



# SERVICE RESCUE!

## *An Implementation and Improvement Guide for Incident Management*

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*This book is dedicated to my son Aidan who is always getting into situations, which help me gain practical incident management experience! And to my late husband, Al, who supported my love of best practices, travel and my writing this book. I love you both.*

*Nicole Conboy*

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# Colophon

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## Foreword

This book, "*SERVICE RESCUE! An Implementation and Improvement Guide for Incident Management*", is the result of merging two key disciplines: management theory & architecture on the one side, and well-tested practices on the other side. The two authors have joined forces, rewriting a topic that was considered 'established practice', but that actually has not received the attention it deserved for quite some time. The result is a clear message on how to structure that core capability that each service organization needs so dearly to survive in its daily practice: restoration of services.

The most significant differentiator in many lines of business is the factor customer satisfaction, which is highly influenced by the way the provider is handling any disturbance to the consumed services. This is where "incident management" finds its place.

As any organization is the result of only three means, People, Process, and Technology, the analysis of incident management in this book will be handled according to these three, and their integration.

### **Management theory & architecture**

Part of this book is based on content that was developed and published before in books produced by Inform-IT's chief editor, Jan van Bon. This provides the book with a solid and consistent base, referring to accepted content in related publications. The content describes a solid service management architecture, which has been tested extensively in practice as an efficient and effective approach for service organizations in a wide range of disciplines, and in widely varying formats.

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*Jan van Bon has been a driving force in the field of IT service management for the last 25 years. After a decade of academic research he started his work in IT in the late 1980's, in the Netherlands. He has been heavily involved in ITIL, itSMF, and several innovative projects ever since. He produced more than 80 books, in up to 16 languages, with thousands of expert authors and reviewers from all over the world, on a broad range of IT management topics.*

*Jan is the founder and Chief Editor of the ITSM Library and the ITSM Portal, and he was deeply involved in the development of the new Dutch standard for Service Management organizations: the ISM Method. His current work is focused at service management architecture.*

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### **Practice**

Practical guidance has to be based on proven practices, where conditions have been tested widely, and where local situations have provided the inspiration for smart structures. From her long and wide experience, Nicole Conboy has collected and filtered the most effective structures that could be found in practice, to create a source of superior guidance to a seemingly 'classic' topic: incident management. Nicole produced the larger part of this guide.

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*Nicole Conboy is based out of Canada and has over 20 years of experience in IT service management; leading organizations, delivering services, consulting and instructing world-wide. Exposed early to best practices in IT services and information management, she has always taken a practical approach to improving services with a solid process foundation. Her training and varied experiences allow her to quickly assess the situation and plan a course of action to better serve customers.*

*She has been actively involved in itSMF Canada and has contributed to ITIL v3 and proprietary service management practices and publications throughout her career. She is an ITIL Expert and COBIT certified instructor who has trained thousands of students – who share some of the best and worst service management experiences with her. At a top Canadian University, Nicole lead a successful process, people and technology change program which resulted in the team winning the Pink Elephant Project of the Year Award.*

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The result of the authors' cooperation is a fresh and useful approach to incident management, in such a way that it aligns to what you would expect – excellent guidance on service restoration – but also allows for a structural improvement of your daily practice by adding a service management architecture to the best practices.

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## Preface: Basic concepts for IT service management

In order to discuss a process, in this case incident management, with full understanding, there needs to be context provided to understand what a **process** actually is. This context should explain how we are using processes in a collective framework for IT service management (ITSM). There also needs to be a good understanding of a **service**, which is supported by the processes within your framework.

The first section of this book is going to cover basic **architecture** concepts for IT service management and is intended to set the context for service management, for processes, and for a **management system** to organize processes and functions for service management. That way, the book provides a fundament for incident management, through a solid **service management architecture**, enabling you to practice the incident management guidance in your local situation.

The globally leading reference model of good practices for ITSM is ITIL – the IT Infrastructure Library. A major aspect and benefit of ITIL is that it provides a common glossary and standard jargon that can be used across the ITSM industry. ITIL terminology is predominantly used in this book.

A leading *management system* for service organizations is the ISM Method (Integrated Service Management). It is built on clear and widely accepted management paradigms, and provides a logic and practical approach to the management and continual improvement of a service organization. It is aligned with – and complements – popular reference models like ITIL and Control Objectives for Information and Related Technology (COBIT). Several of the ISM paradigms have been applied to this book, in combination with ITIL practices.

ITIL covers more detail in practical guidance: where relevant and possible, we'll apply ITIL guidance.

ISM covers more aspects of managing an organization: where relevant and possible, we'll apply ISM structures.

We will apply ITIL guidance where possible, following the logic of the ISM management system approach. Whenever ISM logic leads to a deviation from ITIL practices, it will be made explicit.

### Good practice

Good practices such as ITIL, which have been adopted by many, can be used as a solid basis for organizations that want to improve their IT services. A good approach is to select widely available reference models and/or standards, such as ITIL, COBIT, CMMI, PRINCE2 and ISO/IEC 20000. All of these can be applied to many different real-life environments and situations. Training is also widely available, making it much easier to develop staff with the required knowledge and skills.

