ITIL: The Trend for Principled IT Service Delivery

By Thibault Dambrine

Figure 1.

The ability to spot new trends early is a key quality to business survival. Information Technology (IT) in itself is a fast-changing business sector. Staying on the leading edge of major IT trends can be a challenge, but it can also make a big difference for employability over the course of one's career. Today, one of the trends to watch for in IT is simply known as ITIL. A tsunami of sorts, ITIL is not making much noise right now. When it hits the shores of your IT department however, you may want to be ready and know what ITIL is all about.

What is ITIL? In a nutshell, the general aim of ITIL is to create a "best practice in IT Service Management" (ITSM). In the '80s, the quality of the IT services provided to the British government was such that something had to be done. In reaction to this situation, the Office of Government Commerce (OGC) developed a framework of best practices with the aim of providing a cost-efficient way to manage IT resources. Thus was born the "IT Infrastructure Library," or ITIL. Since then, this framework has evolved into its second iteration, and the third is planned for late 2006 or early 2007.

Since being published, ITIL has proved useful for many organizations beyond government. At the heart of ITIL are a number of processes supported by a new category of software packages specifically designed with ITIL in mind.

Three easily identifiable factors explain the recent ITIL adoption spurt in North America:

1) ITIL is considered a mature and well accepted IT Service Management set of best practices. With 20 years under its belt and the UK government stamp of approval, it's a safe bet for any company to at least consider ITIL.

2) ITIL, in its methods of documenting and controlling change, makes every system change auditable. In the U.S., the Sarbanes-Oxley law now requires stringent auditing that covers IT. In Canada, the Ontario legislature enacted Bill 198, which empowers the Ontario Securities Commission to enforce similar rules as Sarbanes-Oxley. With this backdrop, the timing is good for ITIL. This is a mature, credible process for managing IT. On top of strong IT governance, ITIL provides the necessary base of data to satisfy most Sarbanes-Oxley/Bill 198 requirements. Some IT professionals argue that the massive auditing market suddenly born as a result of these new laws may not be motivated only by the urge to guard the truth and protect investors, but after Enron and WorldCom, there is no turning back.
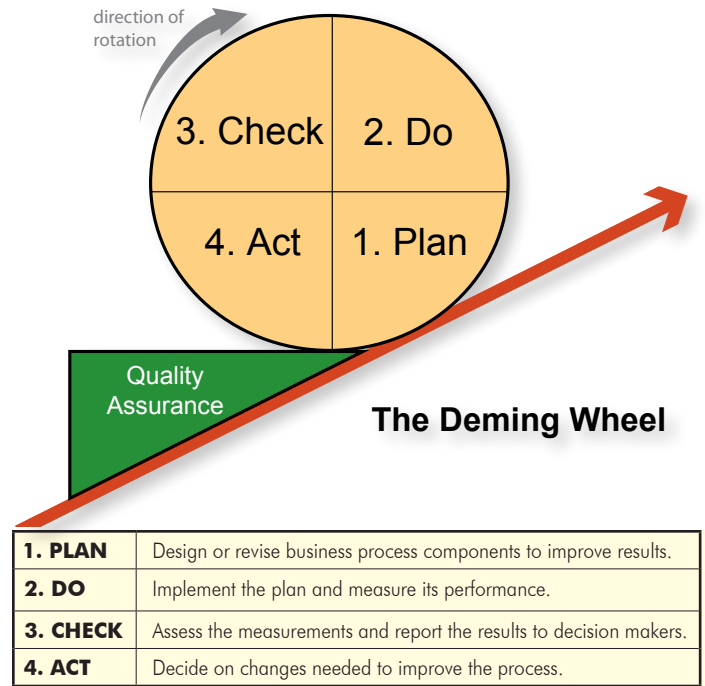
3) While remaining a copyright of the British government, ITIL belongs to public domain. This is important, because the method is basically free. All companies who want to use ITIL can do so.

