HAVE TOOLSETS EMBRACED ITIL V3?
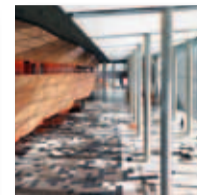
ITSM'S ROLE IN GREEN IT

THE IMPACT OF CULTURAL CHANGE

PRACTICAL TIPS: STANDARDS BASED SOURCING

CONFERENCE UPDATE 2010

Preparations for the 13th Annual itSMF Australia National Conference and Expo to be held at the new Melbourne Conference and Exhibition Centre from August 23-25 are continuing at great speed with registration now open!

According to Conference Director, Kathryn Heaton, everything is falling into place very well and a number of significant milestones have been recorded in relation to exhibitors, sponsors and responses to the call for presenters.

"There is much to be pleased about in how the Conference is coming together," Ms. Heaton said. "The Conference team is doing a great job of putting it all together and the event is shaping up as one that should not be missed by itSMF members and anyone else in the broader ITSM community.

"The Exhibition space we have available is now 90 per cent booked and we have had a 15 per cent increase in expressions of interest to present at the Conference. Meanwhile, Award nominations and registrations are now open and the entertainment schedule is nearly finalised.

"It really is going to be a great event so I urge everybody to make a commitment to be there and take advantage of the Early Bird discounts which close at the end of May."

Registrations Now Open

The online registration system is now up and running (see: www.itsmf.org.au/conference) so be quick to take advantage of the Early Bird discounts.

Early Bird registrations will close on May 31, or when the allocation has sold out, while standard registrations will be open until August 6. If not fully subscribed, registrations received after August 6 will incur late booking fees.

Fees for attending the 2010 Conference have remained the same as for 2009 which means that this event is still representing extremely good value for IT service management professionals. Even before Early Bird registration and Member' discounts are taken into account, this event provides tremendous value as an investment in time and professional development.

Sponsors Keen to Align

An outstanding sponsorship response from product and services vendors in the ITSM community represents a tremendous endorsement of the quality and stature of delegates who will be attending this conference.

The allocation of exhibition space is 90 per cent complete and there are numerous expressions of interest for the remaining slots.

If your organisation is considering sponsorship, it is important to do so quickly as space is limited and selling fast.

It is extremely significant that Microsoft has become involved with the conference for the first time and it is fantastic to be able to welcome them as our tier one Diamond sponsor. The world's largest software company is planning to make its presence felt and it will be interesting to see where they fit into the broader ITSM picture.

Longtime and valued supporters Lucid IT and BMC Software have taken Platinum sponsorships while Axios Systems, EMC, FrontRange Solutions, HP and Keystone have signed on as Gold sponsors. The list of Silver sponsors is long and includes all of the major players in the ITSM industry.

Packed Entertainment Schedule

Over the years, itSMF Australia conferences have developed a well-deserved reputation for excellence in the social events held over the three days and this will be no different in 2010. There will be ample opportunity to catch up with old friends and to extend your network of like-minded ITSM professionals.

On the first evening the 10-pin bowling facility within the Crown Casino and Entertainment complex (which is just across the road) has been booked for a fun night of competition, BBQ dinner, drinks and music.

This will be followed on the second night by the 13th Annual Gala Dinner at the magnificent new MCEC Banquet Room that offers stunning views of the Yarra River and Melbourne's glistening city skyline. This year's Gala Dinner will incorporate presentations of the prestigious 2010 itSMF Australia ITSM Industry Awards as well as the usual high standard of live entertainment, dancing and fine dining.

A truly inspirational speaker has been booked to address the Motivational Breakfast that kick-starts Day 2 of the Conference. The motivational speaker will be announced at a later date but has been confirmed and is an artistic athlete whose journey through life will represent genuine inspiration to all.

On the first day, prior to the official Conference Opening, an invitation-only CIO Breakfast will bring together some of the industry's leading thinkers for a facilitated roundtable boardroom discussion about ITSM strategy and direction.

If you would like to nominate your CIO, or other prominent executive to attend this event, refer to an application process via the registration form and survey on the Conference Website.

Diverse Accommodation Options

Information, discount codes, maps and Website links for a variety of preferred accommodation options close to the new MCEC facility are available via the Conference website. Everything from budget to five-star options are available as well as serviced apartments that are all within close quarters of the Conference venue.

