper had 10 terminals. Most Internet connections at Rural Press publications were for receiving contributed material. Overall training was minimal; Rural Press reporters were the least likely to be au fait with the Internet as a newsgathering tool.

**Fairfax regional dailies**

Two of the three Fairfax regional dailies, the Newcastle Herald and the Illawarra Mercury, are discussed at the start of the section on regional dailies. The third is the Warrnambool Standard in Victoria. There, three of the paper’s 10 reporters used email <standard@editor.mail.net.au> and the Web for newsgathering as of the 1997 study. Chief of staff Rick Bayne noted that most reporters seemed to be scared of new technology but once some discovered its potential they tended to become “addicted”.

During the first study, one of the paper’s reporters was using email to interview students from the area who were on exchange in Warrnambool’s sister city in Miura, Japan. The paper’s freelance gardening columnist in Port Fairy, 27 kilometres away, sent copy via email to the main office, and members of the public contributed letters to the editor by email. “Some reporters are using the Web. For a story today, our art writer checked on the location of a gallery in the United States.” Training for reporters
came initially from a journalist who was sent on a course but who subsequently left the paper. Since then the only training had come via a brief offering from a member of the publication’s technical support staff (Bayne 1997 P). As of April 1999, five of the 11 reporters were “reasonable” users of the Internet and at least one reporter had an account at home. Acting chief of staff David Cairns could not separate reporters’ usage between the Web and email but noted that “reasonable” use was about twice a week. No training had been provided since the earlier research study (Cairns 1999 P).

Summary
Developments at The Standard confirmed the earlier observation that Fairfax-owned regional dailies had adopted the Internet more readily than other regional newspaper companies. This was a reflection of the attitudes of the company’s chief technology officer, Dr Ross Wood. He was appointed in early 1997 and colleagues described him as having “an innovative view on the world” (Gould 1997; Gallagher 1997). In effect, he was an opinion leader at Fairfax. His PhD was in computer science and he was one of the driving forces behind the establishment of intranets and online connections within the Fairfax organisation. His role demonstrated the significance of a supportive senior executive in influencing the adoption of innovation at an organisation.

News Ltd regional dailies
News Ltd owned three regional dailies in Queensland, the Townsville Bulletin, The Cairns Post and the Gold Coast Bulletin. These papers had large circulations compared with most regional dailies because they published in some of the fastest-growing areas in the country (PANPA 1998c). By late 1998, the Townsville Bulletin was the fastest-growing daily in Australia (Tidey 1998 TS). As of the June 1997 study the paper’s chief of staff estimated that four of his 18 reporters sent email and three searched the Web. The paper’s reporters had only just received access to the Web and the only users were three feature writers. The paper had two Internet-connected terminals near the newsroom in the IT area. The main reason for having the terminals was for
receiving email press releases and contributed copy. These came mostly from the smaller PR companies because the larger companies still preferred to use the fax. Most part-time reporters sent copy via email, as did some regular columnists. Many letters to the editor came via email. Advertisers also sent corrections to display and classified advertisements via email <bul-news@nqnews.com.au> after receiving a faxed copy of the advertisement (Paavonpera 1997). By April 1999, the number of reporters who sent email had slipped to three and only two surfed the Web. The paper still had two Internet-connected terminals in the IT area and reporters had to seek permission to use them from the chief of staff. Training came from the IT staff (Oliveri 1999).

In Cairns, the chief of staff of the Post, Nick Dalton, said five of the paper’s 15 reporters searched the Web for information for feature articles, but none of the news reporters used email as at mid 1997. The paper’s email address <letters@cairnspost.com.au> was mainly for receiving letters to the editor. The paper had two terminals in the computer services area on the same floor as the editorial department, but technical staff were reluctant to let journalists use them. These computer people looked upon journalists as “fledglings” when it came to computers (Dalton 1997). One of the computer staff said he and a colleague had shown “a couple of reporters” how to surf the Web (Sayers 1997). The number of reporters who searched the Web remained about the same as of April 1999, and reporters still had to request access through the IT staff. The number of Internet-connected terminals in the IT area had jumped to six. A new general manager had been appointed earlier in the year and he was deciding how many reporters would get a connection at their desktop. This decision followed the paper’s upgrading of the Cybergraphic system to a Windows NT-based version which permitted an email basket for every reporter: “I [the CoS] think everyone will get email and a limited number will get Web access, but it’s up to the boss” (Dalton 1999 P).

At the Gold Coast Bulletin, chief of staff Mike Carroll said none of the paper’s 43 reporters used email for newsgathering, and only “a handful — four — occasionally”
surfing the Web. There were three Web-connected PCs in the paper’s production area
on the same floor as editorial and all staff had permission to use them. But the
terminals were mostly used to download photographs (Carroll 1997 P). By late 1998
the paper had acquired an email address for letters to the editor <viewpoint@
gcbulletin.com.au>. By April 1999, about 20 of the 43 reporters were “spasmodic”
Web surfers and “perhaps 10” sent email. Acting Chief of staff Karl Condon said the
paper had two Internet-connected terminals, one in the computer services area and the
other behind the chief of staff’s desk. To access the Internet, reporters had to obtain a
password from the IT staff and this put some reporters off: “Web usage varies,
depending on the job a reporter is doing. For most reporters Net use is spasmodic.”
No training had been provided and there were “no plans to provide any” (Condon
1999 P).

Summary
In 1997, News Limited-owned papers had higher Web patronage than the average for
regional dailies, but email use was almost in line with the average. Twelve of the 76
reporters on News Limited-owned dailies, or one in six, surfed the Web — markedly
higher than the average of two in 29 for most regionals. The figure for email was four
reporters out of 76, or one in 19 — the same as the average for regional dailies. These
reporters still accessed the Internet far less often than their capital-city colleagues. It is
interesting to note that none of the 76 reporters had an Internet connection at home. The
situation had changed slightly by April 1999. Thirteen of the 76 reporters, or one in 12,
sent and received email — still lower than the average for regional dailies — while 27
out of 76, or almost one in three, used the Web, which was right on the average. The
number of Internet-connected terminals at the three News Limited-owned papers had
risen slightly, from seven in 1997 to 10 in 1999.
Independent Newspapers Limited

Independent Newspapers Limited is a New-Zealand based company, in which Murdoch’s News Ltd had a controlling 49 per cent stake. INL owned two large regional dailies in Victoria, the Geelong Advertiser and the Bendigo Advertiser. In Geelong, four of the paper’s 33 reporters used email and the Web for newsgathering as of early June 1997. All gained access to the Internet from home initially, and all were self taught. These people tended to pass on their skills to other reporters. As of June 1997, the paper had one terminal in the newsroom which had recently been moved from the computer services area, and reporters had a communal email address <journ@glgadvertiser.com.au>. Reporters found their lack of Internet training a frustration: “We have a great asset just sitting there ... it's frustrating not knowing how to use it” (Hobbs 1997). Later that month the paper’s editor invited me to conduct a one-day workshop for six reporters. The editor aimed to set up a train-the-trainer system:

The idea was that the hand-picked few would come back and help others in the newsroom using the Internet, which has happened. There are very few, I don’t think there is anybody here, that can’t use it [the Internet] and often the subs will be looking at sites late at night, digging out things that they might need (Judd 1998 TS).

Ten months after the course Judd said the paper’s one terminal was used “at least 70 per cent of the time” by about a third of reporters (11 out of 33): “There would be someone on it all the time. The only problem we have is that we have only one terminal for the entire newsroom.” He admitted that journalists were lagging behind other groups in terms of using the Internet: “We are probably behind most public institutions, like government; [because] most institutions are hooked up to the Net. We [journalists] are behind in that regard.” He maintained that the Internet was an excellent resource for raw text data and photographs:

For journalism, I think it is a fantastic resource for archive material ... you can get extremely up-to-date information by going directly to the source instead of dealing with intermediaries ... For one story we contacted [a] photographer in France [and] commissioned him to take a picture of a war grave. He then sent the image back [as an] email [attachment] to us to incorporate on the front page for Anzac day (Judd 1998 TS).
Almost a year later, the number of reporters who used the Internet had dropped. Six sent email and four surfed the Web regularly. Chief of staff Garry Cotton noted that the paper still had only one Internet-connected terminal, which reporters found frustrating (Cotton 1999 P). The decline may have been a direct result of frustration — 11 busy reporters trying to access one terminal would be similar to 11 busy reporters trying to use one telephone located several metres away from their desks. Based on Rogers' innovation adoption variable of convenience, this situation was not likely to foster reporters' adoption of the Internet.

In Bendigo, all eight reporters at the Advertiser used email and the Web for newsgathering as of June 1997. At least one reporter used the Net at least once a day. The newsroom had obtained an Internet link in 1996 and all reporters had access via one Macintosh terminal in the newsroom. Chief of staff Leanne McDonnell used email and the Web daily and acted as a disseminator of information. Other frequent users were the court reporter, who looked at the Melbourne Supreme Court and Bendigo county court lists on the Web, and the paper's political reporter. The latter accessed state Parliamentary reports on the state government site, Vicnet, and the online edition of Hansard to see how the region's five MPs were performing: "The Web can be helpful for big picture event, such as the Budget" (McDonnell 1997 P). The paper's production editor did the initial training and reporters learned their way around thereafter. McDonnell noted that most journalists were impatient people and Web searches had to produce immediate results, otherwise reporters tended to look elsewhere for information: "It's go, go, go on a regional daily, with reporters doing five or six stories a day. We're looking for quick information, information we can get in a hurry" (McDonnell 1997 P).

By April 1999, all eight reporters at the paper still accessed the one Internet-connected terminal in the newsroom. Sport reporters were the main email users, sending one or
two a day compared with one or two a week for general reporters. The latter surfed the Web more often “depending on the story they are doing”. McDonnell, now the assistant editor, said time was the key factor for regional reporters, which again suggested that relative advantage and convenience were key factors in reporters’ adoption of the Internet:

We have fewer staff and less time than metropolitan reporters to learn how to use technology. Regional reporters are still more likely to get on the phone to a contact and ask them to fax information for a story. We’re looking for the quickest and easiest way to get information.

The paper provided no Internet training: “Training is not considered necessary because people quickly learn how to use the buttons on the Explorer browser and it’s very easy to learn how to send and read email. Some of our new staff came to us from university with the skills” (McDonnell 1999 P).

The significance of a manager interested in technology was apparent at these two papers. The editor of the Geelong Advertiser, a technology enthusiast who had worked as a systems editor at the Herald Sun, edited the Bendigo Advertiser until he moved to Geelong in 1996. He was instrumental in establishing Internet connections at both papers. The assistant editor of the Bendigo Advertiser was another technology enthusiast, and was responsible for the paper’s digital photographs, which were delivered via the Internet.

Summary

INL-owned dailies were well above the average for regional dailies as of the first study. One in four reporters sent email and surfed the Web, compared with the national average of one in 19 for email and two in 29 for the Web at regional dailies. By the second study, the average was still high compared with other regional dailies: one in three for email and two in seven for Web research. Both papers still had one Internet connection in the newsroom. The relatively high use of the Internet at these papers
again showed the significance of having senior editorial or management support behind the move into CAR. It was also a reflection of INL’s hiring policy: the organisation chose editors aged between 35 and 40 because it believed that they were most au fait with technology (Judd 1998 TS). The American Associated Press’s director of CAR, Bill Dedman, emphasised the importance of management support in establishing CAR:

The key ingredient in a successful CAR program is a long-term commitment from top management. From this follows co-operation among editorial and technical staff, and enthusiasm among all staff. If we’re not setting goals that all of management agree on, if the goals don’t command the assent of the staff . . . change the goals before we move forward. It’s easy to waste a lot of time on a CAR effort if the department heads don’t agree. That includes both editorial and technical departments (Dedman 1997 E).

**Western Australian Newspapers**

None of the eight reporters at the Kalgoorlie Miner in Western Australia, owned by Western Australian Newspapers, used the Web or email in the office as of the 1997 study. The paper did not have a connection, though there were plans to do so “at some point in the future”. One reporter had Internet access at home, which he paid for himself. Chief of staff Jay Townsend said she had a small staff with lots of demands on their time, so seeking an Internet connection had been “put on the backburner”. Training would be vital when the connection became available (Townsend 1997 P). By April 1999, the paper had an email address <kalminer@wanews.com.au> and five of the nine reporters sent email and surfed the Web “reasonably regularly”. The paper had one Internet-connected terminal next to the chief of staff’s desk. Two reporters also had Internet accounts at home. Chief of staff Alan Francis said no training was provided: “All those who use the terminal either came to the paper already trained or have taught themselves and then taught others” (Francis 1999 P).

**Barrier Trades Council**

None of the five reporters on the Barrier Daily Truth in Broken Hill, owned by the Barrier Trades Council, used the Web or email for newsgathering, as of the 1997 study. Three reporters had Internet connections at home. The paper did not have an Internet
connection and it was unlikely that it would do so because the manager was “not interested” (Schmidt 1997 P). The situation had changed slightly by April 1999 in terms of newsgathering. The new general manager, Chris Faulkner, said the paper had one Internet terminal for receiving email letters to the editor and press releases but none of the six reporters used it for reporting. No training had been provided (Faulkner 1999 P). The email address <bdt@ruralnet.com.au> appeared for the first time in the sixtieth edition of Gee’s Media Guide, published in March 1999.

The independents
The Harris family owns The Burnie Advocate in Tasmania and half of the Launceston Examiner. As of mid 1997, none of the 20 reporters on The Advocate used email or the Web, and the paper had no plans to obtain an Internet connection (Bolch 1997). By late 1998, the paper had acquired an Internet connection <advocate@harrisgroup.com.au> but it was mostly used for receiving freelance contributions and letters to the editor. By April 1999, acting chief of staff Sean Ford noted that 12 of the 21 reporters used the Web for research and “a handful, probably five” sent email. Those five had an Internet account at home. The paper had four Internet-connected terminals near the newsroom — one in the editor’s office, one in the editorial manager’s office and two in the general newsroom. Training consisted of sharing information — reporters showed colleagues useful sites they had found; others asked “anyone available” for help when a specific issue arose (Ford 1999 P).

The Mott family owns the Border Morning Mail in Albury. As of the first study in mid 1997, none of the paper’s 15 reporters had access to the Internet but chief of staff Mike Cox said the paper “might get a connection” in 1998 (Cox 1997 P). By February 1999 all of the paper’s 12 reporters used the Web for newsgathering, and one of them regularly sent and received email. Nigel McNay, the paper’s bureau chief in Wodonga just across the river, described his reporters as “heavy Web users” but “minimal” email users: “We mostly use the Web for sourcing original documents and press
releases.” The paper had two Internet-connected terminals — one in the newsroom and another in the systems area — and an email address for receiving press releases <dlstarr@ ozemail.com.au>. Two of the reporters accessed the Internet from home. McNay said the paper’s production editor provided training on an “as-needed basis — people ask questions when they have problems” (McNay 1999 E).

The Henderson family owns the Daily Advertiser in Wagga. Two of the paper’s 24 reporters used email or the Web for newsgathering, via one Internet-connected terminal, during the 1997 study. Deputy chief of staff Gary Bell said the paper obtained an email address <wda@wts.com.au> in June 1997 to receive press releases — “we’ve had a couple so far” — and weather information from the Bureau of Meteorology in Sydney. A “few” freelance columnists submitted copy via email and “several” reporters had Internet connections at home. Bell said his journalists saw the opportunities that email and Web offered but “convincing management is the problem”. Management regarded the Web as a “toy” and expected journalists to download pornography or waste time. Two reporters used the Web for one-offs, such as coverage of the defence efficiency review released in April 1997. The review recommended closure of some airforce bases. The Wagga Airforce base was a major employer, so reporters were keen to see if it was included in the review. One reporter found a copy of the review and other material on the Defence Department’s Web site, which provided good background material for the paper’s coverage (Bell 1997 P).

As of April 1999, five of the 24 reporters sent email “reasonably regularly” and spent time on the Web. The paper still had one Internet-connected terminal in the sub-editors’ area, which accessed the Internet via a modem. The terminal was also used to download photographs. The Daily Advertiser had spent the past year “bedding down” a new Atex computer system and it had taken priority ahead of adoption of the Internet. A training officer had been appointed the previous month and would “look into” providing Internet skills (Bell 1999 P).
At the *Sunraysia Daily* in Mildura, none of the paper’s seven reporters knew how to use email or the Web for newsgathering as of the 1997 study. Chief of staff Allan Murphy said the issue of training and access to the Internet has never been discussed and the paper was not connected to the Internet (Murphy 1997 P). By April 1999, all five reporters on the paper had used email “at one stage or another” and two researched stories via the Web. The one terminal was in the editor’s office, which meant access was limited. The paper used its email address <dailyedt@ruralnet.net.au> for receiving letters to the editor and press releases. Acting chief of staff Andrew Scarce described training as “rough and ready” with reporters “helping each other out”. One reporter with Internet access at home trained his colleagues (Scarce 1999 P).

At the *North West Star* in Mt Isa, none of the paper’s six reporters used the Internet, though the paper was scheduled to get connected late in 1997. Editor Liz Corbett said she had a connection at home: “The Internet is great for journalists like us [in Mt Isa] because it reduces the isolation. We can access government departments via the Web that our colleagues in the big cities can do in person” (Corbett 1997 P). By February 1999 all five reporters used the Internet “whenever possible”. Acting editor Glenn Faulkner said one of the five sent email occasionally, and the others were “heavy users” of the Web, and the chief of staff had expressed a desire for “a lot more access”. The *North West Star* had one Internet-connected terminal in the newsroom, and reporters had access to two others in administration and advertising. Faulkner noted that all of the reporters were new and young, and had “picked up the skills while at university” so the paper had not needed to do any training. None of the reporters had an Internet account at home. The paper’s email address <carpnews @obe.com.au> attracted “plenty” of letters to the editor and press releases (Faulkner 1999 P).

The *Shepparton News* is part of the McPherson Newspapers group which comprises the daily and 10 non-dailies. In June 1997 Fairfax and the McPherson family each
owned just under half of the group, including the daily. Editor Robert McLean said four of the 12 reporters at the *Shepparton News* knew how to use email and the Web for newsgathering. They had one terminal in the newsroom but “ultimately” the paper hoped to have an Internet-capable link on every desk. McLean said training of current staff was “piecemeal”; he had done some but it had been “rudimentary” (McLean 1997 P). Sports editor Craig Potter said the paper saved two to three hours each Sunday collating sports results via email, which it had done since March 1997. Each Sunday, representatives from the region’s six district Australian Football leagues and the Goulburn Valley Football League emailed results to the paper. In the past, league representatives had word processed the results and then faxed printed pages to the paper, where they were re-keyed. The paper also received tennis, netball and badminton results via email (Potter 1997 P).

In February 1999, the McPherson family completed a process of “buying back the farm” by purchasing Fairfax’s 46.7 per cent share of the newspaper group (Kelett 1999: 7). As of March that year, all of the 14 reporters at the *Shepparton News* used email and the Web “at least occasionally”. At least four reporters had a connection at home that they paid for themselves. The paper had six Internet-connected terminals — three in the newsroom, one in administration and one in a director’s office, with the sixth used for the paper’s online publication. Reporters preferred to receive press releases via email and all contributed copy arrived that way. The *Shepparton News* provided all training in-house, but in April 1999 it approached Deakin University’s journalism program to provide a range of courses (Tidey 1999 TS). McPherson Newspapers also owned an online publishing arm. Between April and May the daily completed the installation of a firewall that meant every reporter had Internet access and email from their desktop on the Windows-based Cybergraphic front-end system. Noted chief of staff Katrina Newton: “When we have desktop access I know we’ll have more people using the Net regularly” (Newton 1999 P). This was another
example of how convenience influenced adoption; supportive management was another significant factor.

Summary
As of the 1997 study, four of the six independent regional dailies were almost uniform in their lack of involvement with the Internet. The Shepparton News and the Wagga Daily Advertiser were the exceptions. Only six of the total 84 reporters at all papers accessed the Internet from work — four at Shepparton and two in Wagga. Only three of the papers had an Internet-connection. Interestingly, about a dozen journalists — reporters and sub-editors — had an Internet connection at home. Many lived in remote regions, such as Broken Hill, Mt Isa and Kalgoorlie, which suggests that isolation may have motivated them. The situation had changed noticeably by early 1999. All six papers had at least one connection to the Internet. Thirty-one of the 80 reporters employed on them sent and/or received email and 50 of the reporters used the Web for newsgathering — more than the average for regional newspapers.

It is interesting to compare the increase in adoption at regional daily newspapers in the three states with the biggest populations during the two study periods. These states also had the largest numbers of regional dailies: NSW had 14, Victoria six and Queensland 14. Figure 14 shows the increases. Put simply, NSW regional dailies experienced a significant rise in Internet use. Victoria, already relatively wired at the time of the first study, noted a doubling of the average number of reporters using the Internet. In Queensland, the number of reporters using email almost trebled and the number using the Web more than doubled.

Figure 14: Regional papers’ Internet use at three largest states

<table>
<thead>
<tr>
<th>State</th>
<th>% using email mid 1997</th>
<th>% using Web mid 1997</th>
<th>% using email April 1999</th>
<th>% using Web April 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>2.3</td>
<td>3.2</td>
<td>23.8</td>
<td>27.2</td>
</tr>
<tr>
<td>Victoria</td>
<td>25.0</td>
<td>25.0</td>
<td>46.1</td>
<td>40.4</td>
</tr>
<tr>
<td>Queensland</td>
<td>6.5</td>
<td>12.1</td>
<td>17.5</td>
<td>30.4</td>
</tr>
</tbody>
</table>
Australian Associated Press

In terms of editorial staff numbers, Australian Associated Press (AAP) is one of the largest employers of journalists in Australia. As of mid 1997, 150 journalists operated out of the Sydney headquarters with another 50 based in bureaus in the state capitals. About two thirds of the total were reporters, with the rest working as sub-editors and editorial managers. As of the first study in mid 1997, AAP had few reporters connected to the Internet. One of AAP's news editors said that only two people used the Internet regularly because reporters preferred what he called “traditional” methods such as the fax and phone. Yet he mentioned two examples where AAP’s crime reporter in Sydney, David Killick, had used the Internet to scoop other publications.

The first concerned two sailors lost off Western Australia during the round-the-world yacht race in January of 1997, organised by Vendee Globe. AAP had limited ways of providing up-to-date information but Killick found the Vendee Globe Web site — via a press release — and used it extensively for updates and contacts. The other example concerned the 1997 federal legislation overturning the euthanasia law in the Northern Territory. Killick regularly checked the home page of euthanasia campaigner Dr Philip Nitschke in the Territory. He obtained several scoops because while Nitschke was not available by phone to other journalists, Killick was able to obtain information via his Web site. AAP had one Internet-connected terminal in each of the Melbourne, Canberra and Brisbane bureaus linked to the one Internet connection in the Sydney headquarters via a 28.8-baud modem. AAP received some press releases via email, though these tended to come from computer organisations and large companies (Osborne 1997 P). Killick said he used Telstra’s White and Yellow pages extensively — “even if journalists only used these, they’d soon discover the benefits of the Internet” — and he filed copy via email from home. The Internet gave journalists “tremendous competitive advantage” and he was puzzled that his colleagues could not find the motivation to get connected (Killick 1997 P).
By January 1999, about half of the reporters at the Sydney headquarters had used the Internet in a range from “once” through to “regularly” — which Killick described as a “massive increase in a short time”. The Web was more popular than email, with about a third of reporters sending email on the same scale from “once” through to “regularly”:

... it has been more or less infectious. Someone will see someone using it and say ‘Oh look, you’ve got to show me how to do that’. So that knowledge has gone from a small number of people and has spread to a large number. I would say certainly within 12 months [by the start of the year 2000] everyone here will have the skills and the access to use Net data. It has gone from nought to a lot [of reporters] in two years. I would say 50 per cent of reporters have used it, [and] of those probably 80 per cent use [it] regularly. Once you start you don’t stop, and the other 50 per cent haven’t caught on yet (Killick 1999 TS).

This meant that about 50 of the 100 reporters in the Sydney newsroom surfed the Web regularly and about 30 sent email. Killick was unclear about Internet adoption at the other capital cities. He had been connected to the Internet at home since 1991 but he had been entirely self taught, as were most of his colleagues: “I can safely say AAP has contributed nothing to it [my training]. They are drawing upon those skills now” (Killick 1999 TS). In December 1998 AAP went live with its Net Desk, a new desk designed to supply news to Internet organisations. It was the first new desk at AAP in almost 40 years. The first customer was Publishing and Broadcasting Ltd’s ninemsn. AAP’s internal newsletter said the desk operated on the same specialist principles as other editorial desks such as sports, finance and broadcast.

This is just the first of a new class of news clients for AAP. We expect to start putting together bulletins tailored for other Internet publishers as diverse as Internet service providers (ISPs), search engines, e-commerce sites, company sites and other media Web pages (AAP Today 1999: 4).

In less than two years, AAP moved from being an organisation with almost no staff using the Internet to a point where a majority of reporters had adopted it. Killick attributed the turn-around to the role of editor-in-chief Tony Vermeer, whom he described “an innovator” who was keen to turn AAP into a multi-media news
organisation (Killick 1998 TS). In March 1999, Vermeer proposed that all reporters should carry digital cameras and mini-disk recording equipment because digital technology and convergence were “the future” (Vermeer 1999 TS).

Re-invention and actual use of the Internet
Rogers studied communication technologies such as email to see if they had any “distinctive qualities” that would lead researchers to expect a different process of diffusion. He found three key features: the importance of a “critical mass” of adopters and users; a high degree of adaptation in how the innovation was used (which he labelled re-invention); and the significance of the actual use of the innovation rather than it simply being available (1986: 120-1).

Chapter 1 showed that by late 1998, 31 per cent of adults in Australia used the Internet. This chapter demonstrated that a critical mass had arisen at some metropolitan newspapers, and was evolving at some regional dailies. It also showed that what Rogers called re-invention occurred to a marked degree at regional dailies connected to the Internet. Rogers noted that adopters customised an innovation to fit their environment rather than playing a passive role in accepting a standardised innovation, and computer-based technologies were “frequently characterised by a relatively high degree of re-invention” (1986: 121). In many cases, regional dailies used the Internet as a vehicle for copy collection rather than newsgathering. Copy collection involved using email to receive letters to the editor, media releases, sports results and freelance contributions. Journalists also used the Web to download photographs and weather maps from Web sites. This occurred because these methods were faster, more convenient and cheaper than traditional methods.

But re-invention also occurred because of journalists’ ignorance of what the Internet could offer as a newsgathering tool, in terms of finding data. Regional reporters did not use the Internet for newsgathering in the same way as their American colleagues — see
Ross and Middleberg’s Media in Cyberspace IV (1997) and Media in Cyberspace V (1998). Reporters on Internet-connected regional dailies rarely gathered information for news stories from the Web, and they seldom conducted email interviews. Their adaptation of the Internet for collecting copy was comparable to using the proverbial sledgehammer to crack a walnut. Rogers suggested that re-invention took place with software-based technology because its “abstract nature” produced confusion when training was inadequate (1995: 178). Adaptation was inevitable at regional dailies because training was almost nil. Editorial managers were happy to see the technology being used to collect copy because it saved money; in many cases they were ignorant of the Internet’s potential as a newsgathering tool. Chapter 7 discusses the relationship between training and adoption of technology.

**Degree of actual use of an innovation**

The third key feature that Rogers outlined in the diffusion of new media technologies was the degree of *actual* use of the innovation — rather than a situation where the provision of an innovation was followed by minimal or no use. Rogers noted that the decision to adopt an innovation was not the same as the actual implementation of that innovation; the degree of use was more significant. This implementation was frequently the key factor in studies of the diffusion of new communication technologies (1986: 122). This issue is discussed in the next chapter in a specific study of reporters’ adoption of the Internet at one major metropolitan newspaper — *The Age* in Melbourne.

**Summary**

After comparing data from the 1997 and 1999 studies, the hypothesis that large metropolitan newspapers — the “A” teams — would be more advanced in their adoption of the Internet as a newsgathering tool was confirmed. Dailies in the two biggest capital cities (Sydney and Melbourne) plus Canberra and Adelaide were more
involved with the Internet than dailies in other capital cities, and significantly more so than their regional daily cousins. On regional dailies in mid 1997, an average of one in 16 sent email and one in 12 used the Web. On metropolitan papers at that time, an average of one in five reporters used email, and three in 10 accessed the Web. Data from the three Fairfax dailies influenced the metropolitan findings — their adoption rate was one in four for email and one in two for the Web. Diffusion at News Ltd, the other major newspaper group, was low: one in nine for email and one in 11 for the Web. The Australian Bureau of Statistics reported early in 1998 that one in four adults (23 per cent) in the general population had accessed the Internet in the previous year. Adoption rates at both News Ltd and regional dailies were therefore lower than those of the general public, which supported Wright's claim that journalists were “so far behind the community they report that it's not funny” (Wright 1998 TS).

