

# ICT Qualifications Mandatory Review

## Final Qualifications Consultation

**Consultation** on the final draft of new Qualifications for  
Information and Communications Technology (ICT)

*July/August 2014*

**Consultation closes at 5pm on 21 August 2014**



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# 1. Introduction

The NZ Qualifications Authority (NZQA) is currently overseeing the *Mandatory Review of Qualifications*, a review of all qualifications on the New Zealand Qualifications Framework (NZQF) that meet specific criteria.

The criteria includes the review of all qualifications at levels 1-6 on the NZ Qualifications Framework, being Certificates and Diplomas offered by Institutes of Technology and Polytechnics (ITPs) and Private Training Establishments (PTEs). Degree programmes are out of scope, as are qualifications offered by Universities. The review aims to reduce the duplication and proliferation of qualifications; to ensure the qualifications meet the overall needs of the particular sector and are useful, relevant and fit for purpose; and meet the new requirements for listing qualifications on the NZQF.

In the case of *Information and Communications Technology* (ICT, hereinafter called IT) and Computing, the review is being co-led by NZQA's National Qualifications Service and the Institute of IT Professionals NZ (IITP). IITP is the independent professional body of the IT sector and is leading the Steering Group with NQS leading the project team.

The current nationwide review of all sub-degree ICT qualifications invites feedback on the final draft of ICT qualifications to replace current qualifications. If endorsed by this consultation, these qualifications (or a revised set depending on the nature of feedback received) will be formally submitted to NZQA for Approval to List. Once approved, they will become formally listed qualifications on the New Zealand Qualifications Framework and will replace existing ICT and computing qualifications at levels 1 to 6.

## 1.1 Progress to date

The landscape of qualifications outlined in this document has been developed through an extensive consultative process and with input from hundreds of IT companies, training providers, educational institutions and IT Professionals.

Prior to this consultation, there have been four rounds of formal consultation as well as ongoing and significant industry, education provider, and other stakeholder input. The Steering Group overseeing the work has representatives from four major IT representative bodies as well as provider representatives.

The process began in early 2013, with the first Steering Group meeting in April of that year. In May and June of 2013 Industry and Provider surveys were undertaken to ascertain the parameters for the review and new qualifications, and to determine and test the industry roles the qualifications should prepare students for.

Based on these consultations and other work, a draft Qualifications Landscape was developed and further consultation undertaken in July 2013. This consultation attempted to map the industry role outcomes with educational pathways through the new qualifications. Evidence of need for the proposed qualifications was contained in the needs analysis, which was prepared to accompany the proposed qualifications during consultation in 2013 and was submitted alongside the suite of new qualifications for 'approval to develop' last November.

Several Working Groups of providers and industry were formed to construct the qualifications and a significant amount of work completed to scope out the structure of the qualifications themselves.

Following changes as a result of the consultation, draft qualifications were developed based on the modified “landscape”. These were submitted to a further round of full consultation in September/October 2013. Following further changes as a result of that consultation, the draft qualifications were submitted to NZQA in November 2013 for *Approval to Develop* – the first formal stage in listing qualifications on the New Zealand Qualifications Framework.

NZQA approved the development of the draft qualifications in February 2014 with several caveats and areas for consideration. These were subsequently considered by the review Steering Group with most referred to reconstructed Working Groups, who continued to define and refine the detail of the qualifications.

Working Groups met in April, May and June 2014 with a particular focus on refining the draft qualifications and including specifications and conditions relating to the qualifications and graduate profile outcomes. Consideration of the review report items and stakeholder feedback from the previous consultation was also included.

The Steering Group met again in July 2014 to consider the result of the Working Group process and ensure it still met with the original intent as defined through the earlier industry consultation processes and after some minor changes, approved the qualifications for consultation.

These refined qualifications are now open for consultation, and the Steering Group is seeking comprehensive feedback as to whether the qualifications meet the original intent and are fit for purpose. This consultation is open to industry, educational providers and other stakeholders alike and all feedback will be considered in detail.

Further changes to the qualifications are likely as a result of this consultation, and the Steering Group is intending to submit the qualifications to NZQA in September 2014 for *Approval to List* and it is hoped that the qualifications will be listed on the Framework this year. Programmes of study are being prepared by other groups in parallel, and these will also need to be approved and providers accredited to deliver them, with the aim of some institutions teaching to the new qualifications in 2015.

You can find out more information about the review at <http://tinyurl.com/ITQuals>

### **This consultation closes 5pm on Thursday 21 August 2014**

Please submit your response online at <http://www.iitp.org.nz/quals/>. A list of consultation questions is included in Appendix A, or you can comment on any other matter related to the review.

You may choose to respond to some or all of the consultation questions, or leave any other comment.

If you would prefer, additional comments and submissions in relation to the consultation may be sent to [ICTQuals.Review@nzqa.govt.nz](mailto:ICTQuals.Review@nzqa.govt.nz).

## 1.2 Review Scope

The following is a brief outline of the scope for the ICT Qualifications Review. Please see the [Terms of Reference](#) of the Review and Steering Group for more information.

### 1.2.1 NZ Qualifications Framework Levels 1-6

The review is limited to considering IT/ICT/Computing-related qualifications at levels 1 to 6 on the NZ Qualifications Framework (NZQF).

This includes **Certificates and Diplomas** offered by *Institutes of Technology and Polytechnics* (ITPs), *Private Training Establishments* (PTEs), *Wānanga*, and other tertiary providers. Note that qualifications offered by Universities are specifically excluded.

### 1.2.2 The two streams of IT: Tool vs Profession

The review considers two distinct streams of IT, being usage of computers and computing devices by the general public (sometimes referred to as *Digital Literacy*, although this is not a term that will be used in these qualifications) and the qualifications for those intending to enter the IT profession.