YOUR WEBSITE

The itSMF Australia website is a great ITSM information source for members and guests. Take advantage of this valuable resource for all the latest information on National and State Branch events as well as interviews, book sales and links to the ITSM world.

www.itsmf.org.au

itSMF Australia Bulletin Reader Survey

Your feedback and opinions are important to us.

In an effort to provide the best possible quarterly publication for itSMF Australia members, the Editorial Board of the *Bulletin* is looking for your feedback on how much value it provides, how we can improve the magazine and what sort of content you would like to view.

Please go to the following link and complete the quick survey (it should take you less than five minutes) so we can continue to improve the quality of the *Bulletin* as an ITSM information source.

Your feedback on the *Bulletin* will help us shape the type of content to be included over the next 12-18 months. We encourage everybody to complete this survey and, as an added incentive, one lucky respondent will be randomly drawn to receive a high quality Pentax Optio digital camera valued at over $200.

The link to our 2010 Reader Survey is as follows and please have your responses completed by May 31 to be eligible for the prize draw: http://www.surveymonkey.com/s/QBHJFLF. This link is also available with a single click from the itSMF Australia Website (www.itsmf.org.au).

AWARDS NOMINATIONS NOW OPEN

For the first time, the 2010 itSMFA Industry Awards will be incorporated into the Gala Dinner on Day 2 (Tuesday night, August 24).

A full array of information about how to nominate or sponsor these awards, including deadlines, evaluation criteria, submission requirements and details of the judging processes is available at the conference website (see: www.itsmf.org.au/conference).

There will be five categories awarded on the night:

ITIL Project of the Year - The Major Award for Best ITSM Implementation is awarded to the organisation that our judges view as having completed the most successful and/or challenging ITSM during the year.

Innovation of the Year - This Award is given to the most novel project, product or service developed during the year.

Best Service Desk Project of the Year Award - This Award is for the organisation that our judges view as having completed the best implementation of a Help Desk service management project during the year.

Service Management Champion of the Year Award - This Award is given to an individual ITSM professional who our judges view as having made the most outstanding contribution within the IT service management industry during the year.

Student of the Year Award - Awarded to the student with has the highest mark in the ISEB/EXIN or APMG Australasia ITIL V2 Service Managers Certificate examination from 1 July 2008 to 30 June 2010.

The Role of IT Service Management in Green IT

It is recognised that the global ICT industry has a significant impact on the environment with estimates by Gartner that it contributes carbon dioxide emissions equivalent to the aviation industry.

Power consumption is also a concern as, according to the *2008 Review of the Australian Government's use of Information and Communication Technology* Report from the Australian Information Management Office (AGMIO), large organisations spend between four and ten percent of their total ICT budgets on energy and this proportion is expected to quadruple by 2012 due to the twin factors of power-hungry hardware and rising energy costs. Furthermore, the frequent disposal of upgraded ICT equipment introduces quantities of toxic waste into the environment. In light of the problem many organisations have undertaken various measures, aptly described as Green IT initiatives, to reduce or eliminate the impact on the environment.

Many of the Green IT issues and activities fall squarely in the domain of IT Service Management (ITSM) as ICT infrastructure consumes vast quantities of energy in the manufacture of the components as well as ongoing operation of ICT systems. They include:

- procurement of energy-efficient computing equipment
- consolidation and use of virtualisation software to run multiple operating systems on one server
- power management to reduce energy consumption of data centres and replacement of personal computers with energy efficient thin clients, and
- recycling and responsible waste disposal of obsolete computing equipment.

2009 itSMF Australia Conference Survey

Since 2005 the authors have conducted extensive research focusing on the adoption and implementation of ITSM with itSMF Australia, particularly the administration of a questionnaire survey at the annual national conference. The questionnaire used in the August 2009 national conference in Sydney included eight questions pertaining to Green IT. As shown in Table 1, the survey results show a large variation regarding efforts towards implementation of Green IT initiatives.