If a week is a long time in politics, then 22 months is an eternity in terms of the Internet because by April 1999 adoption at both groups had surged. At metropolitan dailies, the average potential use was three in five for email and one in two for the Web. Use of email had trebled and Web adoption had almost doubled since the earlier study. Adoption at regional dailies had jumped to an average of one in four for email and one in three for Web use. This meant that adoption had quadrupled between 1997 and 1999, though admittedly the increase came off a low base. It was still relevant to separate the data for Fairfax and News Ltd among the capital-city dailies. At Fairfax the potential average was nine in 10 for both email and the Web, while at News Ltd the potential average was two in five for email and one in five for Web use. This showed that the real surge had occurred at Fairfax's three papers, while News Ltd dailies were languishing. The term potential average was applied to metropolitan dailies in the second study because of the distinction that Rogers highlighted when discussing the adoption of a technology-based innovation. He distinguished between the availability of an innovation and its actual use (1986: 122). This distinction needs to be noted for metropolitan daily newspapers because some people did not use the Internet even
though it was available on their desks. The Australian Bureau of Statistics reported that 31 per cent of adults had accessed the Web in the year to the end of 1998. Fairfax reporters were well ahead of the general public in terms of adoption while News Ltd staff were about on par.

During the 1997 study, most of the regional dailies — 24 out of 37 (65 per cent) — did not have an Internet connection in or near the newsroom. In terms of Rogers’ categories of adopters, they fell into the late majority and laggard groups. At the same time, all but one of the 13 metropolitan dailies had at least one Internet connection (the exception was the *Northern Territory News*).

**Figure 15: Internet connections at daily papers from 1997 to 1999**

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan</td>
<td>184</td>
<td>761</td>
</tr>
<tr>
<td>dailies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td>26</td>
<td>94</td>
</tr>
<tr>
<td>dailies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 15 shows that by April 1999 all 37 regional dailies were connected and the total number of Internet-connected terminals in their newsrooms had risen from 26 to 94. The increase was more marked at metropolitan papers. By April 1999 the total number of terminals at capital-city dailies had leapt to 761, compared with 184 almost two years earlier — a 309 per cent increase. Again, Fairfax was the leader with 560 of the 761 terminals (74 per cent) while News Ltd only had 151 (20 per cent).
### Figure 16: Internet use at regional dailies in June-July 1997

<table>
<thead>
<tr>
<th>PUBLICATION</th>
<th>State</th>
<th>No email access</th>
<th>No Web access</th>
<th>No of reporters</th>
<th>% using email</th>
<th>% using Web</th>
<th>Owner</th>
<th>Web term in newsrm</th>
</tr>
</thead>
<tbody>
<tr>
<td>As at July 1997</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Border Mail</td>
<td>NSW</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>0.0</td>
<td>0.0</td>
<td>Mott family</td>
<td>0</td>
</tr>
<tr>
<td>Western Advocate</td>
<td>NSW</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>0.0</td>
<td>14.3</td>
<td>Rural Press</td>
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<tr>
<td>Barrier Daily Truth</td>
<td>NSW</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0.0</td>
<td>0.0</td>
<td>Local unions</td>
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<td>The Advocate (Coffs)</td>
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<td>0</td>
<td>8</td>
<td>0.0</td>
<td>0.0</td>
<td>APN</td>
<td>0</td>
</tr>
<tr>
<td>Daily Liberal</td>
<td>NSW</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>0.0</td>
<td>16.7</td>
<td>Rural Press</td>
<td>1</td>
</tr>
<tr>
<td>Daily Examiner</td>
<td>NSW</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0.0</td>
<td>0.0</td>
<td>APN</td>
<td>0</td>
</tr>
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<td>Northern Star</td>
<td>NSW</td>
<td>3</td>
<td>3</td>
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<td>0.0</td>
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<td>Rural Press</td>
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<td>0.0</td>
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</tr>
<tr>
<td>Daily News</td>
<td>NSW</td>
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<td>0</td>
<td>20</td>
<td>0.0</td>
<td>8.3</td>
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<td>NSW</td>
<td>2</td>
<td>2</td>
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<td>Henderson</td>
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<td>3.2</td>
<td></td>
<td>5</td>
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<td>Ballarat Courier</td>
<td>Vic</td>
<td>3</td>
<td>3</td>
<td>16</td>
<td>18.8</td>
<td>18.8</td>
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</tr>
<tr>
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<td>Vic</td>
<td>8</td>
<td>8</td>
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<td>INL</td>
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<tr>
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<td>Vic</td>
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<td>4</td>
<td>40</td>
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<tr>
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<td>0</td>
<td>11</td>
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<td>0.0</td>
<td>Elliott/Lanyon</td>
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<td>4</td>
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<td>33.3</td>
<td>33.3</td>
<td>McPherson</td>
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</tr>
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<td>Vic</td>
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<td>3</td>
<td>10</td>
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<td>4</td>
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<td>28.6</td>
<td>57.1</td>
<td>APN</td>
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<td>5</td>
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<td>Queensland Times</td>
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### Figure 17: Internet use at regional dailies in April 1999

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<th>% using Web</th>
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<td>36.8</td>
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**Note:** 1 in 4 1 in 3
CHAPTER 6

AGE JOURNALISTS AND THE INTERNET: A MICRO VIEW

This chapter looks specifically at Age reporters' adoption of the Internet as a newsgathering tool. The Age was chosen for this micro view because it was one of the most advanced daily newspapers in the country, in terms of the availability of CAR resources. Its sister publications in Sydney, The Australian Financial Review and The Sydney Morning Herald, were equally well-endowed in terms of CAR resources but they were not as accessible for research purposes. The Age permitted me to base myself at the Melbourne headquarters for five weeks in August and September 1998, which provided an opportunity for an extended period of participant observation. Early in 1998, after a roll-out of Internet access to all journalists' desks in late 1997 and early 1998, The Age was the first paper in Victoria to offer basic, if limited, Internet training for reporters. About 20 reporters attended the voluntary sessions. In the second half of 1998 the paper also provided compulsory training for all journalists in using the Windows NT version of the Cybergraphic front-end system, to replace an ageing Atex production system.

Overall, The Age provided an opportunity to test Rogers' theories concerning the diffusion of the Internet as an innovation, in the context of a quality Australian daily newspaper. It allowed for investigation of the key distinction that Rogers drew between the availability of an innovation and its actual use. Chapter 5 discussed reporters' actual use of the Internet, on a national scale. This chapter considers adoption at one broadsheet daily, and provides an example of the gap between having access to an innovation at the desktop, and actual use of that innovation.
Information sources at The Age

In terms of information sources, The Age boasts one of the most impressive collections of resources at any Australian newspaper. Resources included NewsLink, paper clippings files that dated back to the middle of last century, a huge library of reference books and access to some of the world’s biggest commercial online information services. NewsLink consisted of a database of the entire editorial text of 11 daily newspapers and 10 weekly magazines or Sunday newspapers, plus an index of another seven weekly magazines. The paper’s library manager described NewsLink as a “phenomenal source” for journalists (Ryan 1998 TS). (Appendix 8 lists the 28 publications and the dates from which their archives started.) The archives of some of the papers in the database, such as The Australian Financial Review and The Sydney Morning Herald, went back to 1987 and 1986, respectively. NewsLink represented the most formidable collection of full-text newspaper archives in Australia, and included a text database from the five biggest dailies owned by Rupert Murdoch’s News Limited.

NewsLink was a Swedish product, and as of April 1999 The Age housed the only NewsLink installation in the southern hemisphere. Kathy Woolley, Fairfax’s Information Manager in Sydney, initiated the project while library manager at The Sydney Morning Herald in 1995:

She and a number of other people went off looking at systems, [and] this Swedish system that we’ve got had greater functionality than most [of the others] and was able to handle pictures. We are the only southern hemisphere installation of it, but it is very big at German and Dutch and Swedish [newspapers]. So it is specifically a newspaper system designed to take a huge volume of full text every day (Ryan 1998 TS).

Text from The Age was transferred electronically into NewsLink each evening after the paper was published, and next day the library staff checked the process had been successful. The paper also swapped data with other news organisations:

We are talking about a huge number of titles of Australian newspapers and magazines. It is actually a fantastic, enormous resource on the desktop of
[all] the journalists. With the text database you have the facility to add classification to articles, to link articles, to add corrections and legal flags to articles. You can [also] group articles if they have been published as a series (Ryan 1998 TS).

The Age closed its paper clippings files at the end of June 1996, forcing journalists to use NewsLink to access anything published from July 1. The Age continued to subscribe to six commercial services, most available via password on a PC in the library:

The library provides [journalists access to] Lexis-Nexis, Dow Jones Interactive, Dialog, the Australian Securities Commission, PressCom and electronic electoral rolls. We also use the reverse phone book (DTMS) but that is on a CD-Rom. We search Hansard online [via the Internet] but that is not a commercial service (Ryan 1999a E).

To put these commercial services into perspective, Dialog is the biggest online vendor in the world. The chief executive of The Dialog Corporation said his databases contained six billion documents, to which it added a further 45,000 a day. It offered access to databases 50 times bigger than the publicly-accessible part of the Web. Its brochure referred to more than 900 terrabytes of data. A terrabyte is 1,000 gigabytes of data, and a gigabyte is 1,000 megabytes. A computer floppy disk holds 1.4 megabytes, or somewhere between 40 and 300 pages of text, depending on the size of each file (Wagner 1999 TS). Lexis-Nexis offers access to 1.7 billion documents in 8,692 databases, and it adds about 4.6 million more documents to those databases each week. In particular, it also has 18,871 news and business information sources. It specialises in legal (Lexis) and newspaper (Nexis) databases. Lexis-Nexis is a division of Reed Elsevier Inc, part of Reed Elsevier plc in London, which is one of the world’s biggest publishing and information groups (Grundy 1999 TS). Age librarians searched these commercial databases, based on reporters’ written requests. Ryan pointed out that reporters were forbidden to use the databases themselves because “they [reporters] can’t be bothered learning the skills, so they waste too much time, which means it costs a lot of money” (Ryan 1998 TS). In the four years she had
been library manager, only one reporter was sufficiently skilled to be given the passwords for access to these databases, and he had left (Ryan 1998 TS).

In early 1999, *The Age's* library unit comprised four teams: A photograph sales team sold pictures to the public for reproduction or personal use; data services staff prepared a complete copy of each day’s editorial data for *The Age’s* CD-Rom and for sale to Dow Jones and Reuters; and two separate reference teams answered questions and found photographs for company staff. Although library personnel were expected to help all *Age* staff, the majority of requests came from editorial departments:

The average reference inquiry is answered within 15 minutes and includes requests for clippings, photographs or up-to-date reference and online information. Additional reference inquiries vary from a spelling check of a European village name to a request to verify crime statistics . . . The library service operates seven days a week until 11pm and is staff by 18 librarians (Ryan 1999b: 2).

*The Age* also pioneered (in Australia), in March 1998, the placement of a librarian in the newsroom as a news researcher, to provide background information for the paper’s managing editors and selected reporters:

The background to it is that it was mooted at one of the editorial meetings [early in 1998] that the managing [section] editors felt that they didn’t have a person to run around and do the background for certain stories. Then one of the managing editors from the Saturday paper remembered that a person used to do it at the [London] Daily Telegraph. That was backed up by other managing editors [who said] that when they were at *The Sydney Morning Herald* there was a particular journalist who used to have that as a role and [who] spent most of their time doing research instead of writing (Ambrose 1998 TS).

The paper’s news researcher, Teresa Ambrose, said the system that *Age* senior editorial staff had initiated worked because it distributed her workload evenly. She answered directly to the section editors responsible for news, who set her workload for the four days each week she spent in the newsroom.

They [the section editors] send journalists to me most of the time. That is to do with workload, so [that] I’m not inundated by journalists approaching
me as they do the library — so that's the difference [between working in
the library and the newsroom]. In the library the journalists just come up
and get what they want. They [the managing editors] intervene with what
they want done. That is why it [a request] has to go through them so that
they are aware of what reporters are asking me to do (Ambrose 1998 TS).

Journalists’ Internet links with the world

Almost all journalists on Fairfax’s three metropolitan dailies have had an Internet
connection on their desktop since late 1997 or early 1998. The group’s technology
research manager noted in July 1997 that Fairfax had a two-megabit (2Mb) per second
corporate network, which was upgraded that year to four megabits (4Mb) a second. A
megabit is a million bits and a kilobit is a thousand bits per second. By way of
comparison, a 2Mb per second network is 75 times faster than a 28.8 kilobit modem, which
until 1998 was the standard speed of modems used in most homes:

Our journalists do not experience the delays in connecting to the Internet
that [reporters at] others [papers] report from using a modem. If you’re
using a 28.8 [thousand bits per second] modem, the current network is in
the order of 75 times faster and will be 150 times faster when upgraded
(Gallagher 1997 P).

*The Age* provided an Internet link to almost all journalists — initially via a link to their Atex
front-end terminals and from mid to late 1998 via the new Cybergraphic terminals on
journalists’ desktops (Holden 1998 TS). Technician Greg Linforth said that in late 1998
*The Age* upgraded its internal network to 10Mb per second, connecting via an ethernet
network, one of the standard networking protocols used in the computer industry:

From the user point of view at *The Age*, [when] reporters [use the Internet
they] plug into a 10Mb shared hub in the building and that 10Mb link runs
into a switchboard that is part of a huge switching network. From there it is
a 10Mb bandwidth to our routers, to our two big main routers in the
building. From there the link is up to Sydney, which is a 4Mb [dedicated]
line that is provided by Optus (Linthor 1998 TS).

*The Age’s* senior Cybergraphic project manager, Andrew Holden, a former senior sub-
editor, noted that in the original plan the Internet was only going to be provided to a small
number of designated people (similar to what happened at *The Australian*). The driving
force was the development in 1997 of the company intranet, the internal network used for sharing information, which was designed to save money by reducing telephone calls and providing common information electronically:

I think that is where the impetus came from. They wanted the intranet to develop company-wide communications and information databases and what have you. In Sydney they were attempting to build a firewall that would only let “X” number of designated people out into the rest of the world. In The Sunday Age area, for example — where there are some 50 staff — we are talking about eight people who were going to have Internet access. And if you wanted to get on to the Internet you had to go and sit at their desks. But they [the technical staff] couldn’t figure out how to do it. They couldn’t make it work, so they poured out the intranet on to every machine. They then turned around and said: “How are we to stop them getting out?” And they couldn’t, they didn’t know how to do it. So at that point they just threw up their hands and said: “Well everybody has got it [the Internet] now.” Which was probably the better decision to make in the first place (Holden 1998 TS).

One senior reporter, Mark Forbes, believed that universal access to the Internet for journalists was a corporate “mistake”. Early in 1997 Fairfax executives were keen to establish an internal email and intranet facility and had not realised that this would provide Internet access as well. When they realised that it was too difficult to restrict the service to certain individuals, they decided to “make a virtue out of necessity”:

Basically they were trying to set up an internal email facility — an in-company intranet — and hadn’t realised that that would actually give us [reporters] automatic access to the Internet. There was a big fuss about trying to stop people using it and saying it wouldn’t be available and the difficulties they found [but] they actually couldn’t work out a sensible way to restrict people’s access to it without withdrawing the intranet facility. After about a month of argy bargy they decided to make a virtue out of necessity and say that they were putting us all on the Internet. This would have been early last year [1997]. It was quite serious; they were talking about restricting it to only a couple of computers and charging each paper for the connection (Forbes 1998 TS).

Another senior reporter, Thom Cookes, suggested that journalists received the Internet because Fairfax had made a decision to invest in infrastructure to improve the delivery speed for the company’s online publications, and to boost the exchange of documents between Sydney and Melbourne:
The company has made a rare far-sighted decision to supply Internet access to everybody, [and] that changed things a lot. It was accidentally supplied in a way that the company recognised they had to invest in infrastructure for other reasons, for [online] publishing reasons, [and they were] also distributing stuff between offices in Melbourne and Sydney, so it would have been a relatively simple task to supply to each desktop as well, they were getting such a good bulk deal. I may be selling the company short but I would be very surprised if there was any strategic thought being put into why it should be done. The company doesn’t work like that. Accidentally they try things and go “Oh yes”. That is not to underestimate what effect it has had on people’s jobs now. I think you could probably pick out some candidates from the newsroom floor and they would say it has made a hell of difference to the way they work (Cookes 1998 TS).

Fairfax’s operations manager, Jayne Gould, was responsible for teaching Sydney journalists how to use the Internet. She cited many reasons for the decision to provide the full roll-out of technology at all three metropolitan dailies. But the main reason, she said, was the fact that Fairfax had developed its own intranet in late 1996, aimed at reducing paperwork and the number of phone calls. Journalists, along with other Fairfax staff, had consequently become accustomed to accessing information online and quickly (Gould 1997 P).

Fairfax adopted the Microsoft Windows NT version of the operating system for its Cybergraphic system to replace the Unix-based operating system. NT was compatible with other Microsoft products and subsequently Fairfax settled on Outlook Express as its email software (Linthor 1998 TS). The decision to select Microsoft’s Internet Explorer as the group Web browser was also based on the fact that Explorer was free. At the time Netscape was charging corporate clients a licence fee for using Netscape Navigator (Gallagher 1998 P). Almost every Age journalist had an email account by the end of 1998 (Holden 1998 TS). Figure 18 shows that as of the end of August 1998, The Age employed 326 editorial staff, including 163 reporters.
Figure 18: Editorial staff numbers at *The Age*

<table>
<thead>
<tr>
<th>Age editorial staff numbers as at 31 August 1998</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy editors</td>
<td>55</td>
</tr>
<tr>
<td>Designers/artists</td>
<td>18</td>
</tr>
<tr>
<td>Photographers/cartoonists</td>
<td>35</td>
</tr>
<tr>
<td>Overseas bureaus</td>
<td>9</td>
</tr>
<tr>
<td>Technical support staff</td>
<td>17</td>
</tr>
<tr>
<td>Editorial managers/section heads</td>
<td>19</td>
</tr>
<tr>
<td>Cadets</td>
<td>10</td>
</tr>
<tr>
<td>Reporters</td>
<td>163</td>
</tr>
<tr>
<td>Total</td>
<td>326</td>
</tr>
</tbody>
</table>

**Journalists' information-seeking habits**

Research conducted at the City University in London, funded by the British Library, attempted to analyse journalists' information-seeking styles and habits (Nicholas 1998a; 1998b). In the preliminary findings, Nicholas concluded:

> There are only a relatively small number of [British] journalists who are alert to the opportunities provided by the Internet, and the vast majority, including almost all those in senior management positions, have not seen the Internet impinge on their day-to-day journalist activities. As a result, there is an ideal opportunity to study the immediate impact of the technology (Nicholas 1998a U).

Nicholas had earlier concluded that British journalists' research methods and habits were "chaotic" compared with those of librarians and other professional information workers (Nicholas and Martin 1997: 123). Therefore, the "hot-house and pressurised" nature of newspapers and newsrooms provided an ideal environment in which to investigate journalists' information-gathering methods (1998a U). *The Age*’s library manager was similarly appalled with the research habits of reporters at her paper:

> I would say that lot would also be the sort of people who wouldn’t necessarily think of the most obvious source of a piece of information. Our library researcher, who is based in editorial, is constantly amazed at the ways journalists will think to go looking [in a variety of places] for a piece
of information which [could be] so obviously found in one central source. They will either go to an agency and buy something that the library already has access to, or they will go to an outside agency for statistical information which we subscribe to ... or is in some obvious source. Or they think that they are going to have to wade through a whole lot of stuff and therefore don’t actually embark on the project. And so the vast quantity of information turns them off (Ryan 1998 TS).

Nicholas identified five types of journalists in relation to their use of, and attitudes towards, the Internet. They consisted of three user and two non-user types. Of the users, Type 1 was culturally committed: “young, often work in new media or do freelance work. They see the Internet as a means to extend democracy”. Type 2 was economically driven: “They work in small newspapers with no library. Many of these are also freelancers”. Type 3 were pragmatists who incorporated the Internet into their array of general information sources. For them the Internet did not replace other sources information but “the Internet is more of a complement”. Of the non-users, Type 4 journalists did not know what the Internet offered “but express interest once given a demonstration”. Type 5 were people who rejected the Internet “usually because of the hype. They see the Internet as a threat to their privileged access to information” (Nicholas 1998a U). Research presented later in this chapter will show that this typology existed at The Age.

Nicholas maintained that journalists could not neglect the Internet as an information resource “because much of what it offers is novel and unique” even though they were already “awash” with information. “Journalists can now obtain documents that might have previously been circulated locally and then to only a very few people.” Research had shown that end-use “would not prove to be a threat to the intermediary [the librarian] predicted by many” (Nicholas 1998a U):

Librarians may be about to have enhanced role. At News International [in London], for example, some librarians are constructing an intranet which is a new and very interesting departure for them. The Guardian [in London] is also about to embark on this venture. There may be more opportunities for a training role for librarians too (Nicholas 1998b U).
Librarians at *The Age* noted the wide continuum of information-gathering skills that the paper's journalists displayed, and reflected on the librarians' changing role in the developing digital age. Librarians were required to maintain the content on the paper's intranet and train journalists in search techniques. They also continued to answer "relatively simple questions" because journalists were "just not up to it when it comes to finding information online" (Ryan 1998 TS). Ambrose noted that *Age* journalists tended "to go about finding things the hard way". For example:

Talking about going about things the hard way . . . journalists see that something appeared in the *Daily Telegraph* in London, then want you [the librarian] to ring up the *Daily Telegraph* — not any contact person or anything — just ring up the *Daily Telegraph* and ask for that article. That would be their way of going about it. We intervene as librarians and say "No that's fine we'll get it via online sources or via the Internet page". So it is just a matter of we know the way to get something, and they know where it is, and the perception is totally different of how to get it. Sometimes they [journalists] make life difficult for themselves, they really do (Ambrose 1998 TS).

*The Age's* library manager said many journalists had inadequate search skills and needed to be "spoon-fed":

[Inadequate search skills] would account for a lot of our phone calls up here [the library is on the fifth floor while editorial is on the second and third floors] — people checking things that they have either heard of or remember that they can't actually find in text databases because their search skills aren't good enough. . . . There is also the group who rely on the library quite a lot, who still like to be spoon-fed, and who think that having a text database on their desktop [NewsLink] is a nice little novelty that they'll try some day, or that they only use when they are completely desperate. I expect that we will continue to have both of those users. Some of the things that we don't like about the way they use information — we would like them to check more [using reference books provided in the editorial area, two floors below] (Ryan 1998 TS).

She concluded that journalists' general information-gathering skills were low, and attributed this to minimal training:

I think in terms of the way that they should be using information, they should have a particular range of skills, which incorporates the ability to search full text databases, but also know about all sorts of other directories and indexes — tools which make their jobs easier. But my observation is that they don't necessarily know, or go for those first. I don't know anybody in editorial who is actually using Excel who is a journalist . . . I am
focussing very much here on the tools for [finding] already-published information, rather than the going out and interviewing people, and knowing where to get information from. [This is] because this company doesn’t have a commitment to training. Hasn’t really had for some period of time. When I first came here about four years ago there was no training policy (Ryan 1998 TS).

Reporters obtained information from the library in two ways — via the telephone or in person. If they telephoned, a librarian on duty kept a paper record of the request, on a set form. Reporters who visited in person completed the same form, which was kept at the duty librarian’s desk. To illustrate reporters’ paucity of research skills, and to keep a record of such requests, Ryan collated Age journalists’ information requests. The data for the six months between March and August 1998 have been set out in Figure 19.

**Figure 19: Information requests March-August 1998**

<table>
<thead>
<tr>
<th></th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
</tr>
</thead>
<tbody>
<tr>
<td>NewsLink</td>
<td>413</td>
<td>423</td>
<td>375</td>
<td>372</td>
<td>437</td>
<td>301</td>
</tr>
<tr>
<td>Reference books</td>
<td>327</td>
<td>352</td>
<td>327</td>
<td>306</td>
<td>287</td>
<td>247</td>
</tr>
<tr>
<td>Clips/paper files</td>
<td>82</td>
<td>99</td>
<td>126</td>
<td>110</td>
<td>122</td>
<td>122</td>
</tr>
<tr>
<td>Internet</td>
<td>36</td>
<td>80</td>
<td>58</td>
<td>59</td>
<td>52</td>
<td>43</td>
</tr>
<tr>
<td>Dow-Jones</td>
<td>33</td>
<td>25</td>
<td>35</td>
<td>29</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>ASC</td>
<td>12</td>
<td>2</td>
<td>17</td>
<td>6</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Lexis Nexus</td>
<td>3</td>
<td>0</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>QNIS</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PressCom</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dialog</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Online (other)</td>
<td>19</td>
<td>28</td>
<td>10</td>
<td>17</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Electoral roll</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>15</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>CD-Rom</td>
<td>0</td>
<td>0</td>
<td>23</td>
<td>18</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>Microform</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>4</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>ABS</td>
<td>13</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Govt pub</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Advice</td>
<td>111</td>
<td>107</td>
<td>63</td>
<td>51</td>
<td>59</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>1062</td>
<td>1126</td>
<td>1090</td>
<td>1012</td>
<td>1080</td>
<td>970</td>
</tr>
</tbody>
</table>

About 40 per cent of the requests each month were related to journalists’ inability to find anything during NewsLink searches. This percentage was calculated by comparing the figure in the “NewsLink” row with the total in the bottom row. For example, in March
journalists made 413 requests for library staff to search the NewsLink database, out of a total of 1,062 requests for information. Another 30 per cent of requests each month related to journalists’ requests for information in reference books. This was calculated by matching the figure in the “Reference books” row (second from the top) with the total in the bottom row. For example, in March journalists made 327 requests for information out of a total of 1,062 information requests. Copies of many of the reference books in the library were located in the Age’s editorial areas, on the second and third floors of the building at 250 Spencer Street in Melbourne. But journalists preferred to ask librarians to conduct research for them (Ryan 1998 TS).

Interestingly, requests for librarians to search Dialog, the world’s biggest commercial online database, totalled two in the half year. Requests for a search of PressCom (the full-text database that News Ltd owns) totalled six for the six months. And requests for information on Lexis-Nexis — the second biggest full-text database after Dialog — came to 49 for the same period. For financial reasons, Age library policy forbids journalists to access these commercial databases themselves:

Costs are the main factor. Librarians are trained to search these databases most efficiently, in terms of costs. One British newspaper thought that they could replace part of the library staff by giving reporters open access to commercial online services — until the bill arrived. We work beside the journalists to make sure they are searching on exactly what they need. We need to do more education on this front as often they do a fee search when all they need could be gained from the Internet. Journalists tend to get a favourite commercial service and use it all the time. We look at each query in terms of what outcome we want and work from free services upwards until we get sufficient data. You’d hate to see how much we spend on these services (Ryan 1999a E).

Why was the number of NewsLink searches so high, given the availability of this information resource on each reporters’ desktop? The library manager suggested that many journalists did not know how to use the technology. They did not have the time to learn, or were not interested in learning. The high number of reference requests probably related to the fact that journalists and sub-editors were trying to find information near
deadline. Unfortunately, information requests were not categorised by time of day so it was not possible to notice any trends. The library manager said that any journalist who was moderately capable with technology, or who had reasonable time-management skills, or who was motivated to teach themselves could have done most of the searches, via NewsLink or a reference book. She suggested this paucity of skills was evidence that in the past journalists had been “spoon-fed”. The bottom row of percentages in Figure 20 shows what journalist could have done if they searched themselves. In each month it was at least 92 per cent. “Obviously we don’t mind because it’s keeping us in a job, but it does show how much spoon-feeding takes place” (Ryan 1998 TS).

