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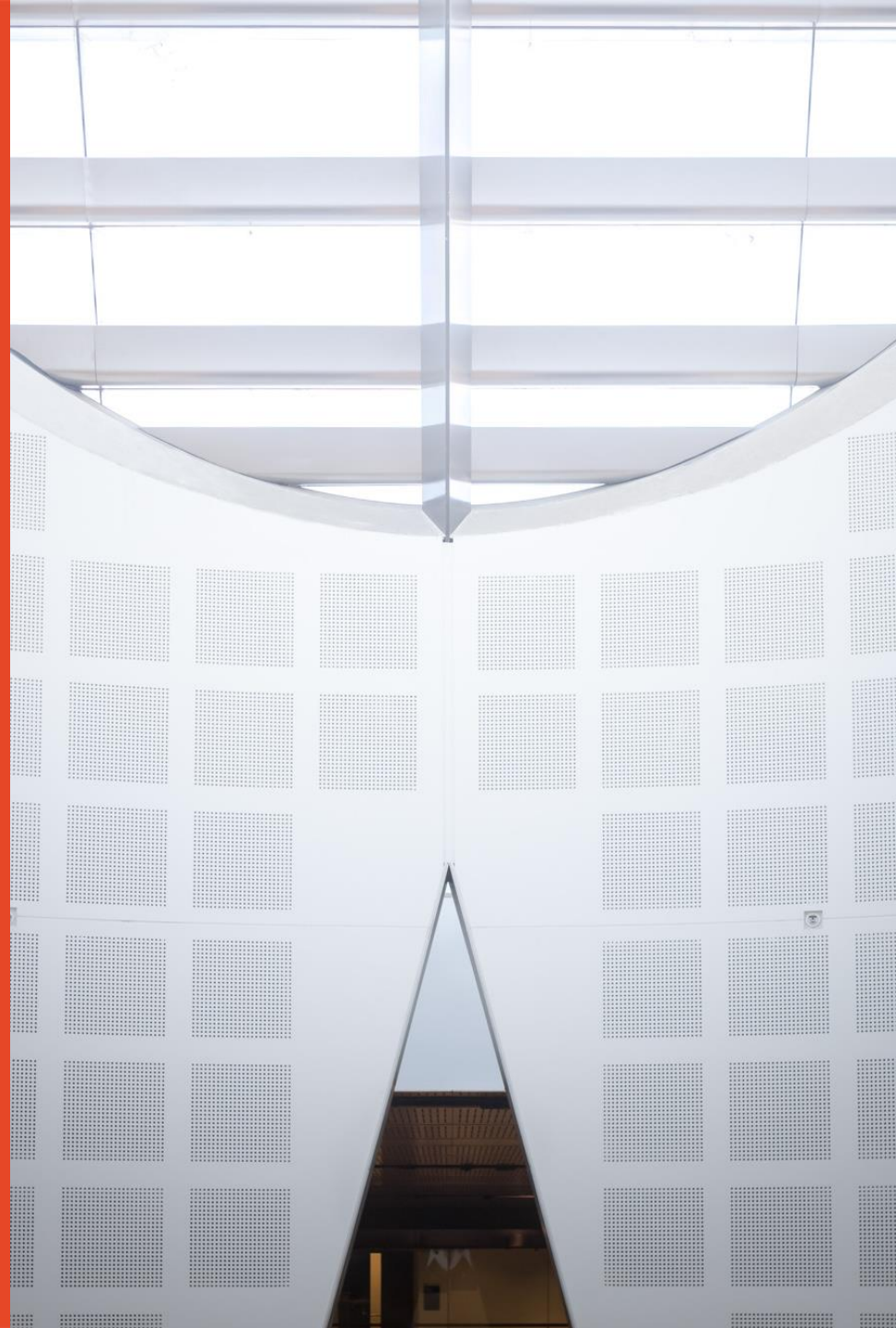
**Computing 3
Management**

**Lecture 9
Service operation**

**Presented by
Dr. Andrea Stern**



THE UNIVERSITY OF
SYDNEY



A reminder for your project presentations for those in double tutorials

- As next Monday is the presentations we are splitting the double tutorials in half to save time
- The list of rooms is as follows:
 - Chouthereyi - M09A in ABS Learning Studio 3120
 - Manpreet - M13A in ABS CS Lect Theatre 1050
 - Srinivas - M15A in Storie Dixson 3 (N334)
 - Kritika - M17B in Mechanical Eng Tut Rm 1.
- Your tutors will post announcements on your group pages telling you which rooms to go to.

Topics

Recap: Core concepts of the IT services lifecycle & the relationship of project management to Strategy, Design and Transition

Your projects and Colesworth's new IT services where are we now?

Services Operation processes

Learning outcomes


Able to explain the drivers of IT service management and the services lifecycle context of project management

Describe the processes of incident and problem management and their role in the continuous delivery of the new services

IT projects and IT services

- a project is a temporary endeavour undertaken to create a unique result
- A service applies the result of that project (and others) to the continuous delivery of outcomes for the service user
 - in the context of the organisation's strategies
 - Subject to continual improvement processes
- Ratio of development to management in IT budget is c. 20/80

A whole-of-life view

A Bernese Mountain Dog is lying on a green lawn, looking towards the left. A large, red, cloud-like thought bubble is positioned above its head, containing text. The background consists of a green hedge and grass.

