

# Availability Management: A CA Service Management Process Map

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CA SERVICES

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# Executive Summary

## Challenge

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The Information Technology Infrastructure Library version 3 (ITIL® V3) process framework approaches IT Service Management (ITSM) in terms of the lifecycle of a service. The Service Lifecycle, an organizational model providing insight into the way ITSM is structured, embodies critical guidance for IT organizations seeking to improve service quality and align more closely with business goals to create value for the business and its customers.

Availability Management facilitates ITSM by managing the availability of services needed by the business. However, doing so requires cooperative functions, and comprehensive plans that factor in people, process and technical changes, to ensure that availability events can be handled in a fully accountable and timely manner consistent with customer expectations.

However, ITIL V3 best practice guidelines across the phases of the service lifecycle are complex and challenging to interpret, lacking definitive advice about implementing ITSM processes. Many IT organizations consequently undertake an ITIL journey without a firm idea of their path to achieve their goals.

## Opportunity

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In accordance with ITIL, the primary objective of the Availability Management process is to define, plan, evaluate and improve all aspects of the availability of IT services, establishing and maintaining them in compliance with agreed availability targets. These aspects include the people, process and technology factors of availability.

CA has developed a unique approach to representing the ITIL framework and its interdependent IT Service Management (ITSM) processes at a high level in the form of an easy-to-use subway map. This map is an ideal starting point for understanding and communicating about ITIL in support of successful program planning and implementation.

## Benefits

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The CA Availability Management process map enables IT organizations to optimize the handling of infrastructure and application dependencies by leveraging IT capacity, automating service visibility, and reducing risk from changes in demand.

Following the Availability Management map provides guidance to:

- Optimize the availability of both IT services and supporting IT staff
- Efficiently translate IT capacity into business continuity
- Lower risks to business processes
- Improve the cost effectiveness of IT services

## Simplifying ITIL

The ITIL V3 process framework focuses on the service lifecycle and the way that service management components are structured and linked. It embodies critical guidance for IT organizations that are seeking to improve service quality and align more closely with business goals.

But, the ITIL V3 best-practice guidelines across the five phases of the service lifecycle are complex and challenging to interpret. Moreover, they are not designed to provide definitive advice about implementing IT Service Management (ITSM) processes. Many IT organizations consequently undertake an ITIL journey without a firm idea of their goals and the path to achieve those goals.

CA has developed a unique approach to charting the ITIL journey through a visual representation of the ITIL framework and its interdependent ITSM processes modeled after an urban subway system. This three-part map (Figure A) presents an easy-to-navigate, high-level view of the ITIL terrain. IT executives, strategists and implementers can use these Service Management process maps along with the family of CA Service Management process map technology briefs that expand on them. The maps and technology briefs provide a common reference point for understanding and communicating about ITIL and help you with program planning and implementation.

### How to Use the CA Service Management Process Maps

CA's Service Management process maps (Figure A) illustrate every process (or track), each activity (or station) and the key relationships that are relevant to navigating continuous IT service improvement. The ITIL quality cycle takes the form of a "circle" with each Plan-Do-Check-Act (P-D-C-A) step as a process integration point (junction) on the line. Junctions serve both as reference points when assessing process maturity, and as a means to consider the implications of implementing a process in isolation.

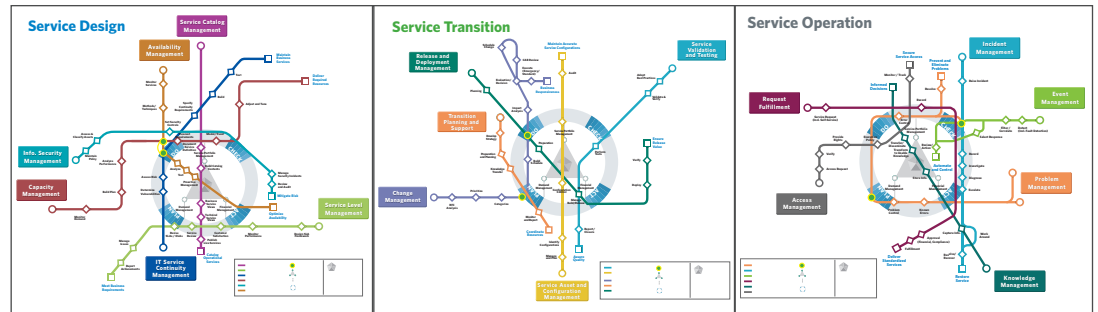
Strategic controls (Service Portfolio Management, Demand Management and Financial Management) are needed to reduce risk and optimize integration across the service lifecycle, as illustrated on the three points of the triangle centered in the P-D-C-A quality circle (seen more easily in Figure B). These strategic controls help in evaluating, prioritizing and assuring the appropriate levels of financial and human resources for existing and new services.