Table 1. Responses to Green IT questions (65 responses)

	Status of implementation						
	No plans	Starting	Partially	Largely	Fully	Don't know	Blank
Does your organisation have a Green-IT policy?	8	16	18	8	2	12	1
Have you included Green IT goals in the defined service levels?	15	17	7	5	1	17	3
Do you have a process for analysing power consumption of IT equipment?	9	16	14	4	4	18	0
Do you track cost-savings associated with Green tactics and strategies?	14	14	8	0	3	25	1
Do you ensure that your suppliers meet Green criteria and their products support the business's Green objectives?	24	13	2	2	1	22	1
Does your CMDB/CMS store information that helps drive Green goals?	4	12	11	17	3	18	0
Do you have a policy to dispose of IT waste in the most environmentally friendly way possible?	1	6	22	28	5	3	0
Is your organisation shifting towards virtualisation to reduce the number of servers?	3	1	0	1	0	20	40

Although a handful of organisations had fully implemented most of the initiatives listed, at the other extreme a larger proportion did not know if their organisation was undertaking these Green IT activities. The results indicate that most organisations had a Green IT policy, recognised the importance of controlling the disposal of ICT waste, and recorded useful information in their CMDB. Power consumption analysis of IT equipment is also on the agenda for more than half the respondents. However it is surprising that a large proportion of the survey respondents did not know if their organisation is shifting towards virtualisation to reduce the number of servers.

Government Initiatives and International Standards

In recent years, in response to growing awareness of climate change, a confusing plethora of initiatives, standards and guidelines have been developed to assist organisations achieve environmentally sustainable practices. They include the international ISO 14001 standard for environmental management systems, UK's BSI PAS 2050 specification for assessing product lifecycle greenhouse gas emissions, Energy Star international standard for energy efficient office equipment including computers and printers, and the European Community's Waste Electrical and Electronic Equipment Directive (WEEE) and Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). In Australia AGMIO has issued the *Environmental Impact Better Practice Checklist,* reproduced in Table 2, to help government agencies reduce the impact of their ICT activities on the environment.

Table 2. Managing the environmental impact of ICT (AGMIO Checklist)

1. Procurement of ICT products and services
Have you considered the environmental impact of ICT products and services in business plans and procurement plans?
Have you considered the environmental impact of ICT products and services being procured?
Have you allocated key resources for the management of the environmental impacts of ICT products and services?
2. Use and operation of ICT products and services
Have you implemented policies and practices that encourage good environmental awareness and practice in the use of ICT?
Have you considered implementing environmental monitoring and management systems?
3. Re-use, recycling and disposal of ICT products and services
Have you prepared an environmentally sound disposal plan for any ICT products and services no longer required?
Have you identified methods or means by which ICT products and services can be re-used or recycled?
Have you identified hazardous materials in your ICT products and services and the means by which they will be disposed?
4. Environmental Reporting Requirements
Have you met the Australian Government's environmental reporting requirements?

The first three sections in the AGMIO checklist are clearly related to ICT infrastructure and as such are the responsibility of ITSM. These sections can be broadly mapped to the following four Green IT objectives:

1. Procurement of power efficient hardware and energy efficient workstations 🛒 i.e. thin clients (maps to Section 1)
2. Consolidation of IT resources 🗄 e.g. distribute computing services across available servers, virtualisation to allow multiple system implementations on a single server (maps to Section 2)
3. Power management 💡 .g. automatic shutdown/power-up processes (maps to Section 2)
4. Decommissioning of unused/redundant systems 🗑 (maps to Section 3).

ITILV3 and Green IT Practices

The five ITILV3 publications (Service Strategy, Service Design, Service Transition, Service Operation and Continual Service Improvement) were analysed to identify guidance related to Green IT. The following tables (3-8) present excerpts from specific sections for each relevant ITSM process in each book, and map the excerpts to the four Green IT objectives: procurement 🛒 consolidation 🗄; power efficiency 💡; disposal 🗑.

Table 3. Green IT Guidelines in ITILV3 Service Strategy

ITSM Processes/Guidelines	🛒	🗄	💡	🗑
Financial Management Regulatory and environmental-related planning should get its triggers from within the business. However, Financial Management should apply the proper financial inputs to the related services value, whether cost based or value based. (Section 5.1.2.5)	×	×	×	×
Demand Management Excess capacity generates cost without creating value that provides a basis for cost recovery. Customers are reluctant to pay for idle capacity unless it has value for them. (Section 5.5.1)	×	×	×	×

Financial Management and Demand Management address service economics in the Service Strategy stage of the ITILV3 lifecycle and are particularly relevant to Green IT. All IT initiatives, including Green IT, require financial inputs to impart visibility and accountability to the decision making process. For instance, an organisation may desire to be leader in environmental change but its ambition may be unattainable if its funding plan does not reflect the high disposal cost of old equipment. In another scenario, an IT department, in its zest to improve its environmental performance, may overinvest in "energy-efficient" hardware without prior consultation with the user and customer. This may lead to a situation of excess storage or processing capacity that does not generate value for the organisation.

