Managing IT Services

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Main Objective

To discuss how to provide computer-related services to users

General Topics

- **To understand**
  - Management and responsibility of IT services
  - Planning and organization of IT services
  - Technology Trends and Impacts

Agenda

- **Overview of IT Management**
- Key Functional Area of Responsibility
- Key Technology Focus
- ITIL Overview
- Discussions

Various Names of IT Center

- MIS Center
- Computer Services Center
- Office of Information Technology
- Information Technology Services Center

Today's challenges

- IT costs are excessive
- IT environments are diverse and complex
- Increasing service demands are outstripping budgets
- Aligning IT resources and business priorities is difficult
- Budget control without quality of service degradation
- Requirement of more security
- Requirement on continuity and availability

Management : Past

- Applications are hosted on a single mainframe system
- Mostly, complete single proprietary system
- Centralized system management and operation
- Rather simplified operation and processes

Operations

Mainframe

Application Development

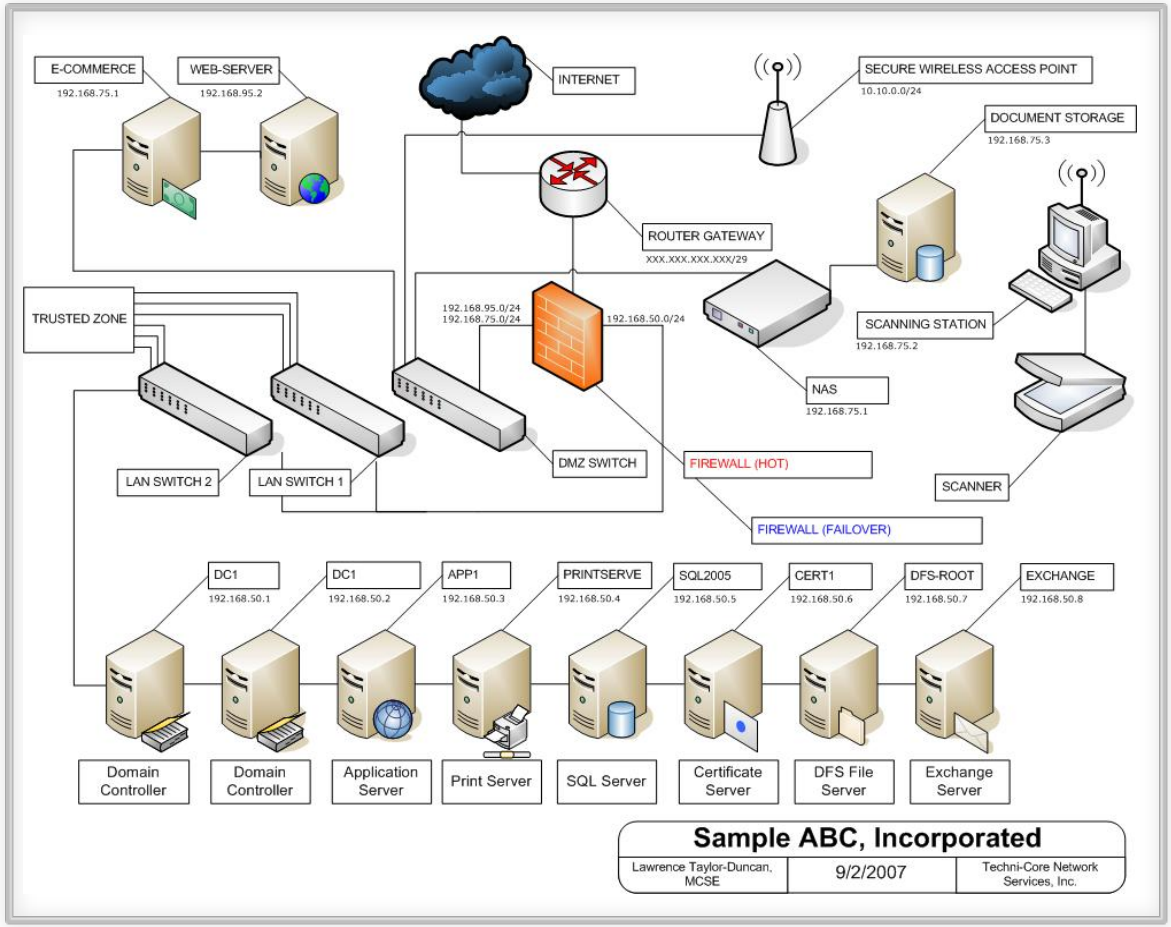
Terminal, Peripheral

Users

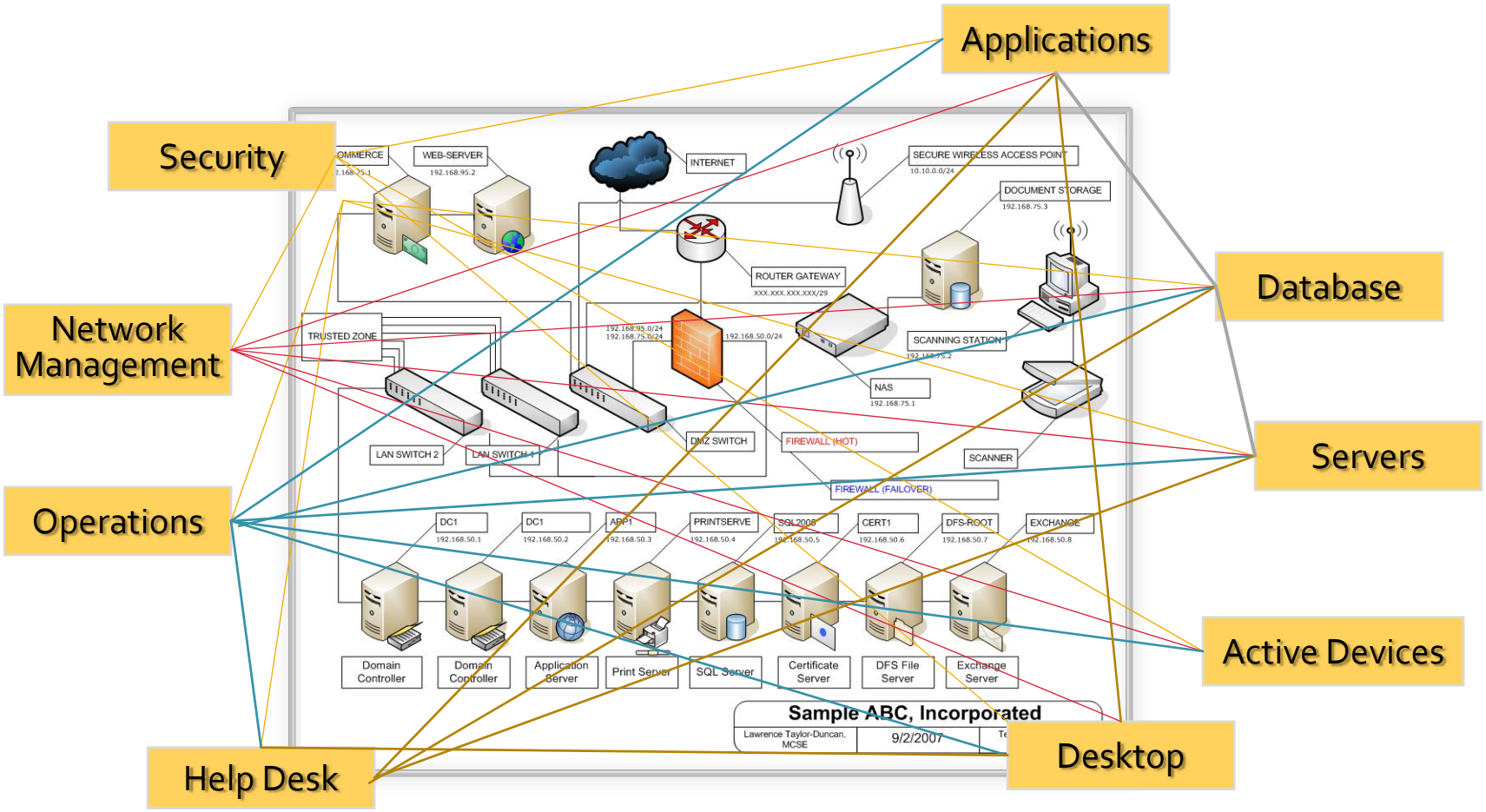
Helpdesk

Management : Present

- Distributed environments
- Multi-tier clients/servers applications
- Mostly open platforms with some proprietary
- Diverse implementations and solutions

