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# Integrating other Frameworks and Methodologies Complementary to ITIL®

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## Introduction and overview

When ITIL was first introduced in the 1980s, there was little else available in terms of non-proprietary guidance specifically on IT service management (ITSM) best practice. Today, ITSM best practice provides guidance on the management and operation of the entire ITSM lifecycle. Of course, other frameworks and methodologies have some excellent contributions to make in this area. Most complement and have synergy with ITIL and can assist in the management of the ITSM lifecycle.

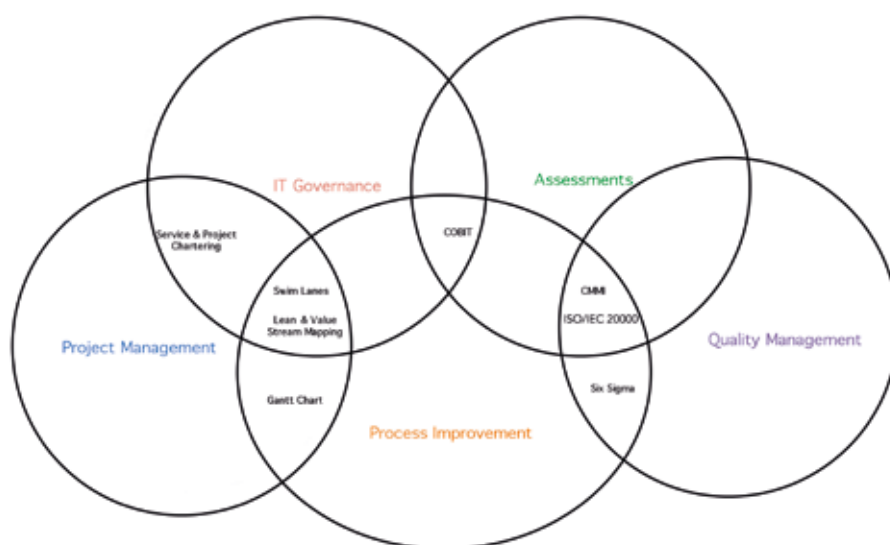
Exact or mutually exclusive categorization of some of these methodologies and frameworks can often prove difficult, as many could be classified under several categories. For example, ISO/IEC 20000 is an assessment, but it is also used for process improvement and for quality management; COBIT, like ITIL, directly and primarily addresses ITSM. Others, such as Six Sigma, address quality management and process improvement generally, but can be used to effectively improve any organization's version of an ITIL process area. Venn diagrams, such as the one shown in Figure 1, are perhaps the most practical way to attempt to

illustrate such loose categorization and overlap of these frameworks and methodologies.

However, attempting or organizing a text version of what a Venn diagram can only begin to approximate about the categorization of these subject areas is rather difficult. Therefore, except for the illustrative example provided in Figure 1, this paper does not attempt to categorize them; nor is it the purpose of this paper to comprehensively map the subject areas to ITIL.

This paper also assumes a general knowledge of ITIL V3. Those who do not have this, or would like access to a good ITIL V3 introduction, can check out ITSMF International's introductory overview found at: [www.itsmfi.org/content/introductory-overview-til-v3-pdf](http://www.itsmfi.org/content/introductory-overview-til-v3-pdf).

This white paper attempts to provide a brief overview of some of the more commonly used and/or biggest return-on-investment (ROI) frameworks, models and methodologies, and provides a short summary of their relevance to, and synergy and integration with, ITSM. 'Key takeaways' are provided for each framework and methodology. In the Way Ahead and the Call for a New Role section, the way ahead in relation to such multi-model integration strategies, and the new role concept of a multi-model integrator, are discussed.



**Figure 1** Venn diagram illustrating categorization overlap and complexities of other methodologies and frameworks complementary to ITIL

## Frameworks and Methodologies

Assessments are the formal mechanisms for comparing the operational process environment to the required performance standards in order to measure improved process capability and/or identify potential shortcomings. The advantage of assessments is that they provide a means to sample particular elements of a process or the process organization which impact the efficiency and the effectiveness of the process. The initial step in the assessment process is to choose (or define) the maturity model and in turn the maturity attributes to be measured at each level. The suggested approach to assessments is provided in the best-practice frameworks such as COBIT, CMMI or ISO/IEC 20000. These frameworks define maturity models directly or allow you to infer a model. The frameworks are also useful in the definition of process maturity attributes.

### COBIT

The Control Objectives for Information and Related Technology (COBIT) framework, produced by the Information Systems Audit and Control Association (ISACA) and managed by the IT Governance Institute, provides a very useful framework of guidance for IT audit and security personnel.

COBIT is a globally recognized and adopted controls-based, value and risk management framework used to support overall IT governance. COBIT is a flexible framework that needs to be aligned to an organization's business requirements. It can be used by management, consultants and auditors to:

- Define the IT controls needed to minimize risks and add business value – and hence the development of a fit-for-purpose IT governance framework
- Create an IT measurement and continual service improvement (CSI) framework which is aligned to the business goals for IT

- Assess and audit against IT governance and ensure that IT governance aligns with overall enterprise governance.

The current version of COBIT, edition 4.1, includes 34 high-level control objectives. Below are examples of how COBIT's control objectives map to the topics covered in two of the ITIL five core volumes.

### COBIT and service operation

Thirteen of these 34 high-level control objectives are grouped under the 'deliver and support domain', which can be mapped to ITIL's service operation phase. These are entitled:

- DS1 – Define and manage service levels
- DS2 – Manage third-party services
- DS3 – Manage performance and capacity
- DS4 – Ensure continuous service
- DS5 – Ensure systems security
- DS6 – Identify and allocate costs
- DS7 – Educate and train users
- DS8 – Manage service desk and incidents
- DS9 – Manage the configuration
- DS10 – Manage problems
- DS11 – Manage data
- DS12 – Manage the physical environment
- DS13 – Manage operations

### COBIT and continual service improvement

COBIT supports continual service improvement (CSI) in three ways:

- COBIT defines processes to support CSI.
- COBIT provides maturity models that can be used to benchmark and drive CSI.
- COBIT provides goals and metrics aligned to the business goals for IT, which can be used to create an IT management dashboard.

COBIT has defined four processes needed to support CSI. The COBIT process domain 'monitor and evaluate' (ME) defines the processes needed to assess current IT performance, IT controls and regulatory compliance. The processes are:

- ME1 – Monitor and evaluate IT performance
- ME2 – Monitor and evaluate internal control
- ME3 – Ensure regulatory compliance
- ME4 – Provide IT governance.

These processes take into consideration multiple factors that can drive the need for improvement – factors such as a need to improve performance and manage risks more effectively through better controls or regulatory compliance. These processes also ensure that any improvement actions are identified and managed right through to their implementation.

An organization can therefore implement the processes needed to support CSI using COBIT. In addition, an organization can review the processes that support CSI periodically and improve them using the maturity model within COBIT.

Further details of the standard, including full COBIT to ITIL mappings, can be found via ISACA at [www.isaca.org](http://www.isaca.org).

**KEY TAKEAWAY** COBIT, like ITIL, is business-focused ensuring that the delivery of IT services is aligned directly with business objectives and risks. In addition, organizations in most countries must satisfy various legal requirements (for example, Sarbanes–Oxley (SOX) in the US or Turnbull Guidance and the Combined Code on Corporate Governance 2003 in the UK) for their information, assets and client information while optimizing the use of available IT resources. This requires the implementation of an IT governance framework to determine the level of governance and control required. Many IT managers, advisers and auditors have turned to COBIT as a basis for control. The COBIT framework meets the regulatory requirements of most businesses by complying with various legal

requirements such as Sarbanes–Oxley (SOX). Consequently, COBIT is increasingly accepted as the framework for assessing IT controls.

COBIT is primarily aimed at auditors, so it has an emphasis on what should be audited and how, rather than including detailed guidance for those who are operating the processes that will be audited. However, it has a lot of valid material which most organizations would find useful. It should be noted that COBIT and ITIL are not competing frameworks nor are they mutually exclusive – on the contrary, they can be used in conjunction as part of an organization's overall managerial and governance framework. ITIL provides an organization with best practice guidance on how to manage and improve its processes to deliver high-quality, cost-effective IT services. COBIT provides guidance on how these processes should be audited and assessed to determine whether they are operating as intended and giving optimum benefit for the organization.

### ISO/IEC 20000

In 2005, the International Standards Organization (ISO) launched a formal international standard, ISO/IEC 20000, against which organizations can seek independent certification for ITSM. This was preceded by a British Standard, BS15000, which was originally introduced in 2000 and under which some organizations became certified, but was superseded by ISO/IEC 20000 and certifications were carried over.

ISO/IEC 20000 maps well to ITIL V3 and, like ITIL, ISO/IEC 20000 promotes the adoption of an integrated process approach to effectively deliver managed services to meet business and customer requirements. For an organization to function effectively, it has to identify and manage numerous linked activities. Coordinated integration and implementation of the service management processes provide ongoing control, greater efficiency and opportunities for continual improvement.