Table 4. Green IT Guidelines in ITILV3 Service Design

ITSM Processes/Guidelines	🛒	🗄	💡	🗑
Environmental Architectures & Standards Every organisation should produce an environmental policy for equipment location, with minimum agreed standards for particular concentrations of equipment … Building/site … Major equipment room … Major data centres … Regional data centres and major data centres … Server or network equipment rooms … Office environments. (Appendix E)			×	
Availability Management A key activity for Availability Management is continually to look at opportunities to optimise the availability of the IT infrastructure in conjunction with Continual Service Improvement activities … The optimisation approach is a sensible first step to delivering better value for money. (Section 4.4.5.2)		×	×	
Capacity Management The main objective of Component Capacity Management is to identify and understand the performance, capacity and utilisation of each of the individual components within the technology used to support the IT services … This ensures the optimum use of the current hardware and software resources in order to achieve and maintain the agreed service level. (Section 4.3.5.3)		×	×	
Service Level Management Service Level Management should include … proactive prevention of service failures, reduction of service risks and improvement in the quality of service, in conjunction with all other processes (Section 4.2.2)		×	×	×
Supplier Management IT Supplier Management often has to comply with organisational or corporate standards, guidelines and requirements, particularly those of corporate legal, finance and purchasing, (Section 4.7.2)	×			

The Environmental Architectures and Standards guidelines stipulate that there should be an environmental policy governing the location and use of equipment in data centres. Both Availability Management and Capacity Management address the optimum availability and utilisation of the IT infrastructure to provide cost-effective IT services at agreed service level. There are various Green IT strategies that organisations can consider to meet these goals and they include the use of data centre, storage and client-device optimisation software and adoption of the virtualisation approach. In Service Level Management, IT organisations are required to meet agreed service levels through the proactive prevention of service failures and reduction of service risks. These may be achieved through the upgrade of existing hardware to newer and more energy-efficient technology and undertaking tuning activities to make more efficient use of existing IT resources. In Supplier Management organisations can mandate their suppliers to meet certain Green IT policy through appropriate contract negotiation.

Table 5. Green IT Guidelines in ITILV3 Service Transition

ITSM Processes/Guidelines	🛒	🗄	💡	🗑
Release & Deployment Management Some specific aspects need to be considered for decommissioning and retiring services and service assets … disposing of equipment according to environmental policies and procedures (Section 4.4.5.6)				×
Service Asset & Configuration Management Configuration Management … enables other processes to access valuable information, e.g.: optimise asset utilisation and costs … consolidate data centres, reduce variations and re-use assets. (Section 4.3.4.2)	×	×	×	×

Release and Deployment Management deals with the decommissioning and retirement of out-of-data and energy-inefficient systems, including peripheral equipment such as cooling systems, and their replacement with more efficient alternatives. Asset and Configuration Management provide information that facilitates control over all IT assets in the organisation. The information is crucial to the formulation of appropriate Green IT decisions, such as consolidation of servers, virtualisation, replacement and reuse and retirement of these assets

Table 6. Green IT Guidelines in ITILV3 Service Operation

ITSM Processes/Guidelines	🛒	🗄	💡	🗑
Server Management & Support The procedures and activities which must be undertaken by the Server Team(s) or department(s) include … procurement advice on the selection, sizing, procurement and usage of servers and related utility software … definition and management of virtual servers … provide information and assistance to Capacity Management to help achieve optimum throughput, utilisation and performance from available servers … Decommissioning and disposal of old server equipment (Section 5.4)	×	×	×	×
Facilities Management … key activity of Facilities Management is to manage the utilisation of power … as natural resources become scarcer and expensive, more attention is being focused on techniques to manage utilisation more responsibly. (Appendix E)			×	

PRACTICAL TIPS
GREGG HOLDEN,
MANAGING DIRECTOR, SUNTREE GROUP

You've heard about ISO20000 Service Management standard. You may have even spent some time thumbing through it. But why?

'Standards-based Sourcing'

What possible motivation do you have for implementing this standard in your organisation to become certified? Let me guess. In my experience, there are generally two core reasons why any organisation would remotely consider gaining certification in ISO20000.