This paper is part of a series of Service Management Process Map technology briefs. Each brief explains how to navigate a particular ITIL process journey, reviewing each process activity that must be addressed in order to achieve process objectives. Along each journey careful attention is paid to how technology plays a critical role in both integrating ITIL processes and automating ITIL process activities.

## CA ITSM PROCESS MAPS

CA ITSM Process Maps illustrate at a high level how best to navigate a journey of continual service improvement guided by strategic controls throughout the service lifecycle. Each map describes the relevant ITIL processes and activities you'll need to work with to reach your goals.

FIGURE A

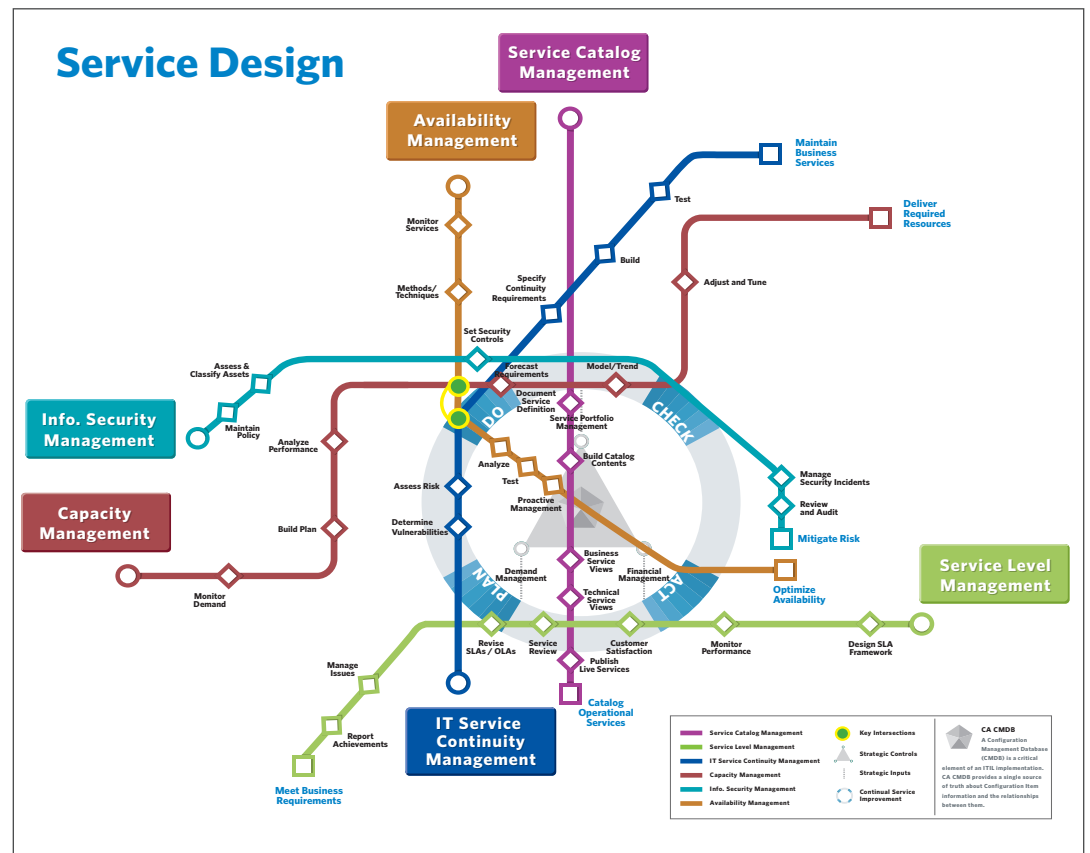


CA has developed three maps: Service Design, Service Transition and Service Operation since most ITSM discussions focus on these critical ITIL disciplines.

## SERVICE DESIGN MAP

The Service Design map represents a journey of developing and improving capabilities for engineering and maintaining the appropriate levels of services in production. Within this map, the Availability Management journey is drawn.

FIGURE B



The Service Design map represents a journey of developing and improving capabilities for engineering and maintaining the appropriate levels of services in production. Within this map, the Availability Management journey is drawn.