For the purpose of this document and for clarity, these have been referred to as “IT as a Tool” and “IT as a Profession” respectively. While in reality there is generally a continuum from one to the other, the requirements for each are quite different and need to be considered in their own right.

Note that these are labels used to clarify the intent of these qualifications for the purpose of consultation and development. These terms will not be used in the final qualifications.

## 1.3 Principles

At the start of the process, the Steering Group defined a set of principles that governed the development of these qualifications.

The intention is to develop qualifications and a structure that as far as possible meet the needs of a wide range of learners, employers and other stakeholders. The following has been considered in detail:

- Issues identified in the analysis of current qualifications and their use
- Needs identified in the needs analysis
- The needs of specific groups of learners:
  - students wanting to gain a full ICT qualification prior to entering the workforce (domestic, international, secondary/tertiary, full time/part time, Māori, Pasifika);
  - employees wanting to gain a full ICT qualification i.e. those already in the workforce, who may be employer sponsored or part time self-funded learners;
  - people seeking employment who might need specific IT skills and/or to improve digital literacy, to enter an ICT or other business environment. May be second chance learners, upskilling or re-training adults;
  - employers and SME owners wishing to improve productivity and profitability of their business (may be upskilling themselves or employees, gap filling, mentored);
  - Communities wanting to reduce the technology literacy gap, providing opportunities to develop digital skills as a key aspect of life skills.
- Initial and subsequent feedback from industry and provider surveys around roles and skill requirements
- Alignment and cohesion with the existing New Zealand Curriculum based NCEA Digital Technologies Achievement Standards (offered in schools and elsewhere)
- Alignment with ongoing professional education in the industry
- Consideration of mapping IT professional qualifications to an international skills framework such as the Skills Framework for the Information Age - SFIA

The landscape includes qualifications that recognise generalist skills and knowledge relevant to many contexts, and also includes specialist areas to allow for separate credentialing in these areas. The landscape also suggests two separate streams – ‘IT as a tool’ computing qualifications and ‘IT as a Profession’ information technology qualifications, as well as a bridging qualification.

A range of possible roles for graduates of ‘IT as a Profession’ qualifications is covered in appendix B.

## 2. Landscape for “IT as a Tool” Qualifications

The “IT as a Tool” computing Qualifications are designed to cover the skills for using computers and other technology in a home, work or community setting.

The draft framework has been designed to provide Certificates in Computing, with progression from fundamentals through to advanced user. These Certificates are expected to provide a good grounding in the use of computers, the Internet and other technology and devices.

Please refer to the individual qualification documents on the NZQA website at <http://tinyurl.com/ITQuals> for more information.

### "IT as a Tool" Qualifications

NZQF Level	
1	
2	<b>NZ Certificate in Computing (User Fundamentals)</b> (40 credits)
3	<b>NZ Certificate in Computing (Intermediate User)</b> (60 credits)
4	<b>NZ Certificate in Computing (Advanced User)</b> (60 credits)
5	
6	

#### 2.1.1 NZ Certificate in Computing (User Fundamentals) (Level 2)

The purpose of this qualification is to provide Aotearoa New Zealand organisations and communities with graduates who have attained a range of introductory digital technology skills, and who can be employed in a range of general entry level roles.

Graduates will be capable of using digital technologies to produce and process information, and operate effectively with a range of skills that will be internationally relevant. They will be able to perform a range of basic tasks independently in familiar situations, and in a supervised work environment.

Businesses, organisations and communities will benefit from having people who have acquired introductory digital technologies skills that contribute to improving performance and productivity. Individuals will benefit from being confident and capable in the use of a range of digital tools.

#### 2.1.2 NZ Certificate in Computing (Intermediate User) (Level 3)

The purpose of this qualification is to provide Aotearoa New Zealand organisations and communities with graduates who have intermediate level computing user skills, and who can be employed in a range of entry level roles.

Graduates will be capable of using a range of digital tools and technologies to an intermediate level, to produce and process information, and operate effectively with skills that will meet professional standards and be internationally relevant.

Businesses, organisations and communities will benefit from having people who have acquired digital technologies skills that contribute to improving performance and productivity. Individuals will benefit from being more confident and capable in the use of a range of digital tools and technologies.

The qualification builds on existing skills and can be used to recognise the achievement of relevant knowledge and skills by those already employed. This qualification can complement other qualifications in specific industries.

### **2.1.3 NZ Certificate in Computing (Advanced User) (Level 4)**

The purpose of this qualification is to provide Aotearoa New Zealand organisations and communities with graduates who have attained advanced computing user skills, and can be employed in a wide range of roles.

Graduates will be capable of using digital technologies to produce and process information, and operate effectively with a range of skills that will be internationally relevant. They will be capable of performing a wide range of tasks under broad guidance in a work environment, and may demonstrate self-management and some responsibility for the performance of others.

Businesses, organisations and communities will benefit from having people who have acquired digital technologies skills that contribute to improving performance and productivity. Individuals will benefit from being highly confident and capable in the use of a range of digital tools.