ISO/IEC 20000 defines the requirements for a service provider to deliver managed services. It may be used:

- By businesses who wish to outsource their services
- To provide a consistent approach by all service providers in a supply chain
- To benchmark IT service management
- As the basis for an independent assessment
- To demonstrate the ability to meet customer requirements
- To improve services.

There are many aspects of ISO/IEC 20000 that support various areas of ITIL. The major ones are:

- Service level management
- Service reporting
- Business relationship management
- Supplier management.

ISO/IEC 20000 defines a requirement for continual improvement on the effectiveness and efficiency of service delivery and management. This is done through management establishing policies, objectives and the need for continual improvement. ISO follows the Plan–Do–Check–Act (PDCA) cycle and can also add to an organization’s quality management efforts. Checking involves monitoring, measuring and analysing, and the ‘Act’ part of the cycle is continual improvement. Management decisions and corrective actions should take into consideration the findings in the service reports and be formally communicated.

A closed-loop feedback system, based on the PDCA model specified in ISO/IEC 20000, is established and capable of receiving inputs for change from any planning perspective (see also the Deming Cycle under the total quality management section below).

Note that in ISO/IEC 20000, the process group ‘resolution processes’ includes incident and problem management, and further details on the standard can be found via the ITSMF at [www.itsmf.com](http://www.itsmf.com) or the ISO at [www.iso.org](http://www.iso.org) and [www.isoiec20000certification.com](http://www.isoiec20000certification.com).

**KEY TAKEAWAY** ITIL is used by organizations worldwide to establish and improve capabilities in service management. ISO/IEC 20000 provides a formal and universal standard for organizations seeking to have their service management capabilities audited and certified. While ISO/IEC 20000 is a standard to be achieved and maintained, ITIL offers a body of knowledge useful for achieving the standard. An individual can be certified as an ISO auditor, and organizations can be audited against an ISO standard. If the audit is passed successfully, that organization is ‘ISO/IEC 20000 certified’. For example, the scope of an ISO/IEC 20000 certificate may include all IT services delivered out of a named data centre. For organizations seeking formal certification to ISO/IEC 20000, there will be a significant involvement by IT staff in preparing for and undergoing the formal surveillance necessary to achieve the standard. ISO/IEC 20000 requires a plan for the management of each IT service management process.

## ITSqc

The IT Services Qualification Center (ITSqc) was created in 2000 by Carnegie Mellon to develop and support adoption of ‘best practice’ capability models and qualification methods to improve sourcing relationships in the Internet-enabled economy. The centre has two main capability models and qualification methods.

### The e-sourcing capability model for service providers (eSCM-SP) V2

Touted as the service quality model for e-sourcing, the e-sourcing capability model for service providers (eSCM-SP) helps sourcing organizations manage and reduce their risks and improve their capabilities across the entire sourcing lifecycle. The model’s practices can be thought of as the best practice associated with successful sourcing relationships. It addresses the critical issues related to IT-enabled sourcing (e-sourcing) for both outsourced and in-sourced (shared services) agreements.

Service providers use the eSCM-SP and its accompanying capability determination methods to evaluate their

e-sourcing capabilities, and to become eSCM-SP-certified. This status provides an advantage over their competitors.

### The e-sourcing capability model for client organizations (eSCM-CL) V1.1

Over the past several years, all kinds of organization, from manufacturing firms to banks and hospitals, have delegated their computer-intensive activities to external service providers because they were focusing on core competencies or because they lacked their own in-house capabilities. In many cases, they have not been satisfied with the results.

The actions of both the client organization and the service provider in these sourcing relationships are critical for success. With that in mind, ITSqc developed the e-sourcing capability model for client organizations (eSCM-CL), a best-practice model that enables client organizations to appraise and improve their capability to foster the development of more effective relationships and to better manage these relationships. This new model allows client organizations to continuously evolve, improve and innovate their capabilities to develop stronger, longer-term and more trusting relationships with their service providers.

**KEY TAKEAWAY** Organizations are increasingly delegating IT-intensive business activities to service providers, taking advantage of new capabilities in the global telecommunications infrastructure. Service providers range from in-house units and shared service centres to captive offshore units and external service providers. Delegated business processes range from in-sourced shared services to outsourced routine and non-critical tasks, as well as outsourced strategic processes that directly impact revenues. Managing and meeting client expectations and providing effective governance of these relationships are major challenges in these business relationships. These two capability models and qualification methods were created to meet these challenges.

Further details of these standards can be found at [www.itsqc.edu](http://www.itsqc.edu).

## ISO/IEC 27001

ISO/IEC 27001:2005 covers all types of organizations and specifies the requirements for establishing, implementing, operating, monitoring, reviewing, maintaining and improving a documented information security management system (ISMS) or ISM framework within the context of the organization's overall business risks. It specifies requirements for the implementation of security controls customized to the needs of individual organizations or parts thereof. It is designed to ensure the selection of adequate and proportionate security controls that protect information assets and give confidence to interested parties.

The ISMS in turn provides a basis for the development of a cost-effective information security programme that supports the business objectives. It will involve the four Ps of people, process, products (which includes technology) and partners (which includes suppliers) to ensure high levels of security are in place.

ISO/IEC 27001 is intended to be used in conjunction with ISO/IEC 27002, the code of practice for information security management. ISO/IEC 27002 lists security control objectives and recommends a range of specific security controls. Organizations implementing an ISMS in accordance with the best-practice advice in ISO/IEC 27002 are likely to concurrently meet ISO/IEC 27001 requirements, but certification is optional except where mandated by organization stakeholders.

**KEY TAKEAWAY** ISO/IEC 27001 is the formal standard against which organizations may seek independent certification of their ISMS (meaning their frameworks to design, implement, manage, maintain and enforce information security processes and controls systematically and consistently throughout the organization). This should be achieved using a PDCA cycle, which is a formal approach suggested by ISO/IEC 27001 for the establishment of the information security management system (ISMS) or framework. This cycle is described in more detail in the

ITIL Continual Service Improvement publication (TSO, 2007). A working IT service continuity management plan is a mandatory requirement for ISO/IEC 27001. Pursuing the requirements of ISO/IEC 27001 can also help meet the objective of section 6.6 of the ISO/IEC 20000 specification on information security management.

To summarize, the standardized security techniques of ISO/IEC 17799 can help an organization's staff meet ISO/IEC 27001 as well as ISO/IEC 20000's information security management requirements. Implementation of ISO/IEC 27001 information security management systems can help meet the certification requirements of ISO/IEC 27001, ISO/IEC 9001 and ISO/IEC 20000.

## ISO/IEC 14000

The ISO/IEC 14000 family addresses various aspects of environmental management. The first two standards, ISO/IEC 14001:2004 and ISO/IEC 14004:2004, deal with environmental management systems (EMS). ISO/IEC 14001:2004 provides the requirements for an EMS and ISO/IEC 14004:2004 gives general EMS guidelines.

The other standards and guidelines in this family address specific environmental aspects, including labelling, performance evaluation, lifecycle analysis, communication and auditing.

An EMS meeting the requirements of ISO/IEC 14001:2004 is a management tool enabling an organization of any size or type to:

- Identify and control the environmental impact of its activities, products or services
- Improve its environmental performance continually
- Implement a systematic approach to setting environmental objectives and targets, achieving them and demonstrating that they have been achieved.

**KEY TAKEAWAY** Beyond merely reducing costs and improving energy efficiency in the data centre, 'green IT' is currently

very topical, and there are many perspectives on this issue. Many view green IT primarily as a profit-saving activity which also helps the environment. Yet many also believe that new IT (and other) initiatives often get 'greenwashed' for public relations reasons, and that not nearly enough is being done to help the environment.

Soaring costs associated with managing an IT department, given rising energy costs, non-compliance and regulatory legislation, and an organization's reputation, are among the risks associated with not going green.

ISO/IEC 14001:2004 does not specify levels of environmental performance. If it specified levels of environmental performance, they would have to be specific to each business activity and this would require a specific EMS standard for each business. That is not the intention. ISO/IEC has many other standards dealing with specific environmental issues. The intention of ISO/IEC 14001:2004 is to provide a framework for a holistic, strategic approach to the organization's environmental policy, plans and actions. ISO/IEC 14001:2004 gives the generic requirements for an environmental management system. The underlying philosophy is that whatever the organization's activity, the requirements of an effective EMS are the same. This has the effect of establishing a common reference for communicating environmental management issues between organizations and their customers, regulators, the public and other stakeholders.

Because ISO/IEC 14001:2004 does not lay down levels of environmental performance, the standard can be implemented by a wide variety of organizations, whatever their current level of environmental maturity. However, a commitment to comply with applicable environmental legislation and regulations is required, along with a commitment to continual improvement – for which the EMS provides the framework.

