



*Australia's Source for Telecommunications Intelligence*

## **Expert Opinion**

### **ACCC Procedural Rules**

**11 July 2008**

Market Clarity Pty Ltd  
Suite 407, Level 4, 83 York Street  
Sydney NSW 2000 Australia  
Internet: [www.marketclarity.com.au](http://www.marketclarity.com.au)  
Email: [info@marketclarity.com.au](mailto:info@marketclarity.com.au)  
Phone: (02) 9043-9100  
Fax: (02) 9262-2383  
ABN 18 117 524 366

Publication Number: 06153

## Contents

Expert Opinion .....	3
Background to the Project .....	3
Workability of Rule 11 .....	4
The Likely Consequences of Rule 11 .....	9
Appendix 1 — Shara Evans .....	10
Appendix 2 — Instructions.....	16

## Expert Opinion

### Background to the Project

- 1.1 My name is Shara Evans. I am the author of this report, as well as the founder and CEO of Market Clarity, a telecommunications analyst firm established in January 2006. My curriculum vitae is contained in Appendix 1.
- 1.2 Market Clarity covers all aspects of telecommunications technologies, networks and services, including traditional and converged services and technologies.
- 1.3 Market Clarity maintains a strong specialisation in telecommunications infrastructure data gathering and analysis, which has resulted in the creation of our **Telecommunications Infrastructure Database** (IDB) and geospatial analysis tools. This is an ongoing, company-wide, research project that was initiated in early 2006.
- 1.4 This report was prepared at the request of Malleson Stephen Jaques (MSJ).
- 1.5 MSJ requested that I provide an expert opinion on the following matters:
  - 1.5.1 *The workability of rule 11 of the Draft Rules, which would require any document provided to the ACCC in a "Part XIC process" to be accompanied by a declaration that "the information contained in the document is accurate and complete ...." The term "Part XIC process" is defined to include, for example, the ACCC's consideration of an exemption application or access undertaking, or the resolution of an access dispute.*
  - 1.5.2 *The likely practical consequences for the ACCC, telecommunications carriers and carriage service providers (including their employees) participating in processes of the ACCC under Part XIC, and the experts or*

*other consultants those participants might engage, if rule 11 of the Draft Rules were made in its present form.*

1.6 My opinion is set out below.

## Workability of Rule 11

1.7 Rule 11 requires that participants in Part XIC processes provide a “declaration of accuracy and completeness” in relation to all documents provided in those processes. Specifically, it provides that:

### ***11 Declaration of accuracy and completeness***

*(1) A document provided to the Commission in a Part XIC process must contain or be accompanied by a declaration that the information contained in the document is accurate and complete and that no matters of significance which are considered to be relevant have been withheld.*

*Note Under Part 7.4 of the Criminal Code the giving of false or misleading information to the Commission is a serious offence.*

*(2) A declaration made under subrule (1) must be signed and submitted by a person authorised for that purpose.*

1.8 My comments pertain to the ability of a person making submissions which rely upon substantial database inputs and analysis, to guarantee such a high threshold as “*accurate and complete.*”

1.9 For the past 11 years, I have owned and managed market research analyst firms Market Clarity, and previously Telsyte. In the course of my position as CEO and owner of these firms, I have had substantial experience in establishing large databases of information, as well as the utilisation of external database information sets. Furthermore, my university qualifications include the social sciences and engineering, which involve the statistical analysis of large data sets.

1.10 I would like to first comment on the level of accuracy available from externally sourced data sets, with a particular focus on telecommunications databases available from Australian Government Agencies.

1.11 In the course of my work, I routinely purchase and utilise data sets from the following organisations:

- Australian Bureau of Statistics (ABS);
- Geosciences Australia; and
- Australian Communications and Media Authority (ACMA).

1.12 Each of these Australian Government organisations qualifies the nature and accuracy of the relevant data sets it provides. For example:

- **The Australian Bureau of Statistics (ABS)** generally provides a detailed discussion of methodology and sampling errors in any given data set. For instance, the Census 2006 data includes a general guide to *Census Data Quality*,<sup>1</sup> which states:

*The ABS aims to produce high quality data from the Census. To achieve this, extensive effort is put into Census form design, collection procedures, and processing. **There are four principle sources of error in Census data which quality management aims to reduce as much as possible; they are respondent error, processing error, partial or non-response, and undercount.** For more detail see 2006 Census Dictionary entry Managing Census Quality. [Emphasis added.]*

- The user guide to the **Gazetteer of Australia**, published by **Geoscience Australia**, includes a statement about the data in the *Gazetteer of Australia 2006 Release, Product User Guide — National Mapping Information Group, Geoscience Australia*<sup>2</sup>. As described in the *Product User Guide*, the **Gazetteer of Australia** cites quality constraints with respect to data emanating from the following sources: a) data lineage, b) positional accuracy, c) attribute accuracy, and d) logical consistency. I have noted some relevant extracts below.