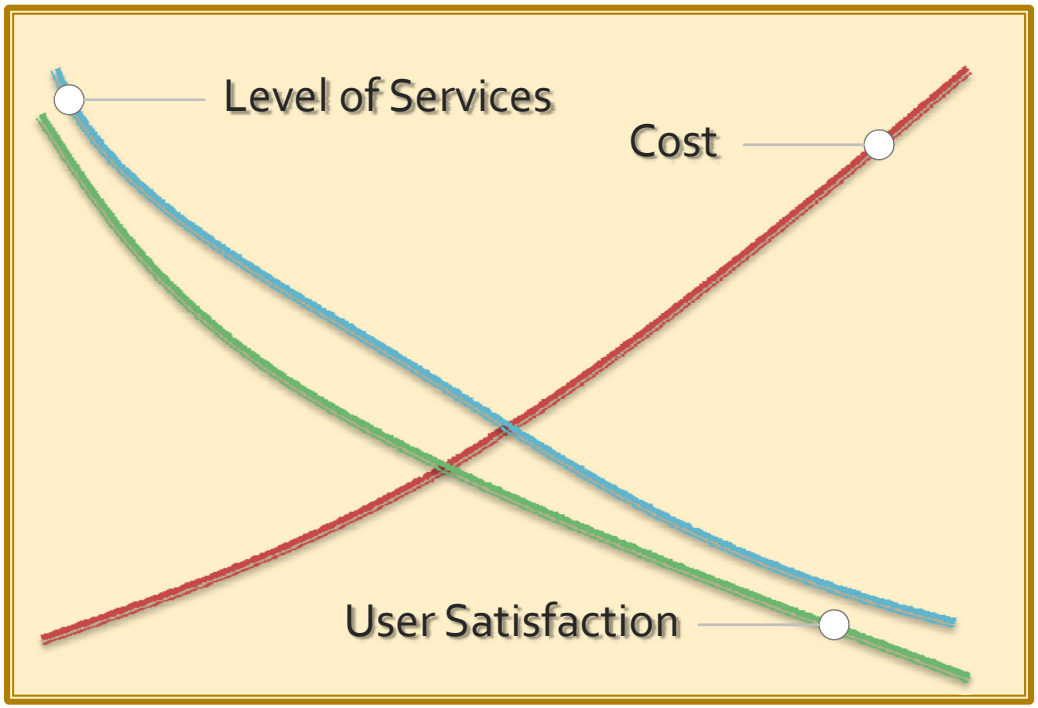


Complexity challanges



- IT functions need to operate across several components

Problems to be tackled



- **An IT Manager Job's :**
  - **Maximize User Satisfaction**
  - **Maximize LoS**
  - **Optimize Cost**