ISO/IEC 14001 is not merely about helping the environment, it's about increasing profit, aiding in risk management,

encouraging corporate responsibility and improving public perception. Genuine increased environmental awareness provides companies with a competitive edge in the marketplace, and a certified EMS shows that a business is taking proactive steps in fulfilling its environmental responsibilities.

### CMMI

The capability maturity model integration (CMMI) is a process improvement approach developed by the Software Engineering Institute (SEI) of Carnegie Mellon University. CMMI provides organizations with the essential elements of effective processes. It can be used to guide process improvement across a project, division or entire organization. CMMI helps integrate traditionally separate organizational functions, sets

process improvement goals and priorities, provides guidance for quality processes, and offers a point of reference for appraising current processes.

CMMI best practice enables organizations to:

- Link management and engineering activities more explicitly to their business objectives
- Expand the scope and visibility of their activities into the product lifecycle to ensure that the product or service meets customer expectations
- Incorporate lessons learned from additional areas of best practice (e.g. measurement, risk management and supplier management)
- Implement more robust, high-maturity practices

- Address additional organizational functions critical to their products and services
- Become more compliant with relevant ISO standards.

Figure 2 shows CMMI and the process-area characteristics that correlate to the various maturity levels.

CMMI has also specialized its process improvement approach, and now includes the CMMI-derivative models: CMMI for Development, CMMI for Acquisition, and CMMI for Services, (CMMI-DEV, CMMI-ACQ and CMMI-SVC, respectively). Of these, CMMI for Services is the only one addressed within the scope of this paper.

Further details on CMMI can be found at [www.sei.cmu.edu](http://www.sei.cmu.edu)


Level	Focus	Process areas	Result
5 Optimized	Continuous process improvement	Organizational innovation and deployment Causal analysis and resolution	 <p>Higher productivity and better quality</p>
2 Quantitatively Managed	Quantitative Management	Organizational process performance Quantitative project management	
5 Defined	Process standardization	Requirements development Technical solution Product Integration Verification Validation Organizational process focus Organizational process definition Organizational training Integrated project management Risk management Decision analysis and resolution	
2 Managed	Basic project management	Requirements management Project planning Project monitoring and control Supplier agreement management Measurement and Analysis Process and product quality assurance Configuration management	
1 Initial	Competent people and heroics		

Figure 2 Capability maturity model – integrated based on a diagram from Wikipedia.com

**KEY TAKEAWAY** A number of IT consultancy organizations have built the maturity model into their ITSM assessment services as a way of assisting organizations prepare for and judge process improvements across the ITSM lifecycle. Organizations may wish to use some form of the model to help drive their path towards independent ISO/IEC 20000 certification. CMMI uses a hierarchy of five levels, each with a progressively greater capability of producing quality, where each level is described as a level of maturity. Many organizations, however, find that the biggest ROI results from elevating their processes only to the middle CMMI levels (i.e. levels 2 or 3). They often find that the results produced by maturing some processes to the very highest CMMI maturity levels do not justify the extra resources required to get them there. Still, there may be some processes where this level of effort is justified or required. Regardless, CMMI process improvement techniques and methods provide a very useful and organized approach to maturing the various ITSM process areas.

## CMMI for Services

Largely based on the ITIL framework and the ISO/IEC 20000 standard, CMMI for Services (CMMI-SVC) is a model that provides guidance to service provider organizations generally for establishing, managing and delivering any service, not just IT. The model focuses on service provider processes and integrates bodies of knowledge that are essential for successful service delivery.

CMMI-SVC provides best practice for service providers to use when they:

- Decide what services they should be providing, define standard services, and let people know about them
- Need to ensure that they have everything in place to deliver a service, including people, processes, consumables and equipment
- Get new systems, change existing systems and retire obsolete systems, all while making sure nothing goes awry with the service

- Set up agreements, take care of service requests and operate service systems
- Make sure that the organization has the resources needed to deliver services and that services are available when needed, at an appropriate cost
- Handle what goes wrong and take steps to prevent it from going wrong in the first place if possible
- Need to ensure that the organization is ready to recover from potential disasters and get back to delivering services if the disaster occurs.

**KEY TAKEAWAY** CMMI for Services addresses service management generally, not IT service management specifically. Given the wide-ranging nature of the various services provided in the service industry, applying or translating these broad best practices to some services or service sectors will be more challenging than others. Similarly, most non-IT service management organizations should benefit from having a maturity or GAP assessment done based on CMMI for Services. Best Practice Live has a process-based maturity model within the toolkit.

Further details on CMMI for Services can be found at [www.sei.cmu.edu](http://www.sei.cmu.edu).

## Six Sigma

Six Sigma's objective is the implementation of a measurement-oriented strategy, focused on process improvement and defects reduction. A Six Sigma defect is defined as anything outside customer specifications.

There are two primary sub-methodologies within Six Sigma: DMAIC (define, measure, analyse, improve, control) and DMADV (define, measure, analyse, design, verify). The DMAIC process is an improvement method for existing processes where performance does not meet expectations, or where incremental improvements are desired. The DMADV (also known as Design for Six Sigma, or DFSS) process focuses on the creation of new processes.

Since Six Sigma requires data, it is important to start capturing data as soon as possible. If the data is questionable, this is not a problem as it provides the opportunity to analyse why the data doesn't make sense.

Defining, measuring and analysing are key activities within ITIL's guidance on continual service improvement.

**KEY TAKEAWAY** Six Sigma is a data-driven approach that supports continual improvement. It is business output driven in relation to customer specifications, and focuses on dramatically reducing process variation using statistical process control (SPC) measures. Six Sigma is an IT-appropriate process improvement methodology, though the fundamental objective is to reduce errors to fewer than 3.4 defects per million executions (regardless of the process). Though Six Sigma has seen great success in manufacturing and other arenas, given the wide variation in IT deliverables (e.g. such those resulting from the change management, problem management, capacity management process areas) and roles and tasks within IT operational environments, IT managers must determine whether it is reasonable to expect delivery at a Six Sigma level. When applied to ITSM, most will get more ROI applying Six Sigma – at least initially – to some of the more repeatable ITSM processes first, such as the operational process of request fulfilment.

Six Sigma, in its purest form, can have a downside. Six Sigma makes a process increasingly precise and accurate in the pursuit of perfection. Pure Six Sigma improvement decisions are quality driven rather than speed driven; time and other resource consumption are often not factored into this pursuit. For this reason, most combine Six Sigma with Lean principles and techniques for a powerful process improvement and quality methodology. Like CMMI, Six Sigma process improvement techniques and methods provide a very measurable and organized approach to improving an organization's various ITSM process areas even if Six Sigma level perfection is not a realistic goal.

## Lean

Lean origins are usually traced back to the 1950s with Toyota. However, other people, such as Henry Ford, played major roles in Lean development. In its purest form, Lean identifies and eliminates waste to increase speed and flow. When you make a process 'lean', you identify and lay out each step needed from start to finish, identifying the critical steps and deleting those which are not required or essential.

Cause-and-effect analysis is very helpful in determining the essential steps required to produce the best product and the steps which result in a substandard product. In its purest form, Lean does not focus on cause-and-effect analysis; instead, it focuses more on speed, flow and elimination of waste. For this reason, combining Lean principles and techniques with those of Six Sigma creates a powerful process improvement and quality methodology, as discussed later.

The Lean approach is process flow focused, and sees anything non-value added as wasteful. The main steps in the Lean method are to:

- Identify value
- Define value stream
- Determine flow
- Define pull
- Improve process.

Value stream mapping is a hands-on method and is traditionally a facilitation method done on whiteboards or on paper. The result is often a hand-made, somewhat cartoonish representation of how a product is made, from inception to delivery to the customer. It includes process, information flow and a timeline separating value-add and non-value-add activities.

Value stream maps include hand-made drawings for all types of mechanisms within the process: factories, trucks, people, documents, tasks etc. It is by its nature an eclectic and ad hoc method of illustrating a process.

**KEY TAKEAWAY** Lean and value stream mapping are good tools for projects whose goal is to streamline a process.

They ensure a high-level view, which is broad and customer-focused. It is not generally used as a tool for long-term documentation, but instead as a method of setting the right direction and staying on track. It can be a powerful tool when combined with other diagrammatic standards such as BPMN or IDEF. It is not a standard and as such does not have the rigidity required for long-term documentation. The Lean approach is most effectively employed when the intention is to make enabling, subordinate and key processes perform in as waste-free a way as possible. To eliminate rework, it is important that organizations pursue Lean after they have settled on their strategic direction, created the supporting process architecture, and aligned the business around such architecture.

