

# **IT INDUSTRY INNOVATION COUNCIL FRAMEWORK FOR PROFESSIONALISM CREATED AND MANAGED BY ONE ASSOCIATION**

## **AN OVERVIEW**

### **BACKGROUND**

The ICT sector is the key driver of economic growth. It underpins many of Australia's best performing industries and acts as a propelling force behind the Australian economy.

This Paper will provide the IT Industry Innovation Council (ITIIC) with an overview of the specific steps the ACS has taken over the last decade and planned future actions that will equip the Society to partner with its members, industry, government, academia and the wider community to further improve professionalism in ICT.

The ITIIC intends to investigate the development of an Australian education and training capability framework that articulates between school, VET and through to university degrees.

The concept of articulation between schools, VET, universities and vendors is also an initiative of the Australian Higher Education Review, as advocated by the Department of Education, Employment and Workplace Relations (DEEWR).

Appendix 3 contains a glossary of the terms used in this Paper.

### **DEVELOPMENT OF A TRULY GLOBAL PROFESSION**

Since its humble beginning in the late 1950s and formation as a national society in 1966, the ACS (Australian Computer Society) has played a leadership role in the emergence of ICT practitioners. It has witnessed and influenced the rapid evolution of the occupation from workers in white lab coats to today's professionals in suits leading from the board room to the backroom - innovative change managers driving the 'iPhenomena'.

The British Computer Society (BCS) and the New Zealand Computer Society (NZCS) celebrated their 50<sup>th</sup> anniversary in 2009 and 2010 respectively. The ACS South Australian Branch will mark its 50<sup>th</sup> anniversary in October 2010 and other states, like Victoria and NSW, will follow close behind. With plans to further extend ACS relevance and reach to ICT practitioners, members and key stakeholders as well as to champion the global ICT profession, the ACS sees 2010 as a significant year of change.

Market research undertaken by the ACS strongly indicates that its members seek two membership benefits above all others – professional recognition and professional development.

The ACS believes professionalism is key to ensuring our members are highly regarded as ICT practitioners in Australia and internationally, and that certification is the measure of professionalism.

Certification is also:

1. part of a growing trend worldwide and within other industry sectors;
2. seen as a business risk mitigation strategy which allows Australia's industry to maintain a high standard of ICT professionalism;
3. a positive step for the overall reputation and impact of the ICT profession in Australia and beyond; and
4. putting Australian ICT professionals on equal footing with other professionals.

ICT could reasonably be called the first truly global profession. It is common for ICT practitioners to travel extensively and work on international projects. The ACS and its partners need to “own and drive” the global push towards professionalism. The International Federation for Information Processing (IFIP), the international body representing ICT societies from over 50 countries, has established the International Professional Practice Partnership (IP3) to ensure the advancement of this professionalism movement. The ACS was one of five founding partners of IP3 and the first to have its Certification Program accredited by this initiative. This means the ACS is the only Australian body that can provide its members with recognition as Certified ICT Professionals locally and internationally.

Like the ACS, the BCS, NZCS and Canadian Information Processing Society also believe in the globalisation of the ICT profession and have adopted a recognisable benchmark of professionalism for their members. Through our combined work with IP3, which is charged with the task of leading the development of the global ICT profession, we will see similar guiding principles proliferate in more and more countries as other professional societies introduce a professional standard.

The ACS is also a signatory of the Seoul Accord, a multi-lateral, multi-recognition agreement among agencies responsible for accrediting or recognising tertiary-level computing and IT-related qualifications. This sets a global standard for ICT academic programs by improving transparency of accreditation systems and establishing a basis for international recognition as well as ensuring quality assurance for accredited computing degrees that prepares graduates for professional practice. The global recognition of ICT skills and capabilities is becoming more important than ever and clearly equates to a strong global currency.

In early 2010, the ACS Cover of Excellence Scheme was approved by the Professional Standards Council, enabling ACS Certified Professionals (CP) to join the ranks of lawyers, accountants and engineers in protecting their personal assets while demonstrating excellence in professional standards and consumer protection.

To ensure that as many existing and potential ICT practitioners as possible are able to participate, the ACS is simplifying its Membership structure and making it more inclusive. This is a necessary step for a profession that continues to grow and evolve. It will position the ACS as a fresh, vibrant, dynamic society that reflects the needs of its members while representing all the facets of the ICT practitioner's engagements with industry, government, academia and the wider community.