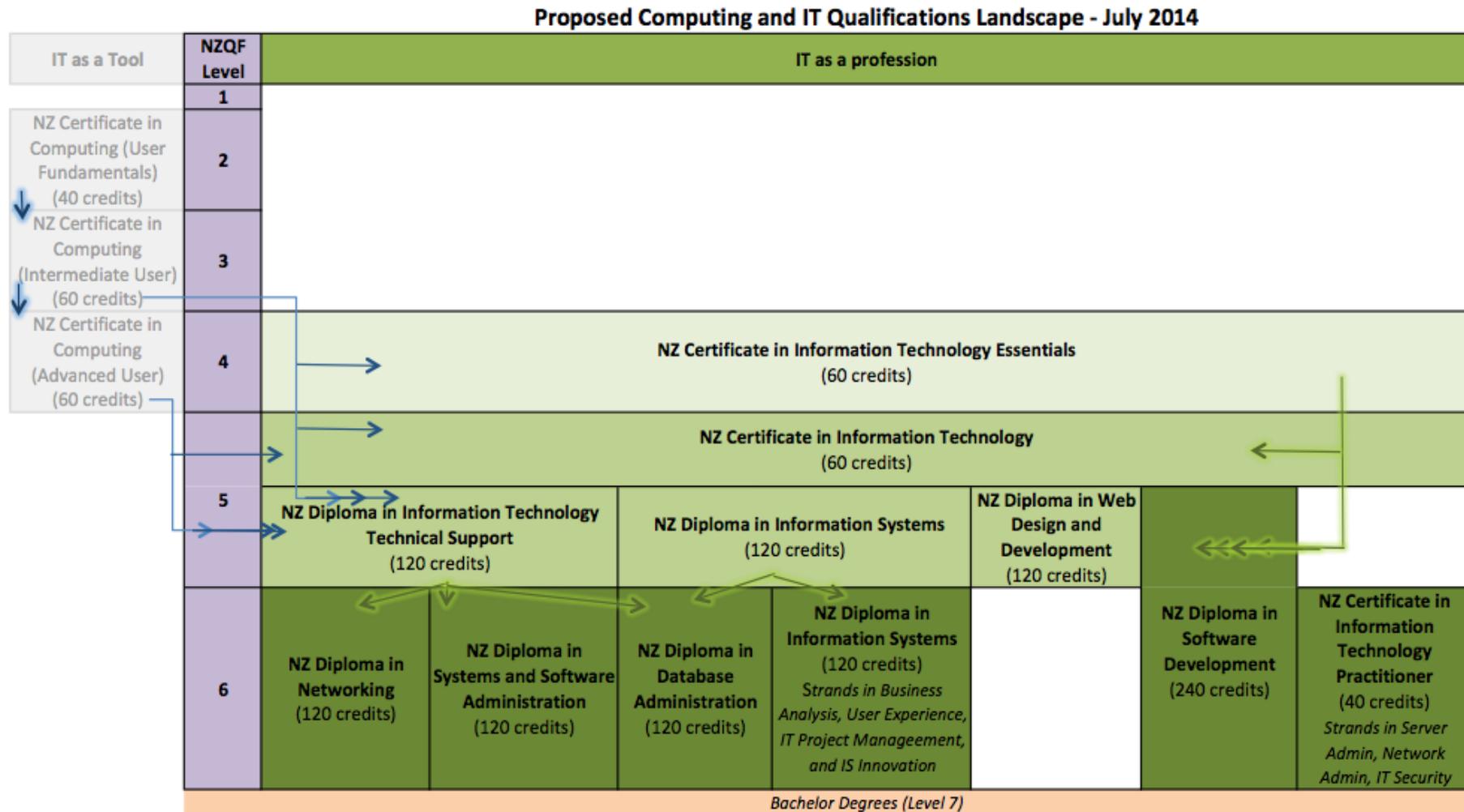
The qualification builds on existing skills and recognises the achievement of relevant knowledge and skills of those already employed. This qualification can complement other qualifications in specific industries.

**Consultation Question 1:** Referring to the individual “IT as a Tool” qualification documents, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 2:** Further comments regarding the draft “IT as a Tool” computing qualifications.

### 3. Landscape for “IT as a Profession” Qualifications

The proposed landscape to be considered during this consultation is as follows:



Please refer to the next page for an explanation.

The “IT as a Profession” Qualifications provide a solid grounding and introduction to the IT Profession.

The suggested qualifications landscape has three broad pathways:

- **Information Technology/Tech Support**, covering the more technical aspects of the industry such as networking, technicians, and tech support including helpdesk functions.
- **Information Systems**, covering the more process-oriented side of the profession and leading into careers in Business Analysis, IT Project Management, User experience (UX) and separately, Database Management.
- **Software Development**, implemented in various contexts and including provision to later specialise in Software Testing and Software Security (at level 7, outside scope of this review)

In addition, the landscape includes a level 4 bridging qualification to prepare learners for further IT study, a level 5 Certificate providing a common core and grounding in the range of IT options, and a suite of qualifications in the identified broad pathways.

Also note the Level 6 stranded 40-credit *Certificate in IT Practitioner*, which is specifically to cater for re-training of existing IT Professionals or those who have already completed separate IT-related qualifications. Strands include Server Administration, Network Administration and IT Security and it’s likely the programme of study for these strands might closely match vendor certifications in these areas. There was also a call from some quarters for additional streams in Software Development and Database Administration, however prior industry feedback has been clear that the industry is looking for comprehensive education in these areas including surrounding skills (such as testing, documentation etc) rather than shorter qualifications.

## 3.1 Information Technology Certificates - Professional Pathway

### 3.1.1 NZ Certificate in Information Technology Essentials (Level 4)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have the essential skills for further study that will equip them to work in the field of Information Technology (IT) as a profession. Some learners may use this qualification as a pathway from the computing user qualifications to the professional IT qualifications.

Graduates will demonstrate internationally relevant skills and knowledge specific to the disciplines within IT. They will also be capable of communicating with relevant stakeholders in a professional manner.

Businesses, organisations and communities will benefit from having people who have essential information technology skills commonly required in organisations. Graduates will benefit from having gained the skills and knowledge required to continue their professional development in IT.

### 3.1.2. NZ Certificate in Information Technology (Level 5)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a broad understanding of the core concepts and practical skills in Information Technology (IT).

This qualification builds on the learner's existing IT skills from previous qualifications, or relevant experience, and provides the common core for all of the pathways in the professional IT suite of New Zealand qualifications. Primarily, it will equip people for further IT related study, and may also prepare people for employment in an entry level IT role.