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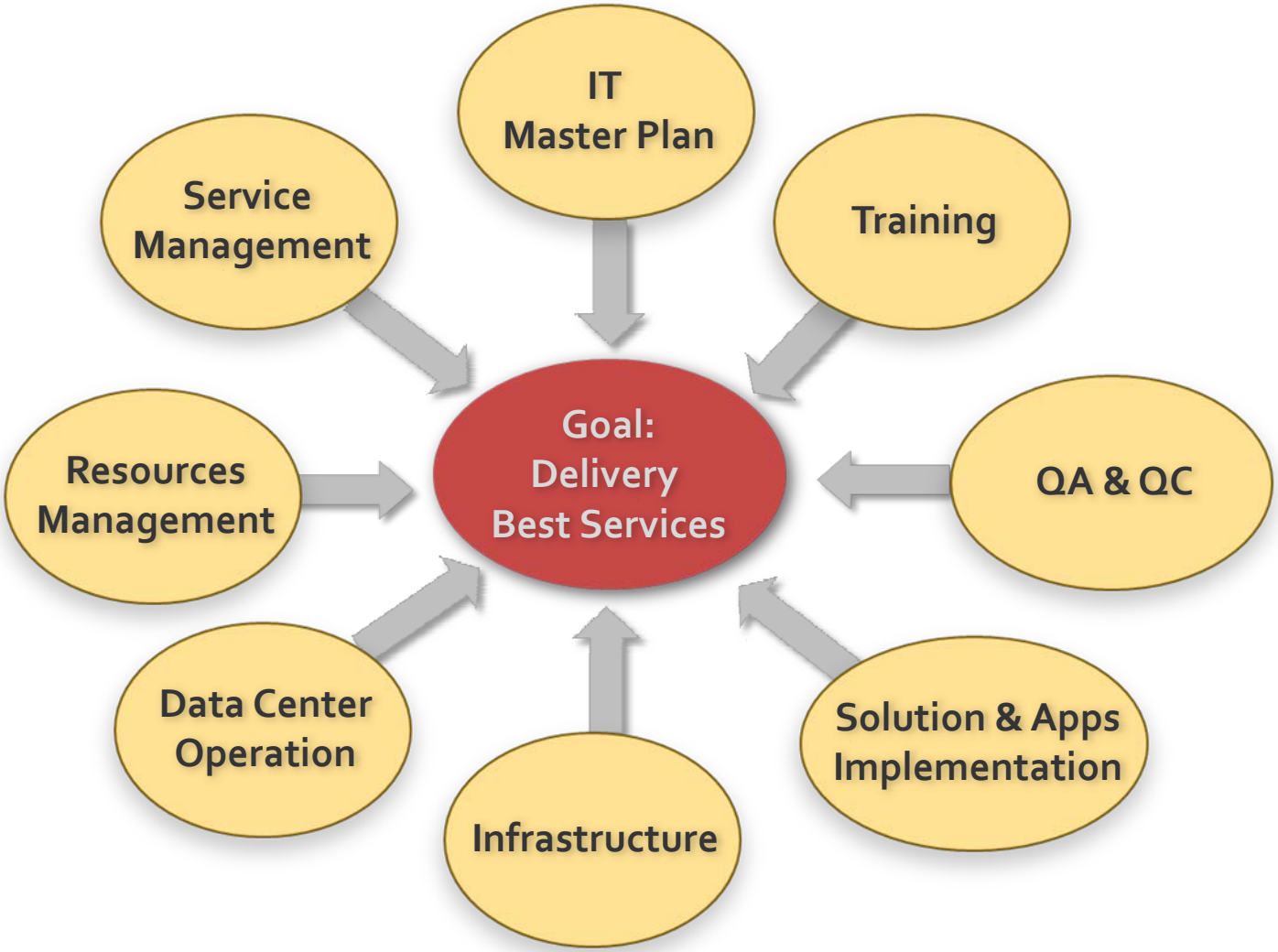
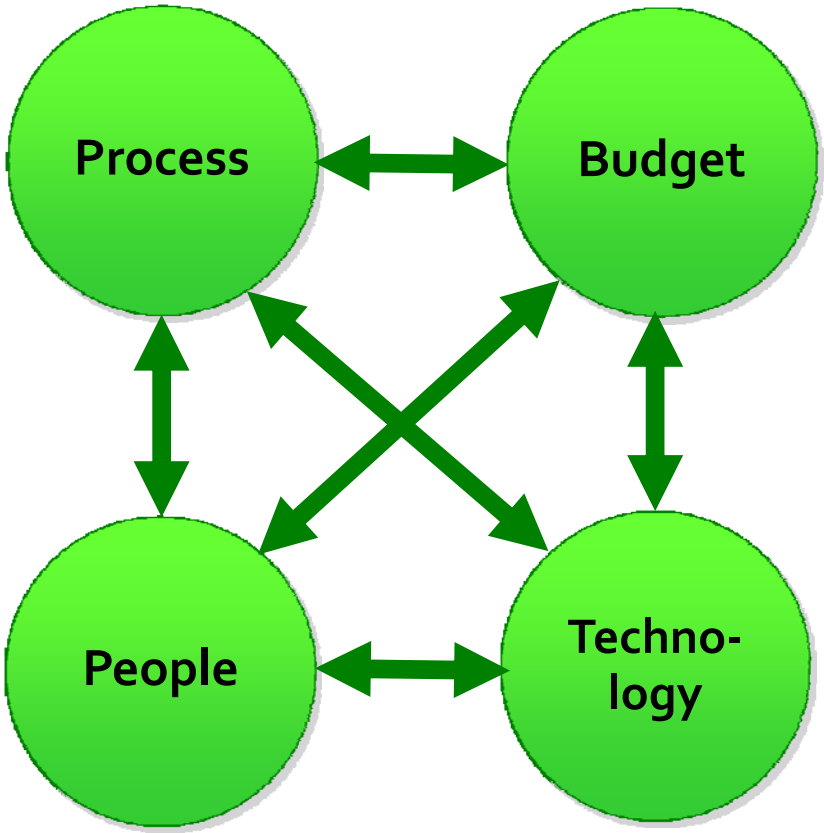
Key Activities of Responsibility