The ACS has embarked on a journey in the areas of Membership and Certification. At the ACS National Board Meeting on 18 June 2010, the Board passed a resolution to amend its National Regulations in order to provide and to adopt a new membership structure and Certification Program for the ICT practitioner.

## **AUSTRALIAN CAPABILITY FRAMEWORK FOR IT**

The ACS recognises the need to develop an education and training pathway that provides schools, VET institutions and universities with an improved understanding of the professional and educational skills required for ICT-related courses, in order to meet the needs and expectations of industry.

The ACS promotes ICT careers to high school students through initiatives like National ICT Careers Week (run jointly with the AIIA), Young Aus-Innovators National ICT Prize (with NICTA), participation in careers advice evenings and various other activities.

The ACS has developed a framework focusing on pathways from VET through to university degrees and workplace experience. The link from schools to VET and through to universities needs to be addressed.

The proposed delivery model for articulation includes an Advisory Board of the Australian Capability Framework for IT (ACF-IT), with representation from schools, VET, universities, industry, governments and trade bodies. The role of the Board is to establish objectives and deliverables for: professional development, career management, statement of capability and accreditation (refer Appendix 1). The internationally recognised Skills Framework for the Information Age (SFIA) forms the basis of this approach.

**Accreditation of courses** – currently, the ACS accredits all university ICT courses in Australia using the SFIA. The ACS plans to gradually extend accreditation to all VET ICT programs and other non-university formal ICT training programs and courses. This will create an ability to articulate between all courses and programs that are accredited on the basis of the SFIA.

Accreditation of VET ICT programs is expected to commence in 2011. The accreditation of school programs will follow as need is identified. It is important to note that since the school ICT curriculum currently remains largely a state-based matter, a national articulation program will take longer to implement.

## The ACS Certification Program – the three categories:

- Certified Technologist (CT) – links through to VET and vendor programs. Defined for the early practising professional and graduate of VET and vendor training programs, a CT participates in training programs relevant to a technologist level or undertakes appropriate training to move to a professional certified level.

The CT focuses mainly on practical applications. A CT may be expert in installing, testing and monitoring particular systems or applications and may also supervise people in these activities.

- Certified Professional (CP) – with links through to university programs, a CP demonstrates a particular level of responsibility and accountability.

A CP is often required to deliver high quality solutions to clients in response to varying business requirements. A CP needs to demonstrate competence in a wide variety of products, technologies, industries, architectures and business skills, as well as applying ICT to add value to the organisation.

- Certified Specialist (CS) – currently under development, a CS level would connect to university graduate programs including an expected level of workplace specialisation.

CS allows ICT practitioners who already satisfy the requirements for CP to demonstrate their more advanced knowledge, skills and leadership in a particular field of ICT.

A detailed description of the ACS Certification Program is outlined in Appendix 2.

The ACS Certification Program covers those ICT practitioners who have appropriate and relevant experience, those who have undertaken VET qualifications, those who have undertaken university qualifications, and those who are highly specialised within one particular ICT discipline. This might also include where there is a need for specific certification of a particular occupation because of the mission/safety critical or functionally important nature of the occupation.

The ACS will publicly launch the Certified Professional and Certified Technologist components of the Program at the World Computer Congress in September 2010 in Brisbane ([www.wcc2010.org](http://www.wcc2010.org)) and is planning to launch the Certified Specialist component of the Program in mid-2011. The ACS is working collaboratively and in consultation with the Australian Public Service (APS) Commission and Australian Government Information Management Office on the whole-of-government strategic work force plan and career structure project for APS ICT employees.

**Statement of Capability** – certification and use of the SFIA allows ICT practitioners to be issued with a statement of capability that can be used for migration, when seeking employment, for position statements and job advertisements to specify the capability being sought, and for ICT courses to specify the capability level on completion/graduation.