Figure 20: Information requests journalists could have done themselves

<table>
<thead>
<tr>
<th>Monthly totals of info requests</th>
<th>1062</th>
<th>1126</th>
<th>1090</th>
<th>1012</th>
<th>1080</th>
<th>970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total minus advice provided</td>
<td>951</td>
<td>1019</td>
<td>1027</td>
<td>961</td>
<td>1021</td>
<td>816</td>
</tr>
<tr>
<td>Total paper searches</td>
<td>541</td>
<td>568</td>
<td>562</td>
<td>495</td>
<td>494</td>
<td>450</td>
</tr>
<tr>
<td>Total electronic searches</td>
<td>521</td>
<td>558</td>
<td>528</td>
<td>517</td>
<td>586</td>
<td>420</td>
</tr>
<tr>
<td>% of paper searches</td>
<td>50.9</td>
<td>50.4</td>
<td>51.6</td>
<td>48.9</td>
<td>45.7</td>
<td>51.7</td>
</tr>
<tr>
<td>% electronic searches</td>
<td>49.1</td>
<td>49.6</td>
<td>48.4</td>
<td>51.1</td>
<td>54.3</td>
<td>48.3</td>
</tr>
<tr>
<td>What jourm could do themselves</td>
<td>882</td>
<td>964</td>
<td>956</td>
<td>895</td>
<td>953</td>
<td>754</td>
</tr>
<tr>
<td>% journalists could do themselves</td>
<td>92.7</td>
<td>94.6</td>
<td>93.1</td>
<td>93.1</td>
<td>93.3</td>
<td>92.4</td>
</tr>
</tbody>
</table>

Diffusion theory tested at The Age

The next section of this chapter maps Age journalists’ adoption of the Internet for newsgathering against the background of Rogers’ theories on the diffusion of innovation, and draws conclusions from the data obtained. The research used quantitative and
quantitative data-gathering methods. Both incorporated Rogers’ theories on the variables that influenced adoption, as shown in Figure 6 on page 47. The figure consisted of four parts, which are repeated here:

Part I: Perceived attributes of innovations
1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

Part II: Types of innovation-decision
1. Optional
2. Collective
3. Authority

Part III: Communication channels and nature of the social system

Part IV: Extent of opinion leaders’ promotion efforts

**Part I: Perceived attributes of innovation**
Research into the perceived attributes was designed to elucidate reporters’ attitudes towards the Web and email as a newsgathering tool — using the telephone and facsimile for comparison. The Web is considered first and results appear in figure 21. With relative advantage, 45 per cent of respondents thought that the Web was not as good or much worse, while 26 per cent considered it was very much better or better, and 29 per cent thought it was the same. With compatibility, 33 per cent considered the Web was not compatible with their needs, 18 per cent were indifferent, and 48 per cent thought the Web was a good fit with their journalistic needs.

With complexity, half thought the Web was more difficult to use than the phone, 30 per cent were neutral and 20 per cent considered it easier or much easier to use. In terms of trialability — being encouraged to try the Web out — 72 per cent had neither been encouraged or discouraged, and the remaining 28 per cent had been encouraged or very encouraged to use the Web. With respect to observability — being able to see the benefits
of using the Web — 79 per cent had noted that it was easy or very easy to note the benefits, 16 per cent were neutral, and only 5 per cent considered it difficult to observe any benefits.

Figure 21: *Age* journalists’ attitudes to the Web as a newsgathering tool

<table>
<thead>
<tr>
<th>Relative advantage</th>
<th>Very much better</th>
<th>Better</th>
<th>Same</th>
<th>Not as good</th>
<th>Much worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>9</td>
<td>11</td>
<td>22</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>As %</td>
<td>11.84</td>
<td>14.47</td>
<td>28.95</td>
<td>36.84</td>
<td>7.89</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compatibility</th>
<th>Very much fits</th>
<th>Fits</th>
<th>Same</th>
<th>Does not fit</th>
<th>Very much does not fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>18</td>
<td>19</td>
<td>14</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>As %</td>
<td>23.68</td>
<td>25.00</td>
<td>18.42</td>
<td>28.95</td>
<td>3.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Much easier to use</th>
<th>Easier</th>
<th>Same</th>
<th>More difficult</th>
<th>Much more</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>9</td>
<td>6</td>
<td>23</td>
<td>29</td>
<td>9</td>
</tr>
<tr>
<td>As %</td>
<td>11.84</td>
<td>7.89</td>
<td>30.26</td>
<td>38.16</td>
<td>11.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trialability</th>
<th>Very encourages</th>
<th>Encourages</th>
<th>Neutral</th>
<th>Discourages</th>
<th>Very discourages</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>11</td>
<td>10</td>
<td>55</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>As %</td>
<td>14.47</td>
<td>13.16</td>
<td>72.37</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observability</th>
<th>Very easy to see benefits</th>
<th>Easy to see benefits</th>
<th>Same</th>
<th>Difficult to see benefits</th>
<th>Very difficult to see benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>34</td>
<td>26</td>
<td>12</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>As %</td>
<td>44.74</td>
<td>34.21</td>
<td>15.79</td>
<td>5.26</td>
<td>0.00</td>
</tr>
</tbody>
</table>

With email usage, 62 per cent believed that email was not as good or worse than the phone as a newsgathering tool, 21 per cent thought it was the same, and only 17 per cent considered it better or very much better. In terms of compatibility with their work as a journalist, 42 per cent perceived that email did not fit their needs, 20 per cent rated it the same, and 38 per cent said it did fit their needs. Almost half (49 per cent) believed that email was more difficult or much more difficult to use than the phone, 21 per cent rated it the same, and 30 per cent said it was easier or much easier to use.
As with the Web, a high proportion of people surveyed (64.5 per cent) had neither been encouraged nor discouraged to try email. Twenty-one per cent reporting that they had been discouraged or very discouraged, and only 14.5 per cent noting that they had been encouraged or very encouraged. In terms of observing the benefits, a huge proportion (80 per cent) reported it was easy or very easy to see the benefits, while only 16 per cent said they were neutral and only 4 per cent reported that they could not observe any benefits.

Figure 22 details the survey results.

Figure 22: Age journalists’ attitudes to email as a newsgathering tool

<table>
<thead>
<tr>
<th>Relative advantage</th>
<th>Very much better</th>
<th>Better</th>
<th>Same</th>
<th>Not as good</th>
<th>Much worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>7</td>
<td>6</td>
<td>16</td>
<td>43</td>
<td>4</td>
</tr>
<tr>
<td>As %</td>
<td>9.21</td>
<td>7.89</td>
<td>21.05</td>
<td>56.58</td>
<td>5.26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compatibility</th>
<th>Very much fits my journalistic needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>8</td>
</tr>
<tr>
<td>As %</td>
<td>10.53</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Much easier to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>5</td>
</tr>
<tr>
<td>As %</td>
<td>6.58</td>
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</table>

<table>
<thead>
<tr>
<th>Trialability</th>
<th>Very encourages</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>2</td>
</tr>
<tr>
<td>As %</td>
<td>2.63</td>
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<table>
<thead>
<tr>
<th>Observability</th>
<th>Very easy to see the benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=76</td>
<td>28</td>
</tr>
<tr>
<td>As %</td>
<td>36.84</td>
</tr>
</tbody>
</table>

From the survey results it is possible to conclude that — based on Rogers’ theories regarding the perceived attributes of innovation — the Internet would diffuse slowly as a newsgathering tool within The Age. This conclusion is elaborated upon in the next few pages. External forces such as a competitor’s decision to force foster adoption among
staff, or an internal decision to compel training or reward people with special Internet skills, may influence the speed of adoption.

**Relative advantage**

In relation to the first of the five perceived attributes of innovation — relative advantage — Rogers noted that if an individual thought the innovation was advantageous it was more likely to be adopted: “The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is going to be” (1983: 13). He reported a positive relationship between relative advantage and the rate of adoption (1995: 218). *Age* journalists’ attitudes towards email and Web suggest that it is unlikely that they will adopt these innovations quickly, with 62 percent of email users and 45 per cent of Web users rating these technologies as “not as good” or “worse”.

In the journalistic environment, where reporters are continually confronting deadlines, reporters will be more favourable towards anything that saves time. Conversely, anything that reporters perceived as wasting their time would not be attractive. This introduces the notion of convenience, part of the relative advantage attribute of innovation. The previous chapter showed that many regional newspaper journalists did not use Internet connections provided because the terminals were located too far away. Even with a Web browser on their desk, many *Age* journalists preferred to use the telephone, because often it was more convenient. One senior reporter said he used the telephone because he had control over who spoke to him and what they said:

> I don’t ring people up at random. I ring the ones I know will give me good information. You wouldn’t want to be restricted to only using the phone, but for certain purposes it is better than anything else. The Web doesn’t ring ... so in that sense it is more convenient than the phone, but I suppose a disadvantage can be that people spend too long on it searching for information (Walker 1998 TS).
An IT reporter who used the Internet more than most said he did so because he knew what to look for, so he did not waste time:

I think I’m lucky because I know what to look for in terms of a well designed web site, in terms of timeliness. But I always seek to validate with an email or telephone call, just to check that the information is correct, because there are a lot of ghost towns out there (Mulcaster 1998 TS).

The paper’s chief medical reporter said she had been trained to use the Internet for research but still preferred the telephone:

Work-wise it [email] can be useful, but I find it more immediate still to use a phone. For example, last week I sent out a lot of email about a story, [but] not one of them replied. I don’t know if they got them or if they’re away. The problem is if someone is away, whereas at least with the telephone you are more likely to encounter an answering machine (Toy 1998 TS).

Toy admitted that she used the telephone for her main contacts, the people whom she relied on for major stories:

I have got a lot of sites that are bookmarked, including Federal and State health sites. But that is usually if I am looking for something that I’ve missed, because they are not terribly up-to-date. All the medical publications — The Lancet, the British Medical Journal — I check on those, but generally I get things faster through snail mail still, [because] the journals actually come through. The Web has sometimes been really useful. For example, recently something came on the [international news agency] wires about a report in one of the American journals and I was able to find the whole report on the Internet, which is one of those rare victories. It was there, and I printed it out before anyone else had it. That was fabulous. But no, my main contacts are still the ones I call up by phone (Toy 1998 TS).

Comments that other reporters wrote on the questionnaire revealed an inclination towards the telephone, and an appreciation that as a reporting tool the Internet was different from the telephone and facsimile:

Compared with the phone, I feel email is good, but limited in value in many areas. Email fits my current journalistic needs as a message and alert system. It’s just another tool. It does not replace the telephone or the direct interview (Male reporter, aged 60-64).

The phone tends to be better to use than email because you get an answer straight away usually. The phone is better than the Web because of the phone’s ability to centralise your search (Male Arts reporter, aged 25-29).
The response from the Web, compared with the phone, is much larger. Often that’s not a good thing as you receive too much useless information, whereas a phone call can sometimes immediately pinpoint what you need (Female cadet reporter, aged 20-24).

For interviews, the phone or face-to-face still rules. For more static information, email is great (Male reporter, aged 30-34).

The phone and the Web are different things. I use the telephone for interviewing, [and the] Web for background and research. I would love to be able to use email and the Web more confidently and efficiently, but I have not been taught how to do so at work. At home, with kids/husband/uni I have no time for random surfing. So my enthusiasm remains at a higher level than my skills (Female reporter, aged 35-39).

Compatibility

In relation to the second of the five perceived attributes of innovation — compatibility — Rogers noted that “the less of a change in behaviour it represents” the more compatible an innovation was (1995: 227). A faster rate of adoption would occur when an innovation was “perceived as meeting the needs of the client system” (1995: 228). Data in Figures 21 and 22 showed that Age journalists appeared to be evenly divided in their attitudes to whether the Web and email were compatible with their journalistic needs. Thirty-three per cent of Web users and 42 per cent of email users reported that these tools did not fit their needs. Almost half (49 per cent) of Web users and 38 per cent of email users found these tools were compatible with their needs. In the matrix of Rogers’ variables, this probably suggests that the compatibility variable cancels itself out.

Written comments from the questionnaire survey were also mixed in their response:

I don’t think of it [email] as a substitute but complementary. Email is good because you get information back in word-accurate text form. It is bad for discussion, getting an immediate response when needed and gaining meaning/interpretation from words gained when spoken. Given all that, if I must be put in a box, I’d say “not as good” (Male reporter, aged 25-29).

Email is about the same as the phone for newsgathering but nothing compares to face-to-face interviews. I think the Web is super for fast information gathering and researching but for interviews — especially controversial or complex ones — I prefer to be on-the road for face-to-face interviews (Female reporter, aged 40-44).
I use email and the phone for slightly different purposes. I send email for less time-dependent queries, or to overseas contacts (Female business reporter, aged 25-29).

I don’t see why the Internet and email can’t be efficiently used in conjunction with more conventional tools in journalism. There seems to be a view that they’re dangerous in that they could take over, but they can achieve different things and complement each other (Female cadet reporter, aged 20-24).

**Complexity**

In terms of the third of the five perceived attributes of innovation — the Internet’s complexity — Rogers noted that if an innovation appeared difficult to use it was less likely to be adopted. In general, a new idea that was simpler to understand would be adopted more rapidly than an innovation that required the adopter to develop new skills and understandings (1983: 15). This certainly appears to be the case with the Web and email, based on data from *The Age*. Half of the Web and almost half the email users surveyed found these tools more difficult or very much more difficult to use than the telephone or fax, the standard newsgathering tools of the late twentieth century. Only 20 per cent of journalists surveyed found the Web easier to use, and only 30 per cent found email easier to use.

Comments on the questionnaires showed that journalists considered these newsgathering innovations too difficult to learn. Most complained that they had received nil or inadequate training, and this issue is developed at the end of this chapter.

I find the Internet sometimes difficult and frustrating to use — mainly through lack of education in the best and most efficient ways of using it. Would like to learn more as there “don’t seem to be no goin’ back” (Male reporter, aged 30-34).

I find computers “fiddly”. I get sick of all the commands but acknowledge they have fantastic uses. To avoid using them is to invite professional death (Male business reporter, aged 45-49).

I would use the Web and email more often if I had been trained sufficiently in how to access information from the Web. At present I spend a lot of time trying to figure out how to get information I want. Often deadlines mean I
resort to more traditional methods of information-gathering, out of frustration (Female Arts reporter, aged 35-39).

I know there’s heaps of information on the Internet — but how and where to start? I can use it OK to get information from an organisation’s site but would not feel confident getting whole stories from the Web (Male cadet reporter, aged 25-29).

The Web drives me crazy. It is slow and some of the search engines don’t give very specific search tips. If you are looking for sites on a broad topic it gives too many hits, many of which are useless or irrelevant. Email responses often are not immediate, which is hopeless when you have to speak to someone quickly (Female cadet reporter, aged 25-29).

**Trialability**

Rogers described the fourth of the five variables that determined an innovation’s rate of adoption — trialability — as the opportunity that people had to experiment with an innovation to become comfortable with it. He offered the generalisation that the trialability of an innovation, as perceived by members of a social system, was positively related to its rate of adoption (1995: 243). If Age journalists were willing to try email or the Web — or their superiors encouraged them to do so — it follows that reporters would be more likely to adopt it. Research data showed that with the Web, 72 per cent of Age reporters were neither encouraged nor discouraged by their supervisors, and 65 per cent found this was the case with email. That is, there was no active encouragement to try out the technology. Only 14.5 per cent of respondents said they were very encouraged to use the Web, while 21 per cent said they were discouraged or very discouraged from using email. Rogers theorised that encouragement towards trialability — towards “giving it a go” — was an important factor in the adoption of an innovation.

Given the small number of opinion leaders at *The Age* — discussed later in the chapter — and the general lack of encouragement, the low level of willingness to try the technology was not surprising. The low level of staff morale and expectations of increased productivity, noted later in this chapter, also influenced whether staff were willing to experiment. The low degree of trialability could be connected with journalists’ perceptions
that the Internet and computers were complicated. Qualitative data suggest that Age
journalists were unlikely to adopt the Internet quickly:

There are still colleagues who need to be encouraged. They see the benefits when technology is used by others but are slow to try it themselves because it seems complicated. They don’t seem to want to spend the time it takes to learn (Male reporter, aged 55-59).

Surprisingly few [ask me how to use the Internet], and surprisingly few use the Internet [themselves]. I am always surprised when talking to some of my colleagues who say they have never been users. . . . I say: “Do you know about Medline or do you know about the UN Environment Page” or whatever it may be and they have got no knowledge of those. I am always amazed at how few people actually use it when it could benefit their own reporting (Bimbauer 1998 TS).

I’d have to say I see more guys using [the Internet] than I do women. In terms of age they are generally younger — 20s and 30s seem to be comfortable with it. . . . If journalists want to learn, if they see it as of value to them they’ll learn, they’ll cope with it. And how you pick whether one person is going to have that mindset and another isn’t, I don’t know how you do that, beyond asking them. . . . I suppose the trigger always is, if you have the resources, to sit one-on-one with each person and find something they want to know . . . the common problem is finding the time (Holden 1998 TS).

So there is no pressure applied within the company for people to pick up new tools and run with them. So those who choose to do so, when they get [them] provided almost out of the blue, like NewsLink, some people do really well and it is a great benefit for them. But I imagine they would be very much a minority (Cookes 1998 TS).

Observability

The last of the variables that determined adoption — people’s observation of others’ use of the Web and email as newsgathering tools — was generally high. Rogers had noted that the observability of an innovation, as perceived by members of a social system, was positively related to its rate of adoption (1983: 14-16). Observability at The Age was high, with 79 per cent of people surveyed noting that they found the benefits of the Web easy to see, and 80 per cent responding in a similar vein in relation to email. But there was also a distinct gap between knowing an innovation was available and actually adopting it — just as there was a gap between the availability of the Internet on reporters’ desks and their actual use of it. Why? The main reason was associated with the fact that reporters perceived
that they received too much information. They thought their lives were already too busy, and for some the Internet was too complicated to learn given the other commitments in their lives. See the later section under the sub-head "Actual use of technology?" for more details.

**Part II: Decisions about adoption of the Internet**

Fifty-five people replied to the question that asked who made the decision for them to use the Internet at work. Fifty-six per cent (31) said that they themselves had made the decision (what Rogers calls the optional decision) while 44 per cent (24) said that the decision had come from their supervisor (what Rogers calls the authority decision). Nobody said that it had been a group decision (what Rogers calls the collective decision). This may appear odd given that *The Age* is divided into separate editorial teams, sections or desks such as the IT section, the Arts desk, the business section, the foreign desk, the features section and the investigative team. Each group ranged in size from three to about 20. But in reality — because of the tyranny of the deadline — these sections operate as small empires and decisions are made from the top to save time. Various studies of editorial management have shown that the newspaper editorial structure works because it is the best way to control a publication's output efficiently (Cole 1963; Tidey and Knowles 1988; Walkley 1997). The high number of individual decisions mentioned earlier in the paragraph could be interpreted a number of ways. One interpretation could suggest that journalists inclined towards individualism and were reluctant to admit that a decision had been imposed on them. Another could be that those who said they made the decision themselves were part of the early adopter groups Rogers defined in Chapter 2.

**Part III: Communication channels among journalists at The Age**

Journalists' perceptions of how difficult or easy the Internet was to use, and their discussion about it, had an impact on the diffusion of this innovation at *The Age*. Rogers
noted that diffusion was influenced by people’s perception of the “value” of a product and their discussion of it. Consequently, *Age* journalists’ perceptions of the Internet and their discussions with colleagues about their Internet usage were measured. Those discussions, as reported in the survey, were generally positive. With email, 71 per cent of respondents said they told their colleagues that email was “very easy” or “easy” to use, with 21 per cent neutral and only 8 per cent saying the email was difficult.

With the Web, 59 per cent told their colleagues that the Web was “very easy” or “easy” to use, 17 per cent were neutral and 24 per cent regarded it as difficult. It’s relevant to note that nobody regarded email or the Web as “very difficult to use”. Figure 23 collates the data for this section.

**Figure 23: *Age* journalists’ discussions with colleagues**

<table>
<thead>
<tr>
<th>Discussion with colleagues re email</th>
<th>I find email very easy to use</th>
<th>Easy to use</th>
<th>Neutral</th>
<th>Difficult to use</th>
<th>Very difficult to use</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>39.47</td>
<td>31.58</td>
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<td>6</td>
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<td>n=76</td>
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<th>Easy to use</th>
<th>Neutral</th>
<th>Difficult to use</th>
<th>Very difficult to use</th>
<th>Totals</th>
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<td>17.11</td>
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<td>0.00</td>
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<td>0</td>
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</tr>
</tbody>
</table>

**Part IV: Extent of opinion leaders’ promotion efforts**

Rogers noted that adopters tended to model their actions on the role of opinion leaders and consequently opinion leaders were in a “unique and influential position” in a system’s communication structure. Rogers pointed out that opinion leadership was maintained by an individual’s technical competence and people’s access to them (Rogers 1995: 27). Who were *The Age*’s opinion leaders? The most obvious contenders were the paper’s editorial managers. When Steve Harris took over as editor-in-chief and publisher at *The Age* in 1996, he instigated a new structure. Previous section heads, such as the foreign editor,
business editor and the features editor were given the title of managing editor. Thus the foreign editor became the managing editor (foreign) and the business editor became the managing editor (business). In effect, the managing editors were the level of editorial executives below the editor and deputy editor, but above the reporters and sub-editors. The Age’s editorial management team comprised the editor, deputy editor, national editor, online editor and 15 managing editors. They met for lunch with the advertising and circulation managers each Thursday to discuss the previous week’s publications.

This research looked at them from two directions. The first was self-examination, whereby the 19 were asked to complete the same questionnaire as that completed by the 76 reporters. The second involved a series of face-to-face interviews — with confidentiality guaranteed — with some of the reporters on their staff. The aim was to ascertain reporters’ attitudes to the managers’ use of the paper’s Cybergraphic production system and the Internet. The results were both interesting, and contradictory.

The results of the questionnaire put to the 19 members of the management team are considered first. Only nine of the 19 completed the questionnaire, despite three reminders from the editor’s personal assistant. I conducted a group presentation to them in September 1998, at the end of which I asked them to complete the questionnaire to help my research. This low response suggests — based on evidence from their staff — that it was a reflection of the editorial managers’ reluctance to expose their low technology skills. Perhaps only those who had good technology skills completed the document, because the results produced a snapshot of senior editorial staff at The Age with reasonable abilities. Results show a group that ranged in age between 37 and 49 (with most aged between 40 and 44). Almost all had been a journalist for at least 18 years. Five of the nine had a university degree, one a diploma, and three obtained the Victorian Certificate of Education after year 12, or its equivalent. None was currently enrolled at university. All believed they received more than enough information to do their job. All but one noted that their
colleagues believed that computers were essential or important for newsgathering, though four of the nine considered that computers were too complicated. All of the nine chose the options “I love them” or “I like them” to describe their attitude to computers. In short, the results suggest a group who were more positive than negative about computers and technology.

In terms of their attitudes to email, the numbers were probably too small to indicate anything specific. A third did not regard email as being as useful as the phone and a third did not think it fitted their journalistic needs. All but one reported that their boss (the editor) neither encouraged nor discouraged them to use email. Eight of the nine said it was very easy or easy to see the benefits of email. Numbers were also too small to derive useful information from their responses relating to the Web — though six of the nine found that the Web fitted their journalistic needs and all found it very easy or easy to see the benefits of the Web. Six of the nine also reported that their boss neither encouraged nor discouraged them to use the Web. Seven told their staff that email was very easy or easy to use, compared with the phone or fax, and six told their staff the same thing about the Web.

Some interesting data came in response to their actual use of email and the Web. Five of the group sent between one and five emails the day of the questionnaire and seven had sent the same number the previous day. One had not sent any email that day or the day before. (Unfortunately the survey did not differentiate between email sent outside the building and use of The Age’s internal email system contained inside the Cybergraphic system. Some managing editors use the internal system to send messages to staff, rather than talk to them face-to-face, because it saves time.) Seven of the group had spent between one and 29 minutes on the Web that day and the other two had not gone online. Five had spent between one and 29 minutes on the Web the day before, two had spent between 30 and 59
minutes, and two had not ventured online. Overall, the data suggested a group of managers who liked technology and who used it.

Reporters’ opinions of their managers’ technology skills were markedly different. One senior reporter described them as “exceptionally low”, which created problems for the reporting staff. He concluded that these editorial managers were “strangely computer illiterate” in terms of their technology skills:

They are not really interested in computers and not really willing to explore them. Because of pressures of time, because they are inevitably under-skilled and overworked they have little room for exploration and so they tend to use things that are tried and true. Because computer-assisted reporting is not tried and true and because it requires a lot of effort, it doesn’t fit into their normal work pattern. There is a very great pressure on them to be able to do things the way they’ve already done them. There is very little pressure exerted on them to try new approaches to things. A case in point is the editor of this paper who had absolutely no understanding of the Internet and didn’t want to know . . . he’s a technological troglodyte (Cookes 1998 TS).

The paper’s senior project manager for the installation of the Cybergraphic system noted that the paper’s “senior editors” failed to attend training courses because they “consider themselves to be too busy getting the paper out”.

Unfortunately we have a newspaper culture here . . . that doesn’t see the value of technology. They find it a necessary evil. They don’t embrace it and if your top dogs aren’t embracing technology it is not a good message to the rest of your staff, because what it means, of course, is that those who hate technology as well feel that they are let off the hook. You will find packets of people who really know very little about it, and they are out to know very little, because they don’t have their senior people putting pressure on them (Holden 1998 TS).

Each of the managing editors was responsible for a specific part of the paper and their titles referred to the sections of the paper they controlled. Holden said the editor and his managing editors “must all be a part of any technological change”:

They have to be. Even [if] one of them doesn’t, his staff will not learn if they can avoid it. I am talking very much about the writers, if you like, for whom all technology since the typewriter is the bane of their lives (Holden 1998 TS).
A former computer editor noted that opinion leaders, along with early adopters, were important because they generated interest in technology. But they were scarce at *The Age* and many of them tended not to share or communicate the information they found: “They did not identify themselves as Internet users, so their colleagues could not become aware of what was possible” (Wright 1998 P). Wright had been closely involved with the introduction of the first front-end system in the country, at *The Australian*, in the early 1980s. He launched *The Age*’s IT section, and later *The Australian Financial Review*’s Information section. There he was able to influence many of his colleagues: “But *The Australian Financial Review* apart, most newspapers regard their IT journalists as little more than writers of advertorials — they’re on the periphery.” Wright spoke of the huge irony of Australia’s position as one of the largest users of the Internet by world standards, yet the country’s journalists were not major users: “Journalists appear to have very dissimilar interests to their constituents, which is a sad reflection on the state of the industry” (Wright 1998 P).

Another senior reporter said the Internet was changing the newsgathering process but complained that editorial managers did not realise it because they were thinking in terms of 1970s or 1980s news values. They tended to have news values that allowed other news organisations to set the news agenda:

[The news desk] are not getting the best news because they are not really pushing the envelope very much. They are still chasing whatever is on the radio, chasing what was on the ABC news or chasing what the other newspapers did (Mulcaster 1998 TS).

Individual reporters needed to be told from managers that “we will embrace this Internet”:

I think that is the next big challenge — in actually getting reporters having complete access to all archival information that you get in the office as if you’re in the library, whether you’re on assignment or whether you are a freelancer working from home . . . But it needs to be mandated from the top (Mulcaster 1998).
A senior IT reporter complained about the small number of Age journalists who had sought advice about the Internet, even though the IT staff were willing to help. This applied to senior managers as well as reporters:

They don’t come to us enough — they don’t hassle us enough. We have probably spoken to half a dozen journalists this year [out of 163] about issues to do with Internet stuff. There are certain journalists in this organisation that whenever I see Internet or computer and their by-line I quiver, I just know that it is going to be ill informed. I would like these people to come to us; I would like them to say “Look do you have half an hour to go over these issues with me.” I would much prefer that, I would put aside everything else I was doing to make sure that they actually got a good story and write authoritatively (Cochrane 1998 TS).

As of late 1998, Age journalists — managing editors as well as juniors — were still struggling with basic technology skills such as how to use a mouse. Until the installation of the Cybergraphic system between the middle and the end of 1998, most journalists had worked with front-end systems that used cursor keys to move about the screen:

The reporters on the other hand have had very little experience of Windows. Atex is an old mainframe-based system, in that the box on your desk was stupid. It knew nothing — a dumb terminal — all it was, was a keyboard and that was it. You issued your commands back to the mainframe . . . We then offered them classes on NewsLink and the Internet. Some have taken to it very well, but I would have thought the majority haven’t. Now Cyber is a Windows system. You can’t avoid it. You must get [used] to the Windows style. Really what we’re finding is that we can teach this in the class, but there is so much for them to learn that they are struggling with coping with Windows. Their lack [of] experience with Windows has been one of our greatest handicaps actually (Holden 1998 TS).