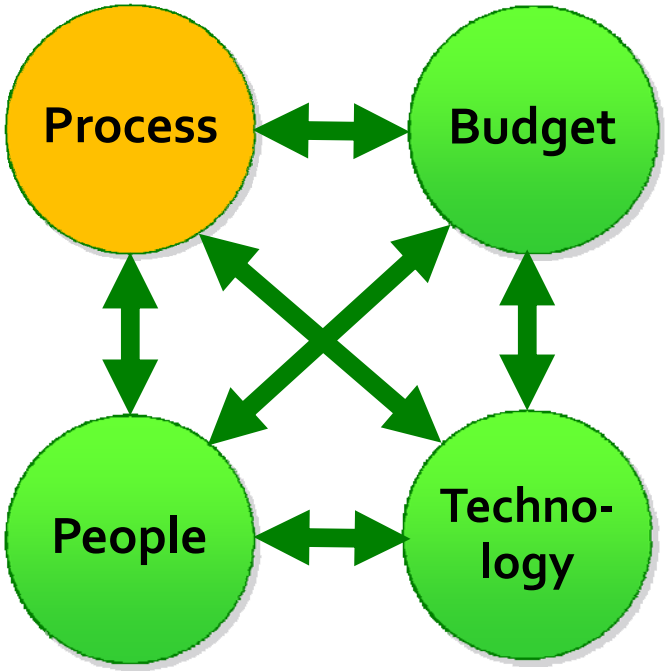
What to be managed?



Process

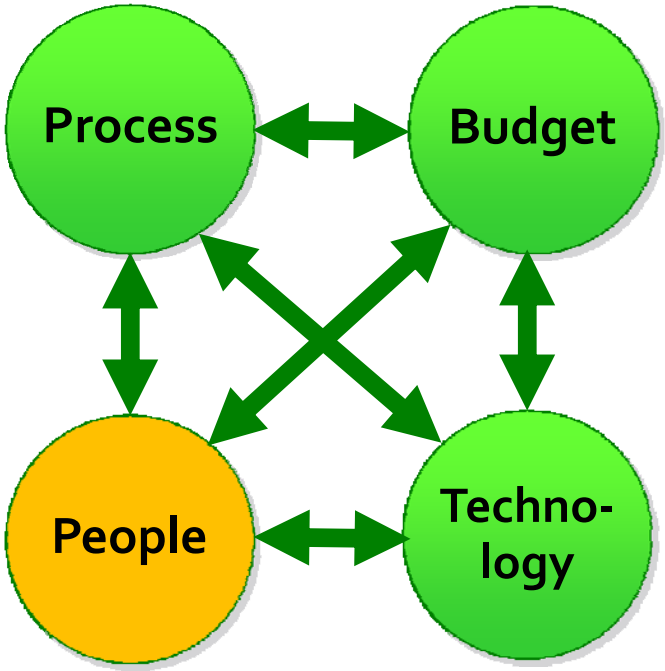
- Provide framework for quality organization
- Routine basis task should be developed into procedures
- Help improve customer satisfaction

- Main Points to do
  - User Communication
  - Internal Communication
  - Change Control



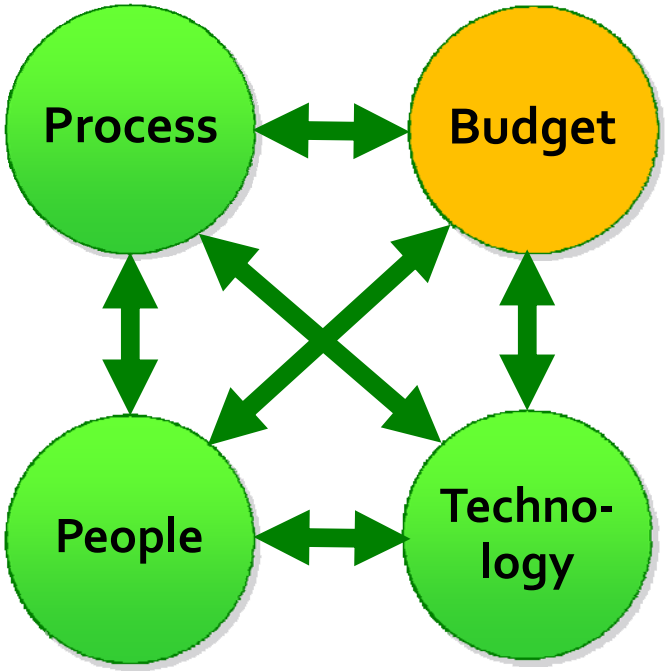
People

- Success and failure are almost based on the people!
- Main points to do
  - Hiring
  - Team building