ITIL 101

ITIL can be described as an adaptation of a concept known as the "Deming Wheel," applied to IT service delivery. The author of this concept, W. Edward Deming, is associated with the rise of Japan as a manufacturing nation. He is also the father of "Continuous Improvement" – the foundation for Total Quality Management (TQM). The Deming System prescribes a cycle of improvement. (See **Figure 1**.)

In its quest for quality IT service, ITIL gives a detailed description of a number of specific activities, which together constitute a best practice method to deliver IT. These processes and functions are published in a series of books, each covering a sub-area of IT management.

If you open an ITIL book, you'll notice that IT support processes are divided into two streams: **service support** and **service delivery**. Service support generally concentrates on day-to-day operations, while service delivery looks at the longer-term planning activities of IT service provision. (See **Figure 2.**) With this clear division, it's easy to see the "end in mind" for each process.

The service desk function is the point of application where service support (tactical and operational processes) meets the service delivery (strategic, longer term view processes).

From informal observation, one can see that in most cases, the methods used in the average IT department are not very different from what ITIL recommends. Non-ITIL shops simply tend not to be as formal, organized, and documented.

What ITIL does is not only identify all skills and task requirements, but also prescribe responsibilities for each role and function. Below is a summary for the service desk function (the only "function" described as such in ITIL) followed by service support and service delivery processes:

Service Desk Function

The objective of the service desk is to act as the central point of contact between the user and IT service management. It's the convergence point for service delivery and service support. Responsibilities include:

- To receive and record all calls from users directed to IT;
- To provide initial assessment of all incoming incidents;
- To monitor and escalate incidents, according to agreed service levels; and
- To keep users informed on status and progress of tasks.

ITIL Service Delivery Processes (Strategic, Longer Term)

Service Level Management aims to ensure that the IT services required by the customer are continuously maintained and improved. This is achieved by agreeing, monitoring, and reporting on the performance of the IT organization. In addition, it contributes in creating an effective business relationship between the IT organization and its customers. Because the IT organization is more aware of what is expected from it and what it provides, it is better able to plan, budget and manage its services.

Financial Management for IT Services aims to assist the internal IT organization with the cost-effective management of the IT resources required for the provision of services. For this reason, the process breaks down IT service costs and associates them with the various services provided. In this way, it supports management decisions with respect to IT investment, and encourages the cost-aware use of IT facilities and services.

Capacity Management should consistently provide the required IT resources at the right time (when they are needed) and at the right cost, aligned with current and future requirements of the business. Thus, capacity management must understand the expected business developments affecting customers, as well as anticipate technical developments. This process plays an important role in determining IT return on investment and cost justification.

IT Service Continuity Management (ITSCM) aspires to support the overall business continuity management. Its goal is to ensure that required IT infrastructure and services, including support and the service desk, can be restored within specified time limits after a disaster or a disruption. Its scope must be defined on the basis of the business objectives. When assessing risks to business continuity, decisions need to be made as to whether they are within or outside the scope of the ITSCM process.

Availability Management aims to optimize the capability of the IT infrastructure to support and deliver a cost-effective and sustained level of availability, as agreed upon in the SLA.

Security Management has two objectives: To meet the security requirements of the Service Level Agreements and external requirements defined by contracts, legislation, and externally imposed policies; and to provide a basic level of security, independent of external requirements.

ITIL Service Support Processes (Tactical, Operational)

Configuration Management aims to assist with managing the economic value of the IT services including customer requirements, quality and costs. This is done by maintaining a logical model of the IT infrastructure and IT services and providing information on the IT infrastructure and internal relationships between configuration items (CI) to other business and ITIL processes.