The paper’s library manager confirmed Holden’s assessment while describing her attempts to teach journalists how to use the NewsLink system:

We trained them in basic NewsLink searching, how to navigate their way around NewsLink, because at that stage they were moving from a non-Windows environment. Most of them — and I am talking about at least 50 per cent of the journalists — didn’t know how to navigate around Windows, couldn’t use a mouse! We were taking them from that to a full text database, so that’s where we lost a lot of people in the initial training, because the shift was too great (Ryan 1998 TS).
Few journalists were actively encouraged to use the Internet because many editorial managers had not recognised its potential. Very few had had the benefit of going to the United States and seeing the work of Investigative Reporters and Editors, or visiting the Poynter Institute. Investigative reporter Bill Birnbauer had gone to both.

There is a perception that it [the Internet] is technical and journalists are notoriously not technically minded, that it is all too hard, and at the end of the day they’ve [already got] a lot of the information they need anyway [and that] they are not going to get it in [the paper] which is partly true (Birnbauer 1998 TS).

**Journalists and information overload**

Birnbauer touched on an important issue. Most *Age* reporters believed that they already received more than enough information from faxes, telephone calls and press releases — even without the Internet. One senior IT reporter noted that he and his colleagues had got to the point where they did not answer the telephone:

Most IT reporters leave their voicemail on because their voicemail acts as another filter. It is a very crude one, but it is a pretty good one. The same with a mobile phone, the caller ID, I filter out information that way. Even before I pick up the phone I know who is calling me. Email is very good if there are people you just don’t want to deal with, you can set up a filter automatically, you don’t even have look at their email . . . If I don’t have to handle paper I am very happy. Other things too, you learn as a reporter when you are looking at particular issues, you know the people you have to go to immediately . . . We have created lists of good contacts that are stored and shared within all the IT reporters (Cochrane 1998 TS).

Another senior reporter commented that a lot of *Age* reporters did not know whether their voicemail was on or off:

At a particular time it annoys them or they forget to turn it on because there is no visible signal that it is off. So it is actually, in terms of useability, quite badly designed, and you wouldn't expect that people would be able to use it. It has annoyed me too and I’m very technically savvy. It is just badly designed (Walker 1998 TS).

Another reporter suggested that information overload was part of the job:
I have [experienced it] in the past, but that was more through traditional methods, in terms of mail, faxes, people phoning. With the Web it’s the sheer volume of information overload when you are doing a search. Lack of precision is a major issue (Painter 1998 PS).

One senior writer suggested that journalists needed discipline and experience to deal with information overload:

There is nothing you can do about it, it’s there. It’s a matter of self-discipline; it is like anything else, like saying to yourself “That’s enough, I can write a story, it’s a good story, it’s a solid story. I think it’s accurate, I’ve checked it as far as I can, forget the rest of it.” If you’re covering a presidential assassination, which I’ve done, then you eventually have to file, the deadline arrives and you file (Barker 1998 TS).

One of *The Age’s* investigative reporters said he experienced information overload “all the time”:

You are always out there gathering information and then trying to pare it down, inevitably. Particularly on the bigger sorts of projects, the more investigative projects we work on. Journalism is a process of gathering, then excluding, information (Forbes 1998 TS).

The questionnaire that 76 reporters completed contained a question relating to their perceptions of the quantity of information they received. Two thirds (67 per cent) said they received more than they needed or vastly more. Seventeen per cent said they received insufficient, or almost enough, while 16 per cent said they received about the right amount. Details are shown in Figure 24.

**Figure 24: Reporters’ assessment of quantity of information received**

<table>
<thead>
<tr>
<th>Quantity of information received</th>
<th>Insufficient</th>
<th>Almost enough</th>
<th>About right</th>
<th>More than needed</th>
<th>Vastly more than needed</th>
</tr>
</thead>
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<tr>
<td>As %</td>
<td>2.63</td>
<td>14.47</td>
<td>15.79</td>
<td>44.74</td>
<td>22.37</td>
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<tr>
<td>n=76</td>
<td>2</td>
<td>11</td>
<td>12</td>
<td>34</td>
<td>17</td>
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The paper’s chief medical writer said she constantly experienced information overload from press releases and the phone, and the need to keep abreast of her subject:
But it tends not to be so much from the Net, because the Net I tend to go to when I am trying to deal with the information overload. But it is just like mail, and [the] medical [round] is a huge area so there is constant information overload from journals, books, magazines and the international wires (Toy 1998 TS).

Another reporter noted that one of the key issues with information from the Internet — as well as the huge volume — was how to assess its quality and veracity:

A lot of the time you have difficulty verifying information. In fact, a lot of people take information off the Net and don’t bother to double-check and I think that is one of the big risks with information on the Net. If you know the site — like if it is an Australian Bureau of Statistics site OK you can trust it — but if you’re taking an article that was published on one site but then hot linked or published on another one, how can you quantify and verify that information? I very rarely quote directly from information I get on the Net. I usually use it as a base research tool only, and then I’ll conduct interviews. But often I will check, depending on the nature of the information (Painter 1998 TS).

One investigative reporter was reluctant to use data gathered from the Internet because he did not know who provided it:

I think you need to take a filter to the material that’s there and merely use it as a resource that will take you to a source and then you do your own investigation. I don’t think you should use a lot of the information on the Net unquestionably because I think ultimately you don’t know who has put it there, you don’t know what their motivations are, you don’t know how accurate it is or whether it is entirely concocted. You should use it as a stepping stone to further research. I think people who take it at face value are going to find they are going to be caught one day (Bimbauer 1998 TS).

Another senior reporter echoed Bimbauer’s concerns:

I don’t trust anything on the Web unless it is officially verified. I have learned to trust certain people, [but] it is like anything else — contacts, using the phone, using your feet — it is just information. The fact that it comes over the Web, the Web is only a vehicle, it doesn’t make it different, it just makes it odder. I have the constant worry about provenance, because you’re not dealing directly with somebody you can look in the eye (Barker 1998 TS).

The paper’s medical writer had a similar approach when it came to authenticity:

If it is government site or if it is a commercial site that I know, or if it is a major publication that I know of, it’s generally OK. It is usually fairly easy I think to find out whether it is an authentic site or not. So that is not usually a problem because you can usually tell when it is someone’s
personal Web page. You would have to take it with a grain of salt (Toy 1998 TS).

A senior IT writer suggested that time and experience were factors in deciding what were appropriate sources, but he was always on guard to put these sites through his “bullshit detector”:

But the funny thing is once you get within a community of practice, once you get within a community of interest you actually develop almost a passive rapport with particular sites. You’ve read them, you’ve checked their information in the past. They may not be established brand names, but you know that in their particular field of endeavour they are authoritative . . . . The other thing you can look for is .edu sites — they are usually very good. Then you just put it through your bullshit detector and you go through the normal processes that you would to check any other story that came from any other source (Cochrane 1998 TS).

One of the reasons that Age journalists did not use the Internet as much as they could for research and information gathering was their belief that they already received more than enough data. Another was the common assumption that it was difficult — and time-consuming — to find valid data. The final section of this chapter considers the role of training — or lack of it — in the equation.

One senior reporter observed that Age journalists’ information management skills were “minimal” and most of the information management tools available to them were highly unsuitable for “unsophisticated users such as journalists”. The tools themselves were “still evolving”:

Microsoft Outlook [The Age’s email software] probably isn’t suitable for unsophisticated users . . . which is most of the population and certainly most of the journalistic population. I do think that it’s going to be important in managing information overload. Journalists are going to have to rely on the idea that they are not going to see most of this information as it comes in [it will be filed away by filters and information robots] but they are going to need to know ways to find it later (Walker 1998 TS).
Actual use of technology?

Age journalists had access to one of the fastest and most stable Internet services in Australia. Based on their discussion with colleagues and their response to the questionnaire, they perceived that email and the Web were relatively easy to use (see Figures 21 and 22). Did they use the Internet for newsgathering? Rogers drew a distinction between potential use of an innovation and actual use. In his study of new communication technologies he noted three “distinctive qualities” related to the diffusion of these technologies, along with the factors already outlined (1986: 21). The three key features were:

1. the importance of a “critical mass” of adopters and users
2. the existence of a high degree of adaptation, or re-invention
3. the significance of the actual use of the innovation, rather than its mere adoption

Data from the Australian Bureau of Statistics discussed in Chapter 1 demonstrated there was a “critical mass” of Australian users. Chapter 5 showed that the number of adopters among journalists had grown markedly by 1999. Chapter 5 also showed that a high degree of re-invention was taking place at regional dailies. This part of the chapter considers the third of Rogers’ features, the actual use of the Internet, compared with its availability. Almost all journalists at The Age had an email address and access to the Web from their desktop, so it was definitely available. But were they using it?

The questionnaire completed by 76 Age reporters asked four questions relating to the number of emails sent over two days, and the amount of time spent on the Web, again over two days. It showed that 42 per cent of reporters who completed the survey had not sent an email that day and 21 per cent had not sent an email the previous working day. A further 42 per cent had sent between one and five emails that day, while 66 per cent had sent somewhere between one and five emails the previous working day. On the same day, the
remaining 16 per cent had sent somewhere between six and 20 emails. On the previous day, 13 per cent had sent emails in the range between six and 20.

Figure 25: Number of emails sent and minutes of Web usage

<table>
<thead>
<tr>
<th></th>
<th>Email messages sent today</th>
<th>Email messages sent yesterday</th>
<th>Minutes spent on Web today</th>
<th>Minutes spent on Web yesterday</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>0 1-5 6-10 11-15 16-20 20+</td>
<td>0 1-5 6-10 11-15 16-20 20+</td>
<td>0 1-29 30-59 60-89 90-119 120+</td>
<td>0 1-29 30-59 60-89 90-119 120+</td>
</tr>
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<td></td>
<td>42.11 42.11 7.89 5.26 2.63 0.00</td>
<td>21.05 65.79 7.89 2.63 2.63 0.00</td>
<td>18.42 47.37 18.42 10.53 2.63 2.63</td>
<td>18.42 47.37 18.42 10.53 2.63 2.63</td>
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<td>16 16 3 2 1 0</td>
<td>8 25 3 1 1 0</td>
<td>10 18 6 3 0 1</td>
<td>7 18 7 4 1 1</td>
</tr>
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<td></td>
<td>n=38</td>
<td>n=38</td>
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<td>n=38</td>
</tr>
</tbody>
</table>

Just over a quarter of reporters (26 per cent) had not accessed the Web that day and another 18 per cent had not used it the previous day. Almost half (47 per cent) had spent between one and 29 minutes on the Web both that day and the previous day. The data therefore showed that the bulk of reporters spent relatively little time on the Web: 74 per cent had used it for less than 29 minutes that day, or not at all. And for the previous day, 66 per cent of reporters had accessed the Web for less than 29 minutes that day, or not at all. For the previous day, 18 per cent of reporters had spent somewhere between 30 and 59 minutes on the Web. Figure 25 shows the data for both sets of questions. Even though Age reporters had the convenience of email and Web access from their desks and a fast network, the data showed that two in five had not sent email and three in five had spent
relatively little time on the Web during the research period. Despite the sophisticated technology available to them, many reporters were still in Rogers’ late majority and laggard categories. The next section discusses the possible reasons.

**Personality factors/profile of *Age* Internet users**

Chapter 2 showed that Rogers divided the kinds of people who adopt an innovation into five categories, depending on their personality (1995: 248-51). Moore preferred the phrase “unique psychographic profile” to describe them (1995: 12). It would be safe to conclude that reporters at *The Age* fall into all five of Rogers’ categories:

1. innovators
2. early adopters
3. early majority
4. late majority
5. laggards

Rogers suggested that each group had specific characteristics. Innovators exhibit “venturesomeness” and, for them, gaining access to new technology is almost “an obsession”. They are eager to try new ideas and products (1983: 248) while early adopters “have the greatest degree of opinion leadership in most social systems” (1983: 249).

Most of the reporters on the IT section of *The Age* fell into these two categories. Their desks were piled high with brochures about new products, and packaging from computers and other new devices sat on the office floor. All six IT reporters carried mobile telephones, digital cameras and laptop computers, and almost all used hand-held personal data assistants (PDAs) such as 3Com’s Palm Pilot and Philip’s Ninio.

One IT reporter said he saw part of his job responsibility as acting as “a knowledge base” to help non-IT reporters do things like “learn how to send email”:

> I find that is a great lever to inculcate in them the culture of the Internet and to give them a perspective from a news angle what is and what isn’t news. . . . I see it as our responsibility in the IT section to act as a series of line
trainers — to help them learn how to use the Net, and what is and what isn’t a news story on the Net (Cochrane 1998 TS).

Another IT reporter told how he experimented with technology:

Next week I am doing a trial. I am going to get on a tram for a day with a laptop computer and try to dial in and do all my work via a mobile phone. You can go and buy all the gadgets you need, but what you need is the will for the company to invest in software to make it all work . . . The best journalistic laptop is the Hewlett Packard Omnibook 800 series, which is now out of date, but the 900 series comes out in January [1999]. Fortunately that model weighs 1.7 kilograms and it has got a full-size keyboard (Mulcaster 1998 TS).

The Age’s IT reporters had little opportunity to influence their colleagues because the IT section was located in a separate area away from the main body of reporters. Wright had earlier pointed out Fairfax’s tendency to “ghetto-ise” IT reporters (Wright 1998 P). Rogers noted that the early majority category “adopt new ideas just before the average member of a social system” and their position between early adopters and the late majority made them “an important link in the diffusion process” (1983: 249). Based on data presented earlier in this thesis (see Figures 21, 22 and 25) it would be safe to conclude that many Age journalists were not in the early majority category. The paper also had few respected opinion leaders who could help bridge the gap between early adopters and the late majority. The Age was consequently missing, as Rogers suggested, “an important link in the diffusion process”.

In fact, despite the wealth of online resources, a high proportion of Age reporters were in Rogers’ final two categories — the late majority and laggards. Rogers noted that people in the late majority “adopt new ideas just after the average member of a social system” and adoption may be both an economic necessity and the answer to increasing network pressures. These people approached innovations with a sceptical and cautious air and did not adopt “until most others in their social system have done so” (1983: 249). When
laggards finally adopted an innovation, "it may already have been superseded by another more recent idea that is already being used by the innovators" (1983: 250).

Comments made anonymously by reporters who completed the research questionnaire showed their reactions to technology. One woman reporter preferred the paper questionnaire that came after the initial (failed) email questionnaire:

I filled in one of the printed surveys — so I don’t have to battle with the technology now! (Female reporter, aged 35-39).

Another woman reporter could not work out how to respond to the initial email questionnaire:

I don’t know if I’m the only one who can’t do it — but if I try to put an X on your [email] questionnaire, nothing happens. Is there something I’ve missed here? (Female reporter, aged 30-34).

A feature writer was quite blunt in his response:

By and large, email sucks. One reason why it sucks is because there is always a presumption on the part of the sender that the receiver has oodles of time to read over their lengthy missives. Don’t send me any more email. You can write or call me on 9601 2028. But, please, no email (Male feature writer, aged 30-34).

A woman reporter said she had never used the Web and needed training:

I have not used the Web and have never had any related training, though I would like this. I use email to a limited degree but have not had training on this either (Female reporter, aged 25-29).

Another reporter echoed the same sentiments:

I feel the Web is an important tool for research but basically I don’t know how to use it (Male reporter, aged 45-49).

A reporter who was also a section editor said:

Press releases that arrive by fax are easier to scan for relevance and facts. If I received 50 faxes a day by email and tried to process them all I would be blind by now (Female reporter, aged 40-44).
Two feature writers — a woman and a man — lucidly expressed their concerns about the Internet:

Email would be good to make overseas contact; otherwise it is time-consuming and not particularly useful. The Web is more for interest value than benefit. It is hard to wade through the nebulous available material (and I've done the advanced course!) A lot of the general information is American and some not trustworthy. The Web is useful for novelty items (for example, about film stars/scandals). NewsLink is a far, far better tool (Female feature writer, aged 35-39).

Technology is often vastly over-rated and introduced without adequate instructions on how to use it. The presumption that technology means improvement is misguided. Email and the Internet waste more time than anything else (Male feature writer, aged 35-39).

One of the senior editorial managers also admitted that he knew little about the Internet:

I am not good at exploiting new technology. I need to ensure I make better use of it (Male managing editor, aged 35-39).

Rogers concluded that many innovations required a “lengthy period” — often many years — between when they became available and the time they were widely adopted: “Most innovations, in fact, diffuse at a surprisingly slow rate” (1983: 9). He also noted that it was wrong to infer that laggards were somehow at fault for being late to adopt. This was an illustration of how individuals were blamed when it was more the fault of the general system (1983: 250-51).

One major reason for the number of people in the late majority and laggard categories — despite the superb range of online information sources available — was the low level of training offered, and editorial managers’ failure to foster a learning environment. This was linked with a change in culture over the past few years that expected journalists to work longer hours to protect their jobs, which in turn produced an atmosphere in which reporters believed that they had insufficient time to do their jobs, let alone learn new skills. People did not attend training courses because they were not encouraged and they thought they had better things to do with their time.
Staff attitudes to technology training at *The Age*

Interviews conducted with *Age* journalists suggested they fell into two main groups in terms of their attitudes to technology training. These groups could loosely be associated with Rogers’ and Moore’s personality groups. One group could be classified as the “wait-and-see” types — journalists who waited for training to be provided, were not proactive in seeking it, but nevertheless complained about the lack. These could loosely be linked with the late majority and laggard categories in Rogers’ personality groups and Moore’s “psychographic” groups shown in Figure 5 in Chapter 2. The other group could be classified as the “pro-active” type. As their name suggests, they actively looked for training, or in many cases taught themselves to use the Internet. It may be possible to associate them with Rogers’ innovators and early adaptors. It was no coincidence that the bulk of them worked as IT, medical, science and technology writers.

It is important before elaborating upon these groups to discuss the context for technology training at *The Age* in the mid to late 1990s. The paper’s library manager summarised the background when she concluded that *Age* journalists had been “technologically kept in the dark”:

> To give a little background: journalists here have been technologically kept in the dark for a long time . . . because this company doesn’t have a commitment to training. Hasn’t really had for some period of time. When I first came here about four years ago there was no training policy. So any training you did was in-house because there was no budget for it and there were no training people or facilities . . . What we have done is mostly in-house here, but it has taken a long time for editorial to take training on board. The thing that has brought that to the fore has been the implementation of new systems, like moving across from one production system to another [Cybergraphic] (Ryan 1998 TS).

Research data and interviews conducted for this thesis showed that technological enhancements drove the planning for training, rather than any company desire to improve journalists’ skills. The need to prepare staff for the introduction of the new Cybergraphic
front-end system was the main reason for the 1998 training program, rather than any intention to enhance reporters' information-gathering techniques:

[For] NewsLink training, we had to borrow four terminals. It was a big begging job to actually get set up to do what we did for the NewsLink training. But because this [new front-end system] was a big project, Cybergraphic had set up a proper training facility. So a commitment from the company to training has been one of the biggest impediments to moving people forward in terms of learning the skills that they need in terms of information gathering . . . One of our problems is that they have cut staff in the library back to the extent that we don’t have a dedicated trainer (Ryan 1998 TS).

The Age’s chief Cybergraphic trainer confirmed that NewsLink and Internet training for the paper’s journalists was “haphazard” when the Cybergraphic system was introduced because training in the production system was the main objective. Cybergraphic was vital for producing the paper each day. It was a business-driven decision (Holden 1998 TS). He confirmed that every journalist in the building had done some NewsLink training but expressed concern about whether they remembered it — another example of the gap between the availability of an innovation and its actual use:

The library has taken responsibility for NewsLink training. So I would think every journo in this building has had some training. Now whether they have absorbed it and then used is another matter (Holden 1998 TS).

Holden also suggested that in hindsight The Age management should have forced journalists to use the company intranet by putting things on it that journalists needed, “rather than making life too easy for them”. This links with Rogers’ theory of trialability, that people were more likely to adopt an innovation if they had an opportunity to experiment with it:

I think what we probably needed to do was to force them to use the intranet by putting on it things they needed every day, for example, their roster. We never did. Their holiday roster, just stuff like that. Because what we had in the early days was we had the style book, but most journos never bother about style anyway, so they didn’t go looking for that. We had the canteen menu on it, but they could walk into the canteen and see what was for lunch, so they didn’t really care about that. We had staff phone numbers, but they could ring the switch and get put through so they didn’t have to use it. There were all these things that were there that were good, but they didn’t have to use it. I think that if you’re doing this cold in an organisation you’d
find something that they really want and put it on the intranet, so that they
just get used to logging into the intranet, and not putting pieces of paper on
the wall to get them out of the problem. If I am using it every day I get my
confidence up, I understand how it works, therefore I'll click on a few links
and off I go (Holden 1998 TS).

He found training worked best when the new system people were learning appeared
compatible with the previous system, Atex, especially given journalists' minimal skills with
a mouse:

We built the PCS in such a way that when you logged on it automatically
brought up the Atex window. So you never in fact had to reach for a mouse
if you didn’t want to. The reasons for that I suppose were pretty good. It
was comfortable, it was re-assuring, this is a familiar scene, slightly
different colours, but I understand what is going on here. We then offered
them NewsLink text with classes and Internet. Some have taken to it very
well. You'll find out yourself, but I would have thought the majority haven’t
[done the Internet training] (Holden 1998 TS).

Holden reduced the complexity of the new front-end Cybergraphic system by relating it to
skills that Age journalists already possessed. In that sense he unconsciously recognised
another of the variables that Rogers outlined, complexity — the fact that people adopted
technology more readily if they perceived it as easy to understand:

I want to do this particular task, how do I do it in this new technology?
Therefore how am I going to explain that to my workmates in the language
they understand? Latterly now we've worked right through the training
books. We've now gone into training and so I am in effect head of the
trainers, and head of the support so that we feed back to the developers if
there are any problems that we need to be fixed (Holden 1998 TS).

He also confirmed that journalists’ knew very little about technology and computers:

We find people will crash Cyber [the Cybergraphic system] left right and
centre, and it's because they've got 10 wire desks open. Most likely what
they'll do is they'll do a story search of every desk in the system, and
because that is taking time they'll go and do half a dozen other different
commands, and sure enough it [Cybergraphic] gets its mind scrambled and
falls over. They [journalists] don’t make the link between my action equals
"X" because they have no concept of how a PC works (Holden 1998 TS).

One of the paper’s technology boffins confirmed that most reporters he had encountered
had low or minimal technical skills:
They [their skill levels] would be very basic. Simple things that I would know automatically are just not obvious or intuitive to them. So many things associated with computers are just not on. Whether they actually gain a better knowledge of them I don’t know. I think it is up to them [reporters] to use it [computers] often enough to know more about it (Linfirth 1998 TS).

An IT reporter noted that training at the paper was limited when he started in 1997, but he believed *The Age* was “catching up”:

This newspaper is perhaps level with penetration of what some of the US newspapers are giving their reporters [in terms of access to technology], and certainly *The Age* is two years behind Asia. In Singapore, Thailand, Hong Kong, Web on the desktop is pretty well standard in most newspapers. Here they are only catching up, well we did catch up 12 months ago [in late 1997 with the roll-out of the Internet] but I think the education lacked quite a lot. Yet I’m astounded that this is the most advanced newsroom in the country (Mulcaster 1998 TS).

He noted that when he arrived at the paper from Hong Kong, reporters came to him for advice and training:

When I first arrived here last year there was no formal [Internet] training but we had some reporters who would come up to us, seeing that we were using it quite differently than they were and they would come up and ask us, so they were crying out for training. One fellow, James Button just came over and I spend 20 minutes with him and I was able to help him with a story — he needed to talk to someone from the CSIRO. Being a public holiday they were closed. What can you do? Just go to the Web site. He didn’t quite know how to get there. So I just gave him some bookmarks and he went away. Having talked with him since, it has sort of become a regular habit for him to use some of those resources. But it was the lack of training, no one bothered to actually show them, to demonstrate exactly how more advanced newsgathering could be (Mulcaster 1998 TS).

**Category of journalists: the ‘wait-and-see’ type**

Given the lack of training, how did *Age* journalists react to technology? The first group to be considered were those who did nothing, the “wait-and-see” types. Some knew about the mass of information available on the Web but found themselves overwhelmed by it. They could not or would not find time to get trained. This left many of them in a form of paralysis, where they did nothing but wait and see. All comments were taken from the anonymous questionnaire distributed in September 1998:
I find the Internet sometimes difficult and frustrating to use — mainly through lack of education in the best and most efficient ways of using it. Would like to learn more (Male reporter, aged 30-34).

I have not used the Web and have never had any related training, though I would like this. I use email to a limited degree but have not had training on this either (Female reporter, aged 25-29).

I know there’s heaps of information on the Internet but how and where to start? I can use it OK to get information from an organisation’s site but would not feel confident getting whole stories from the Web (Male cadet reporter, aged 25-29).

The Web is a great resource. *The Age* has had seminars to help us use it and I think more should be held (I doubt everyone was able to find the time to do it). As for email, I must say I use it more for personal than professional reasons, thus far anyway (Female reporter, aged 30-34).

My feelings about the Web are to do with lack of training to use it efficiently. I know there is a lot of useful information there that I can’t access in a timely manner (Female business reporter, aged 25-29).

I would use the Web and email more often if I had been trained sufficiently in how to access information from the Web. At present I spend a lot of time trying to figure out how to get information I want. Often deadlines mean I resort to more traditional methods of information-gathering out of frustration (Female Arts reporter, aged 35-39).

Charles Wright, a former computer editor at *The Age*, said he found that most journalists there were not interested in technology and suggested that most were in Rogers’ laggard and late majority categories. Australian journalists compared unfavourably with their colleagues in the USA, where reporters appeared more interested in harnessing the power of computers to do their job. He suggested that too many Australian journalists were “intellectually lazy” and expected to be “spoon-fed” information. The other issue was effort — Australian journalists seemed reluctant to make the “necessary investment in time” to learn how to use technology:

Journalists are so far behind the community they report that it’s not funny. They comfort each other in their ignorance. The Net could give journalists lots of unique stories but most journalists find it easier to phone their friendly PR contacts. It says a lot about the spoon-fed reality of news (Wright 1998 P).
Australian journalists were increasingly under pressure to do more in less time, with fewer resources and fewer staff, Wright said. Because of these pressures, journalists had tended to look for shortcuts but this was no excuse for intellectual laziness.

**Category of journalists: the “pro-active” type**

The editor of *Quadrant* and a columnist for *The Sydney Morning Herald*, Paddy McGuinness, said he was “absolutely amazed” how few journalists used the Internet as a newsgathering tool:

> I’m absolutely amazed by the fact that there are any journalists who have not actively taken steps to get their own computers and their own modems and get on the Internet. This is a lapse of professionalism which I find extraordinary. So I look toward the kids under 20 as the people who are going to learn how to use the Internet properly in journalism, learn how to be more balanced in their approach to social, economic and general community problems (McGuinness 1997: 21).

McGuinness represents the other end of the continuum — those people who had located some form of training, or who had taught themselves. He also had the money to get the equipment installed at home; in many respects early adopters have sufficient cash to spend on technology, or decide that technology was a priority. Wright acknowledged that employers did not understand the value that they could get from the Internet.

> But in the absence of that commitment, I would imagine that it’s only common sense for journalists to buy one themselves. The prices have dropped. There are quite cheap training courses available. Anything that has the ability to take your job commands a certain respect — at least enough respect to learn as much as you can about it (Wright 1997: 20).

Another early adopter said journalists had to teach themselves:

> The world of personal computing is so germane to the way we live our lives in this late twentieth century technocratic society that if you’re not helping yourself, no amount of effort by your employer is going to be able to address that (Romney 1997: 20).

He described CAR as a “fundamental revolution in journalism” but was pessimistic about it evolving in Australia: “If you want to implement it in a conventional Australian...
newsroom, well good luck to you” (Romney 1997: 21). Most of the early adopters at The Age were auto-didacts when it came to the Internet. One business reporter who had been using the Internet since the early 1990s described himself as self taught:

I taught myself essentially . . . To be fair, I think my original Internet provider gave me a set of written instructions which were quite important for a while, because you had to use a DOS-based interface to actually log on every time. This is back before the TCP/IP stack was in Windows and so there was no native TCP/IP . . . It was quite a clunky interface (Walker 1998 TS).