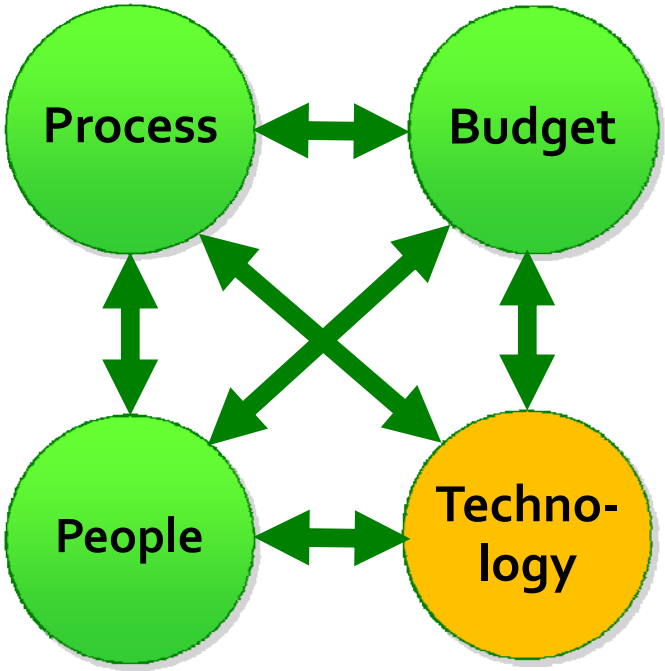
Budgeting

- Fuel to drive the organization
- Main points to do
  - Category allocation
  - Defending
  - Revising

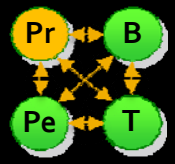


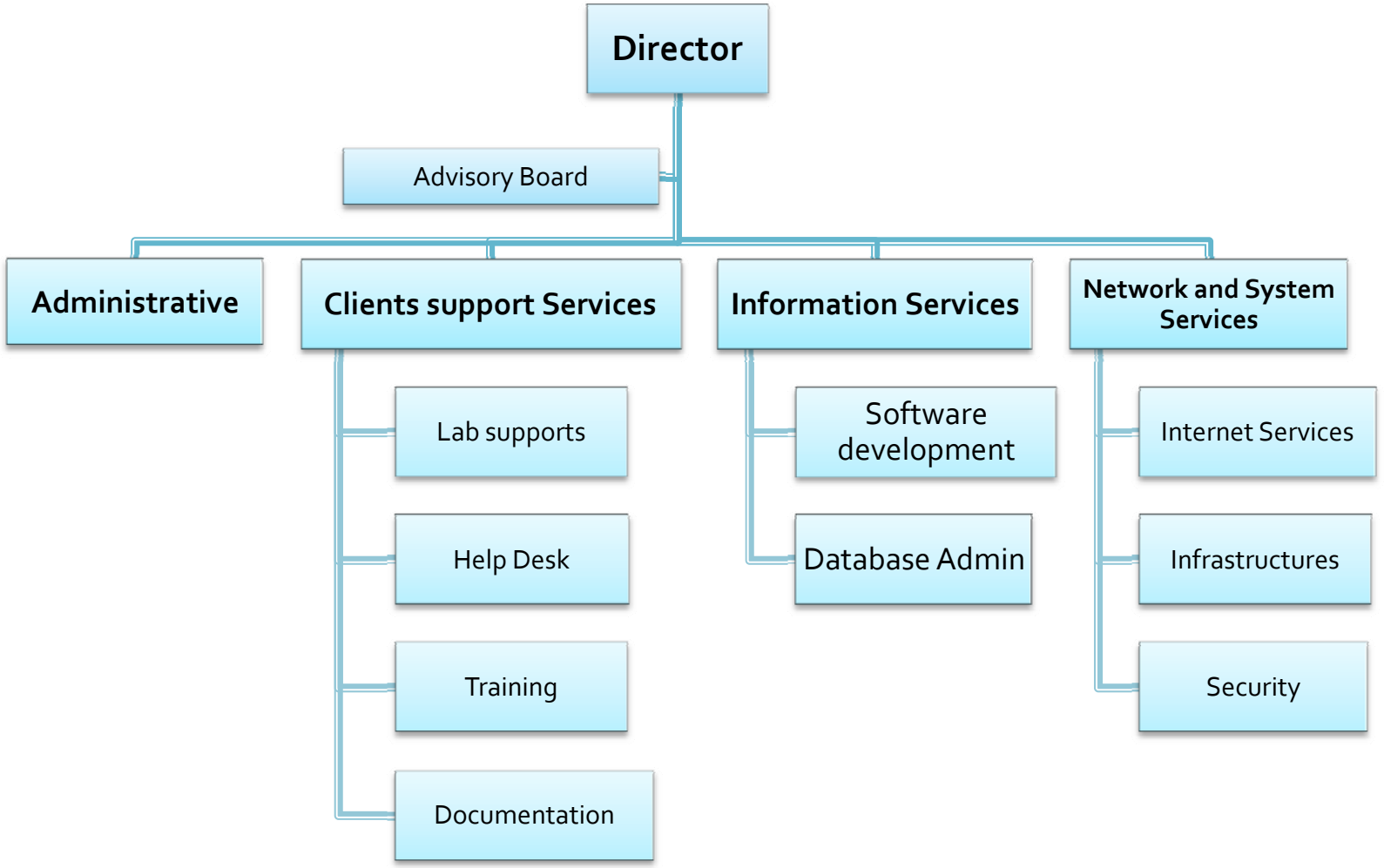
Technology

- Must understand the "nature" of technology
- Main points to do
  - Selection
  - Investment