Proprietary knowledge is often claimed to be good practice, however it is often customized for the context and needs of a specific organization. Therefore, it may be difficult to adopt or replicate, particularly where multiple suppliers are involved, and therefore it may not be as effective in use.



## Service

A service creates value for the customer. ITIL describes a service as follows: A **service** is a means of delivering value to customers by facilitating outcomes the customers want to achieve without the ownership of specific costs or risks.

The ISM Method uses a much simpler definition of an IT service:

A **service** is the delivery of functioning functionality.

The two definitions are fully aligned with each other, but they emphasize different angles: ITIL stresses the relationship between provider and customer and the delivery of value, ISM delivers a more operational definition, focused on the object of a service and the required activities.

Outcomes (or outputs) are made possible by the performance of tasks. They are often limited in what they can achieve, by a number of constraints. Services enhance performance and can reduce the pressure of constraints. This increases the chances of the desired outcomes being realized.

ITIL has the concept of a service portfolio and a service catalog. The service portfolio includes all services that are in development, in live use, or retired. The service catalog represents the services that are available to the customers.

## Value

Value is the core of the ITIL service concept. From the customer's perspective **value** consists of two core components: utility and warranty. Utility is what the customer receives, and warranty is how it is provided<sup>1</sup>.

Another way of looking at this is to consider the following:

- **utility** = fit for purpose. Does it meet the specification?
- **warranty** = fit for use. Will it perform; will it be available when required?

The ISM Method already covered this in the definition of service, redefining utility and warranty as *functionality* (what it does) and *functioning* (how well it does it), see the previous section "Service".

## Service management

ITIL describes service management as follows: **Service management** is a set of specialized organizational capabilities for providing value to customers in the form of services.

'Organizational capabilities' means that it is a subset of people, process, and technology, commissioned with a specific task within the organization.

ISM uses the term service management in a more operational way:

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<sup>1</sup> The concepts utility and warranty are described in the ITIL book 'Service Strategy'.

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**Service management** is the process-based management of the activities of the service provider.

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This is aligned with the ITIL definition, but it makes it more specific: service management is not about application management, database management, system management or network management. It is only about *managing* these activities. This is aligned to the way ITIL uses the term in practice: there is no specific guidance in ITIL for the management of a router, for the development of an application, for building a network, etc. Both ITIL and ISM focus on managing the activities that deliver the services.

## Systems

ITIL describes the organizational structure concepts that proceed from system theory. The service lifecycle in ITIL is a system; however, a function, a process or an organization is a system as well. A definition of a system is the following.

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A **system** is a group of, interrelating, or interdependent components that form a unified whole, operating together for a common purpose.

---

*Feedback* and *learning* are two key aspects in the performance of systems; they turn processes, functions and organizations into dynamic systems. Feedback can lead to learning and growth, not only within a process, but also within an organization in its entirety. Within a process, for instance, the feedback about the performance of one cycle is, in its turn, input for the next process cycle. Within organizations, there can be feedback between processes, functions and lifecycle phases. Behind this feedback is the common goal: attaining the customer's objectives.

ISM also follows this approach. It focuses on the service provision domain with a system approach. In ISM the system is composed of the three elements of the provider's organization: people, process and technology.

## Processes versus functions

The distinction between functions and processes is important. So what exactly is a function? ISM is built on the strict separation of these two entities, where ITIL uses both in a somewhat less normative way.

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A **function** is a subdivision of an organization that is specialized in fulfilling a specified type of work, and is responsible for specific end results.

*Functions are independent subdivisions with capabilities that are required for their performance and results. They have their own practices, and their own knowledge body.*

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And what is a process?

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A **process** is a sequence of interrelated or interacting activities designed to accomplish a defined objective in a measurable and repeatable manner, transforming inputs into outputs.

---

Several ITIL components are called *processes*, but in fact they align more to the definition of *function*<sup>2</sup>.

As any organization is composed of only three resource types: **people, processes, and technology**, and functions are subdivisions of an organization, functions are also composed of people, processes, and technology. Therefore it is clear that **functions always use processes**.

This distinction between process and function makes clear that something *cannot* be a function *as well as* a process.

Functions are often recognized as teams or groups, with a specific set of practices and tools. The section on "Setting up functions in the service provider's Organization" offers various examples of familiar functions in IT organizations.

Processes convert inputs to outputs, and ultimately into outcomes. They use measures to assist control and as feedback for self-improvement. Processes have the following characteristics:

- They are **measurable** because they are performance-oriented.
- They have specific **results**.
- They provide these results to **customers** or **stakeholders**.
- They **respond** to a specific **event** - a process is indeed continual and iterative, but is always originating from a certain event.

Changing to a process based structure in an organization often shows that certain activities in the organization are uncoordinated, duplicated, neglected or unnecessary.

When arranging activities into processes, you should not use the existing allocation of tasks into an organizational structure as a basis. Instead, start with the **objective** of the process and the **relationships** with other processes. As the definition states, a process is a series of activities carried out to convert input into an output, and ultimately into an outcome; see the ITOCO model (Input-Throughput-Output-Control-Outcome) in figure A.1.

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<sup>2</sup> *Functions and Processes in IT Management*. Wim Hoving and Jan van Bon (2000). In: J. van Bon (ed.), *IT Service Management Global Best Practices, Volume 1*.