1. The organisation is an IT Service Provider that recognises that having ISO20000 is a marketing differentiator that provides their customers with higher levels of assurance in ITSM process maturity or;

2. The organisation is 'standards driven' and has adopted ISO20000 on the back of a myriad of other standards across the business to strive for business excellence (and in return position themselves in a higher quality segment of their chosen markets).

That's pretty much it. This is unfortunate because the number of organisations that comprise the above is relatively small. Also, both examples are focused primarily on improved market positioning and providing an outwardly better experience to their customers. This is commendable as long as all the other benefits in implementing ISO20000 are actually realised within the organisation. It can be tempting to gain certification just for the marketing benefits and maintain 'smoke and mirrors' auditing techniques around the actual day-to-day operations to stay certified.

I don't want to upset anyone that has genuinely implemented ISO20000 for all the internal benefits it can bring which, somewhat ironically, maximises outward business success anyway. Unfortunately these organisations are as rare as an up-to-date and useful Service Management Plan (but they do thankfully exist).

What drives the adoption of Standards?

In some ways, other organisations are drivers of international standards adoption. Government is a good example of this. Many years ago ISO9001 was included in progressively more Government ICT tenders as a preferred standard that an organisation should be certified to

for their quality management system. Over the years, this slowly became a mandatory requirement for many Government agencies forcing ICT Service Providers to become certified or lose out on bidding for the work.

In my opinion this drove more and more ICT Service Providers to become certified but perhaps for the wrong reasons. This has arguably caused a number of ICT Service Providers to maintain the certificate as a necessity to bid for work rather than any other reason. Again this is unfortunate and doesn't leverage the real benefits from implementing ISO9001 on its own accord.

If I was a betting man, I would suggest that ISO20000 may fall foul to the same reason for adoption. This would again defeat many of the benefits that the standard offers and may result in certificates with empty promises and minimised scope statements.

Is there a better way to adopt standards?

Can something be done? Well I think there could be, and it may just be saved with a new sourcing concept I call 'Standards-based Sourcing'. It doesn't roll particularly well off the tongue and therefore shouldn't be introduced into conversation after a few wines. The acronym can easily be confused with a well-known media channel specialising in foreign language films of questionable artistic quality. But quite frankly I couldn't think of anything better, because the concept of Standards-based Sourcing is exactly that. It's a sourcing strategy based on Standards. This still may not sound very ground breaking so let's get into the guts of what it really means. This sourcing strategy could potentially elevate ISO20000 (and other standards) to be adopted by significantly more organisations for the 'right reasons'. Here's how it works.

Standard-Based Sourcing – How it works

The strategy requires an ICT Organisation to genuinely believe that ISO2000 as a standard should be adopted to assure high levels of process maturity and compliance that ultimately produces measureable benefits within ICT and across

the enterprise. Now that's a great load of consulting garble which translates loosely to "Get ISO20000 in place so that you know what you should be doing". Problem is, most organisations don't have the internal capabilities or resources to undertake certification and many have multiple service providers that contribute to the overall delivery of services. Enter stage left, Standards-based Sourcing.

Here is a prime opportunity to mandate external service providers to contribute to your ISO20000 compliance and certification. This requires for your organisation to own the IT Service Management framework in its *entirety* in accordance with the requirements of the ISO20000 standard. You then embed operating requirements into your underpinning contracts so that your external service providers deliver the resources and knowledge to contribute and improve your IT Service Management framework.

Keys to Success and benefits

The key to success is to ensure that underpinning contracts clearly stipulate that a condition of contract continuity is the external service provider's ability to undertake services in accordance with ISO20000 within your IT Service Management Framework. The condition should extend to their contribution in improving and developing your Service Management framework to maintain compliance.

There are many benefits to this approach including:

1. You own the ISO20000 compliant Service Management framework and are accountable for it end-to-end through the delegated authority you have written into your contracts. You leverage external resources and capabilities yet your organisation owns the certification.

2. Flexibility in multi-sourced environments is enhanced as your individual Service Providers can't take away chunks of operating procedures with them. Instead these procedures belong in your ISO20000 compliant framework and can be adopted

and continually improved by the next provider.

3. Service Providers will be responsible to ensure very high levels of ISO20000 capabilities in the staff that actually deliver services to your organisation. This assures that Service Providers are not simply maintaining certification 'back at head office'.