### Finding the Right Path to IT Service Excellence

Most organizations have multiple disciplines in IT that respond directly to the matter of service availability. That is, many of the functions that decide or constrain availability are active already but are not strategically coordinated to optimize their collective impact. Key points in this optimization include:

- Embracing the role of architecture
- Unifying service visibility
- Managing service components using business priorities

A primary outcome of the Availability Management process is better and more proactive protection of service levels required by the business. The Availability Management process takes advantage of opportunities to achieve this in an economical and logical way.

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## SECTION 2: OPPORTUNITY

### Availability Management

When informally considering “availability”, most persons think of the desired or actual current state of systems and services with regard to downtime. This emphasis is entirely appropriate, but it tends to lead off to discussions about service restoration after an incident.

A more careful consideration of availability will instead address the question of what is necessary to provide adequate availability in the first place, and to protect it continually from there on. In that light, there should be a discussion of the dependencies underlying a successfully available service. This is the reason for ITIL positioning Availability Management in the broader Service Design phase of the service lifecycle.

The question for management is what does the service rely upon, in order to have the required levels of availability?

The goal of the Availability Management process (or track) is to optimize the collective factors that establish the availability, at a justifiable cost to the business. This will include a range of methods and techniques that would allow management to forecast appropriate availability for known or expected business requirements, and to decide if anything needs to change. Accordingly, the Availability Management process develops pertinent information about what currently meets or fails requirements, studies those findings to come up with proposed enhancements and corrections, and with that moves towards improving the type and opportunity of the factors needing to cooperate for verifiable availability going forward.

However, IT environments often present a dazzling array of instruments and roles for manipulating one or another of the systems, integrations or components affecting availability. Consequently, the Availability Management process seeks to identify a streamlined but complete combination of these instruments and roles, to allow for fast response to availability issues while capturing higher quality information about what should be making a positive difference.

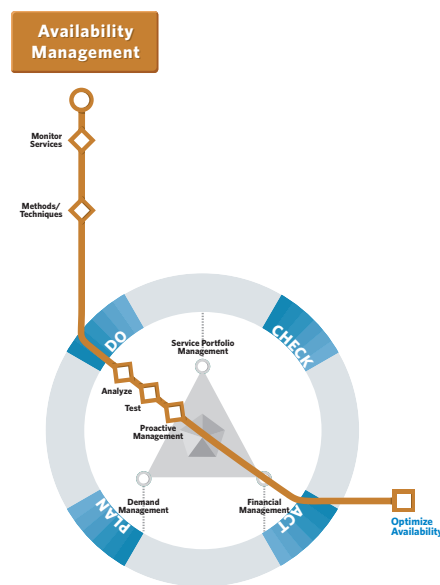
This process, as shown in Figure C below, is a journey with corresponding stations along the subway route:

- Monitor Services
- Methods/Techniques
- Analyze
- Test
- Proactive Management

## AVAILABILITY MANAGEMENT

The Availability Management process develops pertinent information about what currently meets or fails requirements, studies those findings to come up with proposed enhancements and corrections, and with that moves towards improving the types and opportunity of the factors needing to cooperate for verifiable availability going forward.


FIGURE C



The Availability Management track guides managers in establishing a foundation on which to stand for progressing past recovering from insufficient availability to proactively driving sustained availability

Successful availability predominantly means that the service and/or component's operational performance meets agreed requirements for a designated period of time. However, successful availability management for the given service means that all of the following aspects are aligned with the requirement by being defined, controlled and evaluated:

- An IT component performs at an agreed service level.
- An IT component remains in, or can be restored to, an operational state.
- Serviceability: an external third party such as a contract support supplier can maintain the availability of a component or function.
- Resilience: measures and methods, such as redundancy, are used for keeping services free from operational failure.
- Security: the confidentiality, integrity, and availability of data associated with the service is established.



That scope of concerns points out that a customer's experience of availability tends to be a singular event (it's good, it's tolerable, or it's bad), but the management behind it requires a lot of varied information throughout the planning, delivery and maintenance of availability.

### **Monitor Services**

Monitoring services is one half of the equation for deriving the measurements that are basic to management. The service behavior will be an outcome of the behavior of its constituent components, so the components themselves should be monitored too. The diversity of those components that make up services in the distributed environment means that managers may be faced with many (and often dissimilar) sources of monitoring data that will need to be synchronized, triaged, consolidated and reconciled, or translated.