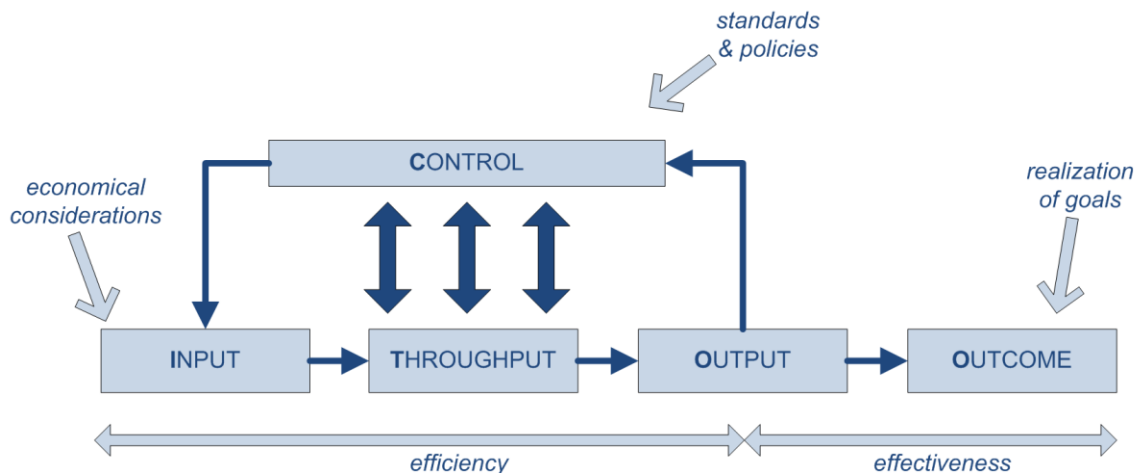


Figure A.1 Process diagram, based on the ITOCO-model<sup>3</sup>

Processes are composed of two kinds of activities: the activities to realize the goal - **operational activities** concerned with the throughput, and the activities to manage these - **control activities**. See figures A.1 and A.2. The control activities make sure the operational activities (in the workflow) are performed in time, in the right order, according to specifications, etc. For example, in the processing of changes it is always ensured that a test is performed *before* a release is taken into production and not *afterwards*.

According to the ITOCO model:

- processes have inputs and outputs
- processes can be adjusted by means of feedback and comparison against standards
- processes can be rendered more specific by conversion to procedures and work instructions
- various roles are distinguished in relation to processes (for example owner, manager, controller, operators).

The **input** to a process describes the trigger and the resources that are used and changed or consumed by the process. The **output** describes the immediate results of the process, while the **outcome** describes the long-term results of the process in terms of meaningful effect. **Control** activities are used to ensure that the process achieves the desired output and outcomes, and complies with **policies and standards** that are specified in the definition of the process. Controls regulate the input, the **throughput**, and the output.

The individual processes are built together into a **process model**. The process model shows how the processes trigger each other in a cooperation to achieve the goals of the service provider in a structured way. The standards for the input and output of each process must be defined, so that the complete process model meets the corporate objective. If the output of a process meets the defined requirements, then the process is **effective** in transforming its input into its output. To be really effective, the outcome should be taken into consideration rather than focusing on the

<sup>3</sup> Source: J. van Bon. Foundations of IT Service Management, based on ITIL V3. itSMF International, 2008. Also in "The ISM Method", 2012.

output. If the activities in the process are also carried out with the minimum required effort and cost, then the process is **efficient**. It is the task of process management to use **process control** to ensure that processes are executed in an effective and efficient way.

Each process can be studied separately to optimize its quality. The ISM Method uses a 3-tier management structure for process management, and a 2-tier structure for line management (figure A.2). The **process owner** is accountable for the process results. The **process manager** is responsible for the realization and structure of the process, and reports to the process owner. The **process controller** is responsible for monitoring and adjusting the correct execution of the process activities. The process operatives in **line management** are responsible for the execution of defined activities, and these activities are reported to the line manager and the process manager, for their respective responsibilities. All activities are structured in processes and therefore in **calls**. Line management is structured in 2 tiers (ISM), to cover all call handling: **call coordinators** manage the allocation of calls to **call operators**. Call coordinators can be found in practice in many jobs, e.g. a team lead or foreman. Call operators are found in a plethora of practical jobs, e.g. Helpdesk or Service Desk<sup>4</sup> employee, system manager, programmer, network administrator, etc.