Graduates will be capable of applying the fundamentals of current and emerging concepts and practice in IT. They will also be able to demonstrate awareness of appropriate professional practice, and work both independently and as part of a team, under broad supervision, with skills that are internationally relevant.

Businesses, organisations and communities will benefit from having IT Professionals with a sound base understanding of both the technical and professional aspects of their profession.

**Consultation Question 3:** Referring to the detailed qualification description document, do you have any feedback or comments in relation to either the detail or intent of the NZ Certificate in Information Technology Essentials (Level 4) or the NZ Certificate in Information Technology (Level 5)?

## 3.2 “Information Technology” Technical Pathway

The Information Technology pathway would contain more of the technical aspects of the profession such as networking, technician work, systems administration etc.

An earlier draft of the Landscape, and what was submitted for approval to develop, had a single *Diploma in Networking and Systems Administration* and a separate *Diploma for the Software Implementation and Support*. During the detail development work of stage 2 of the review, the Working Group felt that separating *Networking* into its own qualification and combining the *Systems Administration* and *Software Implementation and Support* qualifications would provide more coherent learning and better meet the needs of learners and employers.

### 3.2.1 NZ Diploma in Information Technology Technical Support (Level 5)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a broad understanding of the core concepts and practical skills in Information Technology. It will prepare people for employment in roles such as computer technician, service desk or technical support, or for further study.

Graduates will have an awareness of the IT environment, appreciate the needs of users, and be able to provide IT technical support. They will also be able to operate with appropriate professional standards and practice, and as part of a team, or independently with a broad level of supervision.

Businesses, organisations and communities will benefit by having IT Professionals with technical support skills that will be internationally relevant.

### 3.2.2 NZ Diploma in Networking (Level 6)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained IT knowledge and specialist professional and technical skills in networking. It will prepare people to enter employment in roles such as a network professional in a service environment, or to proceed to further study.

Graduates will be capable of configuring, maintaining and monitoring networks with skills that will be internationally relevant. They will also be able to operate with appropriate professional standards and practice, both independently and as part of a team.

Businesses, organisations and communities will benefit from having IT Professionals who are qualified in the management of networks, in all sectors of the economy and society.

### 3.2.3 NZ Diploma in Systems and Software Administration (Level 6)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a range of professional and technical skills in a specialist area within Information Technology support. It will prepare people for employment as either a systems administrator or desktop analyst in a support environment, or to proceed to further study. This qualification builds on the common core of level 6 skills, and generalist skills developed at Level 5, or equivalent relevant experience.

Graduates will be capable of carrying out systems administration, and providing related advice and support, using skills that will be internationally relevant. They will also be able to operate within an organisation with appropriate professional standards and practice, both independently and as part of a team.

Businesses, organisations and communities will benefit from having IT Professionals who are qualified in the management of client software and systems, in all sectors of the economy and society.

**Consultation Question 4:** Referring to the individual qualification documents in the IT Technical Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 5:** Do you support the change to a separate networking qualification? Why (or why not)?

**Consultation Question 6:** Do you support combining the Software Implementation and Support and Systems Administration qualifications into the proposed NZ Diploma in Systems and Software Administration? Why (or why not and what would be distinctly different between them)?

**Consultation Question 7:** Please provide any further comments you have regarding the draft “Technical Pathway” qualifications.

### 3.3 “Information Systems” Pathway

The Information Systems pathway is intended to provide an option for the more process-related areas of the profession such as Business Analysis, Project Management and User Experience (UX). Consultation and research suggests that this would be a more attractive pathway for those who still want to enter the IT industry seeking an information systems related role (which are in strong demand by our industry).

#### 3.3.1 NZ Diploma in Information Systems (Level 5)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained sufficient Information Systems (IS) skills to proceed to further study or employment in an entry level IS role.

The qualification is designed for people who need a broad, generalist understanding of IS, equipping learners with the soft skills and technical skills and knowledge to meet the needs of a range of IS roles.

Graduates will be capable of operating with appropriate professional standards and practice, both independently and as part of a team under broad supervision. They will also have skills and knowledge that will be internationally relevant.

Businesses, organisations and communities will benefit by having qualified IS professionals who are able to contribute to Information Systems development in Aotearoa New Zealand.

#### 3.3.2 NZ Diploma in Information Systems (Level 6, stranded)

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a range of specialist professional and technical Information Systems (IS) skills. It will prepare people for employment in an intermediate level IS role in a range of organisational contexts, or to proceed to further study.

The qualification provides an opportunity for people wanting to broaden their skills and knowledge in IS, which may include people already working in the IT sector, as well as others wishing to enter it. Graduates will be capable of operating both independently and as part of a team.

Businesses, organisations and communities will benefit from having IT professionals who are experienced and qualified in specific contexts within Information Systems.

This qualification is stranded in order to recognise the specific technical and theoretical skills and knowledge required to specialise in business analysis, user experience, IT project management, and information systems innovation.

The **Business Analysis Strand** will equip graduates with a range of technical and theoretical knowledge and skills with a focus on business analysis and managing software development processes.

The **User Experience Strand** will equip graduates with a range of technical and theoretical knowledge and skills with a focus on human computer interaction (HCI).

The **IT Project Management Strand** will equip graduates with a range of technical and theoretical knowledge and skills with a focus on the tools and techniques used in IT project management.

The **Information Systems Innovation Strand** will equip graduates with a range of technical and theoretical knowledge and skills with a focus on innovation to address organisational needs and opportunities.

All strands of the qualification build on the common core of Level 6 skills together with the generalist skills developed at Level 5 or equivalent relevant experience.

### 3.3.3 NZ Diploma in Database Administration

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a range of specialist professional and technical skills to create, implement and operate database systems. It will prepare people for employment in an entry-level database administrator role in a range of organisational contexts, or to proceed to further study.