So now you've
got a puppy and
I'm so cute, but
what happens
next?

- Routine maintenance: feeding, exercising, training
- Capacity planning: housing & transport
- Change management: increase housing & transport capacity as I grow bigger. And bigger.
- Migration: airplane ticket
- Contingency management: vaccinations
- Disaster recovery: helicopter tail destroys low-lying objects & small twins
- Incident management: limp, problem management root cause analysis: arthritis; restoration: replace hip
- etc

The effort of
maintaining me
vastly outweighs
the effort of
acquiring me

What is an IT service?

- ITIL defines an IT Service as "a means of using IT infrastructure to deliver value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks."
- E.g. Canvas

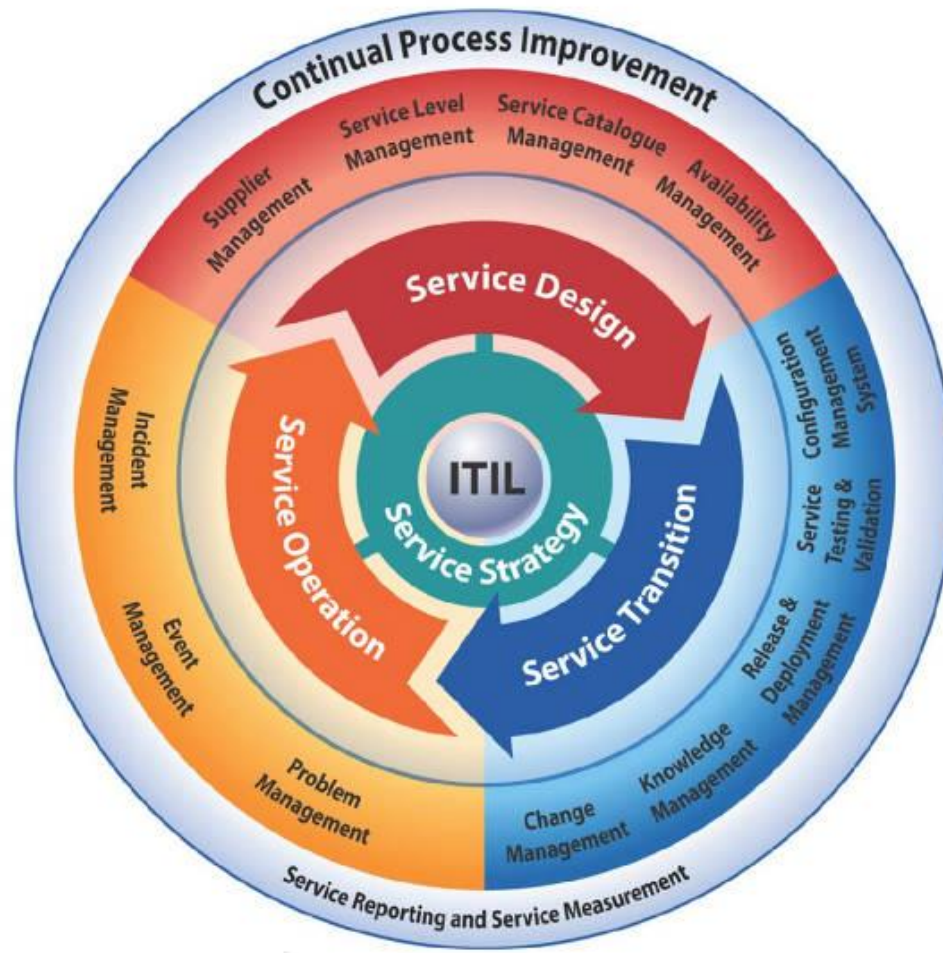
What is IT service Management (ITSM)?

- a set of processes that cooperate to ensure the quality of live IT services, according to the levels of service agreed to by the customer
- a strategic approach for designing, delivering, managing and improving the way information technology (IT) is used within an organization.
- An IT Service Management framework, such as ITIL, aims to ensure that the right processes, people and technology are in place so that an organisation can meet its business goals and maximise business value

What is a framework?

- A framework is a particular set of rules, ideas, or beliefs which you use in order to deal with problems, to decide what to do.
 - <https://www.collinsdictionary.com/dictionary/english/framework>
- The components of a framework, e.g. the stages and processes of ITIL, conform to those rules
- A framework integrates components so that they function together for a given purpose (e.g. composing business services from software services)
- We will refer to the ITIL IT service lifecycle management framework throughout this unit