### **5.1 Lineage**

*The Gazetteer of Australia was compiled using data provided by each of the State and Territory place naming authorities, the Australian Hydrographic Service and Geoscience Australia. The features supplied in this release of the Gazetteer of Australia are current to **1 December 2004**, with the exception of:*

- *Tasmanian data which is current as at **1 October 2002**;*
- *Australian Hydrographic Service data which is current to **1 October 2000**;*

<sup>1</sup> <http://www.abs.gov.au/websitedbs/d3310114.nsf/Home/census%20data%20quality>

<sup>2</sup> [http://www.ga.gov.au/image\\_cache/GA6713.pdf](http://www.ga.gov.au/image_cache/GA6713.pdf)

- Geoscience Australia data on Norfolk Island which is current to **1 October 2000**; and
- South Australian data which is current to **March 2005**.

Currency cannot be determined for unofficial homestead names provided by Geoscience Australia for New South Wales, Queensland, Victoria and Tasmania.

[Emphasis added, so as to demonstrate that Geosciences Australia relies on source data sets from States and Territories that are accurate to various points in time, rather than a single snapshot date.]

*Postcode textual matching. Microsoft Access was used to assign postcodes to the Gazetteer's place names by matching the Australia Post Postcode Datafile's 'Localities' field to the gazetteer's 'Name' field. **There are limitations in the textual matching process as not all relationships between the Gazetteer of Australia and the Australia Post Postcodes Database are one-to-one.*** [Emphasis added.]

## 5.2 Positional accuracy

*The longitude and latitude of the position of each place name feature are given in decimal degrees and are compatible with the Geocentric Datum of Australia (GDA94). **These coordinates are given to five decimal places of a degree (approximately 1 metre) but this does not indicate the absolute accuracy of the location. Some features may only be recorded with the accuracy to the nearest minute of longitude and latitude (approximately 1.8 kilometres).*** [Emphasis added.]

### Postcode verification

*Using GIS tools, Geoscience Australia's Australia Post Postcode Boundaries dataset (which is mainly current to 1 January 1992) was used to verify postcodes assigned to Gazetteer localities by overlaying it with gazetteer point features. Postcodes were also verified by assessing the mathematical and spatial proximity between postcode boundaries and Gazetteer localities to identify any trends and accommodate for changes in postcode boundaries since the creation of the dataset.*

***Mathematical proximity was assessed by comparing the textually matched Gazetteer locality postcode with the postcode of the overlapping polygon from the Australia Post Postcode Boundaries dataset. Using this method an average of 82% of Gazetteer postcodes matched to the boundaries, i.e. mathematical proximity equalled zero.*** [Emphasis added.]

*Where the mathematical proximity was not equal to zero, spatial proximity checks were made which involved visual checks of the data spatially. Due to the addition of new postcodes and postcode boundary changes since the release of the Australia Post Postcode Boundaries data, textually matched postcodes can still be correct even if the mathematical proximity is small (eg. 2) or large (eg. 157). For example, Table 8 shows that Dinner Plain, with a textually matched postcode of 3898, rests in postcode polygon 3741. This has a mathematical proximity of 157, however the 3741 postcode polygon is spatially near the 3898 postcode polygon as is shown in Figure 5. Given that the December 2003 postcodes from Australia Post are more up to date than Geoscience Australia's postcode data, the textually matched postcode is deemed to be correct. **This visual assessment of the spatial proximity of matched postcodes also indicates that the overall accuracy is greater than 82%, however the exact level of accuracy cannot be determined due to the currency of the data used for verification.*** [Emphasis added.]

- Other data sets published by **Geoscience Australia**, provide further evidence of data accuracy limitations. For example, the *TOPO250K and TOPO100K National Topographic Databases Structure and Specifications*<sup>3</sup> provides commentary on positional accuracy, as well as a long discussion of the statistical distribution of errors. I have noted some relevant extracts below.