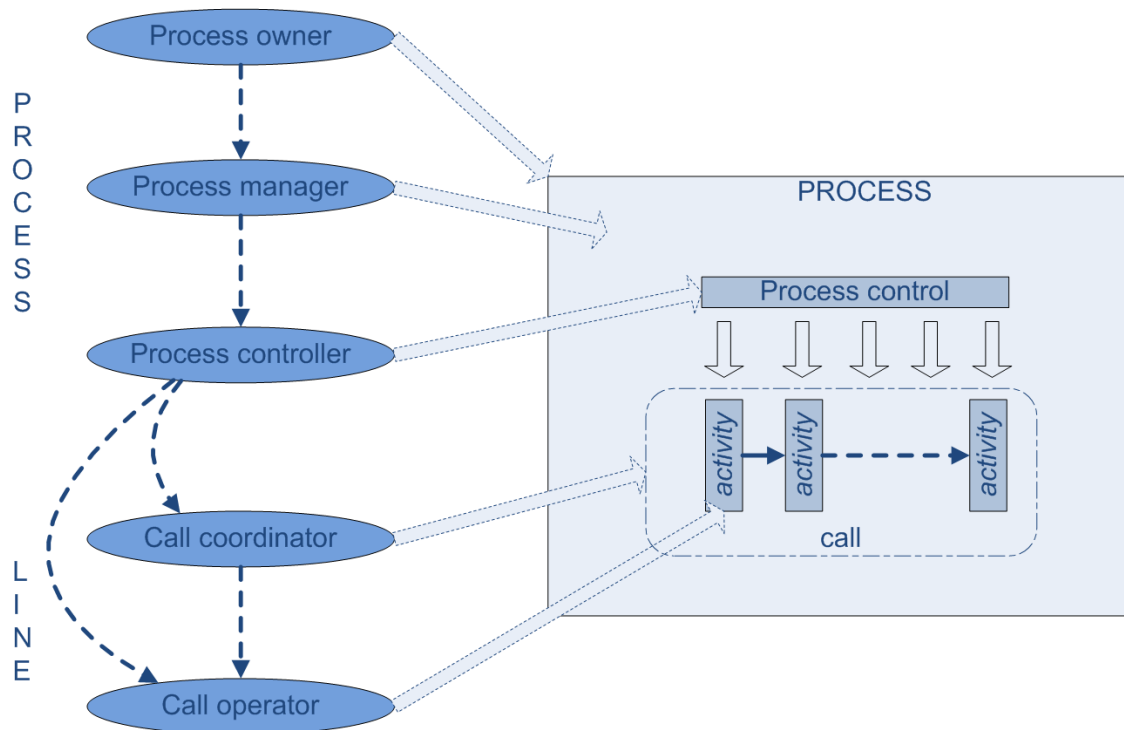


Figure A.2 Process and line management roles (based on the ISM Method)

## Process models

The **process model** is at least as important as the **processes** because processes must be deployed in the right relationships to achieve the desired effect of a process-

<sup>4</sup> From here on, we'll use the term Service Desk

focused approach. Process architecture should be defined before individual processes are designed.

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*A **process architecture** identifies the processes and process clusters, their interdependencies and interactions.*

---

Organizations should use standard methodologies for creating process diagrams. In-house developed methodologies are often difficult to interpret in an unambiguous manner.

The business process modeling world offers various methods to create process diagrams, such as the unified modeling language (UML), the business process modeling notation (BPMN), and the business process execution language for web services (BPEL-WS). Other systems design approaches can be used to create process diagrams such as the CCTA/OGC SSADM or the USA DOD IDEF methods. Figures A.3 and A.4 are examples of the BPMN method.

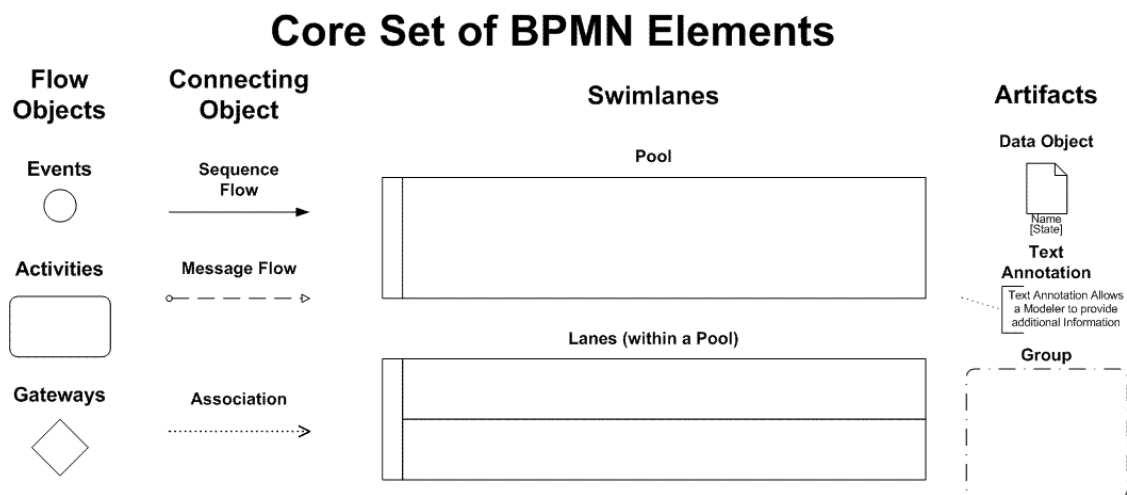


Figure A.3 BPMN elements (Source: OMG)