That activity needs to provide other Service Management processes and IT Management with information related to actual service and component availability. Comparisons must be made between the actual availability and the availability agreed in Service Level Agreements (SLAs) and Operational Level Agreements (OLAs). The comparisons constitute a snapshot of gaps that will indicate where improvement is needed.

In the other half of the equation, the means of availability maintenance, as well as of improvement, should also be monitored for their success rates versus obligations; it is possible that current means are not adequate to meet the SLAs and will need to change. A more difficult decision might be to change the SLAs so that they are more reasonable for the existing means of support. Whichever step is taken, a key performance indicator (KPI) of the Availability Management process will be the percentage of services and infrastructure components that are under availability monitoring, along with the ability to reveal and identify trends in the monitoring data.

### **Methods / Techniques**


As introduced above, a breadth of monitoring is basic to management methods and techniques. What rounds out the management effort is the ability to act on the information, and to act appropriately. Therefore, automation and policies are also key to managers, for exercising controls on availability within standards and risk tolerances.

Consolidating the wide range of monitoring information will be most logically achieved when the data from different monitors can be related to a common defined model of a service. The service model will best be referenced from within a Configuration Management System's (CMS) configuration management database (CMDB).

For handling fault prevention and recovery, the architecture for redundancy and security must be referenceable as well.

To acquire the critical information that associates to the needed degree of controls, discovery and detection techniques must be employed at a scale and scope that is reliable but does not hinder the performance of the services being managed.

And to assure that the critical information is understood in context from a business perspective, integration with tools holding business information should be developed, including those for assessing Capacity Management (current performance vs. future performance requirements) and IT Service Continuity Management (current requirements vs. risks).



Finally, the scope of information provided by the above should constitute a standing virtual repository, organized and functioning as an Availability Management Information System (AMIS).

To recap, management information will be modeled, gathered, stored, evaluated and communicated through the combined efforts of data management, architecture, systems management, and systems integration. Availability Management is responsible for coordinating these efforts.

### Analyze

The highest priority analyses of the information gained above will tackle the time-sensitive questions of whether availability is at risk, where availability has been lost, and how availability has been recovered. These are all directly related to experienced service levels and thus are more prominent in the business's point of view.

As part of efficiently grasping the main factors of that experience, managers will need to interpret discovery and detection results with tolerance thresholds, mappings to services, and weightings that establish both how the results are important and how important they are to the business. These interpretations should be "built-in", where possible, within the monitoring systems but must also be part of how the AMIS records information. Real-time analyses will benefit from an appropriately prepared monitoring, while post-facto analysis will be based on the information retained in the AMIS. From both approaches, the basic information about the following would be obtained:

#### (Current and Past)


- Type, Number, and Duration of Service Interruptions
- Service Degradations above and below thresholds
- Causes of Service Interruptions and Degradations
- Interruptions and Degradations by Service Type, Component Type, SLA and OLA

Those KPIs will inform and validate decisions about the means utilized (current and future states) for prevention, support and improvements.

### Test

At this station in the journey, the most important concept is that testing holds a critical place both before and after the service has been deployed. Typically, it should validate the architecture specifications for the configuration of the service and its components before the service is deployed. After, it should isolate and confirm the critical stress points or faults that cause interruption and degradation of availability.

However, for management purposes, the converse story may be even more important. That is, assuming that engineering has been successful, pre-deployment testing needs to determine if the deployment will affect the availability of other services and components already implemented. And post-deployment, testing should validate that the current actual demands on the infrastructure do not require a redesign of the availability mechanisms in order to keep up with the business.



Seeing the issues that way makes it clear that regular periodic testing is important, not just episodic testing. Consequently, a testing protocol should be put in place to control the ongoing alignment of the services with the SLAs. This will also drive home a distinction between unplanned outages, such as incidents, and planned outages where production availability is scheduled to be low or off. In the protocol, all of the mechanisms involved in assuring availability should be tested on a planned basis.

### Proactive Management

The last station on the track is also the beginning of taking the journey again. In taking insights and lessons learned from analyses and testing above, availability managers are armed with the knowledge needed to refresh or even re-engineer the existing methods and techniques used to generate and sustain required service availability going forward. This will bring up existing plans and designs to be reviewed for their current success and relevance in satisfying the business, and a consequence of that review will be to address monitoring and the coordination of responsibilities to act on monitoring information in Capacity Management and IT Service Continuity Management.