## Lean Six Sigma

Today, most organizations combine Lean and Six Sigma techniques rather than use either Lean or Six Sigma on their own. The hybrid Lean Six Sigma (LSS) goes a step beyond either of its parents. Unlike Six Sigma or Lean, LSS looks at risks and attempts to mitigate them. Through process analysis, LSS tracks every step and determines when and where it can fail before completion or the production of an unacceptable product.

**KEY TAKEAWAY** Lean Six Sigma reinforces success and casts aside process failure. Measuring failure risk allows an organization to cut losses and move resources to be used more efficiently elsewhere. The key benefit in employing LSS is its ability to determine the right balance between cost and quality. For example, airlines know that the high costs in airplane maintenance are required; they recognize the importance of accuracy and precision in these processes; and allocate the required resources to them. Yet, these same airlines don't spend the time and money to provide similar levels of process maturity in their baggage-handling processes. The resources required to improve the baggage-handling processes to such a high standard would not justify the expense required to do so.

## Project management

Project management's relationship to IT service management is perhaps best understood by first reviewing the definitions of project management and project. Project management is the discipline of planning, organizing and managing resources to bring about the successful completion of specific project goals and objectives.

The Project Management Body of Knowledge (PMBOK) defines a project as 'a temporary endeavour undertaken to create a unique product, service or result.' The PMBoK also contrasts projects with operational or functional work (e.g. release management). It states that '[functional area] operations are ongoing and repetitive' in contrast to projects. Furthermore, the PMBoK states that 'projects are different because the project concludes when its specific objectives have been attained, while [functional or departmental] operations adopt a new set of objects and the work continues'.

Project management's challenge is to achieve the unique project's goals and objectives while honouring the typical project constraints of scope, time and budget.

Change and release management processes are permanent or semi-permanent operational/functional work to repetitively produce the capability to add or change services and release these services into the live environment. The projects and the release management process areas can be very different, and require the adoption of separate, though sometimes overlapping, management. Though overlapping, the best-practice guidance for each can be beneficial to the other. For example, for IT projects (and even for some non-IT projects), project managers will often look at the ITIL guidance for change management, release management etc. when creating work breakdown structures, project Gantt charts etc.

**KEY TAKEAWAY** In practice, organizations can and often do use project managers and programme managers to run projects and programmes in all areas of the

organization – and by the very nature of projects – across an organization’s functional and departmental areas. Because of this, and given the unique nature of a project, any attempt to map a project management methodology to ITIL or any ITSM methodology must always be subjective. However, because most non-standard changes (i.e. unique projects) and releases are often facilitated by a project manager, project management is usually associated with change and release management. Therefore, project management is discussed in great detail in the ITIL Service Transition volume (TSO, 2007). Some have generalized that the project is more concerned with managing the ‘who’ behind the introduction of new projects/services, while release management is more concerned with ‘what’ is being released, but a closer examination of the bodies of knowledge and best practice surrounding these areas shows that such a generalization is not easily accomplished. It may be more accurate to say that the project manager guides unique projects through stable and static change and release management processes.

Most importantly, organizations should not develop their project management, requirements management, service request management, change management and release management policies, processes and plans in isolation of one another. Similarly, gap and redundancy analysis undertaken in any of these areas should be integrated and take account of the policies, processes etc. of other areas.

A structured project management method, such as PMI (Project Management Institute) or PRINCE2 (PProjects IN Controlled Environments, V2) can be used when improving IT services or implementing any ITSM initiative. Not all improvements or implementations will require a structured project approach, but many will, due to the sheer scope and scale of the improvement.

## Programme management

Programme management focuses on managing multiple interdependent projects geared towards an improvement

in an organization’s performance. Projects deliver outputs; programmes create outcomes. A project might deliver a new factory, hospital or IT system. By combining these projects with other changes and deliverables, their overarching programmes could deliver increased income from a new product, better healthcare or a reduction in operating costs due to improved technology.

It has been said that programme management concerns itself with doing the right projects, whereas project management concerns itself with doing projects right. Successful projects deliver on time, to budget and to specification. An organization should select the group of programmes that take it towards its strategic aims while remaining within its capacity to deliver the changes.

**KEY TAKEAWAY** Since programme management manages multiple or interdependent projects that lead towards an improvement in an organization’s performance, it is very common for an organization looking to implement ITSM to initiate an ITSM programme. For example, a growing company that wants to start implementing ITSM will often begin an ITSM programme to manage not only this implementation, but most importantly, its integration. Such a programme may, for example, start a project to implement a formal service desk along with incident, problem, change, release, configuration and service-level management processes, but also ensure that these efforts are being accomplished in the context of the larger, overarching service portfolio management process. There are many ITSM project selection/prioritization methods available to an ITSM programme manager. Pareto analysis and the various maturity and ITSM gap and other assessments are among the most common, but ultimately, projects should be selected based on which ones will have the most impact in achieving current business (i.e. not just IT’s) objectives. Project selection should also be based on measurability and feasibility: can the project’s goals and deliverables realistically be accomplished with the available resources?

Given that many organizations now use multiple service management and process improvement frameworks and methodologies, the implications for integrated ITSM/process improvement programme management are huge. This is elaborated on in the conclusion and summary sections of this paper.

## Gantt chart

Henry Gantt (1861–1919) created the Gantt chart in a setting and time which was deeply involved in exploring efficiency in manufacturing, time-and-motion studies and the formulation of ‘scientific management’ (the foundation of modern management principles). Today, many people see the Gantt chart as a project management tool; however, its origins are completely intertwined with process.

Gantt charts use time-lengthened bars to represent tasks. Tasks are connected to each other according to predecessors and dependencies. Simple arrows are used to connect the task bars (see Figure 3 overleaf).

The simplicity of the Gantt chart makes it easy to use and read. It is especially legible to project managers and staff engaged in project-based work. It has been successfully used on highly complex projects such as the building of the Hoover Dam and the creation of the interstate highway network in the US. Its limitations are its inability to show organizational/departmental structures associated with tasks; to include process/workflow rules; and to show split-and-join actions.

**KEY TAKEAWAY** Gantt charts are a venerable technique for representing the phases and activities of a project work breakdown structure (WBS) so that it is understood by all involved. Some mistakenly equate Gantt chart design with project design by trying to define the project work breakdown structure at the same time as defining schedule activities. Rather, a fully defined WBS should be completed first, then a project schedule can be created.

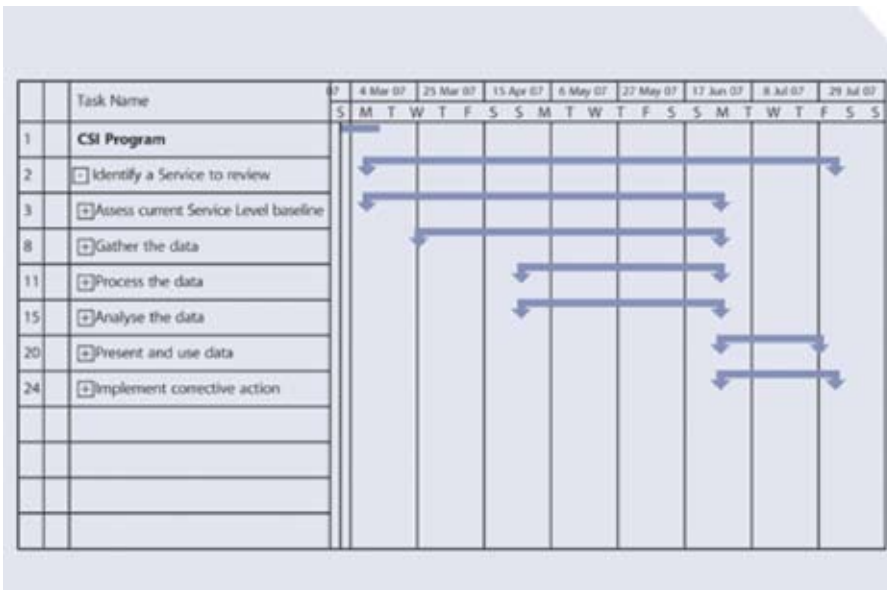


Figure 3 Gantt chart

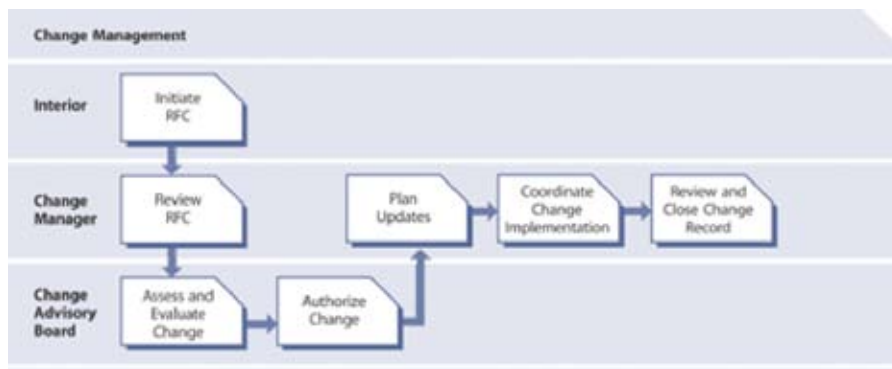


Figure 4 Rummler-Brache swim lane example

Another problem is that Gantt charts only represent part of the triple constraints of a project, since they focus mainly on schedule management. Additionally, Gantt charts don't represent the project's size or the work element's relative size, therefore the magnitude of behind-schedule conditions can be miscommunicated. For example, if two projects are the same number of days behind schedule, the larger project has a larger impact on resource utilization, yet the Gantt does not represent this difference.