The narrow definition of configuration management is restricted to:

- Keeping reliable and detailed records of IT components, configuration items (CIs), and services provided by IT
- Providing accurate information and documentation to support other service management processes

Configuration items (CIs) typically fall under the following:
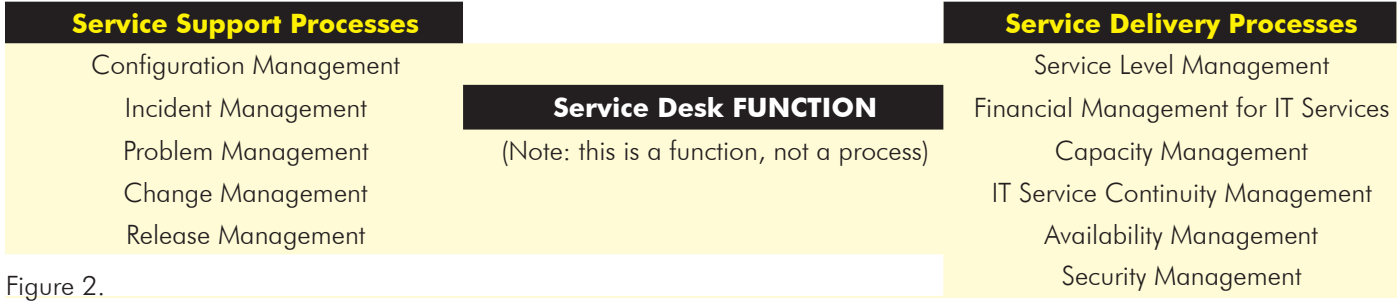- Hardware
- Software

Service Support Processes		Service Delivery Processes
Configuration Management		Service Level Management
Incident Management	**Service Desk FUNCTION**	Financial Management for IT Services
Problem Management	(Note: this is a function, not a process)	Capacity Management
Change Management		IT Service Continuity Management
Release Management		Availability Management
		Security Management

Figure 2.

Notes on the processes:
- Configuration management appears after problem management in the original order of the service support processes.
- Security management is placed under the service delivery process header. This process is not consistently in this area, and this may change with the next version of ITIL.
- Quality Assurance is not (yet) recognized as a formal process in ITIL. The topic of software quality is briefly mentioned in several processes, but ITIL gives formal Quality Assurance only cursory recognition.

- Procedures
- Documentation
- People (or functions – actually fulfilled by people)

Most configuration management database (CMDB) products on the market today have the ability to store much more than computing asset information. There is an emerging class of software commonly recognized as IT service management software or ITSM, which aims to fill the growing demand to satisfy ITIL CMDB requirements. ITSM software packages typically treat the CMDB as a subset of a larger ITIL offering, and will contain the following modules:

- Incident management
- Problem management
- CMDB (CIs)
- Service level management and underpinning contract management

Occasionally, ITIL software vendor Webinars and literature issue "buyer beware" statements aimed at competitors. Essentially, they claim that to get to the hot new CMDB/ITMS market, other vendors slap existing software with CMDB or ITSM labels just to get a foot in the door. Like any other major IT investment, this type of purchase has to be well researched.

The critical factor for success in configuration management is that the information contained within should be accurate and up to date. Auditing is a necessary component to achieve this goal. This means you must strictly enforce change management and release management, and that you should always have a stakeholder in the information recorded on individual configuration items. Another important factor for successful CMDB implementation is to carefully consider the depth and scope of the CIs tracked within. The most common pitfall is to try to track too much, too deep, too early in the CMDB implementation. These problems typically lead to inaccurate data in the CMDB, with consequences ranging from ill-informed decision-making to the complete breakdown of an ITIL initiative.

Looking at the diagram in **Figure 3** (courtesy of ITIL), one can clearly see that all events eventually end up as a recorded item in the CMDB.

Incident Management Objective aims to restore normal service level as defined in the SLA. In case of any disruption, service should be restored as soon as possible, with the smallest possible impact on the business activity, the organization, and the users. Incident management needs to keep track of incidents so that it can measure and improve the process, provide appropriate information to other service management processes, and properly report on resolution progress. This is done with the help of the CMDB.

Where the cause of an incident is not identifiable and investigation is warranted, a problem record is raised. In ITIL, a problem is defined as the unknown root cause of one or more

Figure 3.

existing or potential incidents in one or more CIs.