In Capacity Management, the findings will affect the identification of resources needed for assuring availability; and in IT Service Continuity Management, the relative criticality of IT services and components will be set in terms of success factors and risks for delivering business services under the requirements of agreements.

Overall, proactive management of availability assumes that the business will continue to intentionally try to change and grow; so the meaning of being proactive is based on considerations of how the design and standards of the infrastructure allow service deployments to be flexible, not permanent. Building low-risk flexibility into service availability becomes the dominant issue of proactive availability management.

Consequently, this mode of management relies on collaboration amongst several service management processes in building and actively refreshing the Availability plan.

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## SECTION 3: BENEFITS

ITIL v3 describes Service Design, Service Transition (deployment), and Service Operation as three major phases in the service lifecycle. Within Service Design, the Availability Management effort is a high-level management process that translates IT capacity into an agreed service level consistency.

ITIL v3 is distinguished by its emphasis on IT's strategic alignment to business benefit. Business benefit can be defined in many ways, but ITIL has generally provided guidance for balancing and improving the cost/quality ratio for services.

From the customer's perspective, value consists of two primary elements: utility or fitness for purpose and warranty or fitness for use.

- Utility is perceived by the customer from the attributes of the service that have a positive effect on the performance of tasks associated with desired outcomes. Removal or relaxation of constraints on performance is also perceived as a positive effect.
- Warranty is derived from the positive effect being available when needed, in sufficient capacity or magnitude, and dependably in terms of continuity and security.



The business view of service availability includes concerns about the degree and the consistency of the service level. These two factors quickly translate into the perceived value of the provided service.

To organize, drive and validate that degree and consistency, the Availability Management process coordinates and communicates methods, protocols and performance criteria in the form of an Availability Management Plan backed with process automation and an AMIS.

Adoption of Availability Management reflects benefits to the business and to the IT organization in the following ways that support the value of services:

- Helps with converting innovative ideas and concepts into services for customers.
- Rationally determines risks versus business opportunities that are represented by service user demand.
- Provides better control on installed hardware and software leading to reduced costs in licensing and maintenance.
- Systematically enforces compliance to agreed service levels that sustain the expected productivity of the business.

### **A Key to Achieving IT Service Excellence**

Automating ITSM through technology can help your organization reduce the amount of resources required to achieve ITIL v3 best practices. This assists your IT department in improving the quality of its services while embarking upon a continuous IT service excellence program focused on fostering business growth.

As you reach the end point of the Availability Management journey outlined in the CA Service Design process map, your organization should have a better handle on the steps needed to organize successful service provision, along with a better understanding of what constitutes success. Specifically, bringing Availability Management efforts in line with ITIL best practices can help you:

- Define and agree on service levels with customers and stakeholders.
- Ensure that each service and its components are regularly monitored for their health.
- Ensure that availability events can be handled in a fully accountable and timely manner consistent with customer expectations.
- Synchronize decisions about capacity and continuity that improve the value of IT resources.
- Properly inform operations and support staff to enable them to effectively and efficiently deliver, support and maintain the service according to required warranties and service levels.

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## SECTION 4: CONCLUSIONS

The Availability Management journey features important opportunities at each station along the route.

Availability Management facilitates ITSM by managing the availability of services needed by the business. However, doing so requires cooperative functions, and comprehensive plans that factor in people, process and technical changes — along with an outline detailing where to start and how to proceed through the journey.

Of special note, key intersections with Capacity Management's performance findings, and with IT Service Continuity Management's risk assessments, delivers a comprehensive view of impending requirements for future support of business processes.

Following the steps outlined in the CA process map gives organizations a clear view of how their Availability Management journey will take shape and illustrates the key steps en route to generating and protecting the integrity of business processes. This journey results in:

- More optimal availability of both IT services and supporting IT staff
- Efficient translation of IT capacity into business continuity
- Lower risks to business processes
- Improved cost effectiveness of IT services
- Stronger integration with other ITSM and ITIL best practices

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## SECTION 5: ABOUT THE AUTHOR

Malcolm Ryder has over 25 years experience in the IT industry, with expertise in the areas of service delivery and support and IT strategy. For the last 15 years, Malcolm has worked in consulting and solution strategy roles with a heavy emphasis on service management systems, with vendors, service providers and end-user customers. Malcolm has been a co-developer of multiple market-leading commercial ITSM solutions since the mid '80s.

To learn more about the CA ITIL solutions, visit [ca.com/itil](http://ca.com/itil).

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