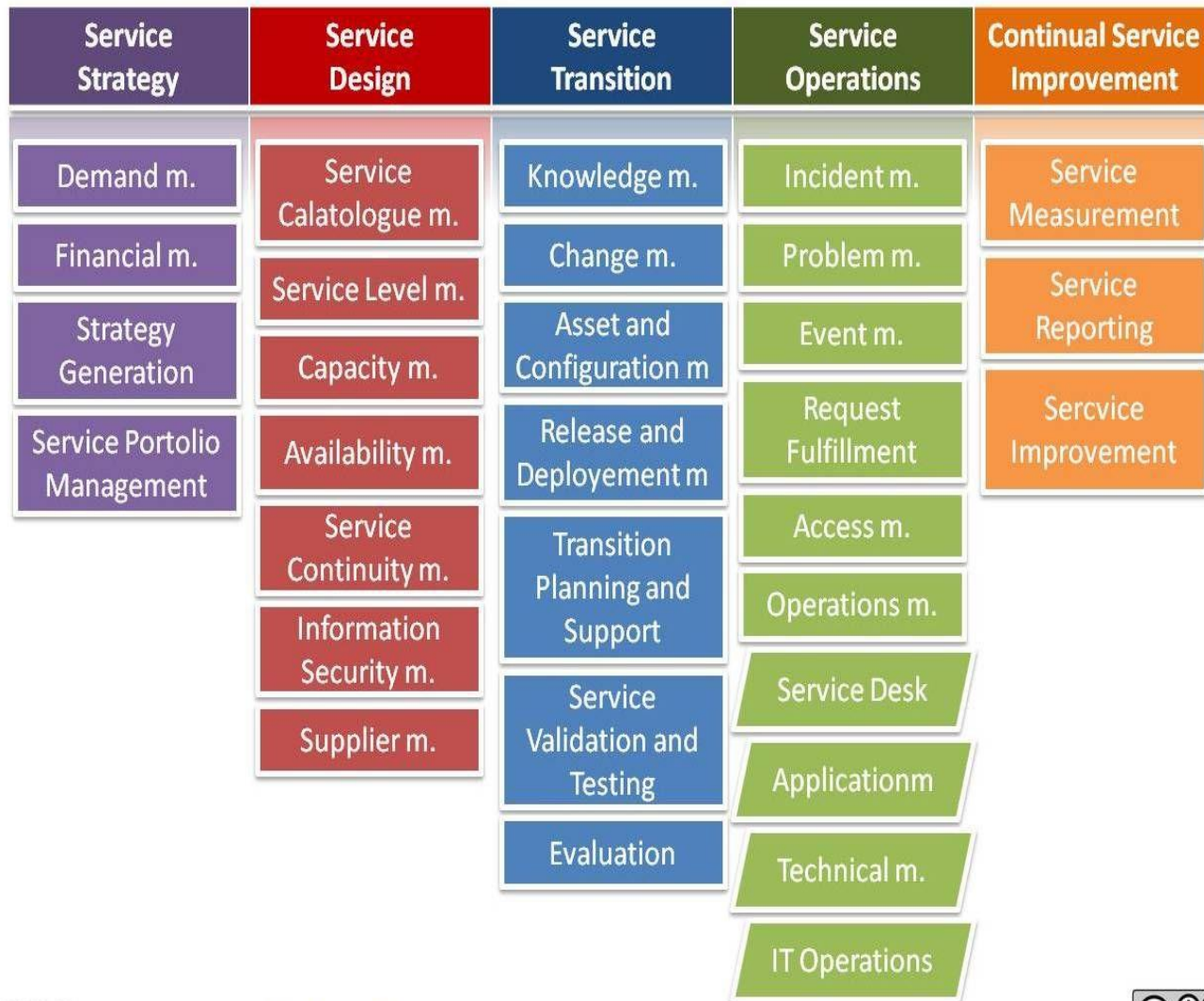
e.g. ITIL is a cyclical process framework for IT service management with continual process improvement



What is a process?

- a set of interrelated, interacting, activities e.g.?
- performed on an input e.g.?
- consuming resources e.g.?
- to achieve an outcome e.g.?