4. The cost of ISO20000 implementation and compliance is dramatically reduced through the shared responsibility of external vendors who should possess the experience and capabilities to provide considerable added value in the road to certification.

Challenges

There are of course some challenges in the approach. For one, this strategy relies on your organisation having a significant proportion of service delivered by external vendors. It also relies on external vendors actually being capable to contribute to your certification. There also could be some challenges arguing the scope statement of your ISO20000 certificate with certification auditors. However all of these challenges can be addressed over time and I would suggest that this strategy could open up a significant market differentiator to those external service providers who would be willing to put forward their ISO20000 expertise to assist you in your journey to become certified.

Opportunities

The opportunity isn't just restricted to ISO20000 either. You could use Standards-Based Sourcing to adopt ISO38500 for the governance of IT (although currently un-certifiable) and other complementary standards.

It's a little bit different and potentially a completely new way at engaging in standards and driving improvements in capabilities throughout the ICT industry. It has got to be an improvement on the current reasons for adoption and has a lot of flow on benefits to all stakeholders.

To discuss this article further please see our company blog at www.suntreegroup.com.au or contact me direct at Gregg.holden@suntreegroup.com.au

---

The Role of IT Service Management in Green IT

Server Management and Support, and Facilities Management are two sets of guidelines in Service Operations that are directed at the management of two major components in the data centre: server hardware which provides crucial services, such as application hosting and data storage, and physical facilities. Server Management and Support outlines procedures and activities associated with the lifecycle of the server ranging from procurement, management of virtual servers, utilisation and performance of servers to the decommissioning and disposal of old servers.

Most of these procedures and activities are consistent with Green IT. Facilities Management, on the other hand addresses Green IT topics such as power management, management of environmental cooling systems, equipment maintenance and maintenance contract. ITILV3 acknowledges that as power will "become more scarce and expensive, more attention is being focused on techniques to manage utilisation more responsibly".

Table 7. Green IT Guidelines in ITILV3 Continual Service Improvement

ITSM Processes/Guidelines	🛒	🔗	💡	🗑
The 7-Step Improvement Process CSI will also be interested in determining whether that level of performance can be sustained at a lower cost or whether it needs to be upgraded to an even better level of performance. CSI may therefore also need access to regular performance reports. (Section 4.1)	✕	✕	✕	✕

Continual Service Improvement (CSI) in ITILV3 is concerned with maintaining value for the organisation through continual evaluation and improvement of the IT services. In effect, CSI focuses on improving the effectiveness and efficiency of the IT infrastructure as well as the cost effectiveness of the data centre operation. The 7-step improvement process prescribed in CSI is equally applicable to Green IT as it is to ITSM.

Conclusion

The 2009 itSMF Australia survey results indicated that most of the IT Service Managers are aware of the importance of Green IT procurement, improving efficiency and controlling waste disposal, but not server consolidation. The extent to which Green IT policies and procedures have been implemented varied substantially across the 65 organisations surveyed. Most of the items on the AGMIO checklist are clearly related to ICT infrastructure and as such are the responsibility of ITSM. Organisations can draw useful insights from the checklist to help them plan their Green IT initiatives.

Although ITILV3 does not make explicit mention of Green IT, it is nonetheless clear the framework has an important role in helping IT Service Managers achieve Green IT outcomes. Service Strategy ensures that the Green IT solutions are not created in isolation of the over-arching strategy and culture of the organisation. *Service Design* deals with the architectures, processes and capabilities of the new Green options while Service Transition focuses on their transition into the live environment. *Service Operations* ensures that the implemented Green IT solutions continue to deliver agreed levels of service to users and customers. The encompassing *Continual Service Improvement* book provides guidelines on maintaining or enhancing the value of the Green investments.

REFERENCES
AGIMO. (2007). Better Practice Checklist: Managing the environmental impact of information and communications technology (ICT): Australian Government Information Management Office, Department of Finance and Deregulation.
OGC. (2007a). Continual Service Improvement. London: TSO for the Office of Government Commerce.
OGC. (2007b). Service Design. London: TSO for the Office of Government Commerce.
OGC. (2007c). Service Operation. London: TSO for the Office of Government Commerce.
OGC. (2007d). Service Strategy. London: TSO for the Office of Government Commerce.
OGC. (2007e). Service Transition. London: TSO for the Office of Government Commerce.

By Aileen Cater-Steel and Wui-Gee Tan
USQ Toowoomba Email: caterst@usq.edu.au