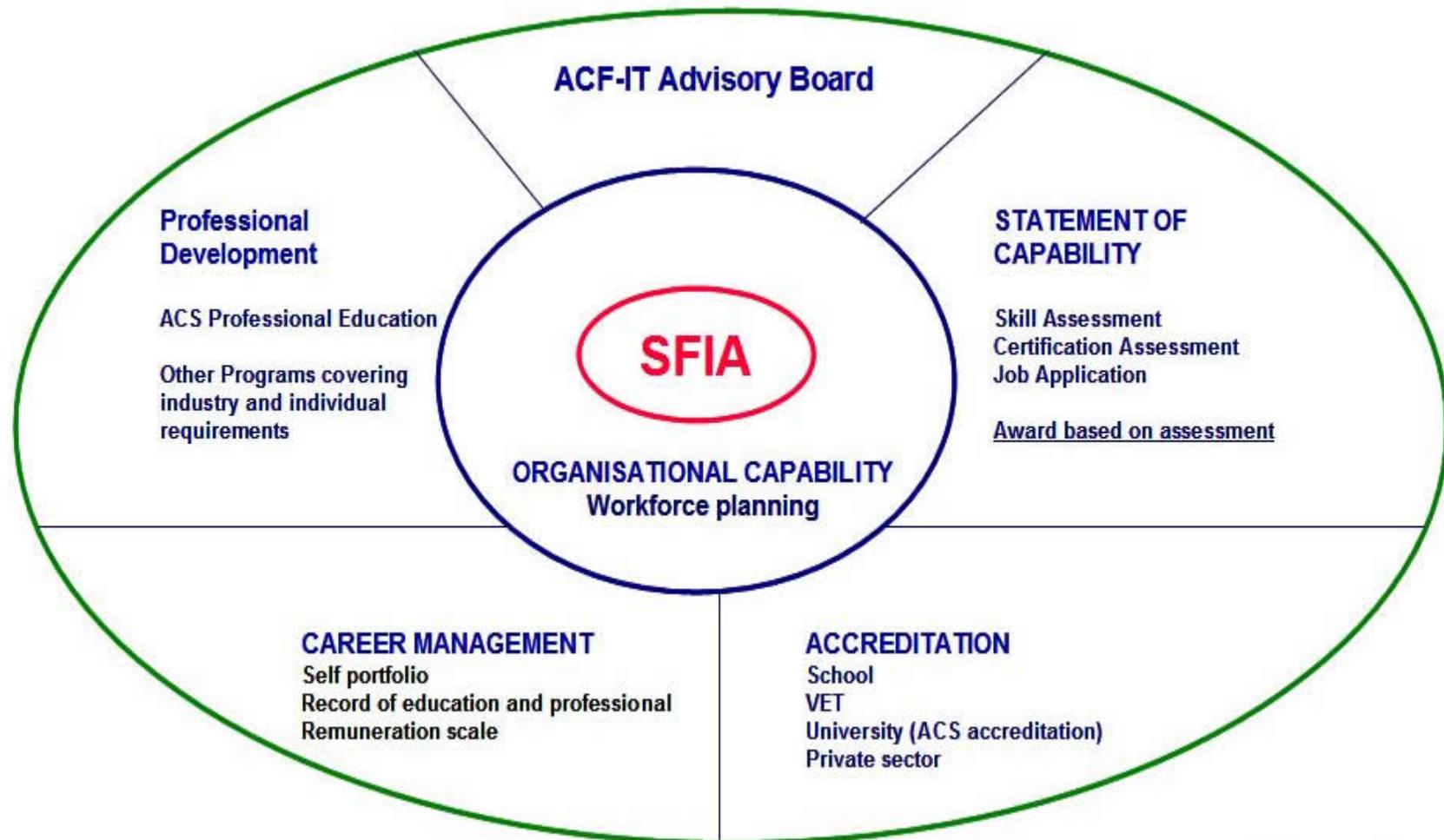
## **NEXT STEPS**

The next steps for the ACS Australian Capability Framework:

- Migration of SFIA-based accreditation to VET programs (implementation mid-2011).
- Launch of the Certified Professional and Certified Technologist program (at the World Computer Congress in September 2010 in Brisbane);
- Adoption of APS skills and professional development programs for ICT practitioners from the Federal sphere to all States and Territories;
- Introduction of Certified Specialist programs (mid-2011); and
- Adoption of Certified Professional, Certified Technologist and Certified Specialist by the private sector.

These steps require significant consultation within the education sector and within the ICT sector. Widespread adoption within an appropriate timeframe will require collaboration between Governments, Education and ICT sectors, and a community promotional campaign. Proper resources and funding will be necessary to achieve such a position.

## APPENDIX 1: AUSTRALIAN CAPABILITY FRAMEWORK FOR IT



## APPENDIX 2

### ACS CERTIFICATION PROGRAM

#### BACKGROUND

The IT Industry Innovation Council (ITIIC) established by Minister Kim Carr has recognised the need for a single, national certification of ICT qualifications.