To find the root cause of a problem, ITIL prescribes problem resolution techniques such as:
1. Restatement of the problem;
2. Ishikawa Diagrams (fishbone diagrams); and
3. Kepner and Tregoe root cause analysis (detailed below)
   a. Prepare a decision statement having both an action and a result component
   b. Establish strategic requirements (musts), operational objectives (wants), and restraints (limits)
   c. Rank objectives and assign relative weights
   d. Generate alternatives
   e. Assign a relative score for each alternative on an objective-by-objective basis
   f. Calculate a weighted score for each alternative and identify the top two or three
   g. List adverse consequences for each top alternative and evaluate probability (high, medium, low) and severity (high, medium, low)
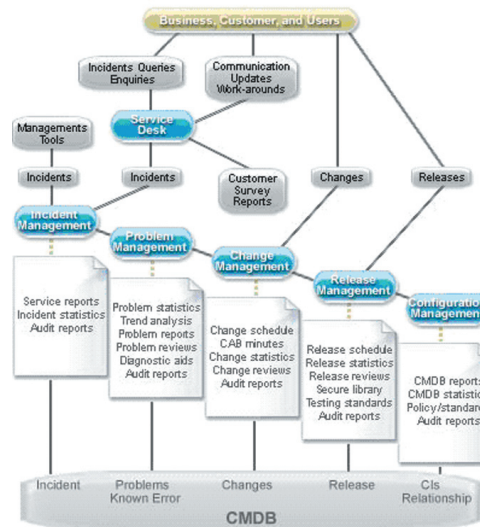   h. Make a final, single choice between top alternatives

Once the underlying cause and workaround or correction is identified, the problem becomes a known error. At this point, a Request for Change (RFC) can be issued to resolve the problem.

Problem Management: The objective of problem management is to resolve the root cause of incidents and consequently prevent incidents from recurring. It includes pro-active and reactive activities:
- Pro-active problem management aims to prevent incidents from recurring by identifying weaknesses in the infrastructure and making proposals to eliminate them.
- Reactive problem management aims to identify the root cause of past incidents and present proposals for improvements or rectification.
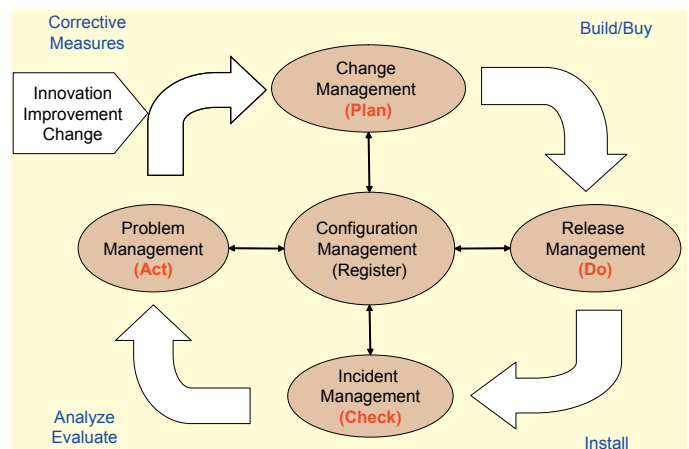

Figure 4.

Change Management: The objective of change management is to ensure that standard methods and procedures are used, so that changes can be dealt with quickly, with the lowest possible impact on service quality. All changes should be traceable. In effect, change management operates like a thermostatic control between flexibility (allowing changes which may lead to errors) and stability (allowing changes to remedy errors). Corrective measures reduce the number of incidents, as a result of which the pressure of emergency work will also fall.

This is where the Deming Wheel principle applies in ITIL. **Figure 4** represents how the Deming Plan-Do-Check-Act cycle is used in the context of the ITIL change management process. ITIL's motto for change management is "Not every change is an improvement, but every improvement is a change." With this in mind, a lot of effort is taken in the ITIL model to introduce change with care, to maintain and promote the quality of service provided by IT.