### **3.7 Positional Accuracy**

*The positional accuracy of spatial data is a statistical estimate of the degree to which planimetric coordinates and elevations of features replicate the location of the real world phenomenon that they represent. The positional accuracy is estimated by modelling the propagation of errors in the data production process or by directly comparing the coordinate locations in the completed data against a source of significantly higher known accuracy. Geoscience Australia models their positional and vertical accuracy based on a Gaussian (Normal) distribution and a one-dimensional (linear) method.*

*The positional accuracy attainable in the TOPO100K and TOPO250K NTDBs as well as the 1:25 000 data capture model will be composed of errors from three sources:*

- 1. The positional accuracy of the base/reference material*
- 2. Errors due to the conversion/capture processes*
- 3. Errors due to the manipulation processes.*

[Emphasis added.]

- The **Australian Communications and Media Authority (ACMA)**, which is the authoritative source of radio telecommunications frequency assignment *Online User Guide*<sup>4</sup> also describes data quality limitations. I have noted some relevant extracts below.

### **Accuracy of Site Coordinates**

*The aim is to record radiocommunications site coordinates that are accurate to within 10 metres (equivalent to approximately 0.3 of a second of latitude and longitude) of the site location.*

*Coordinate accuracy may be relaxed in rural areas (ie low fee density areas) to that provided by available maps, but not exceeding 100 metres. In some cases (for example, on a large tower) the recorded location will be greater than 10m away from the physical antenna location.*

*In those cases the recorded coordinates should be within 10m of the location described by the combination of site name and site configuration fields.*

---

<sup>3</sup> <http://www.ga.gov.au/mapspecs/topographic/v5/section1.jsp#PositionalAccuracy>

<sup>4</sup> <http://www.acma.gov.au/webwr/lib292/online%20user%20guide%20section%204.pdf>

*The use of common site coordinates to represent multiple antenna locations is directly dependent on having coordinates accurate to within 10 metres. In cases where coordinate accuracy is within 100m without an inspection of the site it would be difficult to determine whether common site coordinates can be used. For example, two antennas recorded on the one site could be on one tower or on different towers separated by up to 200 meters (worst case).*  
[Emphasis added.]

1.13 Under my direction, Market Clarity has summarised the site precision for the 63,810 registered sites in the current ACMA Radiofrequency database:

- Within 10 Metres: 19,106 sites
- Within 100 Metres: 11,748 sites
- Unknown precision: 32,956 sites.

1.14 Perhaps, in recognition of these limitations, ACMA also advises:

*If any doubts exist about the accuracy of site coordinates obtained from the above, additional advice should be sought (eg contact the licensee or licence applicant). Accredited Persons may also contact the ACA Regional Office responsible for the site for advice. In cases where there are still doubts about the accuracy of the site coordinates, ACA staff should consider whether an audit of the sites involved is warranted.* [Emphasis added.]

1.15 Where the original data source contains any margin of error (as will almost inevitably be the case as can be seen from the above qualifications from authoritative government data sources), this will necessarily be reflected in any subsequent analysis or document that relies upon or incorporates the same data.

1.16 In Market Clarity's operations, my team regularly relies upon such data sources, as well as our own primary research. We frequently encounter the types of data quality issues described above.

1.17 In my experience, telecommunications providers, consultants, research organisations and other industry advisors would also rely on these or similar data sources for the purposes of participating in Part XIC inquiries, and would therefore also encounter similar data quality limitations.

1.18 Furthermore, I have only singled out these government organisations to make the point that the collection and manipulation of real world data will inevitably involve a degree of error — irrespective of the level of effort made to ensure data quality.



- 1.19 It would therefore seem to me to be unreasonable to expect any person within a telecommunications provider organisation, or their advisors, to guarantee that all data provided in a submission is 100% complete and accurate.

## The Likely Consequences of Rule 11

- 1.20 I also observe that Rule 11 contains a requirement that each declaration must be signed by a person authorised for that purpose, and that it makes note that the giving of false or misleading information to the Commission is a criminal offence.
- 1.21 Given the inherent margins of error in the collection and manipulation of large data sets, and the consequent difficulty of being able to guarantee that any document containing them is 100% complete and accurate, I would envisage a high degree of reluctance on the part of employees of telecommunications providers and their advisors to sign such a declaration.
- 1.22 In my opinion, this could significantly limit the usefulness of Part XIC processes, by limiting the availability of information and submissions to the ACCC.
- 1.23 It necessarily follows that a modification to the draft wording in Rule 11, which accommodates the practical realities of large data sets (or the elimination of Rule 11 altogether), would be required to address the concerns I have identified.