The paper’s medical writer had heard about CAR while working in London and had asked to attend a course:

About three years ago I convinced my then employers [in London] to let me do a series on computers, and they let me spend three or four weeks teaching myself about the Internet, which was an extremely slow process. If I had my time over again I would have found someone to teach me, because I think it was a very long and slow way. And the newspaper’s library was a big help, but the librarians were only learning to use it as well, so we were both on a very slow learning curve. Then I heard about a course on computer-aided reporting which I knew would specifically help me find out what the Internet could do, so that was particularly useful (Toy 1998 TS).

One of The Age’s senior investigative reporters described himself as self taught with the Internet, and keen to learn the more advanced levels of CAR that involved spreadsheets and databases, even though this would involve extra work on his part:

Most people [reporters] can’t see the benefits [of CAR], but it will only take one journalist to get up a national story as a result of using this technology for other people to sit back and ask: “Shit, why can’t we do that?” I am keen to learn it but as I’ve said earlier, I think the thing holding me back is I would like someone else to do it, but I’m recognising — well the current financial position of the company — maybe inevitably I’ve got to do it myself, because it looks like — as always — you’ve got to do it yourself (Bimbauer 1998 TS).

Another investigative reporter said his experience of learning how to use the Internet was in “the great tradition of newspaper journalism — no-one taught me, I was self taught” (Forbes 1998 TS). One of The Age’s senior IT reporters also described himself as self taught — “Nobody shows you anything in this business!” — and argued that reporters
had to be more pro-active. Reporters who were not self taught were not working hard enough:

Then they’ve not trained hard enough! It’s perfectly simple really, it’s practice. I spend all day on the Web with the Web available to me here. I go home and I’ll log in with my email and then I’ll spend probably a couple of hours while my wife’s out walking the dog and doing various things. Then at 8-8.30pm I finish and we sit down and we talk, watch the box, whatever. Then I would spend a couple of hours at night as well doing email, having a quick look, a snoop around the traps, because America is alive then, you see (Barker 1998 TS).

One of his IT colleagues also said he was “largely self-trained”:

I first started using the Internet in 1990. Back then there were no graphical user interfaces, there was no help on-line. The Net had been around in one form for another for a couple of decades, but it was still fairly new to Australia because we didn’t start getting our connection in WA until 1989-90 anyway, which is where I’m from. I had been using bulletin boards and online services for a few years so the metaphors were familiar. I had even been sending Internet email through gateways from bulletin boards. So I was familiar with that component of it, but it was all Unix, it was all command-line driven. There was no World Wide Web or anything like that, it was real basic stuff. Very steep learning curve, but amazingly fascinating. Then after that I taught other people how to use the Net (Cochrane 1998 TS).

Cochrane was an enthusiast for training, arguing that it was important that journalists continually updated themselves:

I think that it is very important that journalists be continually trained and educated and have their career enhanced with information and education on these sort of things [CAR]. I think it is a crying shame that there is less money put into it. Companies like Fairfax and News Ltd — they should be putting 2 to 5 per cent of their profits into development of their journalists. Every other information-gathering and information-dissemination company in the world does. You look at companies like Yahoo!, Microsoft, Cisco — these are our competitors now. Our competitors aren’t the paper down the road. In a sense, our competitors are the Microsofts of the world. And they are putting money into their people (Cochrane 1998 TS).

An investigative reporter suggested the reverse of Cochrane’s comments about Microsoft was happening at The Age. He believed that editorial managers saw the Internet, along with more traditional technology such as the telephone, as ways to save money. His comments came soon after Fairfax introduced Project Hercules to save between $40 million and $50
million from the editorial budget (AFR 20 June 1998: 13). The context of most editorial decisions was a desire for greater productivity and reduced costs:

I think that’s been happening in journalism for quite some time. I think the phone has probably been a far greater culprit in terms of that. With financial cutbacks, people are expected to do maybe a couple of stories during the day. In terms of physically being able to go out and see each person to be interviewed in each story, go back [to the office], write it, [and] go out again, it is not practical, because you don’t necessarily have that amount of time. It is far, far quicker just to ring someone up on the phone and quote a few quotes and you can end the conversation quite abruptly and off you go. I think there are a whole range of other factors that are pushing us in that direction anyway. It does happen to a degree with the Internet — it is there, you just look it up — but there is no reason why it shouldn’t be seen as a means to finding information, finding people to talk to and then going out and doing that. I do think that people actually getting out and fronting people, talking to people face-to-face, and going places where things are happening are actually quite important. But I think use of the Net is another one of the symptoms of that change in culture, rather than necessarily being a cause of it (Forbes 1998 TS).

Another former senior journalist supported this view, suggesting there was great pressure on journalists to do things “the way they’ve already done them”:

There is very little pressure exerted on them to try new approaches to things. Because there is a general squeeze on journalistic budgets in every type of journalism there is very little investment being made in new ways of doing things. Most newsrooms are understaffed so they [reporters] are trying to churn out the stories. There is very little risk-taking going on. It is not as simple as a tabloid mentality; it has got more to do with less money being put into original journalistic production and more money being put into format decisions. A lot of management brain power seems to be being spent on new ways of packaging information rather than new ways of generating quality information (Cookes 1998 TS).

Summary

As of late 1998, adoption of the Internet at The Age was in a tenuous position. Excellent technology was available — numerous people commented on the luxurious collection of information services available at the paper — and some training had been offered. But many journalists complained that training was not available when they wanted it, or the training they received was inadequate. Editorial managers pointed out that reporters failed to attend courses that were offered. This was more an indication of a tendency among task-
oriented reporters, worried about their jobs, to put reporting ahead of training, and perhaps a reflection of their poor time management skills. Rogers has pointed out that inadequate or insufficient training, particularly with software, usually translated into frustration with technology. People consequently only used technology for simple tasks that they understood. In many cases this was the pattern of Internet adoption at The Age.

Age reporters operated in an environment where most believed they already received more than enough information to do their job. Based on earlier introductions of front-end computer systems, their experience of technology had not been positive. Acquiring new information-gathering skills via the Internet required exposure to more technology, so it was not surprising that some reporters expressed reluctance. Some Age reporters had low opinions of their bosses, using terms like "technological troglodytes" to describe them. This meant there was a shortage among editorial executives of opinion leaders — the people Rogers noted were highly influential in employees' adoption of an innovation, but who first needed to earn colleagues' respect through technical competence (1995: 27).

Some reporters were also suspicious of their managers' motives regarding the provision of technology, seeing it as imposed to save money rather than to help them do a better job. Financial restrictions also had a significant impact on journalists’ morale. As part of Project Hercules (see page 231) Age management imposed limits on the amount that reporters could spend on taxis or for taking sources to lunch. Some reporters saw this as another management ploy to keep them in the office and boost productivity. Some reporters regarded the Internet as yet another way to keep reporters behind their desks and their reaction to the innovation — as with their reaction to earlier forms of technology — was noticeably negative. In terms of Rogers' five categories of adopters, then, research for this thesis suggests that probably 40 per cent to a half of Age reporters were in the late majority and laggard categories.
Rogers noted that the diffusion of an innovation takes time — often years. McGuinness suggested that “kids under 20” would be the reporters most likely to learn how to use the Internet properly. But at age 20, most were still at university or cadets. It would take a generation for them to reach positions of authority at Australia’s daily newspapers.
CHAPTER 7

THE RELATIONSHIP BETWEEN TRAINING AND EDUCATION, AND INTERNET DIFFUSION

One of the main issues identified in the previous two chapters in relation to journalists' adoption of the Internet was the lack of training in how to use it. Indeed, the paucity of any form of training at Australian daily papers was a recurring theme. This chapter considers the second of the key research questions introduced in Chapter 1 by investigating the relationship between the provision of training, the role of university education, and the adoption of CAR. It begins by describing the adoption of CAR at American newspapers and providing an overview of the teaching of CAR at universities in that country, to establish a context and provide a background to adoption in Australia.

This chapter then discusses CAR training at Australian dailies and elaborates on the availability of CAR education at university. Research for the latter investigation was based on the results of two surveys of Australian journalism educators conducted in October and November 1996, and between June and September 1998. The aim of the first survey was to measure the level and amount of CAR education at Australian universities, and to ascertain educators' opinions about it. The aim of the second survey was to note changes over time. Educators' opinions were considered relevant because these people were likely to influence students' perception of technology, and their adoption of it.

CAR training at American newspapers

Training takes two forms at newspapers in the United States: in-house or imported. A handful of large newspaper groups and the largest news agency, Associated Press, employ their own people, known variously as the CAR editor, database editor, technology training
editor, or technology trainer. At many papers the sole CAR reporter or CAR editor doubles as CAR trainer (see Figure 10 for the number of dedicated CAR desks in the USA). The San Jose Mercury News in Silicon Valley south of San Francisco provides an example of an advanced daily newspaper, in terms of its adoption of CAR and its provision of electronic information sources on reporters' desktops. All training at the paper is in-house. The paper's database editor, Jennifer LaFleur, said 95 per cent of the 350 editorial staff had Internet access from the desktop. Access, a database software program, and Excel, a spreadsheet program, were also available on all terminals, and reporters used Microsoft Exchange for sending email (LaFleur 1998 TS).

The San Jose Mercury News had a 10-terminal training room in the editorial building and 175 reporters — who represented half of the editorial staff — had been trained to use the Internet. The paper's database editor said her next project was to increase the number of reporters who knew how to use Excel and Access. All assigning editors — the American equivalent of the chief of staff — had been trained in CAR and "know what it can do" (LaFleur 1998 TS). The San Jose Mercury News is the flagship of the Knight Ridder chain of dailies with an audited Monday to Saturday circulation of 290,811 and a Sunday circulation of 342,902. In 1998 Knight Ridder moved its headquarters from Miami, where it owns the Miami Herald, to Silicon Valley. Knight Ridder is the second biggest newspaper chain in the United States, and publishes 31 daily newspapers in 28 US markets, with a readership of 8.9 million people daily and 13.2 million on Sundays (Knight Ridder 1999 U). Knight Ridder had a policy of supporting CAR and had established an organisation known as KRiCAR to train all Knight Ridder staff in CAR. The executive editor of the San Jose Mercury News, Jerry Ceppos, was KRiCAR's co-chair with Neil Borowski, the CAR editor at the Philadelphia Enquirer — another example of the significance of senior management supporting the adoption and development of CAR. KRiCAR had established a series of databases that it made available to Knight Ridder.
papers via intranets. KRiCAR also purchased data from NICAR and swapped databases with other organisations to build in-house databases. The paper’s database editor published a monthly in-house newsletter, *Mouse Droppings*, designed to keep staff informed of new courses (LaFleur 1998 TS).

The *St Petersburg Times* in Florida is another example of a highly-wired American daily with its own training editor. The *St Petersburg Times* is an independent with just over 400 editorial staff, of whom 220 are reporters. The circulation was just over 300,000 Monday to Saturday and 450,000 on Sundays. The paper’s technology training editor, Debbie Wolfe, said all editorial and library staff had Internet access from their desktop, along with the database software program, Access, and the spreadsheet program, Excel. She published an in-house newsletter, *Tech Talk in Plain English*, which appeared six times a year. An electronic version was available on the paper’s intranet. The November-December edition of the newsletter —18 pages of A4 — advertised a five-day CAR “boot camp” that the paper would fund. Each day was broken into half-day courses for up to four people that journalists who were pressed for time could attend (Wolfe 1998 TS).

**Imported training**

NICAR, the National Institute for Computer-Assisted Reporting based at the University of Missouri at Columbia, provided most of the imported training, though a handful of other organisations offered courses. The University of Missouri founded the Missouri Institute for Computer-Assisted Reporting (MICAR) in collaboration with Investigative Reporters and Editors (IRE) in 1989 and it became NICAR in 1994 (Houston 1996: xiii). Brant Houston, IRE’s executive director and the original managing director of NICAR, said CAR was essential to surviving as a journalist in the twenty-first century. For too long journalists had been “kept like animals in a zoo” waiting to be fed “pellets of information by the
keepers who were happy for journalists to stay in their Luddite cages”. He maintained that CAR was no longer a side issue to mainstream journalism, but a key skill:

A journalist who knows how to use computers in day-to-day and long-term work will gather and analyse information more quickly, provide more context, and develop and deliver a deeper understanding of the story’s subject. The journalist also will begin to achieve parity with politicians, bureaucrats and businessmen who have enjoyed many advantages over the Fourth Estate simply because they knew how to utilise computers and electronic information . . . Without a rudimentary knowledge of the advantages and disadvantages of computers, it is difficult for a journalist to understand and report on how the world now works. And it is far more difficult for a journalist to do meaningful public service journalism or to perform the necessary watchdog role [without CAR] (Houston 1996: 4).

Matthew Reavy, a doctoral student at Missouri University who became one of NICAR’s first staff members, noted in 1996 that it took many years for CAR to diffuse into the American media after the launch of MICAR in 1989:

Most journalists in the US admit its [CAR’s] advantages and agree it offers reporters a unique method for advancing their professional principles. New technology and new teaching techniques have reduced its complexity to the point that reporters can pick up the basic skills in a single weekend. Advancements in online data retrieval and analysis, including heightened interest in the Internet, could well lower that complexity even further (Reavy 1996 U).

NICAR teaches the deepest level of CAR (see Figure 1 on page 2), and despite improved software and hardware this level was still relatively difficult to learn. It required newsroom executives with deep pockets who were willing to pay for access to commercial online databases and provide journalists time to learn the technology and dig for stories. Jennifer LaFleur, NICAR’s training director in 1994 and 1995, said that journalists on some US newspapers were given a year to develop their skills, after attending a one-week NICAR “boot camp” (LaFleur 1998 TS). Researcher Margaret DeFleur noted that the number of investigative CAR stories published in American newspapers had grown considerably since the early 1990s. A 1992 survey of 192 daily newspaper editors reported that just over half (52 per cent) of respondents said their publications had begun to analyse the computerised records of government agencies. Three quarters of the papers surveyed believed that the
ability to analyse such records would be "very important in the years ahead" (DeFleur 1997: 85-92).

Houston noted that some American newspapers were willing to spend money for reporters to learn CAR. He estimated that as of early 1999 more than 12,000 journalists had attended IRE's or NICAR's "boot camps" or conferences in the previous five years. At the 40 to 50 seminars that NICAR had held at Missouri university since 1994, news organisations were willing to pay $US 1,000 a day plus expenses (Houston quoted in Paul 1999: 7). The associate dean of the School of Journalism at the University of Indiana, James Brown, was more circumspect, suggesting that many reporters paid their own way. He was one of the founders of NIAR, the National Institute for Advanced Reporting, which NICAR absorbed or replaced — depending on who you talk to — in 1995. He conducted a national survey in September 1989 to ascertain the level of CAR in the country, and concluded that “fewer than 60 of the nation’s news rooms were actively involved in using computers to gather and evaluate data for news stories” (Brown quoted in Paul 1999: 8). Brown admitted his cynicism about newspaper managers:

I have not, over the years, noticed any great concern on the part of newspaper management to further the intellectual development of their employees . . . Many reporters attending our conferences not only paid their own way but had to take vacation time as well. I find this situation outrageous. Newspaper management needs a paradigm shift or a swift kick in the pants. News organisations need to start encouraging professional education. Reporter education and support is an investment to ensure the continued importance of newsgathering in our democracy (Brown quoted in Paul 1999: 9).

Garrison noted that by 1997 about 660 of the nation’s 1509 daily papers (44 per cent) had CAR desks and more than half of newsrooms (53 per cent) offered some form of CAR training (1998c: 33). See Figure 10 for more details. CARR-L membership is another indication of the growth in interest in the subject among working journalists. The list has “several thousand journalists and editors from at least 54 countries” but academics represented a “tiny proportion” of members. It was relevant to note that of the 560 people
who attended NICAR's 1999 conference in Boston, only 41 were academics. The total attendance was another indication of growth: the first NICAR conference in 1994 attracted only 110 people but attendance had risen every year since (Houston 1999 TS). The director of research at the Poynter Institute in Florida organised a CAR summit a decade after the first gathering in 1989. It was held in January 1999, and most of the original attendees returned. Of the 23 at the 1999 summit, only three were full-time university academics in the United States, though another two taught as adjunct professors (Paul 1999: i). All but one of the rest were newspaper practitioners.

**CAR education at American universities**

Compared with working reporters, journalism educators appear to be well behind in the adoption of CAR. The US Department of Education's tertiary research office reported that as of the 1996-7 academic year there were 4,009 four and two-year universities and colleges in the country, and of these 369 offered journalism programs. The Accrediting Council on Education in Journalism and Mass Communications had accredited 107 of them in 1997, with accreditation occurring at six-year intervals. A decade earlier there were 150 journalism schools in America (Dennis 1988: 4). Medsger reported that the teaching of computer research was "widespread" at 87 per cent of journalism programs (92 per cent of accredited programs and 80 per cent of non-accredited). She said that just over a third — 35 per cent — had created a special course for such instruction, and a third of the programs required journalism majors to take courses in which these skills were taught (1996: 16).

Medsger's figures are misleading. As research outlined later in this chapter will show, the teaching of computer research — how to use a search engine, for example — differed markedly from teaching deep CAR, which involves using spreadsheets or databases for sophisticated analysis. In Australia, as of 1998, only three of the 22 journalism programs
taught deep CAR, though all offered some form of electronic research methods. Johnson estimated that 10 per cent of US journalism programs taught deep CAR (1998b TS).

DeFleur and Davenport concluded in a 1993 study that journalism programs at American universities were noticeably lagging behind newspapers in their adoption of CAR (1993: 27). Two years later Lee and Fleming wrote that CAR was “quickly becoming the norm for US newspapers” but noted that journalism schools had been “slower to embrace these advances in newsgathering” (1995: 25). After a tour of a dozen American journalism schools in 1995, Granato reported that most schools there offered CAR as an advanced elective, where only a relatively few majors could learn it. In a message to the CARR-L mailing list, he noted that:

> CAR should be in every journalist’s toolkit alongside telephone books, interviewing techniques, property searches, covering the courts and so on. So [at QUT in Australia] we’ve added a CAR course in the first semester our majors are with us. They do it alongside basic news writing, so they don’t do any journalistic reporting in it. They just learn how to use the tools. Then for the remainder of their time with us, a couple of CAR assignments will be required in every single reporting course, just as stories based on interviews, covering courts etc are required. The idea is to make CAR a normal and integral part of their education (1996 E).

In a paper to an AEJMC conference in 1995 on the subject of journalism educators’ and journalism students’ attitudes to new media technology, Craig noted the “recent flood of articles, in both the trade and scholarly press” about CAR. He suggested that this “certainly seems to position this technology as having an impact on journalists and journalism”, and concluded:

> Journalists are part of an information industry that lies at the very centre of sweeping changes, and the way they approach those changes will affect our entire society. Like it or not, journalists are, in many ways, in the driver’s seat on this high-speed highway. It promises to be an interesting trip indeed (1995 U).

Arant surveyed the 200 journalism and mass communication programs that were members of the Association of Schools of Journalism and Mass Communication, and noted that 70
of the 133 respondents (53 per cent) offered a CAR course (1996: 4-5). But Arant did not analyse the content of these CAR courses. Wickham subsequently surveyed the 70 respondents in Arant’s survey, asking more precise questions about what constituted the teaching of CAR. She found that of those 70 programs, only 14.6 per cent required all journalism majors to take it, while 19.5 per cent said CAR was taught as a component of other journalism courses. CAR was an option at the other 65.9 per cent of courses (1998: 4-5). In effect, then, only a small proportion of journalism courses required students to study CAR. The associate dean of Indiana University’s School of Journalism maintained that it would take many years for American universities to accept CAR, despite its popularity in newsrooms. Journalism schools that taught “tool skills” had had to fight for years for respect from other faculties who looked down on them:

A convincing case for change is not made overnight. Faculty reward structures do not typically reinforce learning new skills and teaching them. Most faculty were practising journalists when CAR was something you drove. Faculty don’t teach what they don’t know . . . The important link is for [journalism] faculty to recognise its [CAR’s] importance and to acquire the experience to teach it. These are basic tools to try to make sense of things. I will always be perplexed that journalism schools did not provide leadership in integrating analysis techniques into the curriculum. Business schools did. And they grew from “trade school” reputations as well (Brown quoted in Paul 1999: 9).

One senior journalist who also taught part-time maintained that possessing CAR skills would make recent graduates more attractive to employers:

Here are the hard facts in today’s journalism: There are more applicants than jobs. As newsprint costs skyrocket, nervous managers are cutting staff or holding in place rather than expanding. In this job market, the resume with average skills will end up in the discard pile. The journalists who get a chance at the jobs — those who get as far as an interview — are those with advanced skills such as CAR (Feola 1995: 24).

One veteran American journalism educator with an interest in technology was concerned that journalism departments had been so slow to offer new technologies, especially given the fact that American universities had pioneered the provision of electronic networks.
within universities. He concluded that CAR remained "very unevenly distributed across the academic landscape" and in general noted a "considerable sense of inertia" about it:

Senior faculty, who tend to have the leadership roles, see little reason to change, and those who do perceive some advantage run up against lack of support from other faculty. Junior faculty ... are unwilling to devote time or effort to a project or subject that will not count toward tenure or promotion (Elliott Parker quoted in Paul 1999: 11).

Johnson had noted this deficit as early as 1991. He elaborated on what he considered the fraud of journalism education in his country in a famous article in Quill in 1992, concluding that:

[Philip] Meyer's pioneering work and the ... pragmatic efficiencies at numerous magazines and newspapers like MacWeek were nothing but a series of false dawns. None of those events nor their consequences for newsgathering have significantly influenced the teaching in journalism departments across the nation ... The vast majority of [American] journalism professors ... simply have not grasped the magnitude or specifics of the change now extant in information storage, management and communications, the fundamental components for all teaching and all learning ... In the main, computers are used as supercharged typewriters in journalism departments, just as they are, tragically, in most disciplines throughout the university (1992: 31-2).

When the University of Indiana sponsored America's first CAR conference in early 1990, 400 journalists from nearly that many separate organizations signed up "before registration closed for lack of space". Of those 400, fewer than a dozen were educators. At the conference, those educators asked the organisers to host a similar conference for journalism educators and it was scheduled to be held in Indianapolis in October 1990:

In late September [the associate dean of journalism at the University of Indiana] James Brown called those teachers who had pre-registered to tell us the meeting was cancelled for lack of interest. Professor Brown only had to dial the phone 14 times (Johnson 1992: 32).

A graduate student at the University of Kansas surveyed 400 journalism programs in the United States in November 1990, and found that only six taught computer-based analysis.

And although many department chairs claimed [in the survey that] their colleagues were "computer literate", what they meant, further probing revealed, was that those teachers knew how to use a word processing
program . . . Unfortunately, it appears a large majority of journalism students — indeed, the great mass of all students in most universities — are not being adequately prepared to cope with the information-retrieval and analysis environment that is not in the future but already in place and used daily by government and business and a steadily increasing number of print and broadcast companies. Our students, therefore, are being defrauded, bilked out of the skills vital to their intellectual and professional due (Johnson 1992: 34).

In August 1991, more than 1,600 journalism educators travelled to Boston for the annual convention of the Association for Education in Journalism and Mass Communication (AEJMC). Of the 365 papers presented, only 11 related to technology or CAR (Johnson 1992: 34). By 1996 Paul had observed “some signs” that the teaching of CAR was becoming accepted at US universities but pointed out that the calibre of programs varied considerably. Journalism schools are the main training grounds for America’s newsrooms, with an average 71 per cent of new recruits having studied journalism “at some level” between 1984 and 1994 (Medsger 1996: 7). Paul noted the “mixed messages” from news organization about the importance of CAR and quoted Medsger’s finding that only 20 per cent of newsroom recruiters and supervisors thought it “very important” for an entry-level journalist to have computer-research skills. Paul said this message from newsroom recruiters made it even more difficult for academics interested in CAR to convince their schools to support a program. Interestingly, Medsger also found that 86 per cent of new journalists believed it was “very important” that journalism educators teach students how to use computers as communication and research tools. Paul concluded that the Internet could indirectly produce more CAR programs in the USA:

[T]here are some schools in the US where CAR has become a major selling point of their program to students, offering state of the art facilities and excited, innovative instructors. There are other schools where the lack of resources and advocates for the program have made CAR training untenable. But the growth of the Internet's invaluable journalistic resources, and the increased understanding that, without computer skills journalists may simply not have access to the information they need, is making most schools figure out ways to overcome the hurdles and move forward (Paul 1996 U).
Medsger published a major study of journalism education in the United States, *Winds of Change*, in 1996. The appendix contained quotes from all the journalism academics who replied to her survey. It is significant that only three of the 48 responses in the appendix referred to the need for improved technology education or CAR. Those three commentators who favoured the teaching of CAR or technology skills all came from the small number of journalism schools listed in Chapter 1 who were prominent in teaching CAR (see page 20). CAR would not progress in the academy unless support came from senior people, as demonstrated at those schools. One of the people quoted was Douglas Anderson, the dean of the Walter Cronkite School of Journalism at Arizona State University, who recruited the first Knight Fellow who had been a newspaper CAR practitioner. (This is discussed on page 248.) Anderson told Medsger:

> A new breed of reporter and editor has emerged and will continue to emerge: a journalist adept at ferreting out valuable information from electronic sources. We have to prepare our students to take full advantage of the technology at their disposal. The emphasis in our courses should not be on the hardware — the nuts and bolts of technology. Rather, our instruction must focus on showing students how to use the technology to make them better reporters and editors, ultimately enabling them to produce better journalism (quoted in Medsger 1996: 140).

The second was Richard Cole, the dean of the School of Journalism at the University of North Carolina, where CAR pioneer Professor Philip Meyer has worked for more than 20 years:

> We can't ignore the new media. The Internet is one of the biggest changes going on. When computers came in, some schools said wait. I said balderdash, we can't wait. With the Internet so pervasive, schools cannot wait. We need to hire media futurists. Today there are all these other voices. We are a growth market, not a declining market. Journalism education has never been in such good shape (quoted in Medsger 1996: 144).

The third quoted academic who supported CAR was Meyer himself:

> Other professional schools turn out graduates who are so ahead of the curve on technical advancement that mid-career professionals in their fields shudder to see them coming. They know that the kids have useful information that hadn't even been discovered when they were in school
shape. Journalism schools should be the same way (quoted in Medsger 1996: 147).

Brown considered that the journalists “in greatest danger” were mid-career reporters who had not realised that they were falling behind:

I was talking to a senior editor the other day who told me “I just posted a job. If I were to apply, I wouldn’t qualify.” Journalists have to be aware of that. Those in the job market now who don’t know how to use a spreadsheet or a database are really at a competitive disadvantage because so many papers have adopted these as standard tools. And papers that don’t have these tools will be at a competitive disadvantage. Specifically, with computer-assisted journalism, that means working with numbers. Many journalists avoided anything to do with numbers when they were in school. If they could skip a statistics class, they did. Now we are using tools like spreadsheets and databases without, in many cases, the baseline academic skills to understand why we use those tools (Brown, quoted in Feola 1995: 25).

Paul believed that CAR skills demonstrated to prospective employers how dedicated recent graduates were to their profession:

Newspapers are also looking for people who have some sense of enthusiasm about their profession, and that means people who are heads up about computers. Anybody who has no knowledge of computers is clearly not someone who is staying current in our profession (Paul, quoted in Feola 1995: 26).

Miller reported that editors wanted to employ journalists “who appreciate what new technology offers journalists” and these editors actively sought graduates who were “comfortable” with computers and the Internet. She said: “All of this mean that you need to keep learning computer skills, as well as more traditional reporting techniques and storytelling skills” (1998: 237). The relatively low number of academics teaching CAR also reflected the fact that good CAR practitioners could earn more than double the salary of a junior academic (Lanson 1999 TS). A journalism professor at Northeastern University in Boston confirmed that her program had difficulties finding staff for the compulsory CAR course:
It’s currently taught by an adjunct [professor] but I may eventually take it over. Its popularity depends on the adjunct we hire, and it’s been difficult to find good people who aren’t snapped up by newspapers (Adler 1999 E).

The University of Massachusetts at Amherst advertised for a CAR teacher in 1997 but failed to appoint because they could not find a suitable candidate. The head of journalism said: “We offered the position to a woman from industry but we could not match the money she was making at her newspaper so we lost her” (Sims 1999 TS).