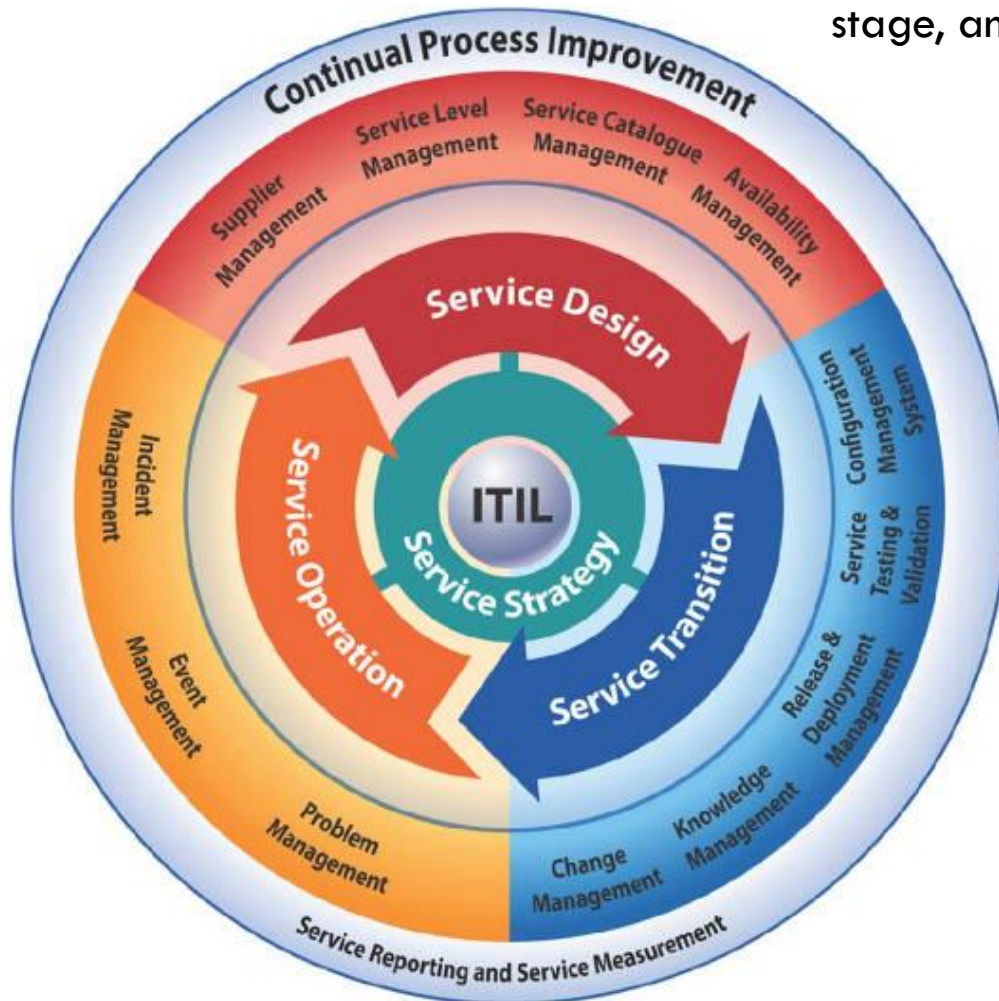
Processes in the ITIL framework



- Each of these processes:**
- has a common structure
 - Has a common purpose (to generate business value according to corporate strategy)
 - Integrates with every other process in the framework
 - Receives inputs and produces outputs that are held in a single knowledge management system to provide end-to-end visibility of how particular value is created

Three important principles drive the ITIL Service lifecycle

All services must provide measureable value to business objectives represented in the strategy stage(e.g. Colesworth strategic focus?) Each stage, and its processes, revolves around that.



Data related to all components of the services (e.g. technology, people, policies, contracts) must be dynamically captured, organized, analysed, and exploited through the Service Knowledge Management system (SKMS)

All processes in all stages of the lifecycle are subject to continual service improvement

What is process improvement?

- Process improvement?
 - Making a process more efficient
- How?
 - Reducing the resources required to achieve the desired outcome by e.g.
 - :
 - reducing errors
 - making sure the input and resources are aligned with to the desired outcome

Characteristics of an ITSM framework

WHAT

- Is a process driven view of designing and delivering end-to-end customer defined IT centric services.
- Predicts customer needs
- Measures performance
- Has knowledge management system to support all processes
- Controls the release of costed, agreed changes

HOW

- *Has mature processes i.e. defined, agreed and integrated processes continuously improved through feedback mechanisms (e.g. availability management, root cause analysis)*
- *Through e.g. capacity, availability and service level management*
- *As agreed with customer in the SLA*
- *i.e. configuration management data base provides information on the status of all entities, activities and relationships involved in the provision of the IT services*
- *Through the change management process*

ITIL in 3 minutes

<https://www.youtube.com/watch?v=vBguassbAzo>

Now back to Colesworth

Current status of new services: Project management processes are now completed

Continual Improvement

Measurement Alignment Reporting & Analysis
Review Assessment Service Improvement

Strategy:

Business value?
Resources?
Management?

Design (PM)

Requirements

Quality: service levels,
availability, capacity,
continuity, risk,
security

Design of build and test

Transition (PM)

