

Methodology

Motivation

The field of Information and Communication Technology (ICT) has undergone tremendous upheavals in the past decade, fuelled by massive growth in technology production and adoption, to very visible downturns in the current economic climate. As with the development of other disruptive technologies in the past, the current challenge for any organisation involved in ICT is to look past the turmoil and derive a set of sustainable strategies for the long-term. As stated by the *Digital Economy 2002* report,

The second half of 2000 marked a turning point in the recent economic experience and gave new urgency to questions about the nature and durability of the new economy. Answers to these questions should be clearer on the far side of the slowdown. For analysts standing in the hollow of the process, however, the challenge is still to assess developments in IT –producing and –using industries since mid-2000 and to determine what that experience suggests about the future.

(page v, ESA 2002)

Such a challenge has great significance to higher education institutions. As bodies that have historically been responsible for conducting leading edge research as well as producing future leaders, it falls upon tertiary institutions to adequately cultivate the foundations that will drive us past the current uncertainties. This task obviously should not be undertaken alone, as full cooperation with government and private sectors are essential. But regardless of external linkages, for higher education institutions to proceed effectively, we need to have some clarity about what is around us, where we stand, and what the implications of our actions are.

It is for this reason that we conduct a study into the current state of the ICT field. In particular, we study the issues that will impact on the activities of higher education academic institutions. This report is a summary of the information collected from the study.

Objectives

The objectives of this study are:

- Obtain up-to-date data from the field of ICT in Australia, in view of providing higher education decision-makers with some clarity for operations and planning. In particular, we look into developments in:
 - Government policies,
 - Course offerings,
 - Research directions,
 - Employment for graduates,
 - Secondary school system, and
 - The vocational training sector.
- Collect current views that may be useful for operational and academic activities, particularly directed towards:
 - undergraduate and postgraduate course curriculum planning;

- course marketing; and
- medium to long-term strategic planning.

Intended Readership

This document is meant for use within an academic environment. It assumes knowledge commonly available to staff in Australian higher education institutions.

Data Collection

The data used to compile this report include reviews, reports, summaries, notes, media releases, policy statements and communiqués. Collection and collation of this material above were conducted over a two- month period in August-October 2002. References to the materials may be found in the *References* section of this report.

A significant amount of material was available on-line, as we would expect in the field of ICT. Publications collected on-line were mainly on-line versions of official documents, rather than unverified information on general web pages. The only area where we mainly depended on general web pages for a significant amount of data was in constructing the list of ICT courses in Australian universities. We used the searching facilities on universities' web sites for this purpose. We made this exception because physical publications on course information are generally more out of date than the web information. We do recognise that web listings can vary in accuracy and currency, depending on the quality control processes in the various institutions. However, we have no better alternative to this due to time and budget constraints in this study.

Coverage

We do not claim the information gathered in this study to be complete. We recognise that there may be important data not collected in this round. Two main areas in particular we would like to cover but were not able to due to time constraints were e-Learning¹, and the adoption of e-Business in the higher education administration. We welcome all comments and advice on additional information that may assist in the follow-ups to this study.

Disclaimer

As stated in the objectives above, this is an information gathering and dissemination exercise. The body of this report consists mostly of objective facts or summaries of views from other major reports. To avoid confusion, the views of the authors are isolated to the *Key Findings* section at the end of each chapter. These *Key Findings* are also repeated in the *Executive Summary* section.

Since a full consultative process with all relevant staff has yet to be conducted, this document does not formally reflect the views of any particular person or group beyond those of the authors. This report will provide preliminary recommendations deemed appropriate based on current data collected. But to proceed, a more comprehensive and inclusive consultative process should be conducted to enable

¹ We consider e-Learning to be a more fundamental transformation of the teaching and learning process than just *on-line education* (making education available on-line). On-line education is covered partially in Chapter 4.

better in-depth and directed analysis. We hope that this report will significantly assist in that process in the future.

Glossary

The following are major acronyms and abbreviations used in this document:

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| ABS | Australian Bureau of Statistics |
| ACS | Australian Computer Society |
| AIIA | Australian Information Industry Association |
| ANZSIC | Australia New Zealand Standard Industrial Classification |
| AQF | Australian Qualifications Framework |
| ARC | Australian Research Council |
| ASCED | Australian Standard Classification for Education |
| ASCO | Australian Standard Classification of Occupations |
| ASRC | Australian Standard Research Classification |
| ACM | Association for Computing Machinery |
| APEC | Asia-Pacific Economic Cooperation forum |
| B2B | Business-to-Business |
| B2C | Business-to-Consumer |
| CRC | Cooperative Research Centres |
| CS | Computer Science |
| CSE | Computer Systems Engineering |
| DEST | Department for Education, Science and Training, Commonwealth Government of Australia. |
| DEWR | Department for Employment and Workplace Relations, Commonwealth Government of Australia. |
| EFTSU | Equivalent Full-time Student Unit |
| GDP | Gross Domestic Product |
| ICT | Information and Communication Technology |
| IEEE-CS | Computer Society in the Institute for Electrical and Electronic Engineers |
| ICCP | OECD's Information, Computer and Communication Policy Division |
| IS | Information Systems |
| IT | Information Technology |
| IT&T | Information Technology and Telecommunications |
| IT&Titab | IT&T Industry Training Advisory Board |
| ITU | International Telecommunications Union |
| KBE | Knowledge-Based Economy |
| MCEETYA | Ministerial Council on Education, Employment Training and Youth Affairs |
| MFP | Multi-Factor Productivity |
| NOIE | National Office for Information Economy |
| NTF | National Training Framework |
| OECD | Organisation for Economic Cooperation and Development |
| OLA | Open Learning Australia |
| PMSEIC | Prime Minister's Science, Engineering and Innovation Council |
| R&D | Research and Development |
| RFCD | Research Fields, Courses and Disciplines |
| TAFE | Technical and Further Education system |
| TIAC | Western Australian Technology and Industry Advisory Council |
| UN | United Nations |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| VET | Vocational Education and Training |
| WPIIS | OECD's Working Party on Indicators for the Information Society |