Release Management manages and distributes software and hardware versions used for production. The objectives for release management include:

- Planning, coordinating and implementing software and hardware;
- Designing and implementing efficient procedures for the distribution and installation of changes to IT systems;
- Ensuring that the hardware and software related to changes are traceable, secure, and that only correct, authorized, and tested versions are installed;
- Communicating with users and considering their expectations during the planning and rollout of new releases;
- Determining the composition and planning of a rollout, together with change management;
- Implementing new software releases and hardware in the operational infrastructure, under control of change management and supported by configuration management. A release may include a number of related CIs including documentation such as reports, plans, and user and support manuals;
- Ensuring that the original copies of software are securely stored in the definitive software library (DSL) and that the CMDB is updated. The same rules apply with respect to another ITIL concept, the definitive hardware store (DHS), a secure area holding spare definitive hardware CIs that make up part of a release.

ITIL: The Big Picture

Imagine for a minute that your email server went down on a Monday morning. You have no idea how long this outage will last or how deep the problem is. You ask yourself, "How long could the company survive without email services?" "How much business is lost every hour that it cannot communicate with the rest of the connected world?" These simple questions ➤

exemplify why IT service management has become so critical to running any type of business today.

In the ITIL model, the service desk represents the face of IT for the user community. All incidents, requests for change, or even complaints for IT are funneled through the service desk. All escalations start from this point, at a rate driven by the SLA. From there, if the underlying reason for the incident is unknown, problem management takes over. If a problem is identified and a work-around is determined, the problem becomes a known error until it is resolved. At this point, a Request for Change (RFC) will be issued to implement a permanent fix. This RFC will go through change management to ensure it conforms to the agreed-upon service requirements. Note that the incident, the problem and its resolution, the RFC, and related information are all recorded individually in the CMDB.

Conversely, the CI and CI relationship information stored in the CMDB can be useful to resolve problems. The CMDB incident tracking information can also be used for trending analysis and understanding not only where the problems are but also to help identify what pre-emptive corrective actions could save work or avoid future problems. Having detailed documentation on all incidents well classified in a database can enable IT management to discover without guessing where problems originate from and where improvements may have the most impact.

With ITIL growing in the IT hype and awareness index, one should remember that it is not a silver bullet. Learning and implementing ITIL takes time and effort. Because of the level of effort required, implementing ITIL is nearly impossible to accomplish

without sponsorship at the very top of the organization and at every level of IT leadership. Failed ITIL implementations are less publicized than the successful ones, but they do exist. For all these reasons, implementing ITIL could be likened to a marathon more than a sprint. It is definitely not a quick fix solution.

You may have noticed by now that the ITIL methodology is one that has strict definitions and a lot of acronyms. One could imagine an ITIL consultant having an ITIL-talk conversation: "Does Your CMDB have a consistent CFIA format for every CI?" This sentence translates to "Does your Configuration Management Database have a consistent Component failure impact analysis for every Configuration Item?" You need to know what each of these terms refers to if you want to make sense out of the sentence.

My point here is that ITIL has a language of its own. It's nothing to be overwhelmed by, but it must be learned. One useful aspect of a standard vocabulary is clear communication. Also, if you implement ITIL and hire an ITIL person, this person is likely to speak in the same terms as your organization, with obvious benefits. In the same way, member companies of ITIL user groups can compare apples with apples, oranges with oranges. A well-documented glossary of ITIL terms can be found at: www.get-best-practice.co.uk/glossary.aspx?product=glossariesacronyms

Another thing to be aware of is that on the road to ITIL Nirvana, your company may encounter boundless offers for help from high-priced consulting firms, some of them good, some of them questionable. ITIL being a complex methodology to implement, this is not surprising. The only advice I

can give here is to shop around. From experience, ITIL expert consulting is typically expensive, but not all ITIL experts provide equal value.
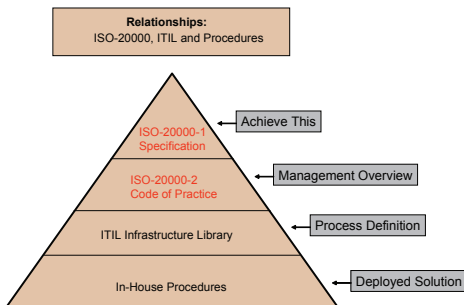

Figure 5.