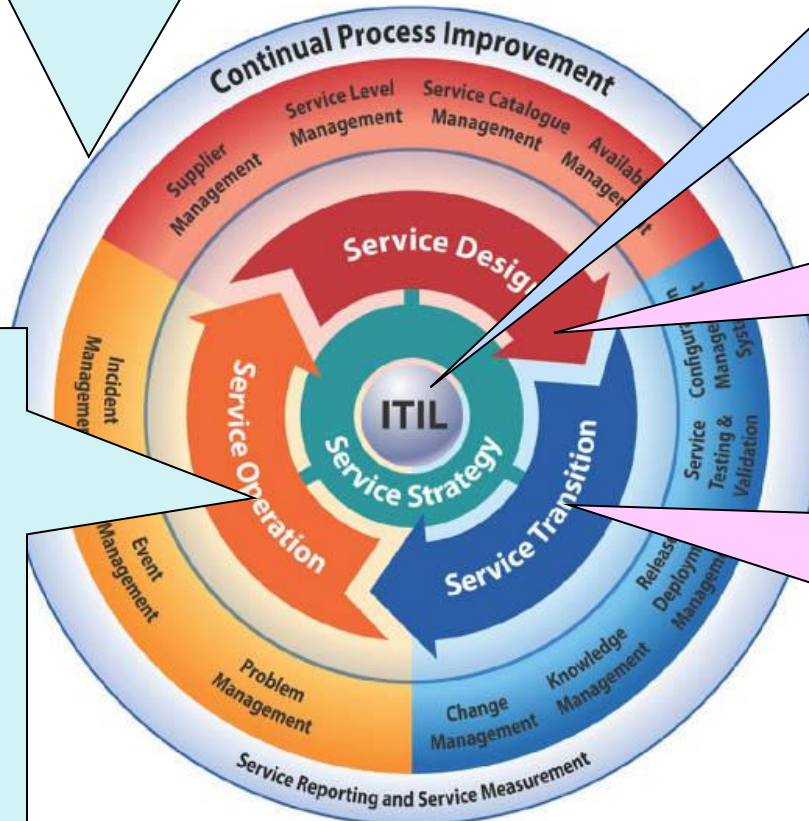
Development

Testing

Change Management

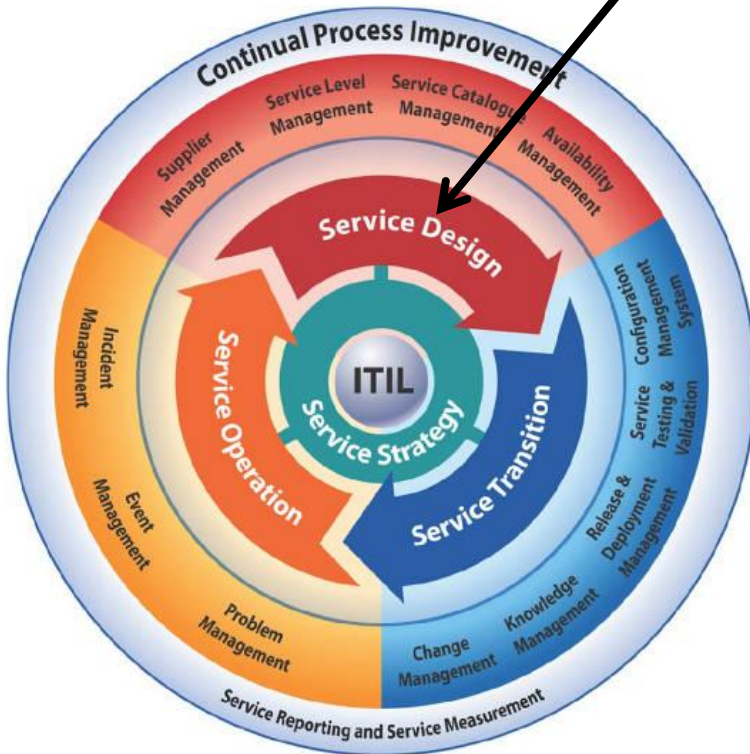
Release & Deployment
Management

Configuration &
knowledge management



Service Design

- What is the service which is required?
- How does it add value to the consumer's business?
- What tools shall I use to manage it?
- What technology do I need to provide it?
- What processes do I need to develop, release, operate and improve the service?
- How shall I measure the service (and all its components)?
- How shall I manage:
 - Negotiating, monitoring and adapting service level agreements
 - Adapting to the consumer's changing needs
 - Having enough capacity
 - Keeping that capacity available
 - Keeping agreed services operational in the event of failures
 - Information security



Colesworth strategy

- Corporate strategy
 - *A strategic focus this financial year is for it to grow its business (i.e. create business value) by “making life easier for the customer”*
- IT strategy
 - *Colesworth IT strategy supports corporate strategy through targeted, effective, and efficient application of its IT infrastructure. (i.e. IT strategy is a subset of corporate strategy)*
- Projects to develop new IT services to support the strategic focus
 - *After consulting stakeholders and evaluating potential costs and benefits, Colesworth CIO has announced that two new services and one upgraded service will be developed to support its current strategic focus to grow its business by “making life easier for the customer”.*

The services

- The services are:
 - An AfterPay service (new) to make it easier to manage money for purchases. This service will be provided by an external provider, *SalepointPlus* (the supplier of the POS service)
 - A subscription meal service (new) to expand customers shopping options. This service will be provided internally by Colesworth IT.
 - An improved interface for the self-checkout service (upgrade) to make it quicker and easier to make shopping choices. This service will be provided by an external provider, *SalepointPlus* (the supplier of the POS service)

Status update on development of these services

- The projects to develop these new IT services have been completed and the services are now live.

What happens next?

- To you:
 - You have completed the planning project you were contracted to do.
 - You are out of a job.
 - But there is a new job coming up you can apply for, in Service Management
 - ServiceWow is an IT service management company (based on ITIL processes) which manages all Colesworth's IT service operations (for more details of this, refer to the Colesworth Case study information on Canvas)
 - ServiceWow is seeking candidates for ITIL consultants for its Colesworth contract.
 - We will help you with the training you need in ITIL to qualify for the job
 -
 - Good luck.

What happens next for these new services?

Continual Improvement

Measurement Alignment Reporting & Analysis
Review Assessment Service Improvement

Strategy:

Business value?
Resources?
Management?

Design (PM)