A skilled and professional workforce is the heart of any country's ICT capability. Without skilled employees, technology firms cannot grow and flourish, and there is a strong relationship between the strength of a country's education sector and the effectiveness of its ICT profession.

The challenge posed by a global economy is that the skills requirements change very quickly as development and other ICT activities are moved to cheaper economies. Australia needs a flexible approach to skills development while maintaining the integrity of the level of skills if they are to remain competitive.

Despite an increasing enrolment in higher education within Australia, there is a shortage of skilled and professional employees, especially in some high-level ICT skills such as project management, technical architecture and business analysis. ICT does not exist for its own sake – the skills we need to maintain a competitive ICT sector are about understanding how to automate processes so that they can be enabled by ICT.

Expertise is just as important as capital when it comes to establishing and developing a company within the ICT sector. The success of ICT-enabled organisations highly depends on the proper capabilities, experience and skills of its ICT practitioners. This is true regardless of which part of the business solutions life cycle they are involved (solution sales, construction, implementation, systems integration and solution support) or in what context (technology innovation and development, business, government or education and training).

It is essential to have a national (or even global) standardised framework in which to comprehend the skills, experiences and capability of ICT practitioners. This enables organisations to find and select the right resources to address their needs, which is becoming more important now that there is a growing expectation in the market for the highest quality of service.

Australian governments are the largest purchasers of ICT products and services, so government buying decisions have a significant effect on the domestic ICT sector. If governments use this purchasing power in the right way, they can influence the development of a competitive national ICT capability without spending more money.

## THE ACS CERTIFICATION PROGRAM

In 1988, the ACS implemented the first stage of its current Certification Program – the Certified Professional (CP) – to allow its members to both demonstrate their qualification and commitment to professionalism, and to participate in the Professional Standards Council's *Cover of Excellence* scheme.

After extensive consultation by the ACS with the Professional Standards Council over a 10-year period, the ACS Cover of Excellence scheme took effect in early 2010. Its approval under the Professional Standards Legislation is a limitation of liability to implement strategies for improving professional standards and protecting consumers.

The requirements of a CP are:

- to exercise a standard level of responsibility and accountability (generic competency) at Skills Framework for the Information Age (SFIA) level 5: *Ensure, Advise*;
- to demonstrate in-depth professional (specialised) competency in at least one SFIA skill at level 5;
- to demonstrate a breadth of ICT knowledge through the ACS Core Body of Knowledge (CBOK), at a level defined as appropriate for CP status;
- to have an understanding of and commitment to the ACS codes and standards; and
- to undertake thirty (30) hours each year of structured professional development to maintain certification.

In September 2010, the ACS will introduce the Certified Technologist (CT) designation to recognise those practitioners who engage in ICT work at a level below CP level – generally early practice professionals and graduates of VET and vendor training (including those offered by CISCO, Microsoft and Novell). They will often either have chosen a career as a technologist or may aspire to move to the professional certification level.

The requirements of a CT are:

- to exercise a standard level of responsibility and accountability (generic competency) at Skills Framework for the Information Age (SFIA) level 3: *Apply*;
- to demonstrate in-depth professional (specialised) competency in at least one SFIA skill at level 3;
- to demonstrate a breadth of ICT knowledge through the ACS Core Body of Knowledge (CBOK) at a level defined as appropriate for CT status;
- to have an understanding of and commitment to the ACS codes and standards; and

- to undertake twenty (20) hours each year of structured professional development to maintain certification. This may include studies towards CP certification.

The ACS has also introduced the ***Computer Professional Education Program*** (CPE Program) as a pathway to professional status for those members who wish to move from technologist to professional through a program of study and work experience. Entry to this program requires that applicants can demonstrate that they have a capability at SFIA level 4. This program is internationally recognised and has been adopted by computer societies in New Zealand, South Africa and Canada.

A similar program for those practitioners who do not qualify for CT status is currently under design by the ACS. This program will supplement those certifications that have the necessary depth in a specialisation, but do not have sufficient breadth of ICT knowledge or the necessary generic skills for a CT designation.

In the second half of 2011, the ACS will introduce Certification of Specialists (CS) to allow ICT practitioners who already satisfy the requirements for CP to demonstrate their more advanced knowledge, skills and leadership in a particular field of ICT.