Graduates will be capable of configuring, maintaining, and monitoring performance of databases with skills that will be internationally relevant. They will also be able to operate with appropriate professional standards, independently within a small business and as part of a team in a larger organisation.

Businesses, organisations and communities will benefit from having IT professionals who are qualified in the administration of databases, in all sectors of the economy and society.

This qualification builds on the common core of Level 6 skills together with the generalist information systems skills developed at Level 5 or equivalent relevant experience.

**Consultation Question 8:** For each individual qualification in the Information Systems Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 9:** Please provide any further comments you have regarding the draft “Information Systems Pathway” qualifications.

### **3.4 “Software Development” Pathway**

The Software Development pathway pursues core concepts and practice around the development of software in multiple contexts.

It is clear from industry consultation that a longer Diploma is required to prepare learners for a software development career, and this is reflected in the two-year Diploma in Software Development. The intention is that this qualification could be taught in varying contexts such as web development, app development, mobile development, traditional software development and other contexts in future.

However there is also clear industry demand for a shorter qualification that prepares learners for web design and development using content tools, reflected in the Diploma in Web Design and Development.

#### **3.4.1 NZ Diploma in Web Design and Development (Level 5)**

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained sufficient Information Technology (IT) knowledge, practices and technical skills to enter employment in a role in customisation of packaged web solutions, or to proceed to further study.

The qualification is designed for those seeking to develop and apply skills in the concept and execution of web and interface design and development.

Graduates will be capable of operating with appropriate professional standards and practice, both independently and as part of a team under broad supervision, with skills that are internationally relevant.

Businesses, organisations and communities will benefit from having IT Professionals who can design and develop websites in all sectors of the economy and society.

#### **3.4.2 NZ Diploma in Software Development (Level 6)**

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have attained a range of IT knowledge, specialist practices and technical skills in software development. It will prepare people for employment in a junior developer or tester role in a range of organisational contexts, or to proceed to further study.

The qualification is designed for those seeking to focus on one or more application domains, such as general Application Development, Web Development, Games Development, and Mobile Applications Development.

Graduates will be capable of operating with appropriate professional standards and practice both as part of a team and independently under broad supervision. They will contribute to software development in Aotearoa New Zealand, and be internationally relevant.

Businesses, organisations and communities will benefit from having graduates with programming, coding, scripting and testing skills in all sectors of the economy and society.

**Consultation Question 10:** Referring to the individual qualification documents in the Software Development Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 11:** Please provide any further comments you have regarding the draft “Software Development Pathway” qualifications.

### 3.5 NZ Certificate in IT Practitioner

The purpose of this qualification is to provide Aotearoa New Zealand with graduates who have updated their knowledge and specialist skills to remain current in a specific area of IT practice, in response to the changing needs and demands of the dynamic IT environment.

Graduates will be capable of applying current IT skills, knowledge and practice that will be internationally relevant in the chosen strand. They will be able to operate with appropriate professional standards and practice, both independently and as part of a team.

Businesses, organisations and communities will benefit from having an on-going supply of IT practitioners who are experienced and qualified in an area of current IT practice, and who may also meet the requirements of internationally recognised industry certifications.

This qualification is stranded in order to recognise the specific skills and knowledge required of practitioners to update specialist skills to remain current in one of the following areas of IT practice:

- Server Administration
- Network Administration
- Information Technology Security

**Consultation Question 12:** Do you agree with the three proposed strands and/or are there any other strands you believe should be provided that could be taught in 40 credits for the learners identified? Why?

**Consultation Question 13:** Please provide any further comments you have regarding the draft “NZ Certificate in IT Practitioner” qualification.

## 4. Qualification Developer and other matters

Under the new model, Qualifications are no longer “owned” by a Qualification Owner and are instead essentially public domain.

However an organisation (or organisations) must be listed as the “Qualification Developer” and take responsibility for future reviews of the qualifications – ie completing a similar process to that which has led to these qualifications. In future this process should be a lot simpler given the reduction in complexity of the ICT qualifications framework.

The Steering Group has proposed that, subject to governance approval within these organisations, the two co-leads for the current ICT Qualifications Review (the Institute of IT Professionals New Zealand Inc and NZQA National Qualifications Services in partnership) be listed as the Qualification Developer for the new landscape of qualifications.

If this recommendation is accepted, the organisations will commit to a governance structure very similar to the current review Steering Group including representatives from the IT profession, industry, ITP providers, PTE providers, NZQA, Te Wānanga, and secondary teachers (to ensure future alignment between secondary and tertiary qualifications).

**Consultation Question 14:** Do you support the current review co-leads (IITP and NZQA NQS) being listed as the Qualification Developer for the new landscape of ICT qualifications, subject to governance approval within these organisations?

**Consultation Question 15:** If not, what other organisation would you propose is listed as the Qualification Developer for the new landscape of ICT Qualifications?

**Consultation Question 16:** Please provide any further comments you have regarding the qualifications landscape overall or the process to date.

## Appendix A: Consultation Questions

Please consider the detailed qualification documents at <http://tinyurl.com/ITQuals> before answering the following questions.

Please visit <http://www.iitp.org.nz/quals/> to provide your consultation response.

### A.1 IT as a Tool Qualifications

**Consultation Question 1:** Referring to the individual “IT as a Tool” qualification documents, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 2:** Further comments regarding the draft “IT as a Tool” computing qualifications

### A.2 Information Technology Certificates (Professional Pathway)

**Consultation Question 3:** Referring to the detailed qualification description document, do you have any feedback or comments in relation to either the detail or intent of the NZ Certificate in Information Technology Essentials (Level 4) or the NZ Certificate in Information Technology (Level 5)?

### A.3 IT Technical Pathway Qualifications

**Consultation Question 4:** Referring to the individual qualification documents in the IT Technical Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 5:** Do you support the change to a separate networking qualification? Why (or why not)?