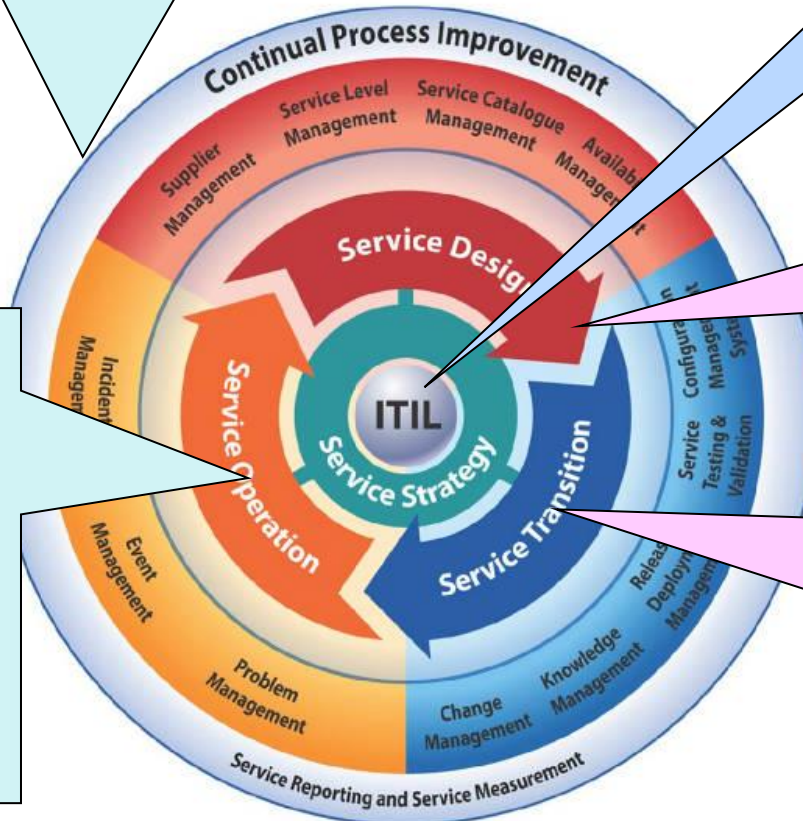
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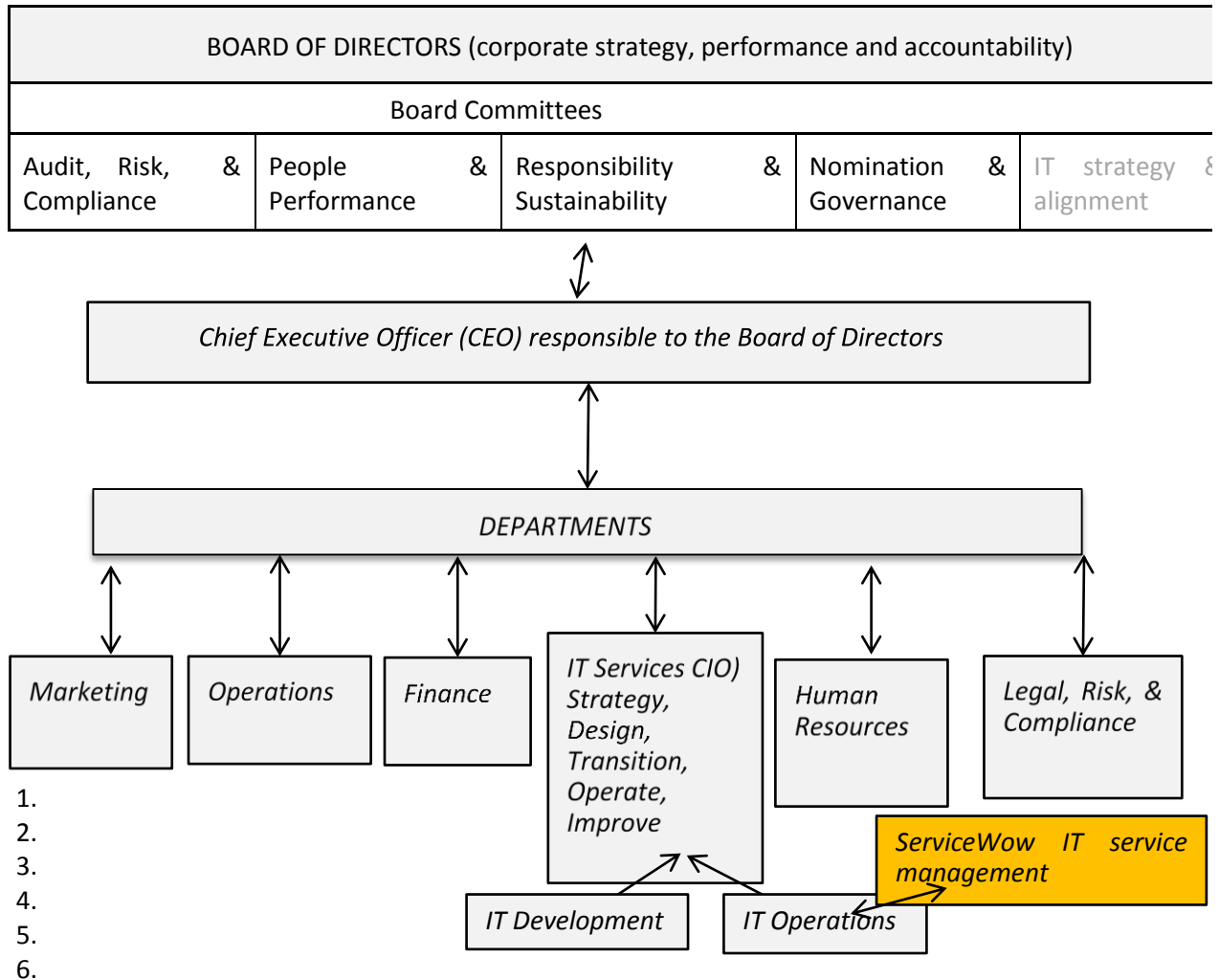
Operation

Event management
Request fulfilment
Incident management
Problem management
Access management
Monitoring & control