The competencies required for individuals to achieve CS certification will be that:

- they exercise standard level of responsibility and accountability (generic competency) at Skills Framework for the Information Age (SFIA) at least at level 6;
- they demonstrate in-depth professional (specialised) competency in at least one SFIA skill at least at level 6;
- they demonstrate a breadth of ICT knowledge through the ACS Core Body of Knowledge (CBOK), supplemented by an in-depth knowledge in the area of specialisation;
- they have an understanding of and commitment to the ACS codes and standards;
- they undertake forty (40) hours each year of structured professional development in their area of specialisation to maintain certification; and
- they have practised in their area of specialisation for at least 500 hours in the past 12 months. Areas of specialisation include (not exhaustive) information assurance, information warfare, safety assessment, corporate governance, etc.

## **A NATIONAL QUALIFICATION SCHEME**

The ACS has recognised the need for a National Qualification Scheme for those ICT practitioners who might not be ACS members. The ACS has consulted with the Australian Public Service Commission (APSC) and Australian Government Information Management Office (AGIMO) on the development of a careers pathway and skills framework for Australian Public Service (APS) ICT employees, as a result of the recent Gershon Review. On advice from the ACS, APSC and AGIMO adopted

the Skills Framework for the Information Age (SFIA) in order to develop an internal ICT capability. During the process, the ACS has introduced to both APSC and AGIMO the concept of an Australian Capability Framework for ICT (ACF-IT).

The ACS uses the SFIA in its Certification Program, its accreditation framework and ACS Education programs.

The ACF-IT extends the SFIA with the following additional features:

- the ability to assess an individual's capability against the SFIA – both for self assessment and certification of qualifications;
- the ability for organisations to design ICT position requirements against the SFIA skills sets (with the addition of individual organisational requirements);
- the ability to establish a database of typical ICT jobs at various levels with skill set requirements in various industries and domains, with indicative salary information;
- the ability to accredit education and training programs against both the skills sets and typical position requirements; and
- a career planning tool for individuals seeking to enter or progress through the ICT profession.

The first of these features is required for the implementation of a National Qualification Scheme.

### How would this work?

The ACS currently undertakes skills assessment for migration (on behalf of the Australian Government) and for its Certification Program (comprising CP, CT & CS). While both the current processes produce a limited assessment of skills in that they are not assessed against the full capability of the applicant, these skilled migration and certification assessments can be undertaken at a level that provides a full capability statement for the applicant.

Individuals wishing to be assessed for other purposes, (for example, those who might wish to apply for APS vacancies) could also apply for assessment, and hence demonstrate (through this independent assessment) their ICT capability for any job application in all industries and domains.

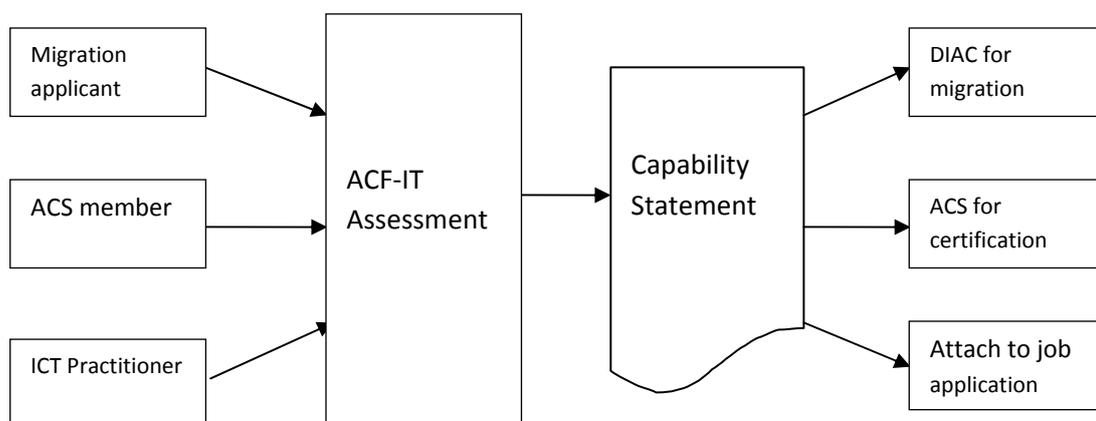


Figure 1 – The ACF-IT Model

## **THE APPLICATION PROCESS**

The applicant would apply on-line, providing personal details (if not previously assessed) or an assessment number (if previously assessed or if a member of the ACS), details of education and training and previous positions held, as well as two reports on projects in which they have participated and two referees to attest to their claims. They would be required to attach proof of such claims and overseas applicants would be required to provide certified copies of all documents.