Certifications — Where Does ITIL Fit in?

In the discipline of project management, the Project Management Professional (PMP) certification has changed the way companies hire project managers. PMP-certified professionals all use the same terminology, understand the same definitions, and work with the same methods. Project managers who are PMP-certified tend to get PM jobs ahead of ones who are not. See for yourself. Take a look at any A-list North American Internet-based job site. See how many results you can get by simply typing "PMP." Now try entering "ITIL" and see how many jobs come up. You may be surprised by the number of results and the diversity in types of jobs. At the rate of adoption ITIL is showing, it's a matter of time before all IT professionals will be required to have some form of ITIL or ITIL-like best practice knowledge, experience or even certification as a base requirement.

ITIL offers three levels of personal ITIL certification: Foundation, Practitioner and Manager. Note that ITIL doesn't evaluate how the methods taught in these certifications are actually implemented. To get an ITSM implementation certification, the ISO-20000 corporate certification is the closest fit.

To give some perspective on the difference between ITIL individual certifications and ISO-20000 corporate certification, **Figure 5** (taken from http://20000.fwtk.org/20000-itil.htm) illustrates ITIL's relative position. While ITIL is all about processes and best practices, ISO certifications enforce measurable standards at the corporate level before granting a certification.

Like any other ISO certification, one can expect that the process to reach ISO-20000 as a corporation will require audits and expenses that may go beyond the cost of simply going ITIL. This may be justified for software firms but perhaps not for the majority of companies who simply use IT as one of many services.

Beyond this, one should be aware that ITIL is not the only IT best practice method. Three of the more well known methods are Control Objectives for Information and related Technologies (COBIT), Dynamic Systems Development Method (DSDM) and the more recent IT Control Objectives for Sarbanes-Oxley (ITCO). There are many others.

Following are some details on the three levels of ITIL certification that can be taken. (Each certificate has an associated symbol.)

The Foundations Certificate in IT Service Management (ITIL Foundations – green symbol) aims to ensure understanding of the basic terms, concepts, and relationships between ITIL processes. This certification is intended for people working in the field of IT service management and is a prerequisite for the Practitioner and Manager Certificates.

The Practitioner Certificate in IT Service Management (ITIL Practitioner – blue symbol) ensures practical knowledge is well understood in the specialized aspects of one of the ITIL processes. This certification is intended for people who have the responsibility in one or more of the processes in IT Service Management.

The Manager Certificate in IT Service Management (ITIL Service Management – red symbol) is a credential that certifies knowledge of ITIL implementation and management techniques. This certification is for managers and consultants in IT Service Management, especially those who are involved in implementing ITIL or advising on ITIL. The ITIL Manager's exam has a reputation for being difficult to challenge.

It consists of two hand-written case study based essays. ITIL Managers typically command premium hourly rates, in part because there are simply not that many people who hold this title. No doubt, the high dollar and effort level necessary to challenge this certification contributes to the rarity.

Using ITIL to manage IT service delivery is proving itself and gaining momentum. Adoption of ITIL is reaching critical mass in North America. Over and above being a good fit for Sarbanes-Oxley/Bill 198 requirements, the over-arching reason for this success is simply better service delivery for less money. It all adds up to two words: competitive advantage. **CC**

About the Author
Thibault Dambrine works for Shell Canada Limited as a senior systems analyst. He holds the ITIL Foundations as well as the Release and Control Practitioner's Certificates. His past articles can be found on www.tylogix.com.