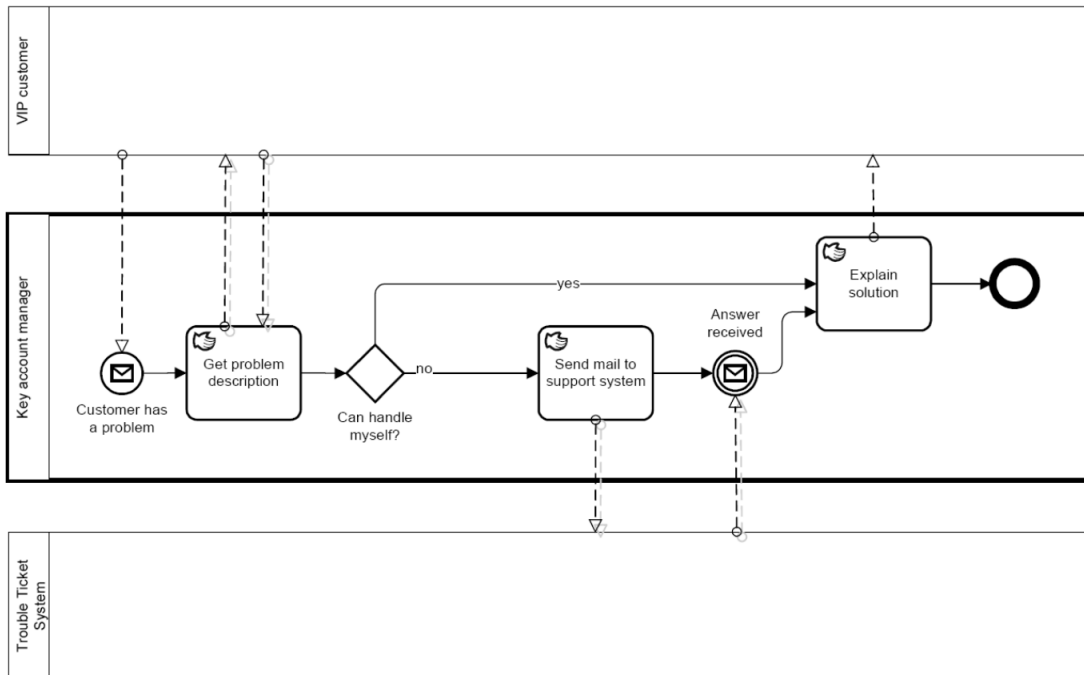


Figure A.4 Example of a BPMN process diagram (Source: OMG)

When described this way, it is easier to visualize and therefore manage a process. This is particularly true when processes are brought together in a process chain.

Note that **ITIL** does not give much attention to process interfacing other than listing them, and an ITIL process model is still missing in the official books (as of ITIL 2011). ITIL has chosen to focus on **practices**, and practices are the results of an underlying process model. ITIL has left it to the organization to develop their process model.

The **ISM Method** on the other hand has found its roots in **process management**. It provides a detailed and integrated process model, and then leaves it to the organization to use it and achieve their chosen set of practices, which can be taken from ITIL, COBIT, or any other source of good practices. ISM limits its guidance to generic management structures, and focuses on the generic organizational improvement that each organization is supposed to determine.

This way, the ISM Method complements ITIL, offering a practical approach for a process-focused organization that aims for ITIL practices (or COBIT, or any other source of good practices).

An organization no longer stands out because of its unique IT management processes, but because of the extent to which these processes are truly controlled. It is therefore critical that organizations consider and build their own efficient process model for IT service management, adopting and adapting the standard processes contained in available process models, e.g. in the ISM Method.

In practice, there are process models available in the form of supplier-based tools such as ticket systems or ITSM enabling technology for Event, Incident, Change, Service Level Management etc. Unfortunately, the details of most of these models are not publicly available, and most of these models are not really describing processes but practices instead. Basically, they have adapted good practices in a way

that works for some. This means that many organizations turn to developing their own models, based on the available non-proprietary schemas included in publicly available frameworks such as ITIL 2011. The challenge in using these schemas is that they mostly cover practices that are derived from processes, and not the processes themselves, which leaves the organization with the task of deriving the processes that are required for a process model. Or, the process model has so many processes (25-40 or more!) that it is challenging to adopt and adapt. For this reason, this book adopts the process model that is described in detail in the ISM Method. The ISM process model is available in detail in the core book on ISM<sup>5</sup>.

### ISO/IEC 20000 clustering of activities

ISO/IEC 20000 imposed clear clustering on its practices, see figure A.5. It is notable that the operations practices are out-of-scope in ISO/IEC 20000.