**Consultation Question 6:** Do you support combining the Software Implementation and Support and Systems Administration qualifications into the proposed NZ Diploma in Systems and Software Administration? Why (or why not and what would be distinctly different between them)?

**Consultation Question 7:** Please provide any further comments you have regarding the draft “Technical Pathway” qualifications.

## A.4 Information Systems Pathway Qualifications

**Consultation Question 8:** For each individual qualification in the Information Systems Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 9:** Please provide any further comments you have regarding the draft “Information Systems Pathway” qualifications.

## A.5 Software Development Pathway

**Consultation Question 10:** Referring to the individual qualification documents in the Software Development Pathway, do you have any feedback or comments in relation to either the detail or intent?

**Consultation Question 11:** Please provide any further comments you have regarding the draft “Software Development Pathway” qualifications.

## A.6 Certificate in IT Practitioner Qualification

**Consultation Question 12:** Do you agree with the three proposed strands and/or are there any other strands you believe should be provided that could be taught in 40 credits for the learners identified? Why?

**Consultation Question 13:** Please provide any further comments you have regarding the draft “NZ Certificate in IT Practitioner” qualification.

## A.7 Qualification Developer and Other Matters

**Consultation Question 14:** Do you support the current review co-leads (IITP and NZQA NQS) being listed as the Qualification Developer for the new landscape of ICT qualifications, subject to governance approval within these organisations?

**Consultation Question 15:** If not, what other organisation would you propose is listed as the Qualification Developer for the new landscape of ICT Qualifications?

**Consultation Question 16:** Please provide any further comments you have regarding the qualifications landscape overall or the process to date.

## Appendix B: Education and Employment Pathways in Brief

This section outlines how the suggested qualifications framework might align with the main graduate roles for those graduating from Certificates and Diplomas. These roles were developed following significant industry consultation.

Note that these roles relate to the “IT as a Profession” group only.

The roles covered in this section include:

### **B.1 Computing Technician**

### **B.2 Helpdesk and Technical Support Officers**

### **B.3 Network and Systems Administrators**

### **B.4 Implementation and Application Support Officers**

### **B.5 Database Administrators**

### **B.6 Software or Web Developer (Associate level)**

### **B.7 Business Analyst**

### **B.8 IT Project Manager**

This list is not exhaustive and is provided to give a flavour of how the new qualifications could be used.

The Review Team has considered these example roles in more detail, defined using the SFIA Framework, and this detail is included in the needs analysis. However the following roles are provided here to provide examples of educational and employment pathways.

## **B.1 Computing Technician**

Technicians diagnose, repair, install, assemble and maintain computers and technology devices. This might include hardware, peripherals, software and other equipment.

A Computing Technician at this level would generally deal with computers and devices in a home or small office environment as well as basic networking and in some cases SME network/server support. A technician may also work under supervised conditions in a larger office or network environment. There is some crossover between a senior technician and a Systems Administrator.

Under the suggested model, a Computing Technician would complete the Level 5 NZ Diploma in Information Technology Technical Support.

## **B.2 Helpdesk and Technical Support Officers**

Helpdesk and technical support officers often provide the first line of support, usually by telephone and internet/email.

As well as providing basic technical support on software, installations, hardware or other relevant areas, helpdesk and technical support teams must document issues and resolutions. Verbal and written communication skills are of paramount importance.

Under the suggested model, this role might require the level 5 NZ Diploma in Information Technology Technical Support.

## B.3 Network and Systems Administrators

Network and Systems Administrators maintain networks and operating systems, ensuring well functioning and secure information systems. In a Cloud Computing environment, network and system administrators are responsible for monitoring performance and conducting maintenance of a Cloud environment.

Network Administrators generally deal with the functioning and security of networks whereas Systems Administrators are concerned with operating systems and other infrastructure.

Someone pursuing these role might start with the Level 5 NZ Diploma of Information Technology Technical Support, then choose to complete either the NZ Diploma in Networking (for Network Administrators) or the NZ Diploma in Systems and Software Administration (for Systems Administrators).

## B.4 Implementation and Application Support Officers

An Implementation and Application Support role provides assistance during the installation or upgrade of systems or applications.

Implementation and Application Support roles will often conduct client-side or cloud-based installation, setup, training and early support for bespoke or other software and resolve any issues that might arise.

Someone pursuing this role might start with the proposed Level 5 NZ Diploma of Information Technology Technical Support, then also complete the Level 6 NZ Diploma in Systems and Software Administration.

## B.5 Database Administrators

A database administrator (or DBA) is a person responsible for the installation, configuration, upgrade, administration, monitoring and maintenance of databases in an organisation.

The role includes the development and design of database strategies, system monitoring and improving database performance and capacity, and planning for future expansion requirements. They may also plan, co-ordinate and implement security measures to safeguard the database.<sup>1</sup>

Someone wanting to pursue this career path might complete the proposed Level 6 NZ Diploma in Database Administration, following either the proposed Level 5 NZ Diploma in Information Technology Technical Support or Level 5 NZ Diploma in Information Systems.

## B.6 Software or Web Developer (Associate Level)

A Software Developer at the Diploma level designs, codes, tests, corrects, and documents simple programs, and assists in the implementation of software which forms part of a properly engineered information or communications system.

It should be noted that there is likely to be a differential between someone completing this Diploma, versus a Bachelor level qualification in Software Development or Engineering.

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<sup>1</sup> Source: [http://en.wikipedia.org/wiki/Database\\_administrator](http://en.wikipedia.org/wiki/Database_administrator)

Based on industry feedback, it is proposed that a software developer would complete a minimum two-year Diploma in Software Development, and the proposed Level 6 NZ Diploma in Software Development is intended to meet this need.

As an alternative, a web designer utilising CMS web tools such as WordPress, Silverstripe, Joomla, Drupal etc, who did not intend to pursue a programming career, could complete the Level 5 NZ Diploma in Web Design and Development.