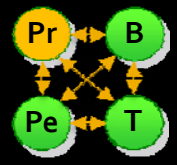


Organization





Users Communication



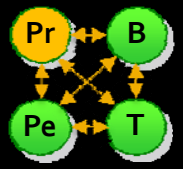
- **What to focus**
  - Delivering timely information to the users
  - Providing assistance to users

- **Help Desk** is a key important channel for user communication!
  - Opportunity to add value
  - Improve perception of organization

Help Desk I

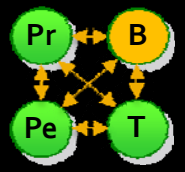
- **What are Help Desk's responsibility**
  - Requesting new IDs
  - Password Reset
  - Application supports
  - Job request's issuing
  - Scheduling training
  - FAQ Maintenance
  - Reporting and resolving problem
  - Ordering new equipments
  - Installation and move requests

Help Desk II

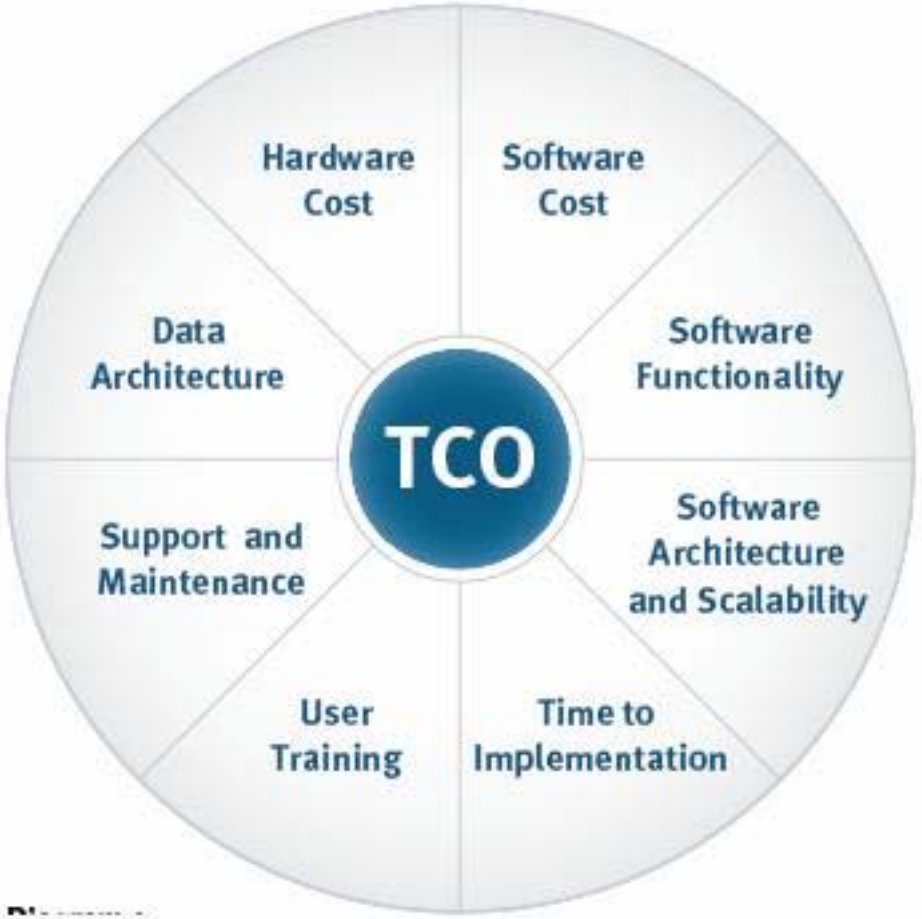


- Two important issues
  - Centralize channel to reach: One stop shopping
  - Sufficient Staff
- Tools : Job's tracking applications
  - http://www.opensourcehelpdesklist.com/
- Change Control
  - The review, approval/disapproval, implementation, tracking, closure, and status reporting of proposed changes to an item

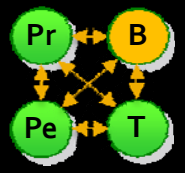
Key Terms



- TCO : Total Cost of Ownership
  - Financial estimate designed to help consumers and enterprise managers assess direct and indirect costs commonly related to SW/HW



TCO: Capital Components



Network

- Cabling
- Active Devices
- Network Mgt.