One great advantage of Gantt charts, such as large poster-sized ones displayed in common areas, is that they illustrate to project team members or programme members that they and their work are part of a larger whole, and that downstream

individuals' work/tasks, and indeed the entire project, are dependent on the timely accomplishment of their work.

### Rummler-Brache swim lanes

Process swim lanes were first described in the publication *Improving Performance* (Rummler and Brache, 1995). Their impact in the process world is difficult to overstate. Their work has focused on helping companies improve their overall business processes, and thereby become more competitive and profitable. Process swim lanes have become the most ubiquitous term and method associated with their names.

Swim lanes are essentially flow charts which include horizontal or vertical bands to include customers, departments and technology. They rely on rectangles for

activities/tasks, decision diamonds, and arrows to represent flow. Central to the method is separating organizations with horizontal rows. Each activity is placed in the row (swim lane) which represents the organization responsible for completing the task (see Figure 4).

**KEY TAKEAWAY** Swim lanes are a highly effective way of displaying the relationship between processes and organizations/departments, and thus are strong tools for communicating with business managers. Many managers are essentially organizational thinkers. They see the world in organizational terms, and in the absence of an organizational structure, they will sometimes struggle. Swim lanes describe a process from a viewpoint which is familiar and accessible.

The weakness of swim lanes stems from the fact that it is more of an approach than a standard. Managing complexity is generally done by including symbols from other standards within a swim lane diagram.

Given the traditional lack of governance in most ITSM environments, wherever and whenever possible, I recommend that swimlanes be used instead of standard flowcharts when graphically documenting any ITSM process.

### Total quality management

Total quality management (TQM) is a management strategy aimed at embedding awareness of quality in all organizational processes. It is a set of systematic activities carried out by the entire organization to achieve company objectives effectively and efficiently in order to provide products and services with a level of quality that satisfies customers, at the appropriate time and price. At the core of TQM is a management approach to long-term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services and the culture in which they work.

Quality management for IT services is a systematic way of ensuring that all the activities necessary to design, develop and implement an IT service

which satisfies the requirements of the organization and of users take place as planned and that the activities are carried out cost-effectively.

The quality management system specifies the way in which an organization plans to manage its operations so that it delivers quality services. The quality management system defines the organizational structure, responsibilities, policies, procedures, processes, standards and resources required to deliver quality IT services. However, a quality management system will only function as intended if management and staff are committed to achieving its objectives.

This section gives brief details on a number of different quality approaches.

**Deming Cycle**

The Deming Cycle of Plan–Do–Check–Act is an effective quality management system. A core concept in implementing TQM is Deming’s 14 points, a set of management practices to help companies increase their quality and productivity. These are:

1. Create constancy of purpose for improving products and services
2. Adopt the new philosophy
3. Cease dependence on inspection to achieve quality
4. End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier
5. Improve constantly and for every process for planning, production and service
6. Institute training on the job
7. Adopt and institute leadership
8. Drive out fear
9. Break down barriers between staff areas
10. Eliminate slogans, exhortations and targets for the workforce
11. Eliminate numerical quotas for the workforce and numerical goals for management
12. Remove barriers that rob people of pride of workmanship, and eliminate the annual rating or merit system

13. Institute a vigorous programme of education and self-improvement for everyone
14. Put everybody in the company to work at accomplishing the transformation.

**Juran**

Joseph Juran became a recognized name in the quality field in 1951 with the publication of *Juran’s Quality Control Handbook*. This was met by a lot of interest from Japan, and Juran was asked to give a series of lectures in 1954 on planning, organizational issues, management responsibility for quality, and the need to set goals and targets for improvement. Juran devised a well-known chart, ‘The Juran Trilogy’, shown in Figure 5, to represent the relationship between quality planning, quality control and quality improvement on a project-by-project basis.

A further feature of Juran’s approach is the recognition of the need to guide managers. This is achieved by the establishment of a quality council within an organization, which is responsible for establishing processes, nominating projects, assigning teams, making improvements and providing the necessary resources.

Senior management play a key role in serving on the quality council, approving strategic goals, allocating resources and reviewing progress. Juran promotes a four-phased approach to quality improvement.

**Crosby**

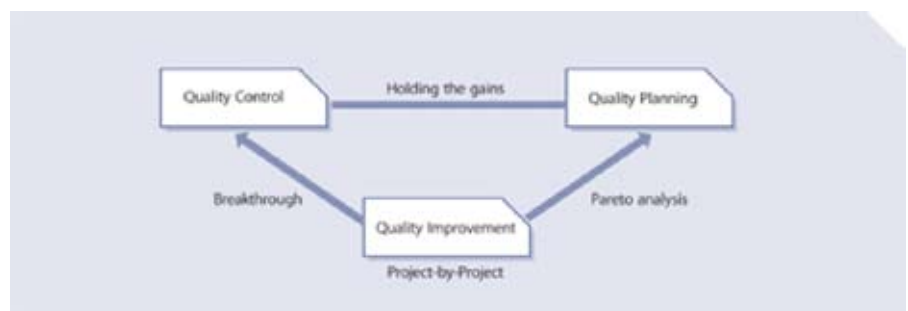
The approach is based on Crosby’s four absolutes of quality management:

- Quality is conformance to requirement
- The system for maintaining quality is prevention and not appraisal
- The performance standard must be zero defects and not ‘that’s close enough’
- The measure of quality is the price of non-conformance, not indices.

The Crosby approach tends to be based on familiar slogans; however, organizations may experience difficulty in translating the quality messages into sustainable methods of quality improvement. Some organizations have found it difficult to integrate their quality initiatives, having placed their quality programme outside the mainstream management process.

Anecdotal evidence suggests that these pitfalls result in difficulties being experienced in sustaining active quality campaigns over a number of years in some organizations.

**KEY TAKEAWAY** Again, since many organizations now use multiple service management and process improvement frameworks and methodologies, if TQM is also employed, it needs to be integrated to eliminate redundancies. There are distinct advantages in tying an organization’s ITSM processes, and service operation processes in particular, to its quality management system. If an organization has a formal quality management system such as ISO/IEC 9001, Six Sigma, TQM etc., then this can be used to assess progress regularly and drive forward agreed service improvement initiatives through regular reviews and reporting.



**Figure 5** The quality trilogy

Many organizations have used a regular annual audit or external assessment as a way of determining the required improvements and then their quality management system to drive through the specific programmes of work. See also the conclusion and summary section of this white paper for further information.

## ISO/IEC 9001:2000

ISO/IEC 9001:2000 is a set of generic quality-based guidelines that can be applied to all types of organizations and is accepted worldwide. It does not matter what size they are or what they do. It can help product-, process- and service-based organizations achieve standards of quality that are recognized and respected throughout the world.

The standard is used as a basis for good business management in a wider sense, and recognizes that efficient processes, developing people and continual improvement leading to customer satisfaction help to meet key business objectives. It follows the basic principles of ‘say what you do, do what you say’ and looks to improve business processes and achieve higher levels of customer satisfaction. A third-party assessment body can be contracted to certify an organization’s quality management system (QMS) to ISO/IEC 9001 to assure the customer that the company operates an effective business management system.

The standard uses eight business principles that reflect current business management systems to allow an improved response to customers’ needs and expectations. The eight principles are:

1. Customer-focused organization
2. Leadership
3. Involvement of people
4. Process approach
5. Systematic approach to management
6. Continual improvement
7. Factual approach to decision-making
8. Promotion of supplier partnerships.

ISO/IEC 9001:2008 (i.e. the 2008 version) has been developed in order to introduce clarifications to the existing requirements

of ISO/IEC 9001:2000 and to improve compatibility with ISO/IEC 14001:2004. ISO/IEC 9001:2008 does not introduce additional requirements nor does it change the intent of the ISO/IEC 9001:2000 standard.

Certification to ISO/IEC 9001:2008 is not an ‘upgrade’, and organizations that are certified to ISO/IEC 9001:2000 should be afforded the same status as those which have already received a new certificate to ISO/IEC 9001:2008. No new requirements were introduced in this edition but, in order to benefit from the clarifications of ISO/IEC 9001:2008, users of the former version will need to take into consideration whether the clarifications introduced have an impact on their current interpretation of ISO/IEC 9001:2000, as changes may be necessary to their QMS.