The applicant would then self-assess against the SFIA to “claim a capability against SFIA skill sets” (a tick-the-box exercise) and provide references to their resumé and project reports that are relevant to the skills set and level of capability claimed.

The application would then be allocated to an appropriately-trained assessor who would assess the application and determine the level of capability against the claim.

The applicant would receive a “certified” Statement of Capability that includes personal details, education, experience and an evaluation of both the generic and specialised skills sets against the SFIA.

## **ACCREDITATION AND EDUCATION**

### **Accreditation**

The ACS currently accredits undergraduate and graduate programs to ensure that the graduates have the necessary knowledge and skills for entry to professional status. There is an additional experience requirement before graduates meet CP status.

For the ACF-IT to be of value to individuals (for career planning) and employers (for staff development), it is essential that all education, training and professional development programs can be accredited against the ACF-IT framework.

### **EDUCATION**

The ACS currently has a limited (but important) number of programs that enable individuals to progress to professional level. These programs supplement rather than compete with existing education and training programs.

The ACS Certification Program requires all certificants to engage in professional development (PD). The ACS will need to develop a national strategy for the provision of professional development. It is not feasible or necessary that the ACS provide all professional development opportunities – rather it is expected that the ACS will form partnerships with other educational and training organisations to offer a substantial PD program for its members.

All PD programs are “accredited” against the ACF-IT framework.

## **OTHER CONSIDERATIONS**

The ACS continues a dialogue and collaboration on school curriculum and VET training packages through its National Computer Education Committee and as a member of the Innovation and Business Skills Australia (IBSA) ICT Advisory Board.

IBSA is a national Industry Skills Council responsible for advice on workforce development and skills needs, including the development of training packages in the IBSA's six industries: business services, cultural and related industries, education, financial services, information and communications technologies, and printing and graphic arts.

## APPENDIX 3

### TERMINOLOGY AND GLOSSARY

**Certification** has three components:

- **Qualification** – independently/peer assessed against a qualification framework from an application providing full details of education, training, experience and referees;
- **Compliance** – code of ethics, standards of behaviour, disciplinary process (administered by a professional association); and
- **Monitoring** – continuing professional growth and development remains up to date and requires periodic re-assessment of qualifications (administered by a professional association).

**Accreditation** is the process of auditing an organisation, process or scheme against set standards. For example, the ACS accredits university programs against a set of guidelines that ensure that graduates of those programs will have the necessary knowledge and skills for entry to professional level. The ACS accreditation process is in turn accredited under the Seoul Accord for compliance with its requirements.

**IFIP** is the International Federation of Information Processing; a body established by UNESCO to further the science and art of information technology. Its constituent members are the ICT professional associations representing each country. The ACS represents Australia within IFIP. [www.ifip.org](http://www.ifip.org)

**IP3** is the International Professional Practice Partnership; an IFIP board tasked with establishing an international ICT profession that is respected and recognised by governments, employers and the ICT industry. The ACS Certification Program has been accredited under IP3 standards. [www.ipthree.org](http://www.ipthree.org)

**SFIA** is the Skills Framework for the Information Age that is used by both the ACS and IP3 in defining the skills sets involved in ICT. It has 180 skills sets at seven levels of capability. It also contains generic capabilities at each of the seven levels. [www.sfia.org.uk](http://www.sfia.org.uk)

**CP** means Certified Professional – a post nominal afforded to those members of the ACS who qualify under the ACS Certification Program at the professional level.

**CT** means Certified Technologist – a post nominal afforded to those members of the ACS who qualify under the ACS Certification Program at the technologist level.

**CS** means Certified Specialist – a post nominal afforded to those members of the ACS who qualify under the ACS Certification Program at the specialist level.

**Seoul Accord** is an agreement to recognise ICT and ICT-related degrees between accrediting bodies that have subjected themselves to an accreditation process and audit by the other signatories. Current signatories are Australia, Canada, Hong Kong, Japan, South Korea, Taiwan, United Kingdom and USA. The net result of the accord

is that graduates of accredited programs are recognised internationally as if they had graduated from such programs in the other signatory countries. [www.seoulaccord.org](http://www.seoulaccord.org)

**Statement of Capability** is a statement of an individual qualification against the SFIA as assessed by a qualification body. It details the skills, both ICT and generic, that the individual has demonstrated to an independent qualified assessor.