## Appendix 1 — Shara Evans

### Career Overview

Shara Evans is a well-known technologist, futurist and opinion leader in the Australian telecommunications market, as well as the Founder and CEO of **Market Clarity**, a telecommunications analyst firm.

She has been involved in the design, deployment, and analysis of telecommunications networks for over 25 years. Shara's involvement in the telecommunications industry began in the early '80s when she was a software engineer responsible for designing telecommunications protocols and networks. Her technical and business career has included a variety of executive positions with companies such as Alcatel, Sprint, Telenet, GTE and SmithKline prior to founding her first telecommunications analyst firm, Telsyte, in 1997.

From 1997 onwards, Shara has led analyst organisations focused on the Australian telecommunications market. During this period, Shara worked on a wide range of projects on behalf of Australian carriers, service providers, ISPs, vendors, systems integrators, industry associations, professional firms and enterprise customers — gaining a deep understanding of how Australia's telecommunications networks are designed, engineered, deployed and maintained.

Shara founded Market Clarity in January 2006.

Shara is an active member of the **Communications Alliance**, and was the Founding President of the **Advanced Networking Forum Australia** (ANFA). She also served as President of the **Pacific Frame Relay Forum**, and was a Board member of the **Australia ATM Interest Group** (AIG).

Shara maintains close links to the research and academic communities. From 2002-2007, Shara was a member of the **CeNTIE** (CSIRO-led Research Network Consortia) Advisory Board. And, in June 2007, Shara was invited to continue her involvement with CSIRO as an advisor to the Director of the Networking Technologies Laboratory within **CSIRO's ICT Centre**.

Shara also maintains close ties with the **University of Technology Sydney (UTS)**. She is a strong supporter of UTS' internship program, and has provided career opportunities for many up-and-coming engineering students at Market Clarity, and previously at Telsyte

Shara has published hundreds of articles and research papers on telecommunications related topics. She is frequently invited to give keynote speeches on a range of industry topics and technologies.

Over the years her responsibilities have included telecommunications strategic planning in the carrier, corporate and government sectors; network design and architecture; data communications software engineering; product management; international program management; as well as international sales and marketing.

Shara is a graduate of Temple University (USA) with a B.A. in Political Science and has done postgraduate work in Computer Science at Villanova University (USA).

## Employment History

### Market Clarity: January 2006 — Present

Founder and CEO

Established Market Clarity, an independent telecommunications analyst firm focusing on:

- Telecommunications Market Forecasting;
- Telecommunications Infrastructure Tracking;
- Telecommunications Design and Engineering Consulting;
- Telecommunications Strategy Consulting; and
- Telecommunications Service Marketing Strategy and Education.

*Under Shara's leadership, Market Clarity has developed extensive databases of technical and market information covering a wide range of facts and figures on the technologies and services that are shaping the Australian telecommunications market.*

*Shara and her team at Market Clarity are known for their thought leadership in key areas of emerging technologies and services, such as the burgeoning Australian VoIP market.*

### Key Achievements at Market Clarity

- In the space of 18-months, Market Clarity's contribution to telecommunications in Australia was recognised by the telecommunications industry's peak body, the Communications Alliance, which awarded the company its [2007 ACOMMS Award for Services to the Industry — Professional Services](#) in July 2007.
- Under Shara's direction, Market Clarity has published a wide range of free and paid research. Significant research that Market Clarity has made available to the general public includes the [Aussie VoIP List](#) (a directory of over 270 Australian VoIP service providers), and the firm's report "[Broadband Wars: The OECD's International Broadband Arms Race](#)," published in May 2007.
- As the chief executive at Market Clarity, Shara is regularly quoted in the general, business and technical press, and has also appeared on the 7:30 Report, Sky News, ABC, SBS and numerous radio programs. Market Clarity's contribution to the Australian broadband debate was noted by the Australian Parliamentary Library, which now archives Market Clarity's website and publicly available research publications.
- Recently, Engineers Australia contracted Market Clarity to research and report on telecommunications infrastructure across Australia for its [Telecommunications Infrastructure Report Card 2007: An Assessment of Australia's Fixed and Mobile Telecommunications Infrastructure](#). The report, which was published in December 2007, is part of Engineers Australia's *Australian Infrastructure Report Card* series — a long-running series of national

infrastructure benchmarks. The project involved a detailed analysis of information in Market Clarity's Telecommunications Infrastructure Database, producing a national assessment of telecoms infrastructure within ABS Statistical Divisions. Shara led this project, which included an analysis of telecommunications infrastructure including access and long-haul fibre, long-haul microwave, DSL, fixed wireless broadband, and mobile technologies at a Statistical Division level. Market Clarity's team also produced a comparison metric for rating the diversity and contestedness of infrastructure in each Statistical Division, based both on the available infrastructure and on the demographic profile of the Statistical Division. Engineer's Australia used this metric as the basis of its Report Card grades.