**KEY TAKEAWAY** ISO/IEC 9001 defines the overall requirement for processes and procedures, and having a good QMS certainly underpins a number of other best practices. The senior management of an organization ‘owns’ the quality management system. These people are responsible for developing quality objectives (or key performance indicators) and the process responsibilities.

## ITIL and the OSI framework

At around the time that the first version of ITIL was being written, the International Standards Organization launched an initiative that resulted in the Open Systems Interconnection (OSI) framework. Since this initiative covered many of the same areas as the ITIL team, it is not surprising that there was considerable overlap between the two.

However, it is also not surprising that they classified their processes differently, used different terminology, or used the same terminology in different ways. To further confuse matters, it is common for different groups in an organization to use terminology from both ITIL and the OSI framework. For example, some organizations have two change management departments – one following the ITIL change management process and the other using the OSI’s installation, moves, additions and changes (IMAC) model. Each department is convinced that it is completely different from the other, and that they perform different roles. Closer examination will reveal that there are several areas of commonality.

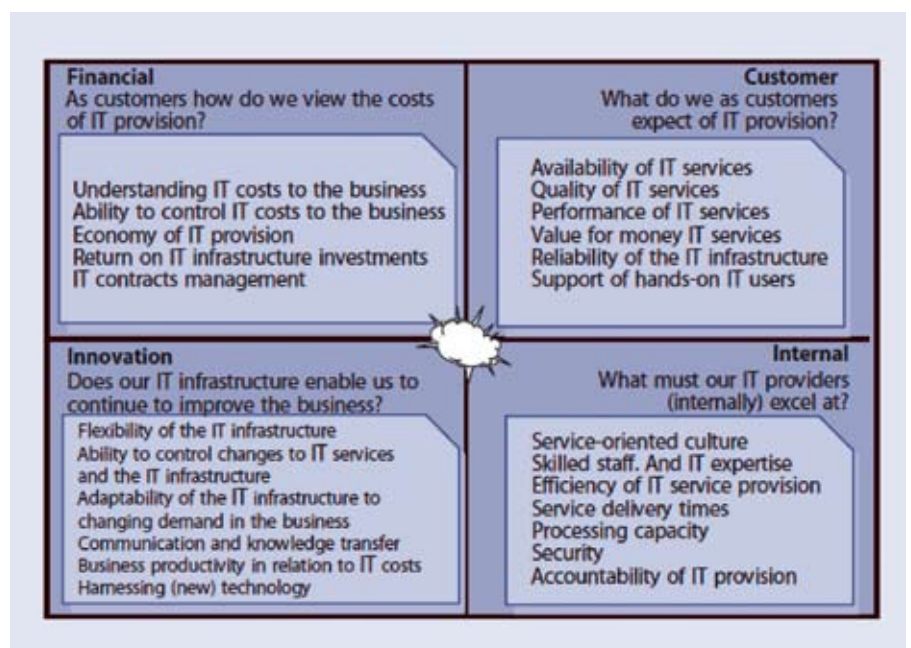


Figure 6 IT Balanced Scorecard

In service operation, the management of known errors may be mapped to problem management. There is also a section dealing with operational capacity management, which can be related to OSI's concept of performance management.

**KEY TAKEAWAY** Although it is not in the scope of this paper to explore the OSI framework, it has made significant contributions to the definition and execution of ITSM programmes and projects around the world. It has also caused a great deal of debate between teams who do not realize the origins of the terminology that they are using.

### Balanced scorecard

A new approach to strategic management was developed in the early 1990s by Drs Robert Kaplan (Harvard Business School) and David Norton. They named this system the 'balanced scorecard'. Recognizing some of the weaknesses and vagueness of previous management approaches, the balanced scorecard approach provides a clear description of what companies should measure in order to 'balance' the financial perspective. The balanced scorecard (see example in Figure 6) suggests that the organization is viewed from four perspectives, and it is valuable to develop metrics, collect data and analyse it relative to each of these perspectives:

- The learning and growth perspective
- The business process perspective
- The customer perspective
- The financial perspective.

Some organizations may choose to use the balanced scorecard method as a way of assessing and reporting their IT quality performance in general and their ITSM performance in particular. The balanced scorecard, as an aid to organizational performance management, is a common method of tracking metrics and performing trend analysis. It helps to focus, not only on the financial targets, but also on the internal processes, customers and learning and growth issues. The balance should be found between the four perspectives.

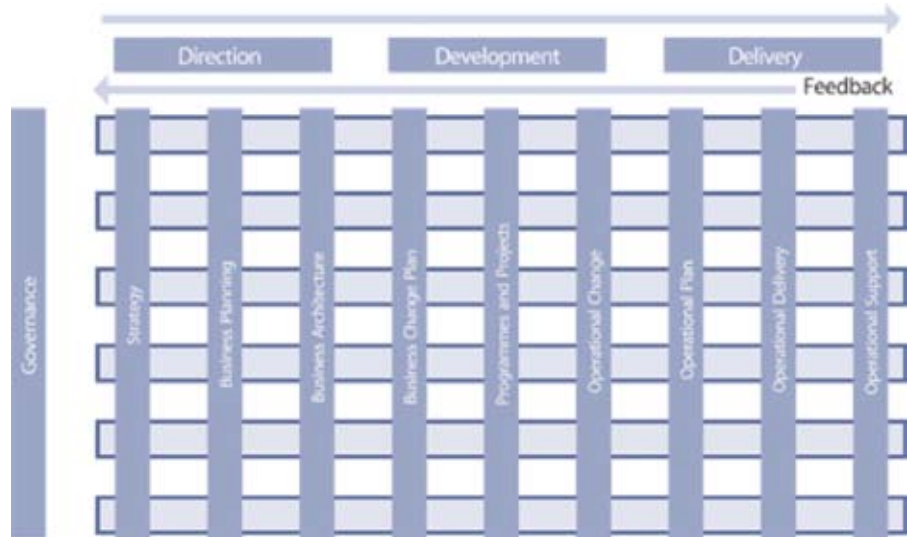


Figure 7 Management governance framework

**KEY TAKEAWAY** Senior (IT) management often focus on the results surrounding CSFs and KPIs, such as customer satisfaction, actual vs plan, and costing and revenue targets. Information provided at this level helps to determine strategic and tactical improvements on a larger scale. Senior (IT) management often want this type of information provided in the form of a balanced scorecard or IT scorecard format to see the big picture at one glance. Among the most common problems associated with presenting and reporting activities are that (1) everyone gets the same report (business, senior management and IT managers), and (2) the format is not suitable for everyone's needs. It is important to understand the audience and how they like to receive information. Some like the information in text format, some in graphs, pie charts etc. Getting agreement on the report format is crucial.

Consequently, many organizations are moving to a balanced scorecard or IT scorecard concept. This concept can start at the business level, then move to the IT level, and then functional groups and/or services within IT.

The balanced scorecard is not simply a measurement system but a management system that enables organizations to clarify their vision, mission, goals, objectives and strategies and to translate them into action. When fully deployed, the balanced scorecard transforms

strategic planning from an academic exercise into the nerve centre of an enterprise. It provides feedback around both the internal business processes and external outcomes in order to continually improve strategic performance and results.

Further details are available through the balanced scorecard user community at [www.scorecardsupport.com](http://www.scorecardsupport.com).

### The management governance framework

The management governance framework and its processes are the means by which a business 'directs, develops and delivers the products and services of the business'. It is the way in which the business strategy is executed through business development products that develop product and service capabilities and through which day-to-day products and services are delivered and supported. It is the mechanism by which all parts of the business and its supply-chain partners work together on strategy, development and operation.

Figure 7 illustrates the framework and what is involved. The framework is used to direct and run the business from left to right with feedback from right to left. Typically the strategy involves a long-term strategy; the business plan involves a shorter number of years with financial targets and budgets; the business architecture is the high-level design of the business; and so on.

The business needs to provide unified **direction** through disciplines and processes that involve strategy, business plans, budgets and business architecture.

The business needs to provide unified **development** through a shared business change plan and development programmes and project disciplines under the control of operational change disciplines in the operational world.

The business needs to provide unified **delivery** of products and services through shared operational planning, operational delivery and operational support.

**KEY TAKEAWAY** The way in which the above disciplines are performed varies from business to business. Some businesses perform certain aspects formally and other aspects in an informal, ad hoc manner. In terms of best-practice business governance, the need for individual disciplines is crucial, as is the way they interrelate. The governance framework formalizes the touch points between the value chains. From both business and IT viewpoints, the best-practice governance framework enables the processes and the relationships of the value chain to be formalized with each other across the governance model.