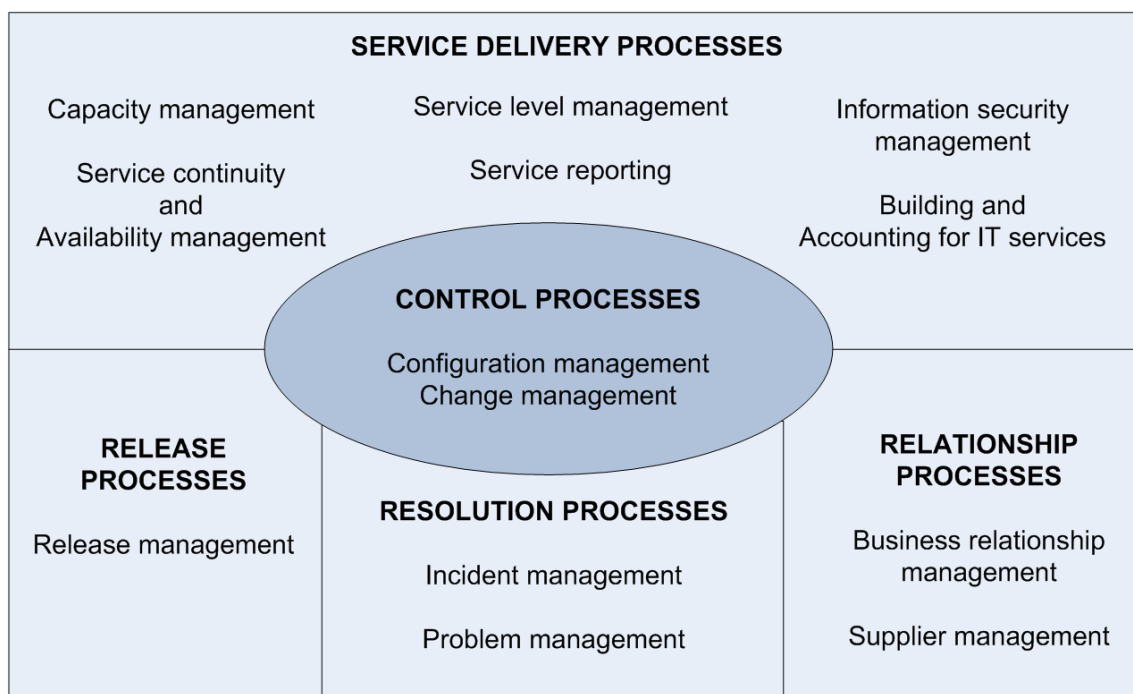


Figure A.5 Clustering of practices according to ISO/IEC 20000 (Source: ISO/IEC 20000)

If we look at the definition of process, we can conclude that most components in ISO/IEC 20000 are not processes but functions.

### ITIL lifecycle clustering of activities

The lifecycle concept of ITIL consists of five phases in IT service management control. Each of these phases describes several practices (called "processes" in ITIL), functions and "miscellaneous activities". Many of these practices are applied across more than one lifecycle phase, see figure A.6.

<sup>5</sup> Hoving, W. and J. van Bon. (2012) The ISM Method. Past, present and future of IT service management. TSO, UK. ISBN 9780117081062



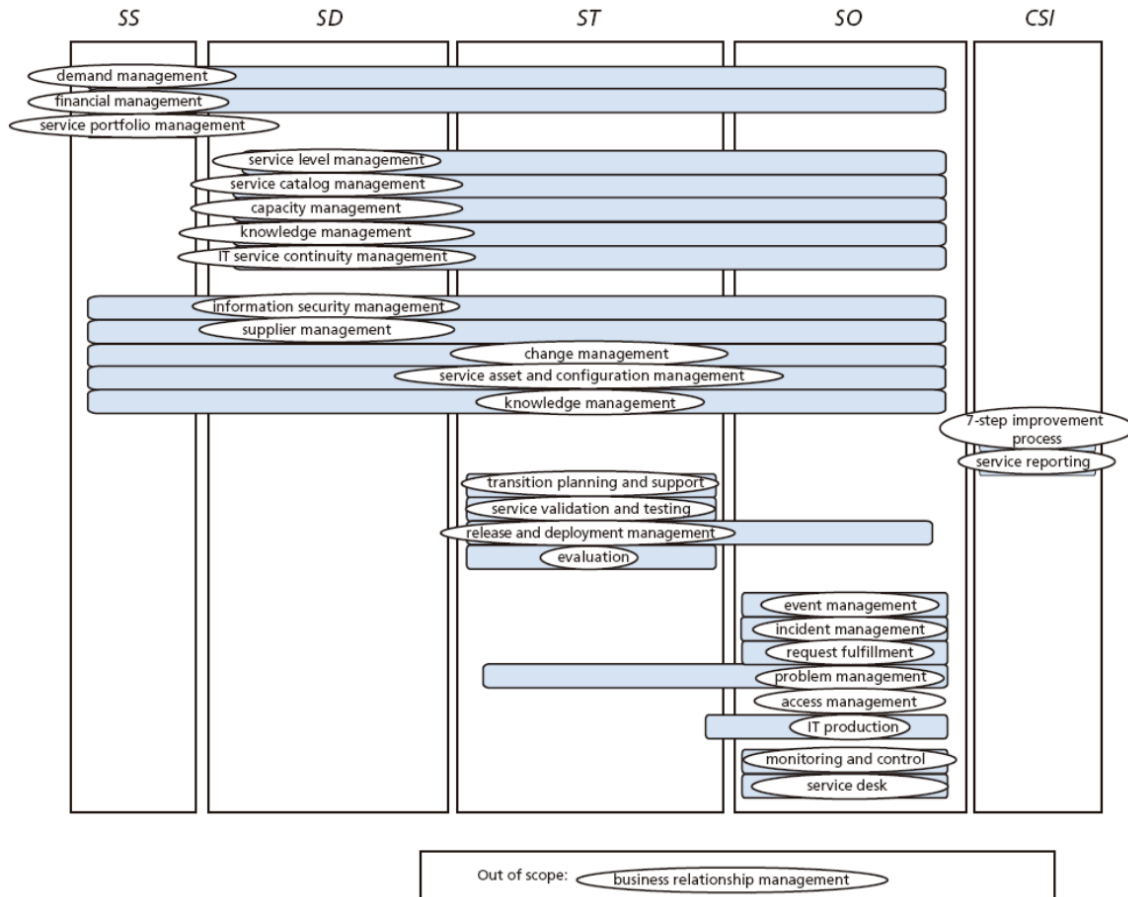


Figure A.6 Clustering of practices according to ITIL (Source: *IT Service Management – An Introduction, 2007*)

If we look at the definition of process, we can conclude that most components in ITIL are not processes but functions.