One way that American universities have managed to get around this difficulty was through applying for the establishment of a Knight chair at their institution, or seeking funds from the Freedom Forum to pay for a one-year journalist in residence. The Knight Foundation paid for Stephen Doig’s appointment to a full professorship at Arizona State University in 1996. Before the appointment Doig was research editor at the Miami Herald, where he had been a member of teams that had won a Pulitzer prize, plus the Goldsmith award and IRE’s Grand prize for investigative journalism. Doig maintained that journalism schools needed to find ways to spread CAR concepts into every skills class across the curriculum “rather than being satisfied with offering a high-level computer course that only a tiny fraction of students will take”:

Unfortunately, I think that the next 10 years will see much slower growth of CAR into newsrooms and classrooms than occurred during the past decade. We CAR evangelists have already skimmed the cream by capturing the interest and enthusiasm of hundreds of reporters (and a few professors). By now, though, thousands of other reporters and editors have seen what CAR can do. Only when the majority of J-graduates are CAR-aware and start filling newsrooms from the bottom up will CAR skills go from being a bonus to being a requirement (Doig quoted in Paul 1999: 20).

As of early 1999, the Knight Foundation had funded a dozen chairs in a variety of journalism subjects. But only one was in CAR, with another advertised to start in August 1999. Doig had only an undergraduate degree, which normally would have excluded him from a senior academic position. This was an example of how private funding had boosted
journalism education in the United States, allied with the willingness of a handful of universities to accept staff with “trade tool” skills. As well as the Knight Foundation, each year the Freedom Forum provided three fellowships — each worth $US75,000 — to help pay the salary of a professional journalist to allow them to teach at a university. The fact that universities needed to contribute to the salary indicated the sort of income that good CAR practitioners could earn. A junior academic in the United States, at assistant professor level and with a PhD, earned somewhere between $US30,000 and $US45,000 a year, depending on the location (Lanson 1999 TS).

The Canadian Journalists’ Association noted that CAR was slowly becoming adopted at some of Canada’s journalism schools “but the emphasis has to be on the word slowly” (CJA 1998 U). Ryerson University in Toronto had the most advanced program, with two courses that contained some CAR components. A one-term course called Computer-Assisted Reporting and Research was required for first year graduate students and second year under-graduates. Ryerson University was also home to the Ryerson Institute for Computer-Assisted Reporting in Canada, or RICARC. The institute’s director said he wanted it to become the Canadian version of NICAR, but progress had been “slow” (CJA 1998 U). Students at Carleton University’s School of Journalism in Ottawa had the option of a three-week workshop that concentrated on Internet research, plus one week dealing with the basics of spreadsheets and databases. The Canadian Journalists’ Association concluded that while students at some Canadian journalism schools were being exposed to basic CAR techniques “training in more advanced CAR will continue to be concentrated outside of the universities” (CJA 1998 U).

**CAR training at Australian daily newspapers**

What is the situation in Australia? The first research study in mid 1997 revealed that only a handful of reporters practised investigative CAR — perhaps four reporters out of more
than 1,800 at the country’s daily newspapers. The study asked if the newspaper chiefs of staff knew of the concept “computer-assisted reporting” in the American sense of investigative journalism. If the reply was yes, the study then asked if they or any of their staff had received any specialist training in this area. Only two papers, The Age in Melbourne and the Courier-Mail in Brisbane, said they had heard of deep CAR, and only The Age had provided any CAR training. The Courier-Mail in Brisbane said it did not offer training because one reporter had come to the paper with spreadsheet skills and was conducting informal lessons for colleagues (Chester 1996 E).

This paucity of Australian practitioners was supported by the results of email inquiries in 1996 and 1997 to CARR-L, the mailing list used and monitored worldwide by journalists interested in computer-assisted reporting. CARR-L, founded in September 1992, stands for the “Computer-Assisted Reporting and Research List”. As of April 1999, it had 1,849 registered members in 55 countries, with membership calculated on single email addresses. The membership total was likely to be much higher because one email address included gateways “that may have hundreds of members on the other side, for instance, in a big newsroom” (Parker 1999 E). Two email inquiries were sent to CARR-L in August of 1997 asking for the names of any Australian journalists actively involved in using deep CAR methods. No replies were received. An inquiry to the same list a year earlier produced one reply, from Thom Cookes, a reporter at The Age. Cookes said he was one of “a handful” of reporters in Australia who employed deep CAR methods, and he had been producing stories based on analysis of spreadsheets and databases since February 1996. For one of those stories, Cookes posted a message to the NICAR mailing list in October 1997:

At The Age we have today run a story on gun imports into the country by accessing Customs Service records via the Australian Bureau of Statistics. Because guns are a restricted import, Customs keeps extremely accurate records of imports (broken down to harmonised commodity code, country of origin, destination state, landed $ value and whether it’s a government or private import). By splicing and dicing the numbers with Access [database
software] and Excel [spreadsheet software], we could show that in the first nine months of this year, our state imported 12,825 shotguns worth $9.032 million wholesale, and what countries they came from. The figures were of interest, as our sporting gun imports have quadrupled over the last financial year. We have just changed our gun laws and banned semi-automatics, pump actions and high-powered rifles, and had a large buy-back campaign of the now-banned guns (Cookes 1997c E).

Cookes proposed a CAR desk at The Age in a memo to the then editor in May 1997, and it elicited “mild response”. Cookes repeated the proposal to the paper’s new editor early in 1998. In the memo he noted that CAR was “mostly virgin territory in Australia” and pointed out that journalists had to learn how to apply technology to the reporting process to keep up with government officials:

The organisations and people that we are reporting on are now more often than not keeping their records electronically. Sometimes there is no paper document to be FOI’d [obtained via Freedom of Information legislation] or leaked. Government is scrutinising itself — and is being scrutinised by others — with the aid of computers and we should be learning how to do the same (Cookes 1997a: 1).

Cookes maintained that the idea of deep CAR could be “sold” to news executives because it produced exclusives:

News executives love exclusives because by their very nature they are not on the news agenda, they come out of the blue. CAR stories are not on the news agenda. It’s a major selling point for CAR (Cookes 1997a: 1).

The Brisbane Courier-Mail’s computer and technology writer noted that for at least two years from 1994, the Courier-Mail had taken examination results from schools around Brisbane, dropped them into the Excel spreadsheet software and analysed them to produce stories: “Every week reporters here connect to databases such as the Australian Stock Exchange to do company searches” (Chester 1996). The technology writer said that investigative journalism was limited in Australia because of “the small number of available databases in Australia compared with America”. The other issues were resources and time for training:
The problem with CAR is the lack of resources and time. Not everyone is technology savvy yet and often people don’t think of using the Net unless they are specifically directed. The attitude to CAR at the top levels is that it can be a useful tool (Chester 1996 E).

Given the potential of deep CAR, why are so few journalists using it? The answer remains much the same as the answer to the question of why do Age journalists not use the Internet as readily as they could. It was a combination of reporters’ belief that they already receive enough information, lack of time, lack of training and inadequate mathematics skills. All in a context of financial cutbacks, low morale and “managerial inertia”. One member of The Age’s five-person investigative team noted:

In financial cutbacks, people are expected to do maybe a couple of stories during the day, [and] in terms of physically being able to go out and see each person to be interviewed in each story, come in, write it, [and] go out again it is not practical, because you don’t necessarily have that amount of time. It is far, far quicker just to ring someone up on the phone and quote a few quotes and you can end the conversation quite abruptly and off you go (Forbes 1998 TS).

Forbes confirmed that Cookes was one of the few people doing deep CAR in Australia between 1996 and 1998: “I know certainly that Thom Cookes was starting to do [CAR] and had done some work, but as far as I’m aware I don’t know of anyone else at all who is doing it [at The Age]” (Forbes 1998 TS). Another member of The Age’s investigative team said he was also not aware of any reporter on the paper using Excel or other spreadsheet software: “No, not in terms of Excel or any of that kind of stuff.” Editorial managers had not encouraged reporters to learn these skills, and many managers simply had not recognised CAR’s potential:

The Internet at the moment is a basic research tool and they [reporters] use it for finding out what’s out there, but the actual punching of information [setting up databases and spreadsheets] — I don’t think a lot of that goes on yet. I don’t think people have been encouraged to do it. I don’t think they [editorial managers] have recognised the potential. Very few have actually had the privilege that I have had of going overseas and seeing what happens with IRE, or the Poynter Institute (Bimbauer 1998 TS).
Bimbauer also noted reporters’ perception that deep CAR was technical and required skills with mathematics, and most believed they endured information overload:

> Journalists are notoriously not technically minded, that it is all too hard, and at the end of the day they’ve got a lot of the information they need anyway. . . . Most people don’t understand it [mathematics] and maybe they even fear it (Bimbauer 1998 TS).

But he believed that it would only take one journalist to publish a major national story based on deep CAR for other reporters to respond:

> I am sort of keen to learn it [CAR] but . . . I would like someone else to do it, though I am recognising, with the current financial position of the company, maybe inevitably I’ve got to do it myself, because — as always — you’ve got to do it yourself. You’ve just got to climb that little mountain and try to understand it (Bimbauer 1998 TS).

Cookes resigned from *The Age* in August 1998. When asked why, he replied:

> It wasn’t specifically the CAR proposal not being supported, it was the lack of management in general about being able to support any initiative like that. I could have been talking about having better legal education amongst all our reporters and I suspect I would have had the same problem. There was no hostility towards CAR, there was just a general inertia . . . And investigative journalism in Australia is relatively weak at the moment, so that is possibly an answer to why it is all not happening. My perception is that in Australia, because of the dumbing down of journalistic skills, there is less value attached to it [investigative journalism] (Cookes 1998 TS).

### Training at Australian newspapers

The availability and form of training varied considerably at Australia’s daily newspapers, though the overall level was low. Often it depended on an individual editor’s attitudes, or a decision at group level. The Fairfax organisation, for example, appeared to have a more favourable attitude to training after the recruitment of Dr Ross Wood as chief technology officer from News Ltd in 1996. Wood declined to be interviewed but his staff described him as “an innovator” with a positive attitude to technology. Wood’s position on the Fairfax board of management meant that he had the ability to influence the adoption of training (Gould 1997 E). The appointment of Professor Fred Hilmer as chief executive in
1998 prompted speculation of a more positive approach to training because of Hilmer's extensive background in academic management and education (Hippocrates 1999 TS). It is relevant to note that in September 1997 the commercial arm of the University of Melbourne, Melbourne University Private, commissioned a consultant to investigate the establishment of a graduate school of journalism. The consultant's report, which appeared in December 1997, advised the setting up of a steering committee to conduct further investigations. Confidential briefing papers written in February 1998 for the steering committee's first meeting suggested that journalists would "benefit from instruction in sophisticated research techniques, particularly high level computer-assisted research for reporters". The papers noted that the main media groups acknowledged that staff were their "principal asset" and "supported the concept" of a graduate school, but would "provide no firm commitments for financial support" (MUP 1998: 3-4). This in many ways encapsulates the state of training at Australia's newspapers: plenty of rhetoric about the need for training, but no money to support it. Melbourne University Private advertised for a director for its graduate school in October 1998. By June 1999 they had not appointed anyone and had run no courses.

**Internet training at metropolitan dailies**

Of the three Fairfax-owned capital-city dailies, all had offered some form of in-house Internet training. Fairfax's operations manager in Sydney had run some introductory courses at *The Australian Financial Review* and *The Sydney Morning Herald* when the Internet arrived in 1997. At *The Age*, Cookes and the paper's library manager offered three Internet courses early in 1998 but attendance had been "minimal" (Ryan 1998 TS). As well, *The Age* paid this author to run a course in March 1999; another scheduled for June was cancelled because a suitable training room could not be found (in effect, management lack of interest). At News Ltd, the position of group editorial and training manager had been vacant since late 1998, suggesting that training was not a priority. Of the seven dailies
that News Ltd owned, reporters on five had received no Internet training as of early 1999. At the other two, some in-house instruction had been made available at the Herald Sun in Melbourne for a handful of reporters because the news editor was interested in the Internet and was willing to train. Some "sharing of knowledge" about the Internet had taken place at the Courier-Mail in Brisbane. But neither forms could be described as organised training. In both cases, reporters were expected to train others as well as perform their usual duties. Technology staff provided limited Internet training at The Canberra Times but no instruction was offered at the West Australian in Perth.

Internet training at regional dailies

Because of the influence of management decisions, discussion here is broken down into ownership groups. Of the 13 publications under the Australian Provincial Newspapers banner, seven offered no form of Internet training while three sent some staff to external courses and three provided in-house support. Again, it appeared that editors' and managers' attitudes to training influenced what was available. (Individual papers' experiences were discussed in Chapter 5.) At Rural Press, Internet training essentially did not exist. Of the seven Rural Press dailies, five provided no training, one (the Launceston Examiner) had an in-house person, and staff at the seventh described the training they received as "spasmodic". At the three Fairfax regional dailies, training could best be described as limited, with in-house IT staff or senior reporters such as chiefs of staff trying to fit training around their other duties.

The same situation applied at the three News Ltd-owned regionals, with a chief of staff at one, and IT staff at the other two being expected to provide training. Reporters at all three papers described the situation as "spasmodic" or "limited". At the two INL-owned dailies, editors appeared to appreciate training but were not prepared to invest money. Senior reporters at both papers began training other reporters after attending courses; what
the editors called “train the trainer” but in reality a way to provide training for minimal expenditure. No training was provided at the *Kalgoorlie Miner*, owned by West Australian Newspapers, nor at the *Barrier Daily Truth* in Broken Hill.

The six family-owned independent dailies either had a training policy that consisted of sharing resources, or employing somebody in house. Chiefs of staff at these papers described training as “piecemeal”. While it could be argued that at least something was being offered, it could equally be argued that cost saving appeared to be more important than education. The *Wagga Daily Advertiser* employed a full-time training officer in March 1999 but no training had been initiated as of April 1999.

Overall, the level of Internet training at Australia’s daily newspapers — with a handful of exceptions — was very limited. Many of the papers expected journalists to assimilate skills as they worked. As one reporter noted: “In the great tradition of newspaper journalism — no-one taught me, I was self taught” (Forbes 1998 TS). Papers also expected reporters with rudimentary knowledge of the Internet (and no teaching skills) to train others. Some publications relied on employing recent journalism graduates with Internet skills, expecting them to pass on what they knew to colleagues. Investment in staff — in the sense of spending money on training — appeared to be a low priority among news executives. Given that many recently recruited reporters came to newspapers with Internet skills, what was the situation regarding Internet training at Australia’s universities?

**The Internet at Australia’s journalism programs**

This section of the thesis considers the teaching of low-level CAR — essentially how to use email and the Web — at Australia’s 22 journalism programs. All but one of the programs is at undergraduate level. Research for this section comprised two surveys of
journalism educators, in 1996 and 1998. Both surveys consisted of a seven-question email sent to the heads of Australia's 22 journalism programs, asking that person to pass the survey on to the staff most knowledgable about CAR. In almost all cases the journalism co-ordinator completed the surveys — see page 52 for more details. The questionnaire used quantitative and qualitative research methods. The aim was to discover the extent of CAR education in Australia and to ascertain educators' attitudes to it. The email survey is shown in Appendix 9.

The 1996 survey

Fifteen out of the 22 programs responded to the first email survey in 1996. All respondents said they were aware of the concept of computer-assisted reporting and all said they taught some form of CAR, or planned to do so in the next two years. Most of the respondents (87 per cent) taught the basic to intermediate levels of CAR — that is, they showed students how to use email for locating experts (53 per cent); how to conduct email interviews (60 per cent); how to monitor electronic mailing lists (listservs) to get story ideas (73 per cent) and how to check newsgroups (the Usenet) for story ideas (60 per cent). Most of the respondents (87 per cent) said they taught students how to conduct research using Web-based search engines and almost three quarters (73 per cent) showed students how to perform simple tasks such as accessing library catalogues remotely. Sixty per cent taught students how to obtain information from CD-Roms. (Figure 26 provides a full breakdown of the data.) Interestingly, 40 per cent said they taught students how to download data from professional databases such as the Australian Bureau of Statistics' time series or FirstSearch. A third (33 per cent) showed students how to obtain files from remote computers via file transfer protocol (ftp). But only two programs reported that they taught deep CAR (13 per cent) and only one of those programs included the term "computer-assisted reporting" in the unit title (the University of Queensland's subject JR320 Computer-Assisted Reporting), a final-year subject.
Some survey respondents noted that the level of students' knowledge of the Internet before they arrived at university was likely to be significant. Certainly, the skill levels of new undergraduates varied considerably from university to university. Survey respondents were also unsure whether students used the technology provided at their universities. Students at almost all Australian universities have been given access to email and the Web since the early 1990s. A survey conducted of year-two journalism majors at James Cook University, taken at the start of second semester 1996, showed that almost half (48 per cent) of the 37 students who responded had never used email, or had used it only a couple of times (Quinn 1997b: 138-9). This was despite the fact that they were already half way through their degree and the email account was provided free when they enrolled. Green noted that students who enrolled in JR320 Computer-Assisted Reporting at the University of Queensland came to it with a "diverse range of skills", and this diversity was "nowhere more obvious than in the area of computer literacy":

Some journalism students at the University of Queensland are experienced Internet users who already have their own home pages; some have programming experience; and some come to the unit professing no knowledge of computers at all (Green 1997: 24-5).

Allied with this issue was Rogers' distinction, detailed in the previous two chapters, between potential use and actual use of an innovation. In second semester 1997, 102 third-year journalism majors at Deakin University were placed on an internal email listserv, so that information about the sub-editing subject could be distributed easily and efficiently. In the course materials provided at the start of semester, students were instructed to read the listserv at least once a week because it contained valuable information relating to their major. Students' use of email was monitored during the semester — these were all on-campus students — via the Majordomo software used to run the listserv. During the lectures students were also asked, by show of hands, to indicate who had read material on the listserv the previous week. Lectures were compulsory. During the first lecture of the semester, on July 29, only two of the 88 students in attendance said they had read email in
the past week. Three weeks later, on August 19, that number had risen to 22 out of 90 in attendance (24 per cent). Despite updating the list every couple of days, and weekly reminders in lectures, the average number of readers remained constant at 24 or 25 per cent for the rest of the year.

The tracking software corroborated the show-of-hands responses. Access was not a problem because Deakin University provided several rooms on campus where students could access email, and most were open 24 hours a day. Like their counterparts at James Cook University, all Deakin University students received a free email account as part of their enrolment process. Students’ failure to read the listserv regularly suggests that only a proportion of them were interested, or had acquired the skills to do so.

**Educators’ attitudes to CAR from 1996 survey**

Both surveys asked Australian educators for their “considered opinion of CAR”.

Responses to the 1996 survey were broken into four groups. Respondents who considered CAR the future of journalism were placed in the vital or essential category. The categories, with the number of responses in brackets, were:

- A vital or essential tool (3 responses)
- An important tool (3)
- A useful tool (8)
- A limited tool (1)

**A vital or essential tool**

- I would describe it as an essential unit for any journalism course (Oakham 1996).
- It is the way of the future. For many it is already here. Our students must understand the basics of this newsgathering tool, as well as its drawbacks —like accuracy and problems of copyright and ethics (Patching 1996b).
- Vital for journalists in a techno-crazy age (Tapsall 1996).
An important tool

• It is important because it adds resources and the speed with which they can be accessed — but this should leave more time for more important work on the telephone (email interviewing does have drawbacks) and in other research (Bacon 1996).
• Important as an adjunct to already familiar information gathering and interviewing techniques (McIlwaine 1996).
• Important part of the journalist’s resources (Stockwell 1996).

A useful tool

• It is another, powerful tool in the reporter’s armoury, to be used in conjunction with more traditional techniques (Green 1996).
• On-line fine for building databases/contact books, research, and presentation of news in quick, easily accessible formats. Opportunities there for investigation but little explored so far. CD-Rom excellent for data bases (Lloyd 1996).
• I see the use of the Internet as another tool journalists should be aware of and should use (Meadows 1996).
• This is a very useful addition to reporting techniques. It is no more than that. It carries with it all of the baggage of other techniques plus a little more. Students need to be made aware of the pitfalls such as the ethical difficulties in quoting and the need for thorough verification, etc (Pearson 1996).
• It is another tool in the journalistic kit bag. It has strengths and weaknesses, like any other (Ricketson 1996).
• Useful, and journalists of tomorrow will need to be familiar with it, but it’s only another tool — like the phone book — and it’s the creative thinking behind the use of the tool that’s most important (Simms 1996).
• At this stage, pedagogically: Very little. Socially: Students feel very much less isolated. [Unfortunately] funds are not available for a sufficiently qualified journalist (who are much
in demand in the profession) to be hired to develop this area into a discrete discipline. If CAR is to be taught properly in Australia, there needs to be co-operation and networking between various journalism courses. Until this happens there will be very little pedagogical advances associated with CAR (Stuart 1996).

• It’s the first step only, to get a feel for information. Much filtering and verification is necessary. It doesn’t beat face-to-face interviews (Withnall 1996).

A limited tool

• Of limited use, because most graduates are required to focus on local news and events when they begin work (seldom requiring the level of research listed in [an earlier] question) — and most don’t have access to the Internet anyway. However, this knowledge is of considerable use to those who move into areas beyond traditional mainstream journalism — and to some others once they have “climbed the ladder”. Hence the subject remains an elective at this stage (Richards 1996).

The 1998 survey

All but one of the 22 programs responded to the second email survey in 1998 — the exception was the journalism program at Victoria University of Technology. All but three responses came via email, with two by post and one by fax. All of the respondents continued to teach the basic to intermediate levels of CAR. Almost the same percentage showed students how to locate experts via email (52 per cent compared with 53 per cent), but a noticeably higher proportion taught how to conduct email interviews (90 per cent compared with 60 per cent in 1996). Significantly fewer included instruction in monitoring electronic mailing lists (listservs) to get story ideas (48 per cent compared with 73 per cent in 1996). About the same proportion showed students how to monitor newsgroups (the Usenet) for story ideas (67 per cent compared with 60 per cent in 1996). About the same number of respondents in 1998 said they taught students how to conduct research using
Web-based search engines (90 per cent compared with 87 per cent in 1996). About the same percentage showed students how to perform simple tasks such as accessing library catalogues remotely (71 per cent in 1998 compared with 73 per cent in 1996). Similarly, the figure for showing students how to obtain information from CD-Roms remained almost the same (62 per cent in 1998 compared with 60 per cent in 1996). The figures were again almost the same for downloading data from professional databases such as the Australian Bureau of Statistics’ time series or FirstSearch (38 per cent in 1998 compared with 40 per cent in 1996). The percentage showing students how to obtain files from remote computers via file transfer protocol (ftp) rose slightly in 1998 (38 per cent compared with 33 per cent in 1996). Three programs reported they taught deep CAR in the 1998 survey, almost exactly the same percentage as in the earlier survey (14 per cent compared with 13 per cent in 1996). Figure 26 compares the two data sets.

**Figure 26: Comparison of data between 1996 and 1998 surveys**

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<tr>
<td>Monitoring listservs</td>
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<td>Monitoring news groups for story leads</td>
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<td>Locating information from CD-ROMs</td>
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<td>Accessing library catalogues online</td>
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<td>Offers units in deep/investigative CAR</td>
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**Educators’ attitudes to CAR from 1998 survey**

Educators’ attitudes to CAR from the 1998 survey were fitted into the same four groups, based on their response to the same request for their opinion of CAR. One educator
admitted he did not feel capable of answering and could have been placed in a separate
category of undecided. Figure 27 compares the responses to the two surveys. Totals for
each category in 1998 were:

A vital or essential tool (7 responses)
An important tool (5)
A useful tool (8)
Limited (0)

**Figure 27: Comparison of educators’ responses 1996 and 1998**

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<th>Percentage</th>
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<td>Vital or essential tool;</td>
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<td>the future of journalism</td>
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<td>Important tool</td>
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<td>Useful tool</td>
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<td>Limited</td>
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<td><strong>n=15</strong></td>
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<td>Totals</td>
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<td><strong>n=20</strong></td>
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**A vital or essential tool (future tool)**

• It is the wave of the future (Granato 1998).

• The future (Knight 1998).

• Should be an integral part of any journalism program (Oakham 1998).

• It is essential for future journalists (Manchanda 1998).

• It is an essential tool for journalists but should be seen as one of an array of tools rather than a replacement of all. We feel it is crucial to instil in our students the need to critically evaluate the veracity of all information obtained, especially from the Internet (Meadows 1998).

• Essential part of journalism education — and something we hope to incorporate into the program once staff are equipped to teach it (Richards 1998).

• Essential for journalism and for study these days. It’s especially useful in my field, which is science journalism (Tynan 1998).
An important tool

- Initially I thought it was a panacea to resolve many of the research problems that journalists faced in the workplace. Now I think it gives journalists the opportunity to access a whole lot more information than before CAR methods were employed by journalists and in an easier way. But for it to be done properly you need time, like any good journalism (Hippocrates 1998).

- Extremely useful as it brings together what were loosely taught in traditional courses in newswriting and investigative reporting. Contents such as understanding opinion polls, conducting opinion polls, interpreting survey results and research reports (Loo 1998).

- It is an important resource for journalists. Some aspects, such as using Internet search engines and information from web sites should be approached with caution so that accuracy is not sacrificed for speed (Sheridan Burns 1998).

- An important component in gathering news and content (White 1998).

- It is an important tool for journalism students but shouldn’t be taught at the expense of the basics of news writing and reporting, that is, accuracy, professionalism etc. I predict that future students will require even more CAR training. What we offer at the moment is basic. However, the journalism program at Murdoch has recently been reorganised to fit in to the much larger Media Studies program. Expansion of the journalism program is expected under the new arrangement and, hopefully, more CAR training will be a part of that expansion (Wood 1998).

A useful tool

- Of growing importance as a research tool (Apps 1998).

- Interesting and productive work can be done. However needs to be in the context of in-depth journalism. I do not like the way it is being constructed as a separate genre and query the reasons why it is being promoted at this time. To answer completely would require more research on my part and more time for discussion (Bacon 1998).
I think CAR has proved its usefulness in a number of ways already. I remember when [prime minister of Israel Yitzak] Rabin was killed — ABC staff confirmed the information and got a lot of background info off the Net then. It has the usefulness in that some (not all) information can be retrieved quickly from the Net rather than going to a library. Disadvantages: often unmediated and there’s a lot of crap out there which can fool some people, especially young journalists. Students get lazy and assume the answer to life is found on the Net. I regularly give assignments where the answer cannot be found on the Net and you have to go to some other source — sometimes a telephone book!!! CAR is one tool in a journalist’s toolbox in my opinion.

Advantages: databases can be readily accessed and information available that would take weeks to access and correlate otherwise.

Future: growing — although few newsrooms have everyone online — mostly it’s one computer connected to the Net in a newsroom. It’s not like here [at university] where I can sit at my desk and cruise around and fool around with it. Future usage? I have come to the conclusion that it’s really rather like crystal ball gazing. I can see real dangers in the whole electronic communication issues, such as ownership, syndication, access and power and control. I find it a wonderful tool and very useful, but I’m mindful of its negatives (Bilboe 1998).

- It’s useful as an additional tool in the newsgathering process (Green 1998).
- Useful as a source (Patching 1998).
- It is a useful technique which is becoming essential, and should soon be second nature to all reporters. Remember, illiteracy exists at a much lower level, such as the inefficient use of the telephone directory (Pearson 1998).
- It is very useful. Another valuable tool in the journalist’s kit bag (Ricketson 1998).
- CAR is a standard research toolkit that can be used by any professional or researcher (Withnall 1998).
Undecided

• Not sure, [for me it’s] too new (Windschuttle 1998c).

It would be hasty to extrapolate too much from a comparison of the two data sets shown in Figure 27 because of the small numbers of responses, but some trends emerged. When educators’ responses between the two surveys — expressed as a percentage — were compared they appeared to suggest that a higher proportion saw CAR as an essential journalistic tool or a tool of the future (35 per cent in 1998 compared with 20 per cent in 1996). The number regarding CAR as an important tool also increased — 25 per cent in 1998 compared with 20 per cent in 1996. The proportion of educators who saw CAR as a useful tool changed from 53 per cent in 1996 compared with 40 per cent in 1998 because some upgraded their opinions. Overall, educators were more aware of CAR’s potential than editorial executives.