## The way ahead and the call for a new role

The range of frameworks and methodologies which complement ITIL within the IT service management arena is enormous, but be cautious about what can and cannot be achieved by use of an individual option. For example, it is a common misconception that implementing the COBIT model guarantees compliance with US Sarbanes–Oxley legislation. Even a good option can be used badly. Complying with Sarbanes–Oxley legislation is far more complex than simple implementation of an option or even a number of options. Some organizations can also focus on too narrow a scope for capability

improvement, resulting in limited and/or lower-quality services and processes which add too little value. It is often helpful for process measurement and standards to be instituted in tandem to realize and continually improve capability.

To reduce rework or to eliminate wasted effort, it is important that organizations pursue process improvement methodologies such as Lean, Six Sigma and CMMI after they settle on their strategic direction, then create the supporting process architecture and align the business around such architecture. If you are working in IT service management, using ITIL terms, you need to do the service strategy activities first, then go on to service design, service transition and service operations activities. Don't start spending huge resources tweaking or building a process to support an IT service or service component before you've done the proper portfolio management (and/or target architecture creation) activities to know if it is a service you should or will be keeping active, or a service you will or should be chartering.

One false perception that I have frequently battled against in the past, is the notion that ITIL is just a process improvement methodology for IT. If you work in IT service management, it is a template – or better, a mosaic – of best practice, which shows how all of the IT service management process areas are supposed to integrate with, and relate to, one another. True, the recently released CMMI for Services (largely based on ITIL) also does this generally for the entire service sector, but ITIL does this for IT service management specifically. And while many ITIL practitioners and implementers need to understand other models, methodologies and frameworks related to ITSM, practitioners of those other methodologies also need to have a good understanding of ITIL when they are applying these methodologies in the IT arena.

For example, a former colleague of mine once acted as a consultant to a large enterprise ITSM organization which began a Six Sigma initiative to develop an

efficient and consistent way to deliver IT commodities across their (global) organization. However, even though there was also a service catalogue development initiative already going on in the same organization for the past two years, the Six Sigma commodity delivery process project was not linked to the service catalogue project. Even though the service catalogue team were agreeing and documenting more services than just commodity services, the Six-Sigma-led commodity delivery team worked as a completely separate initiative, developing their own glossary of terms, commodity definitions and performing separate service cost discovery and delivery (process) discovery etc. To make matters worse, the Six Sigma commodity group was selected to help roll out the custom build of a 'sales' add-on module to this organization's main ITSM tool, using that group's commodity (service) definitions and delivery processes.

This was clearly not a lost turf war – the service catalogue group were never told to cease work – it was almost as if those leading the Six Sigma initiative were completely unaware that the bread and butter of a service catalogue is to present, order and deliver IT commodities (and/or IT services which have been commoditized, or are 'commoditizable').

## System dynamics, the Theory of Constraints and Lean/Kaizen

Herbert A. Simon won the 1978 Nobel Prize in economics for his work on decision-making processes within economic organizations. According to Simon's concept of bounded rationality, there are limits to the decision-making capabilities of human agents in formulating and solving complex problems and in processing information. Even the most dedicated, motivated and talented groups and individuals have limited capacity for dealing with the inherent complexity, uncertainty and conflicts or trade-offs in most socio-technical systems.

Services are socio-technical systems with service assets as the operating elements. People and processes act as concentrators of other assets in social and technical subsystems respectively. The performance of one subsystem affects the performance of the other in positive and negative ways.

The effectiveness of service strategy relies on a loosely coupled but balanced and strong relationship between the social and technical subsystems. It is essential to identify and control these dependencies and influences. Reviews in service design, service transition, service operation and continual service improvement should include analysis of possible dysfunction or lack of synchronization between the two subsystems.

### System dynamics

IT organizations often exhibit the counterintuitive behaviour resulting from many agents interacting over time. Long-term behaviour can be surprisingly different from short-term behaviour. Discussed in ITIL V3's Service Strategy volume (TSO, 2007), system dynamics is a methodology for understanding and managing the complex problems of IT organizations. It offers a means to capture and model the feedback processes, stocks and flows, time delays and other sources of complexity associated with IT organizations. It is a tool for evaluating the consequences of new policies and structures before putting them into action.

Just as an airline uses flight simulators to help pilots learn to fly, system dynamics offers simulation methods and tools available to help senior managers understand their organizations. These management flight simulators, based on mathematical models and computer simulation, can deliver useful insights for decision makers faced with enormous complexity and policy resistance. The application of system dynamics in the service and process domains has yielded remarkable insight for IT organizations. Some examples follow.

**The capability trap** By pressuring staff to work harder, an organization unwittingly triggers a scenario where ever-increasing levels of effort are required to maintain the same level of performance (Repenning and Sterman, 2001).

**The tool trap** Although technology tools offer very useful help to an organization, they often require the development of knowledge and experience. When an organization adopts new tools, it triggers lower productivity in the short term. The increase in workload from training, learning and practice activities may push a resource-constrained organization over its tipping point. (Repenning and Sterman, 2001).

**The firefighter trap** When an organization rewards managers for excellence in firefighting, they may unwittingly create a dynamic harming the long-term performance of the organization. The long-term performance is instead improved by not rewarding excellence in firefighting (Repenning et al., 2001).

To return to the above example of the colleague acting as a consultant to a large ITSM organization, some members of the service catalogue working group felt completely demoralized, and might have lost faith in their organization completely. Can you imagine how they might feel the next time they were asked to join one of the 'enterprise' working groups?

This will happen when one methodology being championed (in this case, Six Sigma) completely runs over another one (in this case, what was seen as an ITIL-related service catalogue initiative), with no overall direction from 'above' for both of these initiatives. Obviously, it is easier for this kind of dysfunction to occur in larger organizations and bureaucracies. Although the service catalogue working group example appears to be an accidental hit and run (or best-practice oversight), it can also sometimes be difficult to get away from the territorial nature of some of the consultants and practitioners of these methodologies.

Every framework, methodology, and approach will always have its consultants and aficionados. Often not intentionally, it is very easy for someone who may have started their training in ITIL, COBIT, Lean Six Sigma, CMMI, PMBOK or PRINCE2 to continue to see the world mainly through the lens of their initial particular framework or body of knowledge learned. They many go on to learn about other bodies of knowledge or frameworks, but they never lose their first attachment. Individual subject matter experts who are well versed and/or certified in multiple disciplines and methodologies will be better equipped to see the complexities involved in integrating these bodies of knowledge and associated initiatives for maximum effect. Such experts could be called multi-model integrators.

Territorialism and debate often arise when professionals are attached to a particular framework – in essence, the proverbial solution in search of a problem. Somebody who is truly an expert in multi-model integration would see these frameworks and methodologies as only a means to an end, matching the tool to the job (business need) at hand.

System dynamics may be a good way of looking at how IT service management organizations would implement ITIL simultaneously with numerous other service improvement frameworks and methodologies.

### The Theory of Constraints, the trend toward commoditization, and the service catalogue

In the influential book, *The Goal: A Process of Ongoing Improvement* (Goldratt and Cox, 1986), Eli Goldratt ushered in the Theory of Constraints (TOC) which illustrates how no process can be more efficient than its most limiting constraint (or bottleneck) – you proactively manage constraints or they will manage you.

TOC established principal measurements for the analysis of systems founded on productivity and profit. TOC's central tenant holds that every process or system has at least one constraint and that the identification of constraints should be

the focus for improvement activities. This theory advocates that organizations analyse constraints in three main business areas: inventory, operating expense and throughput. This school of analysis holds a concept of inventory that goes against the usual balance sheet conception, showing instead how inventory is a 'liability' and not an 'asset'.

These terms will be familiar to manufacturing concerns or financial organizations; however, IT service managers are less likely to relate to an analysis of these indicators in the ITSM arena.

Some have advocated translating or mapping these financial and manufacturing terms to ITSM, showing how inventory, operating expense and throughput apply to areas of our world, such as change management. However, I would argue that in some respects, many current ITSM best practices are already answering the call here in the more repeatable and automatable ITIL process areas and concepts such as request fulfilment (best handled by an automated service catalogue tool), event management, incident models and other process models. They both lead and reflect the increasing trend towards commoditization of ITSM.

Just as TOC shows how the biggest gains occur as a result of increasing throughput, such commoditizing trends in IT service management (ITSM) are already helping here. This is why service catalogues have been so influential. Once commodities have been defined, service naming taxonomies developed, and service cost discovery and delivery (process) discovery have been accomplished, an automated, actionable service catalogue tool facilitates (and automates where possible) the presentation, ordering and delivery mechanism of IT commodities and IT services (which have been commoditized and/or are 'commoditizable'). Indeed, removing constraints is what such IT service management commoditization and automation are all about.

Today, any IT organization hoping to mature their IT service management capabilities will focus on such commoditization, and as a result should see unique incidents drop, may see unique requirements decrease, and will obviously see commodity service requests (i.e. the known and automated) increase.