## **B.7 Business Analyst**

A Business Analyst (BA) is an internal consultancy role that has responsibility for investigating business systems, identifying options for improving business systems and bridging the needs of the business with the use of IT.

Under the new model, an aspiring Business Analyst would complete the proposed Level 6 NZ Diploma in Information Systems (BA Strand) following the Level 5 NZ Diploma in Information Systems.

## **B.8 IT Project Manager**

A Project Manager has responsibility for the planning and execution of a project, in this case specifically within the context of IT Projects.

Industry consultation has shown a clear need for a focus on Project Management, especially within the IT context.

Under this suggested model, a specialist IT Project Manager would complete the proposed NZ Diploma in Information Systems at Level 6 (IT Project Manager strand), following completion of the NZ Diploma in Information Systems (Level 5).

## Appendix C: NZQF Level Descriptor Table

The following tables are intended to provide an overview of the qualification types and levels on New Zealand Qualifications Framework (NZQF). More information is available at: <http://www.nzqa.govt.nz/studying-in-new-zealand/nzqf/understand-nz-quals/>

### C.1 Qualification Types

The NZQF has 10 levels, with level 1 being the least complex and level 10 the most complex. Certificates and Diplomas are defined by an agreed set of criteria, and the table below describes the types of qualifications listed on the NZQF at level 1 to 6.

Diploma	Purpose	Outcomes	Credit reqs
<b>Level 6</b>	A diploma at level 6 qualifies individuals with theoretical and/or technical knowledge and skills in specialised/strategic contexts.	A graduate of a level 6 diploma programme is able to: <ul style="list-style-type: none"> <li>• demonstrate specialised technical or theoretical knowledge with depth in a field of work or study</li> <li>• analyse and generate solutions to familiar and unfamiliar problems</li> <li>• select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• demonstrate complete self-management of learning and performance within dynamic contexts</li> <li>• demonstrate responsibility for leadership within dynamic contexts.</li> </ul>	This diploma is listed at level 6.  It must contain 72 credits at level 6 and have at least 120 of all credits contributing to the qualification at level 5 or above.
<b>Level 5</b>	A diploma at level 5 qualifies individuals with theoretical and/or technical knowledge and skills within a specific field of work or study.	A graduate of a level 5 diploma is able to: <ul style="list-style-type: none"> <li>• demonstrate broad operational or technical and theoretical knowledge within a specific field of work or study</li> <li>• select and apply a range of solutions to familiar and sometimes unfamiliar problems</li> <li>• select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• demonstrate complete self-management of learning and performance within defined contexts</li> <li>• demonstrate some responsibility for the management of learning and performance of others</li> </ul>	This diploma is listed at level 5.  It must contain 72 credits at level 5 and have at least 120 of all credits contributing to the qualification at level 4 or above.
Certificate	Purpose	Outcomes	Credit reqs
<b>Level 6</b>	A certificate at level 6 qualifies individuals with theoretical and/or technical knowledge and skills within an aspect(s) of a specialised/strategic context.	A graduate of a level 6 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate specialised technical or theoretical knowledge with depth within an aspect(s) of a field of work or study</li> <li>• analyse and generate solutions to familiar and unfamiliar problems</li> <li>• select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• demonstrate complete self-management of learning and performance within dynamic contexts</li> <li>• demonstrate responsibility for leadership within dynamic contexts</li> </ul>	This certificate is listed at level 6 and must comprise a minimum of 40 credits at level 6 or above.

Certificate	Purpose	Outcomes	Credit reqs
<b>Level 5</b>	A certificate at level 5 qualifies individuals with theoretical and/or technical knowledge and skills within an aspect(s) of a specific field of work or study.	A graduate of a level 5 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate broad operational or technical and theoretical knowledge within an</li> <li>• aspect(s) of a specific field of work or study</li> <li>• select and apply a range of solutions to familiar and sometimes unfamiliar problems</li> <li>• select and apply a range of standard and non-standard processes relevant to the field of</li> <li>• work or study</li> <li>• demonstrate complete self-management of learning and performance within defined</li> <li>• contexts</li> <li>• demonstrate some responsibility for the management of learning and performance of others.</li> </ul>	This certificate is listed at level 5 and must comprise a minimum of 40 credits at level 5 or above.
<b>Level 4</b>	A certificate at level 4 qualifies individuals to work or study in broad or specialised field(s)/areas.	A graduate of a level 4 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate broad operational and theoretical knowledge in a field of work or study</li> <li>• select and apply solutions to familiar and sometimes unfamiliar problems</li> <li>• select/apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• apply a range of communication skills relevant to the field of work or study</li> <li>• demonstrate the self-management of learning and performance under broad guidance</li> <li>• demonstrate some responsibility for performance of others.</li> </ul>	This certificate is listed at level 4 and must comprise of a minimum of 40 credits at level 4 or above.
<b>Level 3</b>	A certificate at level 3 qualifies individuals with knowledge and skills for a specific role(s) within fields/areas of work and/or preparation for further study.	A graduate of a level 3 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate some operational and theoretical knowledge in a field of work or study</li> <li>• select from and apply a range of known solutions to familiar problems</li> <li>• apply a range of standard processes relevant to the field of work or study</li> <li>• apply a range of communication skills relevant to the role in the field of work or study</li> <li>• apply literacy and numeracy skills relevant to the role in the field of work or study</li> <li>• work under limited supervision</li> <li>• require major responsibility for own learning and performance</li> <li>• adapt own behaviour when interacting with others</li> <li>• contribute to group performance.</li> </ul>	This certificate is listed at level 3 and must comprise of a minimum of 40 credits at level 3 or above.
<b>Level 2</b>	A certificate at level 2 qualifies individuals with introductory knowledge and skills for a field(s)/areas of work or study.	A graduate of a level 2 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate basic factual and/or operational knowledge of a field of work or study</li> <li>• apply known solutions to familiar problems</li> <li>• apply standard processes relevant to the field of work or study</li> <li>• apply literacy and numeracy skills relevant to the role in the field of work or study</li> <li>• work under general supervision</li> <li>• require some responsibility for own learning and performance</li> <li>• collaborate with others.</li> </ul>	This certificate is listed at level 2 and must comprise of a minimum of 40 credits at level 2 or above.