## **Telsyte: July 1997 – December 2005**

Founder and Managing Director, Telsyte and Director of Gibson Quai – AAS Pty Ltd

Established Telsyte, an independent telecommunications research and strategy consultancy, which specialised in the areas where Shara was an acknowledged expert:

- Broadband Technologies
- Telecommunications Strategy
- Voice/Data/Video Integration: IP Telephony, VoATM, VoFR, VoIP, VoDSL and VoMPLS
- Data Networking Services: X.25, Frame Relay, ATM, IP, MPLS, LAN Switching
- Mobility Services: Remote Access, Dial IP, ISDN
- Internet / Intranet / Extranet Strategies and Trends
- xDSL Technology
- LAN / WAN Network Design
- Facilities Management/Outsourcing
- Service Level Agreements
- Benchmarking
- Network Equipment Evaluation
- Telecommunications Service Evaluation
- Service Provider and Tariff Analysis
- Service Trends Analysis
- Telecommunications Product Marketing Strategies
- Primary Market Research on Telecommunications Services and Products

## ***Key Achievements at Telsyte***

- In 1997, Shara founded Telsyte and initiated Telsyte's primary market research program on the Australian data services market, which covered the full range of data services ranging from Leased Lines to IP/MPLS.
- From 1998-1999 Shara was the President of the **Pacific Frame Relay Forum**.
- From 1999-2000 Shara was Board member of the **Australia ATM Interest Group (AIG)**.
- From 1999-2001 Shara was the Founding President of the **Advanced Networking Forum Australia (ANFA)**.

- In 2001, Shara launched Telsyte's Data Service Price Benchmarking initiative.
- In 2001, the Minister for Communications appointed Shara to the Australian Federal Government's \$40 million **Advanced Networks Program** advisory panel.
- In May 2002, Shara was appointed to the **CeNTIE** (CSIRO-led Research Network Consortia) Advisory Panel.
- Under Shara's leadership, Telsyte qualified as a Commonwealth Endorsed Supplier and as well as an approved NSW DITM supplier. Telsyte was also accepted onto the VIC Government's Telecommunications Purchasing and Management Strategy (TPAMS) Industry Advisor Panel in January 2003.
- In 2003, Shara was principal author of **DCITA's Terrestrial Trunk Transmission Capacity Study**, an in-depth analysis of trunk transmission infrastructure in Australia. This project involved an investigation of the current supply of high bandwidth transmission links operated by both dedicated telecommunications operators and non-telecommunications operators such as electricity transmission businesses and rail corporations. It included an investigation of fibre and microwave trunk networks, as well as the capacity utilised on these networks in order to determine whether the supply of existing trunk transmission capacity is sufficient to support Australia's telecommunication needs. The study **characterised** the supply of communications capacity between capital cities and to regional centres, in terms of the transmission technology utilised, network routes, the bandwidth currently available and the ability for this to be upgraded. To the extent allowed by confidentiality constraints, the report provided details regarding the availability and network routes of unutilised network infrastructure (eg dark fibre) capable of being provisioned for the supply of communications services between capital cities and to regional centres.
- In 2004, Shara launched Telsyte's **Instant Benchmark** service, an independent online price benchmarking service for telecommunications services.
- In 2005, Shara expanded Telsyte's e-commerce capabilities through the addition of a research store, allowing online ordering and payment of market research reports.
- In November 2005, Telsyte was short-listed for the prestigious SPAN (Service Provider Association) **Excellence in Professional Service** award, as a result of its work in the price benchmarking area.

Prior to owning and managing research analyst firms, Market Clarity and Telsyte, Shara Evans held a number of related industry positions.