Development of CAR at Australia’s journalism programs

Monitoring of CAR-related listservs between 1995 and 1998 showed that practitioners believed that anyone who taught deep CAR in the United States had to be acquainted with its use in journalism. Some were more direct and demanded that educators must have had extensive experience as a practitioner. Drew Sullivan, the News Data Editor for the Associated Press in New York and an adjunct professor of CAR at New York University, replied to a question posted to the NICAR mailing list that asked: “What qualifications do you think a teacher of CAR should have in a university journalism department?”:

The first qualification should be they’ve actually done a CAR story. I am absolutely amazed at not only who is teaching CAR, but also who is writing books and who is speaking at conferences. Unless you’ve dealt with the whole complicated process, you can not reasonably be expected to know the ins and outs of the profession (1996 E).

The CAR specialist for the St Paul Pioneer Press was equally adamant:
Anyone who teaches CAR techniques should be acquainted with its use in journalism. That is, a computer programmer would not be as good a choice as a reporter who has used computer programming for journalistic purposes. Whoever you hire should be familiar or facile with the following: Spreadsheets, graphic displays of quantified information, database programs and programming techniques, thematic mapping, and statistics to at least an intermediate level. In addition, the person should have a thorough grounding in public records and be familiar with public information laws (Browning 1996 E).

Neil Reisner, NICAR’s national training director, weighed into the debate:

We learn law from folks who have practised law; and dentistry from those who have practised dentistry. We don’t let folks who have read a lot about those topics teach them; neither should folks who have read a lot about journalism or CAR teach it. Not all practitioners can teach, of course. But I agree that only someone who has been out there in the trenches should be allowed to teach. At this point you’re not likely to find anyone with an advanced degree doing CAR in the field. You might find some of us with master’s degrees and a lot of experience. You’ll find a lot of academics who are teaching CAR (usually meaning they teach research methods on the Web or put a spreadsheet lesson into their reporting curriculum), but who have never done serious work in the field (1996 E).

In Australia, Granato and Tapsall observed that few journalists had personal experience of CAR, which was likely to present “difficulties in finding tutors” for university courses. In 1996, they established a new CAR unit for students at QUT because they believed that CAR “incorporated a whole series of new techniques that tomorrow’s journalists needed to know” (1997: 14). None of the professional journalists in the pool of part-time tutors at their university nor any of the full-time journalism lecturers had worked with CAR:

However, as the unit aimed to introduce students to the techniques rather than be a full-blown reporting unit, the lack of professional expertise seemed surmountable. The QUT journalism section was also aware of problems identified by US academics in staffing a CAR unit. Many lecturers are uncomfortable with computers except for word processing [and] others resist learning new material and prefer to remain in their comfort zones (1997: 17)

The solution was to require technology skills of any new staff who were hired:

QUT [recruited] two new staff members who were computer literate. Tapsall was assigned to team-teach the unit with Granato. Colleague Carolyn Varley was appointed to tutor in the unit, as was a third-year computer “whiz” journalism student and a recent QUT Information Technology graduate (1997: 17).
Granato and Tapsall said students in their new unit “were quick to laud its relevance and effectiveness”, especially third-year students who “were able to use their new CAR skills immediately with considerable success”. They noted that these people were “the catalysts” who would “increase the use of the Internet in Australian newsrooms”:

Staff noticed an increased incorporation by those students of the techniques and skills introduced in the unit. Students started using the World Wide Web for research, to background issues and events or find talent for stories for the daily radio news bulletin; using email for research and to communicate with each other, lecturers and people outside the university; and incorporating higher level analytical skills. The benefits of the unit were also evidenced in more minor ways, with students utilising more sophisticated word processing options in the presentation of assignments (1997: 19).

Tapsall attended a NICAR “bootcamp” at the University of Missouri in May 1996 — what Granato and Tapsall regarded as a “must” for any intending CAR teacher or practitioner. They concluded that CAR had become a central plank in the QUT journalism course — but accepted that the introduction of CAR “was only possible because of the sectional, school and Faculty support; and through the … appointment of new computer-literate staff”. Their experiences had reinforced their commitment to CAR “as another expression of the traditional practice of journalism in a technological, digital world”. Of particular interest was the way that third-year students took to CAR:

While they were learning about CAR … they began using CAR techniques in their other [journalism] units to produce sophisticated and socially significant investigative feature stories that were beyond the capabilities of most experienced journalists. Because of their enthusiasm, one would expect them to press their eventual employers for the time, the money and the equipment to continue the use of CAR (1997: 22)

Green expressed concern about allowing journalism students to practise investigative reportage using CAR methods in real-world situations because of the danger of students getting involved in issues beyond their control. Students undertaking investigative reports “would be best served by doing strictly controlled ‘lab’ experiments rather than live
reporting assignments" (1997: 24). Any educator had a “duty of care” which required that educator “to ensure the students come to no physical, psychological or legal harm”. In the case of his students who undertook complex investigative reports, he noted that they “may well have been placed in harm’s way” (1997: 29). But Green also concluded that teaching this form of CAR had “provided an invaluable learning experience”:

The students learned important investigative techniques, especially in the cross-checking of information; and they learned the value of collaborating with other teams working on similar projects . . . Students also learned useful Net skills. Many of them, for example, found out to use IRC [Internet Relay Chat] long before those skills were introduced in tutorials. They learned to surf the Web much more efficiently and to couch their queries to search engines in productive terms (1997: 29-30).

Queensland University of Technology and the University of Queensland were the only two journalism programs that said they offered deep CAR in the 1996 survey. They also represented two of the three programs listed in the 1998 research survey.

Summary

Investigative CAR has not evolved at Australian daily newspapers to the extent it has in the United States. Even at a major daily like The Age, which was richly endowed with information resources, reporters had not adopted deep CAR methods (see Chapter 6). Australian reporters’ use of the Internet had soared since late 1998, especially at large metropolitan newspapers and most particularly in terms of the use of email and the Web as newsgathering tools (see Chapter 5). This low level of CAR remains the most likely form to develop in this country. Most of the country’s 22 journalism programs taught the basic to mid levels of CAR and three offered the deep form. Granato and Tapsall noted that journalism students who used CAR techniques were able to produce “socially significant investigative feature stories” that they considered were “beyond the capabilities of most experienced journalists”. Some of these students would be “catalysts” who would “increase the use of the Internet in Australian newsrooms” (1997: 14). Recent journalism
graduates arrived at newspapers with well-developed Internet skills. Green concluded that students in his CAR-based subject had learned to surf the Web efficiently to produce sophisticated news reports (1997: 30). In many cases recent journalism hires possessed technology skills superior to those of their senior colleagues. In terms of offering all forms of computer-assisted reporting, university journalism programs have clearly found an area where they lead industry.
CHAPTER 8
CONCLUSION

The opening chapter of this thesis introduced two key questions that formed the basis of the research. The first asked whether Australia's daily newspaper journalists had adopted CAR methods for newsgathering. How many of them were there and where were they located? The second asked about the relationship between the adoption of CAR in Australia and the availability of relevant training at newspapers and university journalism programs.

In respect of the first question, quite clearly by mid 1999 a significant number of Australian reporters had begun using low levels of CAR. That was not the case in mid 1997 when the first research study was conducted. Then, a relatively small number of newspapers had adopted the Internet as a newsgathering tool and there was a major discrepancy between the availability and use of the innovation among reporters at capital-city newspapers compared with regional dailies. In mid 1997, an average of one in 16 reporters at regional daily sent email (6 per cent) and one in 12 used the Web (8 per cent). Only a third of regional dailies had an Internet connection in or near the newsroom. At metropolitan papers, an average of one in five reporters (19 per cent) sent email and three in 10 accessed the Web (30 per cent). By way of comparison with the general population, the Australian Bureau of Statistics reported that in February 1998, 23 per cent of people aged 18 or older had accessed the Internet in the previous year (ABS 1998a: 3).

By the end of the second research study in 1999, the total number of wired reporters in the country had increased significantly, though the gap between metropolitan and regional reporters was still wide. As of April 1999, an average of one in four regional reporters sent email (27 per cent) and just over one in three (37 per cent) searched the
Web. On capital-city dailies, the averages showed that three in five sent email (62 per cent) and one in two accessed the Web (54 per cent). All of these figures related to access at work. By April 1999, all regional and metropolitan daily newspapers had at least one Internet connection and the number of connections in metropolitan newsrooms had surged (see Figure 14 on page 177).

Howarth noted that it would be difficult to find a newspaper newsroom “anywhere in Australia, New Zealand or Asia” where the Internet was not already “an essential reporting tool” (Howarth 1999: 69). He was wrong in the New Zealand context (see Olsen and Drummond 1997: 7) but right about Asia (Mulcaster 1998 TS). In Australia, the Internet diffused significantly at some metropolitan dailies between June 1997 and April 1999. When looked at as a group, access to the Web almost doubled and reported use of email more than trebled between the two research periods. The increase was significantly more than the average for the general population. The Australian Bureau of Statistics showed that as of November 1998, 31 per cent of adults had accessed the Internet in the past year (ABS 1998d: 3) compared with 23 per cent at the start of the year (ABS 1998a: 3). Chapters 5 and 6 clearly show that the Internet had not become an “essential reporting tool” but it was a tool that some reporters used.

Regional reporters’ use of the Internet certainly rose if the data are considered purely statistically — email and Web adoption both more than quadrupled compared with the 1997 study. But the increase came off a very low base. By the end of 1998, regional newspaper journalists’ adoption was on a par with that of the general public, at about 31 per cent. The rise in access at both regional and metropolitan dailies took place despite the paucity of training at Australia’s daily newspapers. The obvious question is why, then, was there such a surge in access, particularly among Australia’s metropolitan reporters? The main reason was the significant upgrading of computer equipment at the various newspaper groups. The upgrades occurred because of commercially driven decisions to improve front-end technology — these, after all, were
the engines that produced modern newspapers. The decisions were partly the result of concerns about the millennium bug. With both Fairfax and News Ltd, there was also a desire to provide the best technology for their online publications because management expected them to become major revenue earners. These changes indirectly meant that it was relatively easy to provide Internet access for reporters. In the competitive, "me-too" world of metropolitan journalism, the decision by one major metropolitan newspaper group, Fairfax, to provide Internet access on all journalists' desks prompted the other major group, News Ltd, to follow suit. Other related factors were a boost in journalists' awareness of the Internet (which developed its own momentum), and the employment of recent journalism graduates with Internet skills. Each factor is now discussed.

**Improved technology and the millennium bug**

The provision of improved production technology was not based on a desire to give journalists the best available newsgathering equipment. Rather it was the result of a general upgrade of front-end systems. Garrison noted that newspaper companies typically adopted new systems when they reduced costs or increased revenues; rarely were they concerned with improving editorial quality (1995d: 16). Many daily papers upgraded their production systems in 1998 (see Chapter 5). By then, most metropolitan dailies were using the Cybergraphic system or were changing over to it from ageing Atex technology. Fairfax and News Ltd owned 11 of the 13 metropolitan dailies, and all had adopted the Cybergraphic production system by the end of 1998 (see Appendix 4a). All Cybergraphic-based papers — both metropolitanns and regionals — were keen to introduce the Windows NT operating system before the end of 1999 because it was considered more stable than the earlier Unix-based operating system (Gallagher 1997 E; Linforth 1998 TS). The other metropolitan publications were the *Canberra Times* and the *West Australian* in Perth, which had adopted Systems Integrators International (SII) as the supplier of their front-end system.
News Ltd was spending $40 million in 1999 and 2000 on a general upgrade of technology within the organisation (McLeod 1999 TS). Fairfax was unwilling to provide details of costs but one member of staff in Melbourne noted that Fairfax did “not get much change out of $10 million” (Holden 1998 TS) when it upgraded its technology. A motivating factor was a desire to overcome any potential problems with the change in dates in computer clocks associated with the new century — the so-called millennium bug. The managing editor of The Australian confirmed the paper had upgraded half of its Cybergraphic terminals and planned to upgrade the rest after the year 2000: “We are confident the new system is Y2K complaint, but [are] covering ourselves in case it fails” (Beesley 1999 E).

Indirect access to the Internet

Adoption of the Windows NT operating system and provision of improved infrastructure indirectly boosted Internet adoption. A senior Age reporter maintained that universal access to the Internet for Fairfax journalists was a corporate “mistake”. Early in 1997, Fairfax executives were keen to establish an internal email and intranet facility to save money and had not realised that this would provide Internet access as well. When they realised it was too difficult to restrict the service to certain individuals, they decided to “make a virtue out of necessity” and provide universal access (Forbes 1998 TS). Technical staff at Fairfax confirmed that Windows NT was compatible with Microsoft software, part of what was known as Back Office. For that reason, both Fairfax and News Ltd adopted the Microsoft Web browser, Explorer, and Fairfax also chose to use Microsoft Outlook for email (Linthor 1998 TS). The fact that Explorer was free also helped in its selection. Seven of the 37 regional dailies used the Cybergraphic system (see Appendix 4a). It is significant that the average number of reporters using email and the Web on those seven papers was higher than the average for all regional dailies. One in three of reporters on regional dailies that used Cybergraphic was able to send email (37 per cent) compared with the national average of one in four (27 per cent). Almost one in two (47 per cent) had Web access.
compared with the national figure of one in three (37 per cent), as of the second research study.

**The ‘me-too’ environment**

Between late 1997 and the middle of 1998 Fairfax gave almost every staff member at its three metropolitan dailies, *The Sydney Morning Herald*, *The Australian Financial Review* and *The Age*, an individual email address and access to a Web browser from their desktop. Chapter 6 pointed out that the move was the result of a desire to improve internal communications and save money on phone calls, and to establish infrastructure for development of the online editions (Gould 1997 P; Cookes 1998 TS). News Ltd’s flagship, *The Australian*, followed suit in the first four months of 1999. By the end of April 1999, almost all of the paper’s 120 reporters had received an individual email address, and about a quarter had Web access from their desk (Beesley 1999 E). In many respects News Ltd’s action was a reflection of the intense competition between the two media groups.

**Increased public awareness of the Internet**

By 1998 the media’s coverage of the Internet was widespread. Mention of the word “Internet” in the NewsLink database soared from about 1995 when Web browsers started to become relatively common (see Figure 11 on page 125). In the seven years between 1986 and 1992, the word “Internet” appeared a total of 15 times. The number of mentions increased to 91 in 1993, jumped to 653 in the next year, and then rose exponentially from 1995 to 1998. (See Appendix 9 for the full list of 28 daily and weekly publications in NewsLink.) Given that curiosity is commonly accepted as a journalistic trait, it is conceivable that many would have sought information about the Internet. It would have been impossible for journalists not to have been aware of the Internet. Innovative reporters obtained Internet access at home if their employers did not provide it. Some reporters on regional dailies were using the Internet for freelance work, which in turn paid for their access (see Chapter 5).
Recruitment of Internet-aware graduates

Another explanation for the increase in Internet awareness and use was the recruitment of Internet-aware junior reporters from Australia’s journalism programs. The group editorial co-ordinator at Australian Provincial Newspapers, Greg Swain, noted that all people who attended job interviews at APN in 1998 and 1999 tended to highlight the Internet skills in their CVs: “We’re finding that all new recruits have at some stage familiarised themselves with the Internet and [low level] CAR skills as part of their degrees.” Job applicants in 1998 had come from all of the Queensland universities with a journalism program:

All journalism graduates today are well trained on Internet usage and CAR. It’s a part of today’s journalism degrees throughout the world. Our new wave of journalists don’t regard the Internet as a lightweight novelty, but an electronic tool... a huge database of information on any subject (Swain 1999a E).

Most reporters at the *Newcastle Herald* who used the Internet tended to be recent graduates who “grew up with technology” and who had brought their skills to the paper. Most had connections at home before the paper got an Internet connection. All of the reporters at the *North West Star* in Mt Isa were new and young, and had “picked up” Internet skills while at university. At the *Western Advocate* in Bathurst, one reporter who had been a journalism student at nearby Charles Sturt University returned to the university to search the Web before the paper got an Internet connection. At the Bendigo *Advertiser*, several recent recruits had come to the paper from university with Internet skills. Indirectly, then, education played a role in the increase in Internet adoption (see Chapter 5).

This leads to the second key research question — the relationship between the adoption of CAR in Australia and the availability of relevant training at newspapers and university journalism programs. Internet training at Australia’s daily newspapers was almost negligible. All three Fairfax-owned metropolitan dailies had offered in-house courses but these were basic. At *The Age*, for example, the library manager and a
journalist offered three low-level CAR courses after the paper received Internet access from the desktop. But attendance was minimal and trainers had had to fight for resources (Ryan 1998 TS). Reporters on five of the seven News Ltd metropolitan dailies had received no Internet training as of early 1999, though some was expected in conjunction with the full Internet roll-out in 1999 and 2000. Staff at the other two News Ltd dailies described the in-house training as minimal; reporters with no teaching skills were expected to train others. Training was negligible or limited at the two metropolitan dailies that News Ltd or Fairfax did not own.

The situation was even worse at regional dailies. Australian Provincial Newspapers made an effort, with the appointment of an editorial training co-ordinator, but he had a lot of territory to cover. As of early 1999, reporters at seven of the 13 APN dailies had received no Internet training. The attitudes of individual editors and managers influenced whether training happened at APN papers and some executives indicated they could not see any value in most forms of instruction. One editor, for example, described a recognised training course as being of "dubious value". Rural Press provided no training at five of its seven dailies, and reporters at the other two described it as "spasmodic" and "basic". APN and Rural Press were the main employers at regional dailies. Even at regional dailies where some form of training was provided, staff generally considered it inadequate. Terms like "piecemeal", "spasmodic", "limited" and "ineffective" were a recurring motif in reporters' descriptions of their experiences (see Chapter 5).

Rogers pointed out that software-based innovations would diffuse slowly unless extensive training was provided (1995: 244). He cautioned that without adequate instruction these innovations would be re-invented and not used to their full potential (1995: 178). There was strong evidence of re-invention at regional dailies (see Chapter 5). Adoption of the Internet at regional dailies between 1997 and 1999 was more a case of diffusion happening in spite of, rather than because of, training. The fact that low-
level CAR was relatively easy to learn was a major contributory factor — numerous journalists noted that they were, by necessity, self taught. The fact that deep CAR was not happening was similarly a reflection of minimal training, inadequate resources and high workloads.

Research at Australia’s 22 journalism programs showed that journalism educators were significantly more aware of the potential of the Internet as a newsgathering tool than news executives. Almost all programs taught low to mid level CAR. Three taught the investigative form of CAR that involved using spreadsheets and databases. By the second survey in 1998, educators’ responses showed almost total awareness of, and considerable support for, CAR. By then, more than a third of survey respondents (35 per cent) saw CAR as an essential journalistic tool or a tool of the future, compared with only 20 per cent in 1996. In 1998, a quarter regarded CAR as an important tool, compared with only 20 per cent two years earlier. Clearly, journalism educators saw the Internet’s potential as a newsgathering tool more than editorial managers.

**Issues for further research**

Equally clearly, recent graduates brought Internet skills with them to newspapers and this was potentially a bottom-up form of adoption. Granato and Tapsall maintained that graduates were “the catalysts” who would boost Internet use in Australian newsrooms (1997: 14). Students learning CAR had begun to produce “sophisticated and socially significant investigative feature stories” that were “beyond the capabilities of most experienced journalists”. Once employed these people would press their bosses for the time, money and equipment “to continue the use of CAR” (1997: 22). The CAR snowball was expected to gain momentum as more and more university graduates entered newsrooms. How these people developed, and how they dealt with myopic regional newspaper executives should provide illuminating material for further research.
Metropolitan newspapers had not adopted the investigative form of CAR, validating the predictions outlined in Chapter 2. Reporters had the resources to do so but little support from editorial management. As of early 1999 there was almost no evidence of investigative CAR. Meanwhile, it had developed in the United States to the point where almost half of the daily newspapers had a desk devoted to deep CAR (see Figure 10 on page 117). The arrival of graduates with deep CAR skills could stimulate that form of reportage in Australian newsrooms, but again it should take time; developments here, too, should provide fascinating material for further study.

Regional journalists’ adaptation of Internet technology — in terms of using it to receive contributed copy, and to deliver and receive photographs and other images — was observed in both research studies. Rogers noted this process of “re-invention” was common with technologies where there was inadequate instruction. Much of the adaptation took place because journalists were not aware of the Internet’s potential as a newsgathering tool. The use of Internet terminals to transfer copy and receive photographs was also an indication of editorial managers’ desire to save money and time — two commodities that were frequently in short supply in the newsrooms of regional daily newspapers. Garrison showed that managers promoted the adoption of technologies in newsrooms because the tools saved time and money, rather than improved the editorial product; in some respects re-invention of the Internet was the latest example of this phenomenon (1995d: 16).

The availability of academic staff with the skills to teach deep CAR is also an issue for further research. If universities decided to boost their CAR components to the point that all offered courses in deep CAR, the shortage of qualified practitioners would soon become apparent. The introduction of CAR would also highlight issues such as the availability of appropriate equipment — which is expensive — and the concerns that Green expressed about the dangers of inexperienced students conducting the investigative form of reporting (1997: 24-9).
The basic levels of CAR are relatively easy to learn, and are the most likely to be further adopted in Australia’s newsrooms. This, too, will provide material for future research. Of significant interest will be how the graduates whom Granato and Tapsall identified as the “catalysts” — those who would bring CAR skills into newsrooms — perform in Australia’s media in the next decade.

**Summary**

The two years between the two research studies clearly showed a significant rise in the number of reporters using the Internet as a newsgathering tool. The hypothesis in the first research question — that large metropolitan newspapers would be more advanced in their adoption of the Internet as a newsgathering tool — was confirmed. Adoption at most papers took place despite inadequate and minimal training, and because the technology was relatively easy for reporters to teach themselves. For these reasons, reporters used the basic forms of CAR; investigative CAR did not exist. The link between training, education and CAR adoption was also confirmed. If the investigative form of CAR was ever going to evolve in Australia, editorial managers as well as individual journalists needed to push for better training and education. In the information age, knowledge and learning are the only things that separate successful organisations from unsuccessful ones.


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Telephone study of Australian daily newspapers 1997 and 1999

**PUBLICATION**  
(circle as appropriate)  
1. Contact person:  
   Ed CoS NewsEd  
   ___ /xx/ 199x

2. Number of full-time reporters?

**YOUR LIBRARY**

3. Describe how stories are stored in your paper’s library  
   ☐ paper clippings and files  ☐ electronic storage

4. If the storage is electronic, how do reporters access those files?  
   ☐ From a terminal on their desk  
   ☐ From a terminal in the newsroom  
   ☐ From a terminal elsewhere in the building (if so, where?)  
   ☐ From home

**REPORTERS’ E-MAIL USAGE**

5. Do any of your reporters use e-mail for newsgathering?  ☐ Y  ☐ N

6. If no, does your publication intend to get connected?  
   ☐ In the next six months  
   ☐ In the next year  
   ☐ In the next two to three years  
   ☐ Never

7. If yes, how many reporters use e-mail for newsgathering? Please quantify:

8. From where do they send and receive e-mail?  
   ☐ From a terminal on their desk  
   ☐ From a terminal in the newsroom  
   ☐ From a terminal elsewhere in the building (if so, where?)  
   ☐ From home

9. What hardware platform do they use?  
   ☐ PC  ☐ Macintosh  ☐ Other

10. What software do they use?  
    ☐ Eudora  ☐ Mime  ☐ Netscape Mail  ☐ Other  
    ☐ Internet Explorer Mail  ☐ Pegasus Mail

11. Who pays for the e-mail access?  
    ☐ Reporter  ☐ Employer  ☐ Other

12. May I have the names and e-mail addresses of reporters with e-mail access?

**REPORTERS’ INTERNET USAGE**

13. Do any of your reporters use the Internet/Web for newsgathering?  ☐ Y  ☐ N

14. If no, does your publication intend to get connected?  
    ☐ In the next six months  
    ☐ In the next year  
    ☐ In the next two to three years  
    ☐ Never
15. If yes, how many reporters use the Internet/Web for newsgathering?

16. What hardware platform do they use?
   □ PC
   □ Macintosh
   □ Other

17. What software do they use?
   □ Netscape Navigator
   □ MS Internet Explorer
   □ Lynx
   □ Mosaic
   □ Other

18. How many terminals in the journalism area are used for Internet access?

19. Where physically are they located?
   □ on reporters’ desks
   □ a terminal in the newsroom
   □ a terminal elsewhere in the building (if so, where?)
   □ in reporters’ homes

ONLINE TRAINING FOR JOURNALISTS
20. Who taught your reporters how to use e-mail and the Internet for newsgathering?
   □ Outside specialist
   □ In-house person
   □ Staff were self-taught
   □ Other (please elaborate)

21. If the training was in-house, was that person a journalist?
   □ Yes
   □ No

22. Do you understand the term “computer-assisted reporting” in the American context of using databases and spreadsheets? If yes, has your paper offered any training in this form of computer-assisted reporting?
   □ Yes
   □ No

23. If yes, please elaborate.

WEB SITE
24. Does your publication have a Web site? □ Yes □ No

25. If yes, when was it launched?

26. If no, do you intend to start one?
   □ In the next three months
   □ In the next six months
   □ In the next year
   □ Some time in the future
   □ Never

27. How many journalists (reporters and subs) are employed putting your Web site together?
Questions used for qualitative interviews at *The Age*

1. I want to talk about the Web — your use of the Web. So first of all would you talk about the advantages you see in the Web as a news gathering tool?

2. Do you have regular spots you visit?

3. Do you use bookmarks or favorites?

4. Do you regularly go to specific parts of these sites?

5. How do these sites link into your (daily) reporting job?

6. How do you find these sites?

7. How do you use them?

8. Do they trigger ideas for stories? If so, how?

9. Where do you get information about the Internet?

10. Do you experience information overload in your job? If so, how?

11. Do you find any disadvantages in using the web for news gathering and research?

12. What strategies do you employ for checking the quality of information from the Web?

13. Do you have a/any favourite search engines?

14. Are you connected to the Net at home?

15. If both, which came first, connection at home or work?

16. Let's talk about training. Who taught you how to use the Net?

17. Let's go back in time, to when you first used the fax. Can you remember when you first used a fax?

18. Did anybody show you how to use it?

19. Do you find that your colleagues ask you to show them how to do things on the Net?

20. Do you use email much?

21. How many times a day?

22. Do you subscribe to any newsgroups or listservs? If so, which ones?

23. Have you ever done an email interview?

24. Do you work shifts, or nights?

25. Do you have a terminal on the desk?

26. Finally, do you think that the Internet is changing, or has changed, the news gathering process? If so, how?
Appendix 1c: Quantitative survey used at The Age in September 1999

My name is Stephen Quinn. I teach journalism at Deakin University, and I'm at The Age until September 24. Some of you may have seen me around the building, or attended my talks on computer-assisted reporting.

I'm asking you to complete this survey as part of my PhD research at the University of Wollongong. It asks about your use of email and the World Wide Web as newsgathering tools. For each question, please circle the number that relates to you.

Some details about you

Age?
1 >20
2 20-24
3 25-29
4 30-34
5 35-39
6 40-44
7 45-49
8 50-54
9 55-59
10 60+

Gender?
1 female
2 male

Highest education level?
1 Intermediate/leaving or equivalent certificate
2 Higher school certificate/VCE or equivalent
3 Diploma
4 Undergraduate degree
5 Postgraduate degree

Are you studying at university at the moment?
1 Yes
2 No

Number of years as a journalist?
1 0-1
2 2-3
3 4-5
4 6-7
5 8-9
6 10-11
7 12-13
8 14-15
9 16-17
10 18-19
11 20-21
12 22-23
13 24-25
14 26-27
15 28-29
16 30 or more

Your round, role or specialisation?

Quantity of information
In a typical work day, how much info do you get?
1 Insufficient to do my job
2 Not quite enough — I'm often looking for more
3 About the right amount
4 More than I need — but I can handle it
5 Vastly more than I need (sometimes I'm overloaded)

PART 1: Your use of email for newsgathering...
Please circle one number only for each question.