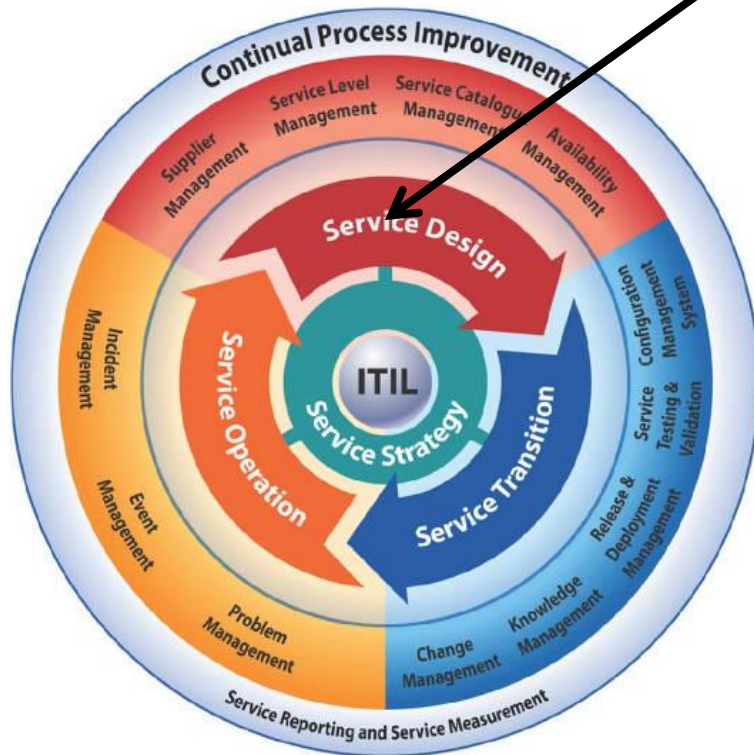
Transition (PM)

Development
Testing
Change Management
Release & Deployment
Management
Configuration &
knowledge management





4. Service operation



- Coordinating and carrying out the activities and processes required to deliver and manage services at agreed levels to consumers
- Manages events, incidents and problems
- Fulfils minor requests
- Manages authorised access
- Monitors operations
- Provides a service desk

Service Operation

- In the service operation stage you coordinate and carry out the activities and processes required to deliver the services to business users and customers and manage them at agreed levels.
- Service operation also covers the ongoing management of the technology used to deliver and support services.
- So, the service operation stage is where you deliver and support your IT services – you make sure the service is working, and fix it quickly when it goes wrong.
- The service operation stage is when you realise the strategic objectives. (See the earlier section ‘Introducing service strategy’.)
- The main processes for this stage, which mainly focus on the delivery and support of the services in the live environment
 - Incident management
 - Problem management
- Farenden, Peter. ITIL For Dummies (Kindle Locations 1228-1231). Wiley. Kindle Edition.



The Colesworth crash

- BUT
-
- On April 1 2019 at 4:05 pm Colesworth had to close their doors when they experienced a crippling outage when the entire PoS systems went off-line.
-
- This meant meant products couldn't scanned and the all-important collection of money couldn't be done.

The Colesworth statement about the crash

- *At around 5pm, Colesworth released a statement confirming an IT issue had impacted point of sale equipment:*
- *"At 4pm today we experienced an unexpected outage for approximately 30 minutes in a large number of Colesworth stores. This was related to an update to our IT systems. We were back and open for trade across most stores by 4:30pm, with all stores now operational."*
- *"This type of incident should not occur and we apologise unreservedly to our customers and store teams for the inconvenience caused."*