## Core processes of a service provider

ITIL acknowledges the difference between functions and processes: functions (organizational capabilities) make use of processes (repeatable strings of activities). Because ITIL describes good practices and not a consistent process architecture, the description of such functions may cover *activities* that are part of more than one, or even several processes. Adopting such practices without adjusting them to the local management system and the processes of that management system, will lead to redundantly organizing the work of that local organization.

As explained previously, what ITIL *calls* a process does not always follow the above-mentioned definition of what a process is. One solution to this is to consider the twenty-six ITIL "processes" as twenty-six ITIL practices. For example, ITIL's capacity management covers a range of activities that cannot be ordered as a logical and repeatable sequence of activities (as in the definition of "process"). As such, the ITIL context describes a capacity management practice or a capacity management function, rather than a capacity management process.

A “capacity management process” would be a contradiction in terms. A process – by definition – is only about activities and not about people or technology. These resources are added in the procedure and work instruction derivatives of the process. The term “capacity management” contains a reference to a technology resource (capacity) and therefore “capacity management” cannot be a process. Looking for a pure *sequence of activities* in the ITIL chapter on capacity management will also not reveal anything; instead, a lot of practical guidance for the execution, tasks, documents, infrastructure, roles, etc. are provided, making it a very useful guide for managing capacity *in practice*. That being said, ITIL does have a few “processes” but in those cases they still mix in the practices (procedures, work instructions) and don’t integrate it well as part of the overall framework.

By definition, the structure of a process is in fact a series of activities that are placed in a logical order: a **workflow** (see ITOCO, figure A.1). This workflow is controlled by means of the **control activities**. These control activities make sure the operational activities are performed in the right order, and according to agreed specifications. For example in the change management process it is always made sure that a test is performed *before* a release is put into production and not *afterwards*.

Like any other kind of service organization, an IT service provider has only a very limited set of **frequently repeated basic processes** or process groups<sup>6</sup>. Process – by definition - only concern activities. As a consequence, all processes are verbs, and do not contain nouns.

Figure A.7 illustrates the ISM process model. Four processes are concerned with **effectiveness**:

- **Agree: Service level management (SLM)** – SLM is responsible for creating and maintaining agreements with customers and with the relevant management organizations (including suppliers), and for monitoring compliance with the agreements. SLM reports on the services, discusses these with the customer and suppliers, and initiates the resulting actions. SLM is also responsible for managing an up-to-date service catalog. SLM will cover areas of responsibility such as supplier management, business relationship management, service catalog management.
- **Change: Change management (CHM)** – CHM is responsible for the structured changing of services and (therefore) the information systems, as agreed in SLAs. CHM prevents unwanted adjustments and ensures that the construction of changes is carried out according to service and management requirements. Where applicable, this is done with a release: in ISM, a release is treated as a multiple (composite) change, therefore release management is an application of the CHM process.
- **Restore: Incident management (INC)** – INC is responsible for the structured restoration of the disrupted services, as agreed in the SLAs.
- **Deliver: Operations management (OPS)** – OPS is responsible for planning and executing all management operations on the information system. OPS is also responsible for monitoring the performance of the information system, and for reporting an incident if monitoring shows that thresholds are exceeded. The OPS process is the process where all operational activities are scheduled and executed on the information system. These operational activities are regularly executed as part of INC and CHM, and therefore initiated from there. To avoid conflicts and to

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<sup>6</sup> Based on the ISM Method process model, [Hoving & Van Bon 2012]

ensure that all operational activities are aligned as much as possible (for example, in maintenance windows), in ISM all operational activities are planned in one process: OPS.

Two processes are concerned with **efficiency**:

- **Inform: Configuration management (COM)** – COM is responsible for providing up-to-date and complete information about the service and the composition of the information system. In other words, OPS is responsible for providing *trustworthy* information on all infrastructure components, which the organization uses to deliver their services. Recording and verifying information is not a goal, but only a means to the ultimate objective of COM: more efficiently realizing the IT service delivery. With this registered and verified information the other processes and managers work more efficiently. The scope of the information that COM must make available is determined by the value of this information for a more efficient service delivery. An organization therefore always decides locally about the scope and depth of the information that is made available about specific components – for example, information on the platforms, the applications, the documentation, and the managers.
- **Prevent: Quality management (QM)** – QM covers all proactive management activities that make sure that the organization will be able to deliver all quality of service (QoS) parameters that were agreed with the customer (in terms of capacity, performance, finance, etc.), while conditions are continuously changing. So, QM is responsible for identifying and remediating risks that threaten the effective and efficient delivery of services<sup>7</sup>. A risk is a situation that has a certain chance to occur and that has a certain impact. Risks can not only be negative, they can also be positive in the sense of opportunities to improve. These risks take many forms, such as situations:
  - where repeated incidents occur
  - where the system capacity for a service falls short or is too large
  - where availability requirements are exceeded
  - where, in the event of emergencies, the service delivery cannot be restored quickly enough
  - where the security of the service is not sufficiently ensured
  - where a new technology has become available for more efficient delivery of services
  - where an improved way of handling specific incidents may be developed to enhance incident resolution
  - where new methods for managing capacity have become available, for more effective service delivery.