(RA) Compared with the phone, I feel email is
1 Very much better
2 Better
3 About the same
4 Not as good
5 Very much worse

(CT) Compared with the phone, I find email:
1 Very much fits my current journalistic needs
2 Fits my current journalistic needs
3 About the same
4 Does not fit my current journalistic needs
5 Very much does not fit my current journalistic needs

(CX) Compared with the phone, I find email:
1 Very much easier to use
2 Easier to use
3 About the same
4 More difficult to use
5 Very much more difficult to use

(TR) With email, my boss:
1 Very much encourages me to try it out
2 Encourages me to try it out
3 Neither encourages nor discourages me
4 Discourages me from trying it out
5 Very much discourages me from trying it out

(OB) I find email is:
1 Very easy to see the benefits of
2 Easy to see the benefits of
3 About the same
4 Difficult to see the benefits of
5 Very difficult to see the benefits of

(EM1) How many email messages did you send today?
1 nil
2 1-5
3 6-10
4 11-15
5 16-20
6 > 20

(EM2) How many email messages did you send yesterday, or your previous day at work?
1 nil
2 1-5
3 6-10
4 11-15
5 16-20
6 > 20
Now looking at your use of the Web for newsgathering. Again, please circle one number only.

(RA) Compared with the phone, I feel the Web is
1. Very much better
2. Better
3. About the same
4. Not as good
5. Very much worse

(CT) Compared with the phone, I find the Web:
1. Very much fits my current journalistic needs
2. Fits my current journalistic needs
3. About the same
4. Does not fit my current journalistic needs
5. Very much does not fit my current journalistic needs

(CX) Compared with the phone, I find the Web:
1. Very much easier to use
2. Easier to use
3. About the same
4. More difficult to use
5. Very much more difficult to use

(TR) With the Web, my boss:
1. Very much encourages me to try it out
2. Encourages me to try it out
3. Neither encourages nor discourages me
4. Discourages me from trying it out
5. Very much discourages me from trying it out

(OB) I find the Web is:
1. Very easy to see the benefits of
2. Easy to see the benefits of
3. About the same
4. Difficult to see the benefits of
5. Very difficult to see the benefits of

(W1) How long did you spend on the Web today?
1. 0 minutes
2. 1-29 minutes
3. 30-59 minutes
4. 60-89 minutes
5. 90-119 minutes
6. > 2 hours

(W2) How long did you spend on the Web yesterday, or your previous day at work?
1. 0 minutes
2. 1-29 minutes
3. 30-59 minutes
4. 60-89 minutes
5. 90-119 minutes
6. > 2 hours

PART 2: The decision to use the Internet
Who made the decision for you to use the Internet?
1. Me
2. Our group or section
3. My boss/management
4. Someone else (please elaborate below)

Do you have an Internet connection at home?
1. Yes
2. No

If yes, which came first:
1. Home connection
2. Work connection

PART 3: Discussion with colleagues
Think about your use of the fax and phone for newsgathering. When you discuss your use of email with colleagues who do not use email, do you say it's:
1. Very easy to use
2. Easy to use
3. About the same
4. Difficult to use
5. Very difficult to use

Think about your use of the fax and phone for newsgathering. When you discuss your use of the Web with colleagues who do not use it, do you say it's:
1. Very easy to use
2. Easy to use
3. About the same
4. Difficult to use
5. Very difficult to use

PART 4: Attitudes to computers and technology
How would you describe your colleagues' attitudes to computers for reporting/newsgathering?
1. They think they are very essential
2. They think they are important
3. No opinion either way
4. They think they are not important
5. They think they are very much not essential

How would you describe your attitude to computers?
1. I love them
2. I like them
3. No opinion either way
4. I tend to avoid them
5. I loath them

Feel free to make any comments:

THANK YOU FOR YOUR TIME
Appendix 2

Definitions of terms used in this thesis

This thesis settled on the phrase computer-assisted reporting (CAR) to describe the type of journalism which uses the Internet, online databases and other electronic forms of data. On 28 June 1996 I sent a message to the Computer-Assisted Reporting & Research Listserv (CARR-L) seeking advice on the best term to use to describe journalism that involved using email and the Web. The message read:

Colleagues,

Here's a question that intrigues me: What term should we use to describe the new type/s of newsgathering and reporting that involve things like interviewing by e-mail, collecting data from online databases, monitoring newsgroups and listservs, and collecting information via search engines?

Peter Lyman, a librarian at the University of California-Berkeley, noted in an article in the New York Times (29 Apr 96 B1) that "We always talk about new technology using old vocabulary".

He said we use terms like "electronic publishing" and "information highway" to describe new things, the same way that we used to use the term "horseless carriage" to describe the car when it first appeared. Or "wireless" to describe the radio. Nowadays "horseless carriage" & "wireless" sound archaic to my ears.

Is computer-assisted reporting potentially archaic? Do we need a new word?

Some respondents argued that journalism was the only word needed. They said that traditional reporting methods, computer-assisted reporting and online journalism would simply fold into "journalism" before too long. For example, Bill Salganik of the Baltimore Sun <salganik@clark.net>, said that "computer-assisted reporting makes as much sense as telephone-assisted reporting". Matt Reavy <mreavy@communique> agreed: "After all, no one says telephone-assisted journalism."

But Jim Brady <brady@interaccess.com> said that "online" was the best adjective because "we still say 'in a telephone interview' and everyone is comfortable with that, so [why not] 'in an online interview'". Gary Gach <gach@uclink3.berkeley.edu> said the term "online" was appropriate if it referred to something that originated on the Internet.

The responses are included in the order in which they arrived.

28 Jun 1996: Stephen Olsen <stepheno@directorate.wnp.ac.nz> “As an ex-journo and ex-librarian my first thought on the question you posed is that "information" has to be in there somewhere. Any number of companies have claimed "sexy" names like InfoScan, InfoNet (ad infinitum) - in the database/library/media monitoring field for instance. One of my favourite lines is the one where the firm - which one escapes me - promises to take the search out of research.

“Anyway I agree with your general point even if I’d add evocative and perhaps quaint to the term archaic. It’s also a bit comic that we’ve moved from wired to wireless to wired!

“It certainly poses a challenge for journalism to have a distinct place on the jargon map, already crowded by mainstream generic concepts such as “data processing”. Without delving into the recesses too much — it is Friday — I’d opt for a two worder,
simply "Online Reporting", or "Online Journalism" (not related to the OJ case). I'll test the brain cells at the weekend.

28 Jun 1996: Matt Reavy <mreavy@COMMUNIQUE> “Well, CAR is the name that stuck. Others that have been tried with varying degrees of success:

1) Computer-assisted investigative reporting (too restrictive)
2) Database journalism (doesn't include spreadsheets, the net, etc.)
3) Power reporting (good, but too vague)

"Some argue that the term computer-assisted reporting will simply fold into "journalism" before too long. After all, they argue, no one says "telephone-assisted journalism."

29 June 1996: Jim Brady (brady@interaccess.com ) “computer-assisted reporting is potentially archaic.

"Online" as an adjective might work. We still say, "...in a telephone interview," and everyone is comfortable with that, so "...in an online interview."

"Interesting question, this one of time and familiarity. We are indeed away from the "wireless" days and now the common listener understands terminology like "sound bite" and its context.

29 June 1996: Bill Salganik of the Baltimore Sun <salganik@clark.net>:” Seems to me "computer-assisted reporting" makes as much sense as "telephone-assisted reporting".

30 June 1996: Denise Rall <Denise.Rall@nau.edu> “I don't know why this is, but some things sound inherently stupid - like the term "knowledge worker" I think indeed we are/and will be even more considered knowledge workers in the future but that term just doesn't cut it. I kind of enjoyed it when the University of Wisconsin went to the term "technologist" - we had been called microcomputer consultants in the past.

"These things keep evolving. I think Faith Popcorn, the futurist has good ideas. Look to the futurists, I think their use of language has evolved more. I think the term "surfing" is stupid for the net, but it caught on.

“The net is a physical structure with real physical cables but I never called it the information superhighway. I call it (gasp) the Internet. But I'm a computer person. As these links are replaced by satellite, the Beam Me Up Scottie feeling will replace the cabled-in feeling. William gibson, "jacking in" is a good description, but it sounds really too much like "jacking off" to be seriously considered. I use "connected"

4 July 1996: Mary D'Ambrósio <MMDambrosi@aol.com> “My opinion: the terms interviewing, reporting and research still cover all these areas. I'll bet that as CAR becomes more common, we'll drop the adjective.”

5 July 1996: Wendell Cochran <pp001516@INTERRAMP.COM> “... having gone through most of the names in the past 14-15 years (database reporting, computer-assisted journalism, etc.) I've settled on digital journalism, a phrase I think I coined. To me it means that all facets of our profession from reporting, interviewing, data analysis, writing, publishing, rely on digital tools. It remains to be seen whether we will invent new forms to match to the new tools.”

6 July 1996: Peggy Noonan <PJNoonan@aol.com>: “Well, we have "cybrarian" for cyber-librarian ... What about "cyberscribe" for online journalists, whether researching, interviewing, or writing?
"That seems to flow more readily than the second choice, a combination of "computer" (using) and "reporter" = "comporter" (which could be interpreted to have other meanings.)

"Eventually many will simply be "web writers" but that's to specific for your purposes. "Netwriters" might work, though.

Elisabeth Roche <ace@Opus1.COM>: "I think journalist is the term to use. Resources in all the formats currently available might be used by a journalist to do their job.

"Too much "personal identity" is being ascribed to people who "use" the new tools of online-interactive electronic media. I would be surprised if an "online" journalist never read a piece of paper.

Later that day she added:
"After I sent my first reply I realized I had left out something I wanted to say.

"A person who drives a "horse-less carriage" for hire is called a cabbie or a chauffeur (depending on the role, the job description.)

"A person who drives an automobile for hire is called a cabbie or a chauffeur too.

"The scientist who uses an electron microscope instead of another kind is called a biologist, or physicist, or medical doctor or whatever.

"Even the term molecular biologist only implies they use whatever the current tools are. They are studying the biology of molecules, not "being a person who uses this type of technology to achieve their goals.

Gary Gach <gach@uclink3.berkeley.edu>: "Online writing" is good ... if it refers to something that's paperless only, or originating on the Net first; the problem with "cyber" for me is that it's cold & prickly sounding (alien) and doesn't originally mean computers but control;

"NetScribes" is the unofficial name of people that write books about the Internet, (mostly nerds);

"(I'd like to something inclusive of all the different kinds of folks using the Internet: kids, international, particularist, etc.;)

"Netwriters" is something I coined to go along with the title of my next book "Writers.Net," so maybe great minds think alike, Peggy?

"I like it: it looks like "networker." (Those of us who go out and use it, remember hence when people use it as common place, that that's how words get coined into the language. Aw, but I'm getting historic.

John Lancaster <trapper@met.com> contributed:
>the problem with "cyber" for me is that it's cold & prickly sounding (alien) and doesn't >originally mean computers but control;

"To quote Spock, "Fascinating." Makes you wonder where the term cyberspace originated, or does it? *Cybernate* means to control automatically by computer or to become so controlled. *Cybernetics* is the theoretical study of control process in electronic, mechanical, and biological systems, esp. the mathematical analysis of the flow of information of such systems.
"Both terms apparently derive from the Greek "kubernetes", governor "kubernan", to govern. (American Heritage Dictionary)

So does that mean a cybernaut is controlled by the Internet or is one who contrives it?

"Thanks for bringing this up, Gary. I really had overlooked getting definitions on this terminology - and that's a great way to slip into confusion on a subject.

Len Granato <l.granato@qut.edu.au>: "Elizabeth's on the right track here. Many of you know that we introduced a mandatory CAR course into our Journalism degree program this past semester. Our incoming students took it in the same semester they took Newswriting.

"Our aim is to make CAR as normal an activity for a jouno as conducting an interview or doing a property search. Toward this end, we'll have those students do CAR assignments in every subsequent Journalism writing/reporting subject. We think by the time these rookies graduate, it will be routine for them.

Bruce Tober <octobersdad@reporters.net>: >>John Lancaster <trapper@RNET.COM> writes:
>>the problem with "cyber" for me is that it's cold & prickly sounding (alien) and doesn't >>originally mean computers but control;
>
>To quote Spock, "Fascinating." Makes you wonder where the term cyberspace >originated, or does it? *Cybermate* means to control automatically by >computer or to become so controlled. *Cybernetics* is the theoretical study >of control process in electronic, mechanical, and biological systems, esp. >the mathematical analysis of the flow of information of such systems.

"Correct. However, I find the following quote in the OED 2nd Ed CD fascinating as well, to wit: 1962 Catholic Gaz. Nov. 320/1 (heading) The cybernated society. Ibid., "When the machines are controlled by the computers human operators become unnecessary and the society is cybernated... Many jobs have been partially or completely cybernated."

"I think it fits in as a very early precursor to the book The End of Work by Rifkin. The quote could be updated to read: Now that machines are in very large measure controlled by the computers, human operators are unnecessary and society can be said to be cybernated. Many jobs have been completely cybernated, many others eradicated due to cybernation and the trend continues inexorably."

Other terms
This section defines the terms to be used in this thesis that have not already been defined. A listserv operates a little like a free magazine in that every subscriber automatically receives every item, via email.

Internet mailing lists are often called listservs after a software program that once ran nearly all lists. Listserv originally is the name of a piece of software written for BITNET, the primarily academic computer network that died out in the first part of this decade. The name has come to be almost synonymous with "email discussion list" and with "mail server". While BITNET may have died, the Listserv software (copyright) has survived and has been imitated (for example, Listproc) and updated.

Windows is a Microsoft product that replaced DOS as the operating system on many computers from the early 1990s. There have been various versions of Windows; the latest is Windows 98 (released in 1998) which replaced Windows 1995 (released in 1995). Server in the Internet context is the term for a computer that stores or hosts software and documents.
on-line versus online

Newsgroups — also called discussion lists — are more like bulletin boards than magazines, if we continue the analogy from the previous paragraph. People send or “post” messages electronically in a public space, and those messages stay in the newsgroup area until accessed by readers or archived. Archiving can be done by a computer or a person. People who control and archive material on a listserv and a newsgroup are called moderators. Newsgroup messages are free and available to anyone to read but they are not sent to individual email post boxes. Readers do not need to subscribe but they do have to go to the newsgroup and seek out the messages.

Electronic magazines, also known as e-zines, and email newsletters are Internet or email based versions of magazines and newsletters. Sometimes they are the electronic version of a print publication; sometimes only the electronic version exists without a print edition. A uniform resource locator (URL) is the Internet term for a site on the World Wide Web. It is easiest to think of it as the online address. A URL is a continuous file name; that is, it contains no gaps. A World Wide Web address can be broken down thus:

couercetype://host domain/path or directory/filename
The source type describes the communication protocol being used to retrieve data. Most of the time it is http, which stands for hypertext transfer protocol, the computer protocol that describes the delivery mechanism on the Internet. Individual Internet documents are saved in the format known as hypertext markup language. HTML describes to the receiving Internet browser how to set up the page on screen when it is downloaded from the host server. Note that each section of the address is separated by a forward slash (/). This is the symbol that computers use to indicate directories and/or sub-directories after the main directory (the latter indicated by the “/“). Directories can be likened to the branches of a tree. The trunk is the main directory and obviously there is only one. But trees can contain a lot of branches, each of which has other branches growing off it. The number of directories grows the further out we move from the trunk or main directory.

The host domain is the server or computer that stores often a huge number of files. The path or directory is a main branch off the main trunk. The file name is a thinner branch. The URL below of the online databases and library services page at Deakin University provides an example of how to read a World Wide Web address. URLs are read from left to right after the “http://”, from the general (the host domain) to the specific (a particular file). The “/” heralds a branch off the main directory.

http://www.deakin.edu.au/library/online.html
The phrase “deakin.edu.au” refers to the host domain or the server that holds a large number of directories and files; “library” is the main directory which contains a number of files; “online.html” is the name of a specific file. Online documents resemble files in a filing cabinet. Each has a unique name. This explains the importance of the need for total accuracy in typing the URL. All World Wide Web files have a three or four-letter extension “html” or “htm”. They mean that the document has been saved in the format known as hypertext markup language. HTML describes to the receiving computer how to set up the page on screen when it is downloaded from the host server.
ProfNet and ExpertNet are organisations that offer a free resource for working journalists. ProfNet is based in the United States and ExpertNet in the UK. Journalists contact ProfNet and ExpertNet via fax, phone and email to ask their staff to locate experts for interview. Increasingly, ProfNet and ExpertNet report that journalists in the USA and UK prefer to use email because it is fast and the results can be copied and pasted into a word processing file. ProfNet and ExpertNet also offer a Web-based service. They are discussed in detail in chapter 3.

Browsers
Until about 1993, the Internet was primarily a source of text-based information, and people navigated the Internet using an arcane language known as Unix. This was difficult, and consequently only technically-skilled people used Unix. Chapter 3 discusses the early history of the Internet and the development of browsers.

Mosaic, introduced in 1993, revolutionised browsing because it was the first icon-based software. With Mosaic, people could navigate or “surf” by clicking their mouse on icons. In April of 1994 Mosaic's inventor, Marc Andreesen, and Jim Clark founded Netscape Communications Corporation and in November of that year introduced the first version of Netscape Navigator. It quickly became the browser of choice for most Internet users because they could obtain it for free. The next year, Microsoft's CEO, Bill Gates, decided that the Internet was the future. Microsoft subsequently released Internet Explorer early in 1996. By 1998 Netscape's Navigator and Microsoft's Internet Explorer were the most common World Wide Web browsers because they were relatively easy to use.
Fax/phone study of Australian daily newspapers used (unsuccessfully) in 1998

**PUBLICA**

2. Number of full-time reporters?

**YOUR LIBRARY**
3. Describe how stories are stored in your paper's library    ☐ paper clippings and files ☐ electronic storage

4. If the storage is electronic, how do reporters access those files?
☐ From a terminal on their desk
☐ From a terminal in the newsroom
☐ From a terminal elsewhere in the building (if so, where?)
☐ From home

**REPORTERS’ E-MAIL USAGE**
5. Do any of your reporters use e-mail for newsgathering? ☐ Y or ☐ N

6. If no, does your publication intend to get connected?
☐ In the next six months
☐ In the next year
☐ In the next two to three years
☐ Never

7. If yes, how many reporters use e-mail for newsgathering? Please quantify:

8. From where do they send and receive e-mail?
☐ From a terminal on their desk
☐ From a terminal in the newsroom
☐ From a terminal elsewhere in the building (if so, where?)
☐ From home

9. What hardware platform do they use?
☐ PC ☐ Macintosh ☐ Other

10. What software do they use?
☐ Eudora ☐ Mime ☐ Netscape Mail
☐ Internet Explorer Mail ☐ Pegasus Mail ☐ Other

11. Who pays for the e-mail access?
☐ Reporter
☐ Employer
☐ Other

12. May I have the names and e-mail addresses of reporters with e-mail access?

**REPORTERS’ INTERNET USAGE**
13. Do any of your reporters use the Internet/Web for newsgathering? ☐ Y or ☐ N

14. If no, does your publication intend to get connected?
☐ In the next six months
☐ In the next year
☐ In the next two to three years
☐ Never
15. If yes, how many reporters use the Internet/Web for newsgathering?

16. What hardware platform do they use?
   - PC
   - Macintosh
   - Other

17. What software do they use?
   - Netscape Navigator
   - MS Internet Explorer
   - Lynxs
   - Mosaic
   - Other

18. How many terminals in the journalism area are used for Internet access?

19. Where physically are they located?
   - on reporters’ desks
   - a terminal in the newsroom
   - a terminal elsewhere in the building (if so, where?)
   - in reporters’ homes

ONLINE TRAINING FOR JOURNALISTS
20. Who taught your reporters how to use e-mail and the Internet for newsgathering?
   - Outside specialist
   - In-house person
   - Staff were self-taught
   - Other (please elaborate)

21. If the training was in-house, was that person a journalist?
   - Yes
   - No

22. Has your paper offered any other form of online training, such as how to access online databases or how to conduct computer-assisted reporting using databases and spreadsheets?
   - Yes
   - No

23. If yes, please elaborate.

WEB SITE
24. Does your publication have a Web site?  
   - Yes  
   - No

25. If yes, when was it launched?

26. If no, do you intend to start one?
   - In the next three months
   - In the next six months
   - In the next year
   - Some time in the future
   - Never

27. How many journalists (reporters and subs) are employed putting your Web site together?

Please fax to Stephen Quinn at 03-5227-2484 or post to me at the School of Literary and Communication Studies, Deakin University, Warrnambool, VIC 3217

ENDS
### Appendix 4a: Technology used at Australia’s daily newspapers

<table>
<thead>
<tr>
<th>Publication</th>
<th>Location</th>
<th>Owner</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationals/metros</td>
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<td></td>
<td></td>
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<tr>
<td>The Australian</td>
<td>Sydney</td>
<td>News Ltd</td>
<td>Cybergraphic</td>
</tr>
<tr>
<td>Australian Financial Review</td>
<td>Sydney</td>
<td>Fairfax</td>
<td>Cybergraphic</td>
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<td>AAP Information Services</td>
<td>Sydney</td>
<td>News Ltd &amp; Fairfax</td>
<td>Cybergraphic</td>
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<td>Darwin</td>
<td>News Ltd</td>
<td>Cybergraphic</td>
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## Appendix 4b: Email addresses of regional daily newspapers

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### Appendix 5: Chiefs of Staff at Daily Papers 1997

**As at June-July 1997**

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### Appendix 5b: Chiefs of staff at daily papers 1999

As at April 1999

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<td>Pamela Walkley</td>
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<td>Cairns Post</td>
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<tr>
<td>Daily News</td>
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<tr>
<td>Gold Coast Bulletin</td>
<td>Karl Condon (acting CoS)</td>
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<td>Michael Roser (ed)</td>
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<td>Phil Nickerson</td>
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<tr>
<td>The Chronicle</td>
<td>Ian Short (acting CoS)</td>
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<tr>
<td>North West Star</td>
<td>Liz Corbett (ed)</td>
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<tr>
<td>Morning Bulletin</td>
<td>Mike Rutherford (deputy CoS)</td>
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<tr>
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<td>Susan Hetherington</td>
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<tr>
<td>The Chronicle</td>
<td>Dean Gould</td>
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<td>Robert Taylor</td>
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<td>The Examiner</td>
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<td>NT dailies</td>
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<tr>
<td>Northern Territory News</td>
<td>Greg Thompson</td>
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</table>
Internet guidelines for Associated Press

1. Accounts on AP's electronic services are intended to aid the business and professional activities of AP staff. The accounts are for business use only, the same as AP portable computers and cellular phones. If you have private business to conduct, use a private account. Although you can access the AP accounts from home, this is not a license to connect for personal use. Remember that connecting to electronic services uses a limited resource that costs the AP money. The same Internet connections and dial-up ports are needed to file and distribute AP text, graphics, photos, video, and data.

2. Each account is assigned for use only by the AP staffer. Sharing accounts is not permitted. No generic or departmental accounts will be assigned. Change your password monthly, choosing a password that would be difficult to guess (not your birthday, not a word in any dictionary).

3. Conduct business on electronic services as if you are appearing at a public meeting representing the AP, or writing a letter on company letterhead. After all, every message sent with an AP account is stamped "ap.org." No one at AP is monitoring what staff do online, but the nature of the electronic services is to log almost all activity. What you write, even in private e-mail but especially in posts to lists and Usenet newsgroups, could be forwarded to millions of people, and no doubt will be saved somewhere by somebody. Many mailing lists that are erroneously thought of as private are routinely archived on Usenet or the World Wide Web, which are public. Even World Wide Web servers collect the addresses of all Internet users visiting them. And any user of AP's Internet server can see generally what activity any other user is doing. In short, if you wouldn't want your activity to be shown on CNN or in Times Square, don't do it on the Internet or America Online.

4. AP has longstanding rules against News employees participating in political activities or taking sides on matters of public debate. These rules apply to electronic communication as well. Do not express opinions about products, companies or individuals. Non-news employees, who may be unaccustomed to these rules, should remember that Internet readers won't know whether a user from ap.org is a newsperson. Even what a non-News employee does can reflect on AP's newsgathering.

5. To do their work, AP staff need to participate in electronic discussion groups on professional or technical topics. Posting to other groups of general interest should be limited to seeking information. For example, a reporter doing a story on prostate cancer may post to a medical group, or a group for older men. Or a technician may seek help on a software discussion group. But if you want to talk rockclimbing on alt.rock.climb, use a personal account.

6. When participating in discussion groups, be sure the reader knows that you are not intending to speak for the AP. Someone reading a message from jstaffer@ap.org won't know AP's organizational structure. If complaints or questions come to you because you are identified as an AP employee, refer them to the appropriate supervisor.

7. Act as if the laws on libel and privacy apply to electronic communications. Remember that the laws of other jurisdictions may be more restrictive than your own. Respect the privacy of individuals, who may not be aware that their comments in electronic forums could be distributed by journalists. Do not quote private individuals or public figures from online communications unless you verify the identity of the author and assure yourself that the author meant to speak publicly. Often it's best to contact people online, then to conduct an interview by telephone or in person. If you have online discussions to gather information, make sure the other party knows you...
are a working journalist. Although some Web pages and browsers allow sending of what's called anonymous e-mail, send only mail with your name and AP affiliation attached.

8. Apply the strictest standards of accuracy to anything you find on electronic services. The Internet is not an authority; authorities may use it, but so do quacks. Make certain a communication is genuine before relying on it as a source for a news story. More than one person may share an e-mail address, and e-mail addresses and Web page sponsorship can easily be faked. Ask yourself, "Could this be a hoax?" Do not publish on the wire any electronic address without testing to see that it's a working address, and satisfying yourself that it is genuine. Apply, in other words, your usual news judgment.

9. Respect the copyrights of individuals and organizations, including the AP. Do not forward or post anyone's material without permission. Do not post or send to individuals any proprietary AP material, including news stories, photos, graphics, audio, video, data, or any internal communication.

10. Abide by the courtesies of the electronic community. Courtesy requires basic technical competence. For example, be careful not to send a message to a mailing list that was intended for only one user. Don't type in all caps; people will think you're shouting. Avoid the "flame wars" that easily erupt when conversations are conducted online. And, because AP's Internet server has limited capacity, clean out your mailbox and home directory routinely, and log off when you're not using the system.
Follow-up questions used at newspapers in 1998-99

Newspaper:

How many reporters at the paper?

How many Net-connected terminals, and where are they?

How many reporters use the Net for newsgathering from work?

How many from home?

Can you break work usage down into Web use and email use?

What training is provided for using the Net?

THANK YOU.
What is available on Newslink text archive:

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<td>The Australian</td>
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Survey sent to Australian journalism programs in 1996 and 1998

Dear colleague,

I'm researching the teaching of computer-assisted reporting (CAR) techniques at Australian journalism courses. I know that you're busy, but it should only take a few minutes to complete the 8 questions.

If you are not the appropriate person, please pass this document to the relevant person.

With multiple choice questions, place an “x” in the brackets -- ie [ x ] -- for one only of the appropriate options. For other questions, type your answer near or below the question.

By the phrase “computer-assisted reporting (CAR) techniques” I mean introducing students to the use of computers and the Internet for newsgathering.

If you have any questions, feel free to contact me by email <squinn@deakin.edu.au> or phone (03-5227-2964 at work; 03-5267-2247 at home). The usual ethical issues related to conducting research apply here.

Thank you for your time. Please reply -- by email – by (insert date).

________________________________________

COMPUTER-ASSISTED REPORTING SURVEY

1. Name of university/college:

2. Do your journalism students receive an email and/or Internet account when they enrol?
   Yes [ ]
   No [ ]

3. As part of your journalism major, do you offer a subject or unit that incorporates computer-assisted reporting techniques? CAR techniques may comprise all or part of that subject or unit.
   Yes [ ]
   No [ ]

4. If yes, please name that subject or unit. If no, please go to questions 6 to 8. If information about that subject or unit is available on the Web, please supply the URL.
5. Please place an “x” in the brackets for each of these options taught in the subject or unit:
Copying/obtaining information from CD-ROMs [ ]
Accessing library catalogues online [ ]
Using email for interviews [ ]
Using email for locating experts, such as via ProfNet [ ]
Monitoring listservs [ ]
Monitoring newsgroups for story leads/information [ ]
Research via Internet search engines [ ]
Obtaining information from Web sites [ ]
Downloading databases from the Web [ ]
Obtaining files from remote computers using file transfer protocol [ ]
Downloading from professional databases (eg ABS Time Series Service; FirstSearch) [ ]
Other (please specify on the next line) [ ]

6. What is your considered opinion of computer-assisted reporting (CAR)?

7. If your institution does not currently teach CAR techniques, do you intend to introduce it next year (1999) or the year after (in 2000)?
Yes [ ]
If so, when?
No [ ]
Not sure [ ]

8. If you answered no, why are you not offering courses in CAR techniques?

THANK YOU AGAIN FOR YOUR TIME.