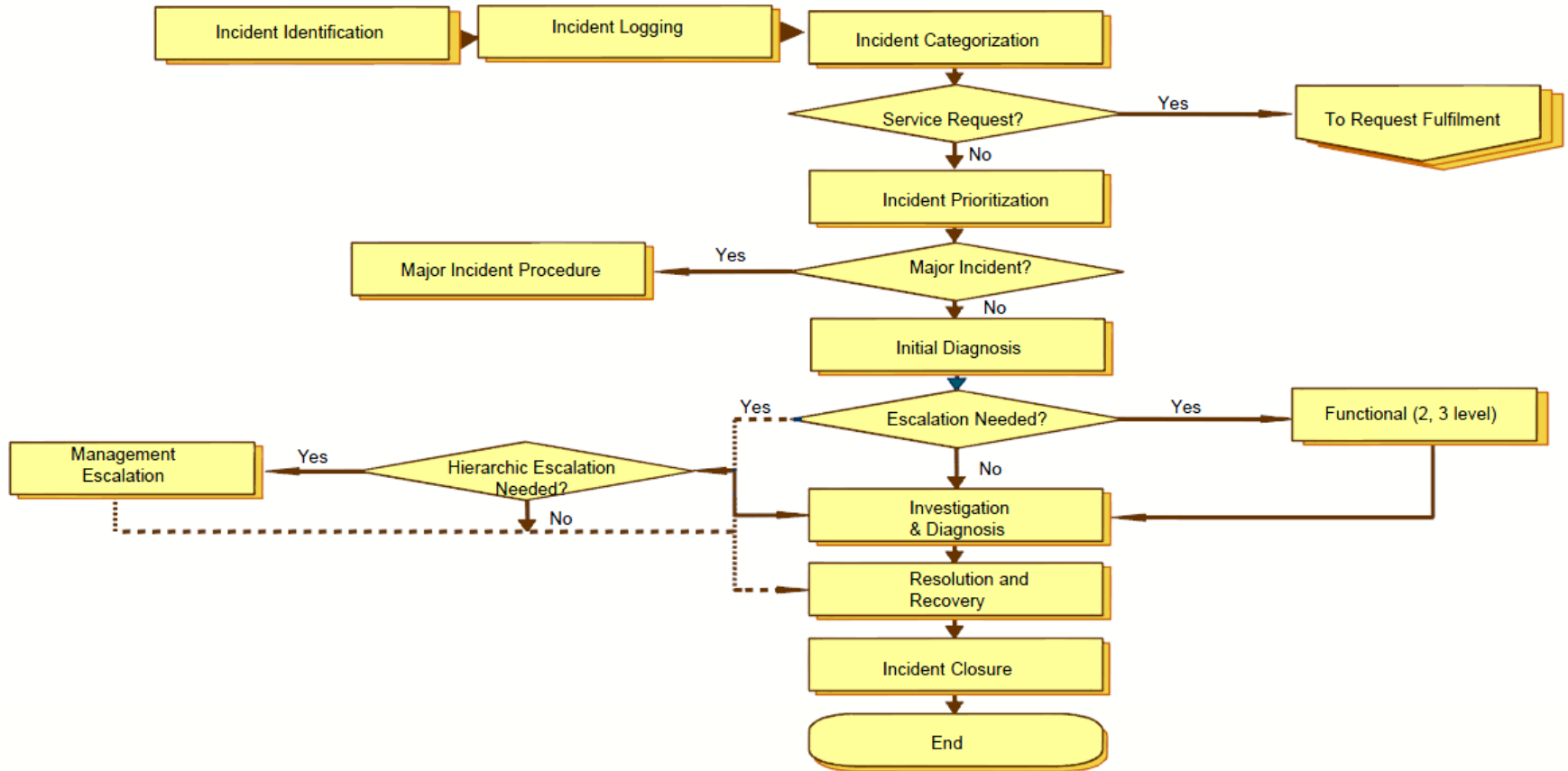
Incident Management

- Deals with unplanned interruptions to IT Services or reductions in their quality
- Failure of a configuration item that has not impacted a service is also an incident (e.g. Disk in RAID failure)
- Reported by:
 - Users
 - Technical Staff
 - Monitoring Tools
- Reported to Service Desk
- Service Desk manages Incidents and Service Requests
 - First level support
 - Escalate as agreed
 - Keeps users informed
 - Closes incidents

Incident Management

- Restore Service as Soon as Possible
- Standard Incident Model
 - Assist in speedy Incident Management
- Major Incident Management
 - Problem Management may be asked to assist

Incident Management Workflow



Information Needed

- Unique reference number
- Incident categorization (often broken down into between two and four levels of sub-categories)
- Incident urgency
- Incident impact
- Incident prioritization
- Date/time recorded
- Name/ID of the person and/or group recording the incident
- Method of notification (telephone, automatic, e-mail, in person, etc.)
- Name/department/phone/location of user
- Call-back method (telephone, mail, etc.)
- Description of symptoms
- Incident status (active, waiting, closed, etc.)
- Related CI
- Support group/person to which the incident is allocated
- Related problem/Known Error
- Activities undertaken to resolve the incident
- Resolution date and time
- Closure category
- Closure date and time.

Incident Management interfaces with

- Problem Management
 - Incidents are caused by problems
 - Report problems to Problem Management
- Configuration Management
 - Assist in finding faulty equipment
 - Impact assessment
 - Hold information about which categories should be assigned to which support group
 - Audit infrastructure as comparison
- SLM
 - Helps define measurable response
 - Helps identify weak services
- Change Management
 - Workaround or resolution
 - Logged as RFC
 - PM detects and resolves incidents arising from failed changes
- Capacity Management
 - IM provides trigger for performance monitoring
 - Workarounds
- Availability Management
 - Relies on IM for availability of services and improvement paths
- Release & Deploy Management

Problem Management

- Aim of problem management is to manage all problems from first identification through to resolution
- Minimises impact of incidents and problems caused by underlying errors in resources or processes
- Depends on root cause analysis
- Eliminates recurring incidents
- Proactive Problem Management
 - Identifies areas of potential weakness
 - Identifies workarounds
- Reactive Problem Management
 - Identifies underlying causes of incidents
 - Identifies changes to prevent recurrence

From incident to problem to change

- A single error e.g. frozen screens is logged and resolved by the service desk (level 1 support fix is reboot)
- It happens again,
- And again
- Is recorded as a problem and categorised as a known error with a workaround (keep rebooting) for the meantime
- Root cause analysis identifies the cause as a change made to a server configuration which affected the access service.
- The permanent solution is to make another change to the server configuration
- A Change Request is raised and approved, the change is built, tested and released into the live environment

What should you read/use for reference

- Use these e-books through the Library
- Brewster, E. (2012). Service Management: a guide for ITIL Foundation Exam candidates
- Farenden, P. (2012). ITIL for dummies. New York, Wiley.
- Long, J. O. (2012). ITIL® 2011 At a Glance. Dordrecht, Springer.
- For a good discussion of Continual Service Improvement, read Chapter 1: IT in a world of continuous improvement in:
- Betz, C. T. (2011). *Architecture and Patterns for IT Service Management, Resource Planning, and Governance: Making Shoes for the Cobbler's Children* (Vol. 2nd ed). Burlington: Morgan Kaufmann.