Certificate	Purpose	Outcomes	Credit reqs
<b>Level 1</b>	A certificate at level 1 qualifies individuals with basic knowledge and skills for work, further learning and/or community involvement.	A graduate of a level 1 certificate is able to: <ul style="list-style-type: none"> <li>• demonstrate basic general and/or foundation knowledge</li> <li>• apply basic skills required to carry out simple tasks</li> <li>• apply basic solutions to simple problems</li> <li>• apply literacy and numeracy skills for participation in everyday life</li> <li>• work in a highly structured context</li> <li>• require some responsibility for own learning</li> <li>• interact with others.</li> </ul>	This certificate is listed at level 1 and must comprise of a minimum of 40 credits at level 1 or above.

## C.2 Level descriptors

The table below provides a detailed description of each level in terms of learning outcomes, using common domains and dimensions of progression. Knowledge, skills and application describe what a graduate at a particular level is expected to know, do and be. The term application encompasses responsibility, behaviours, attitudes, attributes and competence.

LVL	KNOWLEDGE	SKILLS	APPLICATION
<b>1</b>	Basic general and/or foundation knowledge	Apply basic solutions to simple problems Apply basic skills required to carry out simple tasks	Highly structured contexts Requiring some responsibility for own learning Interacting with others
<b>2</b>	Basic factual and/or operational knowledge of a field of work or study	Apply known solutions to familiar problems Apply standard processes relevant to the field of work or study	General supervision Requiring some responsibility for own learning and performance Collaborating with others
<b>3</b>	Some operational and theoretical knowledge in a field of work or study	Select and apply from a range of known solutions to familiar problems Apply a range of standard processes relevant to the field of work or study	Limited supervision Requiring major responsibility for own learning and performance Adapting own behaviour when interacting with others Contributing to group performance
<b>4</b>	Broad operational and theoretical knowledge in a field of work or study	Select and apply solutions to familiar and sometimes unfamiliar problems Select and apply a range of standard and non-standard processes relevant to the field of work or study	Self-management of learning and performance under broad guidance Some responsibility for performance of others
<b>5</b>	Broad operational or technical and theoretical knowledge within a specific field of work or study	Select and apply a range of solutions to familiar and sometimes unfamiliar problems Select and apply a range of standard and non-standard processes relevant to the field of work or study	Complete self-management of learning and performance within defined contexts Some responsibility for the management of learning and performance of others

LVL	KNOWLEDGE	SKILLS	APPLICATION
6	Specialised technical or theoretical knowledge with depth in a field of work or study	Analyse and generate solutions to familiar and unfamiliar problems Select and apply a range of standard and non-standard processes relevant to the field of work or study	Complete self-management of learning and performance within dynamic contexts Responsibility for leadership within dynamic contexts
7	Specialised technical or theoretical knowledge with depth in one or more fields of work or study	Analyse, generate solutions to unfamiliar and sometimes complex problems Select, adapt and apply a range of processes relevant to the field of work or study	Advanced generic skills and/or specialist knowledge and skills in a professional context or field of study
8	Advanced technical and/or theoretical knowledge in a discipline or practice, involving a critical understanding of the underpinning key principles	Analyse, generate solutions to complex and sometimes unpredictable problems Evaluate and apply a range of processes relevant to the field of work or study	Developing identification with a profession and/or discipline through application of advanced generic skills and/or specialist knowledge and skills Some responsibility for integrity of profession or discipline
9	Highly specialised knowledge, some of which is at the forefront of knowledge, and a critical awareness of issues in a field of study or practice	Develop and apply new skills and techniques to existing or emerging problems Mastery of the field of study or practice to an advanced level	Independent application of highly specialised knowledge and skills within a discipline or professional practice Some responsibility for leadership within the profession or discipline
10	Knowledge at the most advanced frontier of a field of study or professional practice	Critical reflection on existing knowledge or practice and the creation of new knowledge	Sustained commitment to the professional integrity and to the development of new ideas or practices at the forefront of discipline or professional practice

<http://www.nzqa.govt.nz/studying-in-new-zealand/nzqf/understand-nz-quals/>

## Appendix D: IT Qualifications Review Steering Group

The following make up the Steering Group for the IT Qualifications Review:

<b>Name and organisation</b>	<b>Nominating Organisation</b>
Paul Matthews, IITP (Chair)	Institute of IT Professionals (IITP)
<b>Industry Nominees</b>	
Gareth Cronin, Orion Health	Software New Zealand
Mindi Clews, Equinox Ltd	NZRise
John Ascroft, Jade Software Corporation	CITRENZ
Jacob Samuel, Concerto Networks	ITENZ (was NZAPEP)
<b>Tertiary Provider Nominees</b>	
Samuel Mann, Otago Polytechnic	CITRENZ
Margie Sorensen, IT Training Institute, ITTI	ITENZ (was NZAPEP)
Damian Adamski, TWOA	Te Wānanga o Aotearoa
<b>Other Nominees</b>	
John Creighton, Burnside High School	NZACDITT (IT Teacher Nominee)
Rod Bentham, NZQA – NQS	NZQA National Qualifications Service

*The following also attend Steering Group meetings in a non-voting capacity:*

Diana Garrett, NZQA – NQS	Project Team Lead
Ken Simpson, Unitec	Professional Advisor (by NZQA)

**You can find more info about the review at <http://tinyurl.com/ITQuals>**