From a budgeting, planning and financial forecasting perspective, one great aspect that appeals to managers about such commoditization is that the more areas or IT services for which you can dedicate the resources to commoditize, the more of what is knowable increases. When you commoditize a service or ITSM process area, you 'discover' total cost of ownership, and the total time and other resources to deliver them to end-users and customers. And although 'automated' service catalogues can be an increase in work upfront, what they bring in service delivery automation later really pays off.

#### **Lean/Kaizen**

In addition to starting with service strategy activities, there are other considerations regarding the order of framework or methodology utilization. For example, although pure Six Sigma methodology has a genuine claim of technical superiority by reducing variation in customer/user experiences, the pure Lean camp might argue that the basic swimlane flowcharting of ITIL process areas (or any ITSM organization's process areas) and governance (i.e. the process compliance enforcement aspect) are more often than not all that are needed to produce high-impact improvements.

Such proponents recommend using Lean first to make immediate process improvements as direct outputs of Kaizen events. In the book, *The Toyota Way Fieldbook* (Liker and Meier, 2005), the authors illustrate the Kaizen Burst and Kaizen Blitz (often called the Kaizen event) approach to improvement. The Kaizen Blitz (rapid) improvement is a focused short-term project to improve a specific activity or process. The concept is to identify and remove waste as quickly as possible. A similar approach is the Kaizen Burst, a Kaizen activity on a

specific process in the value stream. Staff are taught to use techniques to score (or weight) such Kaizen events, typically yielding benefits sooner over other methods.

Kaizen methodology improvements happen almost immediately, often in a week. Kaizen events also generate lists of improvement opportunities for further attention with incident models, event management, other Lean tools or the process improvement of Six Sigma, CMMI etc. In fact, a Kaizen event focusing on shortening the incident management lifecycle might also yield outputs to help prioritize selections of service catalogue (IT commoditization) candidates (or candidates for some other web-based self-help tool). For example, ITSM organizations usually gain a quick benefit after developing a service request model to deliver quick password resets for customers who have been locked out of their accounts or have forgotten their passwords. These requests can be fulfilled with a short but repeatable script used by the service desk for dial-in requests, or these can be quickly requested and delivered through a service catalogue tool, saving the valuable time of service desk staff.

#### **Multi-model integration**

Most large ITSM organizations use various models, methodologies and frameworks to improve their ITSM capabilities. Many of these initiatives are mandated by a single senior manager or are concurrently implemented at different hierarchical levels and across different organizational departments and functional areas. Different parts of an organization champion those initiatives that best address their problems. This leads to competition between these models and their associated improvement initiatives with each vying for the same resources within the organization to meet their respective implementation needs. Given the fact that many of today's IT departments are resource-constrained, this competition costs dearly because of overlapping efforts and subsequent erosion of the benefits from any single effort (Siviy et al., 2008).

Ideally, organizations should capitalize on multiple models and frameworks, extracting the best from each, and manage the complexity and confusion, but some senior managers assign these initiatives, knowing little about any of them. These initiatives get pushed down in the organization to a level that is not capable of integration, either by authority, position or expertise.

At the very least, organizations employing multiple models need to coordinate their ITIL/ITSM implementation programmes, TQM programmes, business and IT governance efforts, ITSM audits and assessments, risk management, various improvement programmes etc. There are many ways to do this, but larger and more complex organizations will need to employ an expert, or a team of experts, who are either certified or otherwise sufficiently trained or experienced to act as a central chartering authority, to prevent redundancy, keep the lanes in the road sorted, time/coordinate the phasing in (or out) of their various implementations, and who can coordinate the awareness and training etc. for all of these.

In addition, by taking such an integrated approach, the organization can ensure that any internal and/or external audit activity could be coordinated against an organization-specific 'hybrid' standard. This would ensure that operational teams are audited against requirements which might sit across a number of standards and frameworks. This approach maximizes the benefit of audits to drive improvement activities while minimizing the disruption of operational teams. Such an integrated approach will also enable the critical success factors for each framework to be identified and integrated into a consolidated set of business KPIs. This would ensure that compliance, performance and business benefits are measured and improved against a holistic baseline.

It is also important to remember that organizations trying to achieve such multi-model harmony need to simultaneously develop and integrate the appropriate metrics and tool/automation strategies. In practice, a service provider will be very limited in what can be achieved without

some tools. Tools should be suitable for the service provider's circumstances. For example, a small service provider typically needs simpler tools than a large service provider, particularly where a service provider (or the customer's organization) is split across many locations. (This is the subject of another white paper forthcoming on this subject, *Integrating Tool Strategies in Multi-model Environments*).

Related to this, many large organizations which have been through one or many mergers or have grown too fast will greatly benefit from developing and phasing in a common or enterprise target architecture, a key enabler for the monitoring, reporting and optimization goals of such tool and process improvement strategies. If they do this, they can prevent the above-stated problems from occurring or re-occurring.

#### **The role of the multi-model integrator (MMI) envisioned**

The reality is that today, most large organizations employ many improvement methodologies/models, and given the level of quality, process and architecture improvement methodology/framework gaps, redundancies, waste and counter-productivity, to be most effective and efficient, such organizations may find it beneficial to create a multi-model integrator (MMI) role which reports directly to the office of the CEO. This individual should be given responsibility to ensure that the CEO's objectives, policies and governance directives, with implications for any of those models, are carried out in a coordinated manner. If reporting was at the CIO level (as opposed to the CEO), this could lead to ignoring improvement models used elsewhere in the business outside of IT or efficiencies gained for improving utilization of the frameworks employed at the business level. Reporting to the office of the CEO will help ensure that ITSM stays integrated within the business. Also, reporting to any one branch or division may lead to insufficient authority or perceived favouritism by other branches or divisions.

Obviously, MMIs would be highly qualified individuals and have certifications and/or training in many of

the main quality management, project management, service management and process improvement methodologies and certification tracks in combination: ITIL Expert, PRINCE2, PMP, PgMP, Six Sigma Black Belt or Master Black Belt, ISO 20000 Consultant, ISO 9000 Auditor, CMMI auditor training, M\_o\_R, MSP, P3M3 and/or P3O. They would be knowledgeable of enterprise architecture frameworks (such as those shown in *Service Design*, section 3.6.3, Table 3.1) and industry-specific frameworks, where required, such as ASL (if the organization is heavily involved in application management) or eTom (for those organizations involved in telecommunications).

Ideally, they would be well versed in the following publications:

- Knowledge management (section 4.7 in *Service Transition*, TSO, 2007)
- *Building an ITIL-based Service Management Department* (TSO, 2008)
- *Continual Service Improvement* (TSO, 2007), especially section 6
- *Service Design* (TSO, 2007), section 3.6.3
- *Frameworks for IT Management, A Pocket Guide* (Van Haren and itSMF International)
- *Service Transition* (TSO, 2007), section 5.2
- The 'challenges, critical success factors and risks' sections of all the ITIL V3 publications, especially *Service Strategy* and *Continual Service Improvement* (TSO, 2007).

Most importantly, MMIs would assign and apply RACI matrix-like responsibilities for all quality, service and process improvement initiatives to help de-conflict and manage the application of all of these for the entire organization. They would also assist in knowledge management, maintaining current and correct points of contact for the individuals and subject matter experts, making these available to the rest of the organization. The goal would be to develop the means of sharing knowledge through an organization by highlighting

who works with what methodologies and promoting an understanding of who in which department is trained in which methodologies. This would facilitate a more accurate assignment or selection of the correct individuals for different projects based upon the various knowledge sets. They would also provide awareness training to executives and the rest of the organization explaining why the activities of these roles are vital to efficiency, and indeed the very overall strategies, of the entire enterprise.

## Conclusion

The service concept is one of ITIL's uncomplicated, but deceptively profound, breakthroughs, and one which many ITSM managers still find difficult to grasp. ITSM success can be measured by quantifying the connection between the service delivered and the value delivered to the customer. However, such value can only be measured by the customer.

As a result, ITIL V3 redefines service as 'a means of delivering value to customers by facilitating outcomes customers want to achieve, but without the ownership of specific cost and risk'.

Any ITSM organization's improvement initiative selection and integration strategies need to simultaneously prioritize increasing customer value while at the same time reducing that ITSM organization's specific internal costs associated with delivering that value. If an ITSM organization does not know what it costs to do business internally, it won't know what or how to price its services profitably to its current customers, nor how to price services competitively in its market or niche.

Henry Ford, in *My Life and Work* (1922), provides a parallel that encompasses his entire conception of waste:

'I believe that the average farmer puts to a really useful purpose only about 5% of the energy he expends ... Not only is everything done by hand, but seldom is a thought given to a logical arrangement. A farmer doing his chores will walk up and down a rickety ladder a dozen times.

He will carry water for years instead of putting in a few lengths of pipe. His whole idea, when there is extra work to do, is to hire extra men. He thinks of putting money into improvements as an expense ... It is waste motion – waste effort – that makes farm prices high and profits low.'

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