## **Alcatel & Affiliated Companies: Sept 1986 – July 1997**

### **Alcatel Australia: April 1995 – July 1997**

Sydney, Australia: Marketing Manager, Data Networking Systems and Services

### **Alcatel Data Networks: Jan 1994 — April 1995**

Washington DC, USA: Regional Sales Manager, South Asia/Pacific

### **Sprint International: Jan 1989 — Dec 1993**

Washington DC, USA: Progressing From International Program Manager to Senior Manager, Northern Asia Program Management/Sales Engineering

**GTE Telenet/Telenet Communications Corp: 1988 —1989**

Washington DC, USA: Technical Supervisor/Lead Designer

**GTE Data Services: Sept 1986 — Jan 1988**

Florida, USA: Systems Engineer/Lead Architect

**Tandem Computer Industry Journal: 1986 — 1988**

Managing Editor (volunteer work in conjunction with the above roles), an elected position on the International Tandem User Group's Board of Directors

**SmithKline Bio-Science Labs: May 1983 — Sept 1986**

Pennsylvania, USA: Senior Analyst/Programmer

**JACA Corporation: August 1981 — May 1983**

Pennsylvania, USA: Programmer/Analyst

**State Representative Joseph A Lashinger: 1979-1981**

Pennsylvania, USA: Legislative Assistant

## Education

- Villanova University, USA — Post graduate Computer Science, 1983 — 1987
- Temple University, USA — BA Political Science (Magna Cum Laude), 1981

## Professional Affiliations / Honours

- Appointment to the *ATUG Chairman's Awards* judging panel — 2007
- Winner of the *2007 ACOMMS* award for Services to the Industry — Professional Services award (Market Clarity)
- Appointment as advisor to the Director of the Networking Technologies Laboratory within CSIRO's ICT Centre — 2007.
- Finalist for the prestigious SPAN (Service Provider Association) Excellence in Professional Service award — 2006 (Market Clarity)
- Appointment to the *ATUG Chairman's Award* judging panel — 2006
- Appointment to the University of Technology (UTS) Faculty of Engineering Industry Advisory Network (IAN) — 2005
- Finalist for the prestigious SPAN (Service Provider Association) Excellence in Professional Service award — 2005 (Telsyte)
- Appointment to the *CommsWorld Industry Awards* judging panel — 2003
- Appointment to the Gibson Quai Board of Directors — 2002

- Appointment to the *CommsWorld Industry Awards* judging panel — 2002
- Appointment to the CeNTIE (CSIRO-led Research Network Consortia) Advisory Panel — 2002-2007
- Appointment to the *CommsWorld Industry Awards* judging panel — 2001
- Appointment to the Australian Federal Government's \$40 million *Advanced Networks Program* (ANP) advisory panel by the Minister for Communications — 2001
- Board Member of *Advanced Networking Forum Australia*, 1999-2001
- Founding President, *Advanced Networking Forum Australia*, 1999-2000
- President, *Pacific Frame Relay Forum*, 1998-1999
- Board Member of *Australia ATM Interest Group*, 1998-1999
- Board Member of *Pacific Frame Relay Forum*, 1996-1999
- Technical Editor, *The Tandem User's Journal*, 1988
- Board of Directors, *International Tandem Users Group*, 1986-1987
- Board of Directors, *Northeast Region Tandem Users Group*, 1985
- Recognised in Who's Who of American Women
- Temple University Future Leaders Scholarship

## Publications

- Shara has published many hundreds of articles on telecommunications topics in Australian and international publications including *Strategic Path*, *New Zealand Telecommunications Review*, *CommsWorld*, *Australian Communications*, *Frame Relay Forum Newsletter*, *DSL Prime*, *Telecommunications Journal of Australia*, *AAPT Connexions*, *Telstra Communications Journal*, *What's New in Data Communications*, *Telecom Asia*, *Voice+* and *Telstra's Frame Relay Customer Installation Support Package*.
- Managing Editor/Publisher, the *Tandem Users Journal* 1986, 1987. Technical Editor the *Tandem Users Journal* 1988-1989. Published bi-monthly by the International Tandem Users Group. Responsible for technical content, technical editing, layout, advertising, budget and distribution.
- Shara is the primary author of many Market Clarity research reports covering the Australian telecommunications market. See <http://www.marketclarity.com.au/research/> for a complete description of Market Clarity research projects.
- Shara was the primary author of many Telsyte primary research reports covering the Australian telecommunications market.



## Appendix 2 — Instructions

This Appendix provides a copy of the instructions given to Market Clarity by Mallesons Stephen Jaques.