These six processes apply to all activities at all management levels in the IT organization. Although it will often be unusual for a senior IT manager to forward a request for change (RFC) for him to develop a strategic object like the Annual IT Plan, if he wants that plan to be under control and applied as it should be, he'll simply have to follow procedure, just like all his colleagues. The Annual IT Plan will then be a controlled document, with a unique identifier, an owner, a location, a planned review date, etc., and it will be formally registered. Each time a new Annual IT Plan will have to be developed, an RFC is forwarded to develop a new version, all

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<sup>7</sup> The ISM Method in fact describes the combination of risk analysis and risk management here. To prevent conflicts with existing terminology, it uses the term quality management for this process.

involved staff is involved in the development of the new version, it will be tested against all risks, and it will be formally accepted by the responsible staff before it's taken into production.

The same applies to other strategic objects like an Architecture Plan, policies, etc.

This is one of the main critical success factors for any service organization: senior management will need to follow the policies they require from lower staff. Otherwise, they will hinder any attempt of becoming a streamlined organization. Also, leaders influence staff more by what they do, than say. If leaders don't follow the rules and demonstrate the value of efficient and effective processes, neither will the rest of their organization.

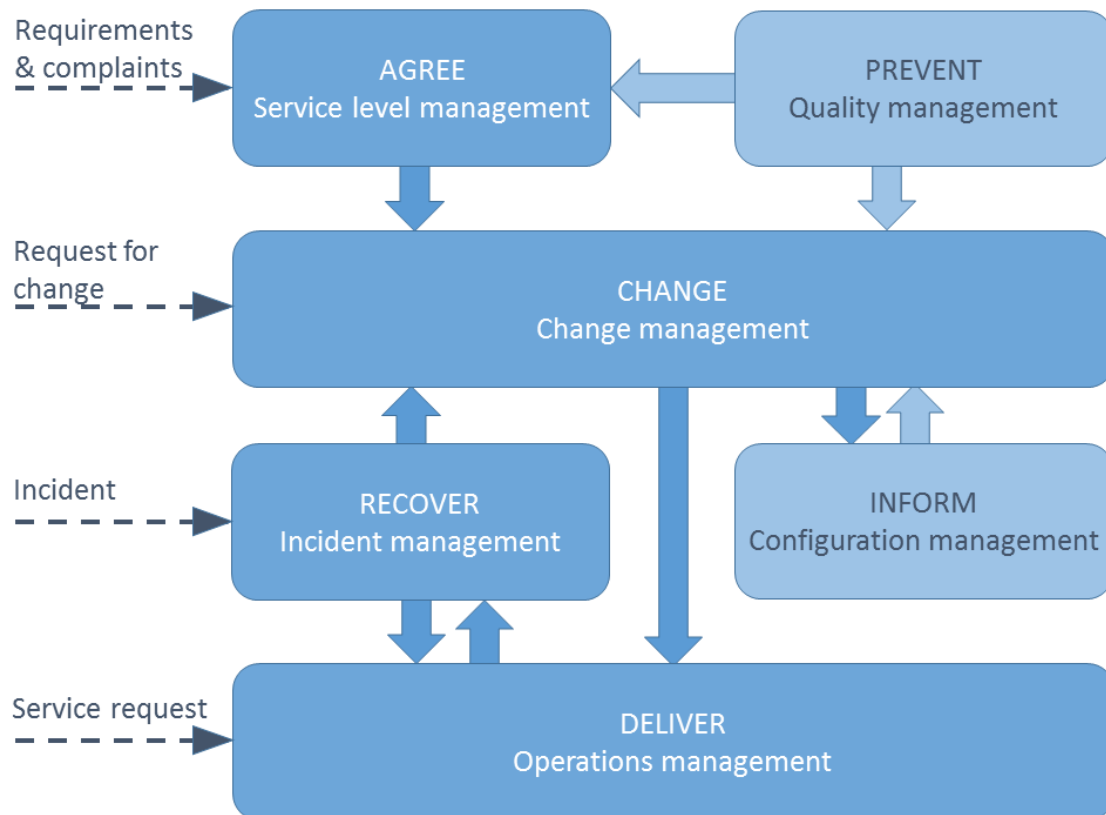


Figure A.7 The ISM process model (Source: The ISM Method)

This applies not only to an IT service provider, but to other service management fields as well. Imagine a catering service provider, the national post, a facility management department, or any other service provider: they all will perform these same basic processes.

The six processes are related in the fully integrated ISM process model, see figure A.7. The arrows in this model, indicating the relationships, are *process triggers*. Please note that information relationships are not depicted in the model, as this would create a busy image, with information flows, like spaghetti, all over the model. These six processes are fully compatible with widely used ITIL practices, defined in a uniform and transparent way, right down to the level of individual activities. This compact and recognizable format makes ISM easily adaptable to the needs of any