Server

- Server
- OS
- Utilities

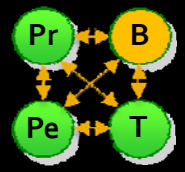
Client

- PCs
- Operating Systems
- Utilities

Application

- Business App.
- Database

TCO: Operation Components



Management

- Change/Config.
- Security
- Events
- Storage
- User admin.

Support

- Fixing
- Applications
- Network
- Hardware

Training

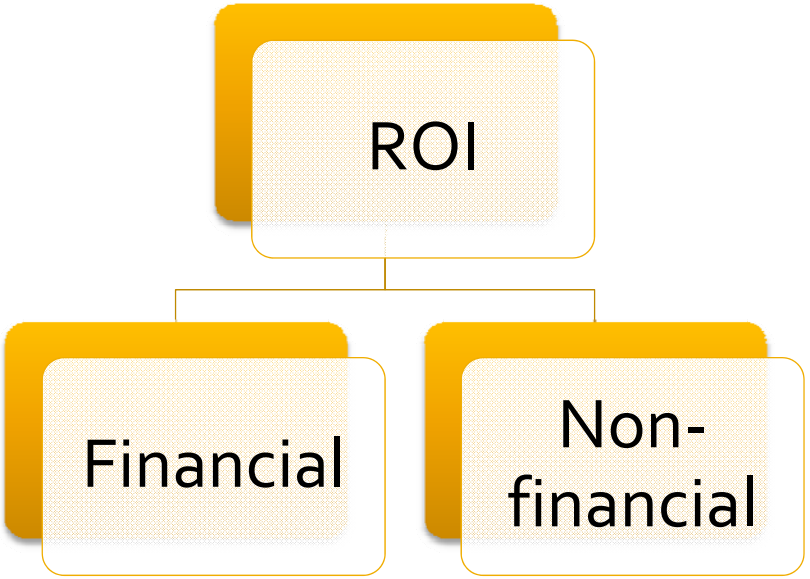
- End-user
- Staff

General Operations

- Architecture /Planning
- Product Testing

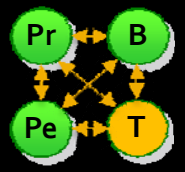
Key Terms

- ROI : Return of Investment
  - The ratio of money gained or lost on an investment relative to the amount of money invested



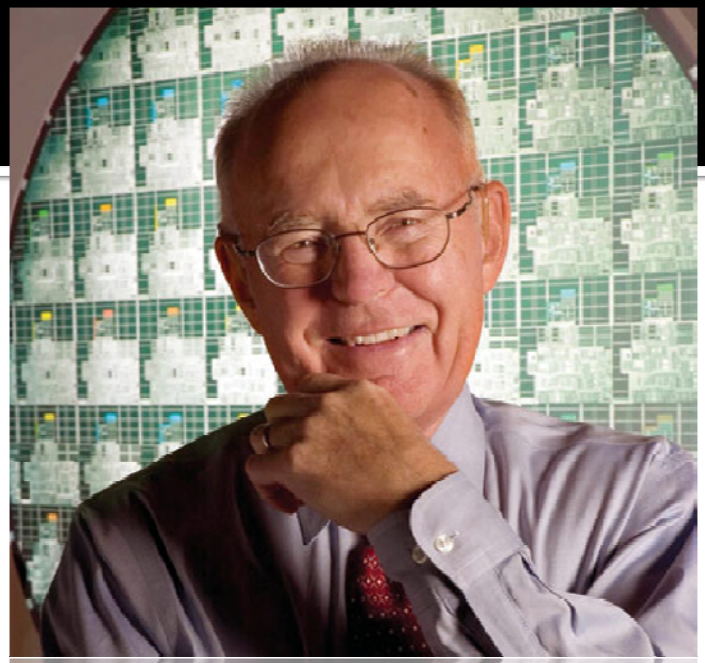
$$\frac{\text{Gain of investment} - \text{Cost of investment}}{\text{Cost of investment}}$$

Technology



- "Nature" of technology
  - Technology "refreshment" cycle
  - Moore's Law
- Technology Forecasting

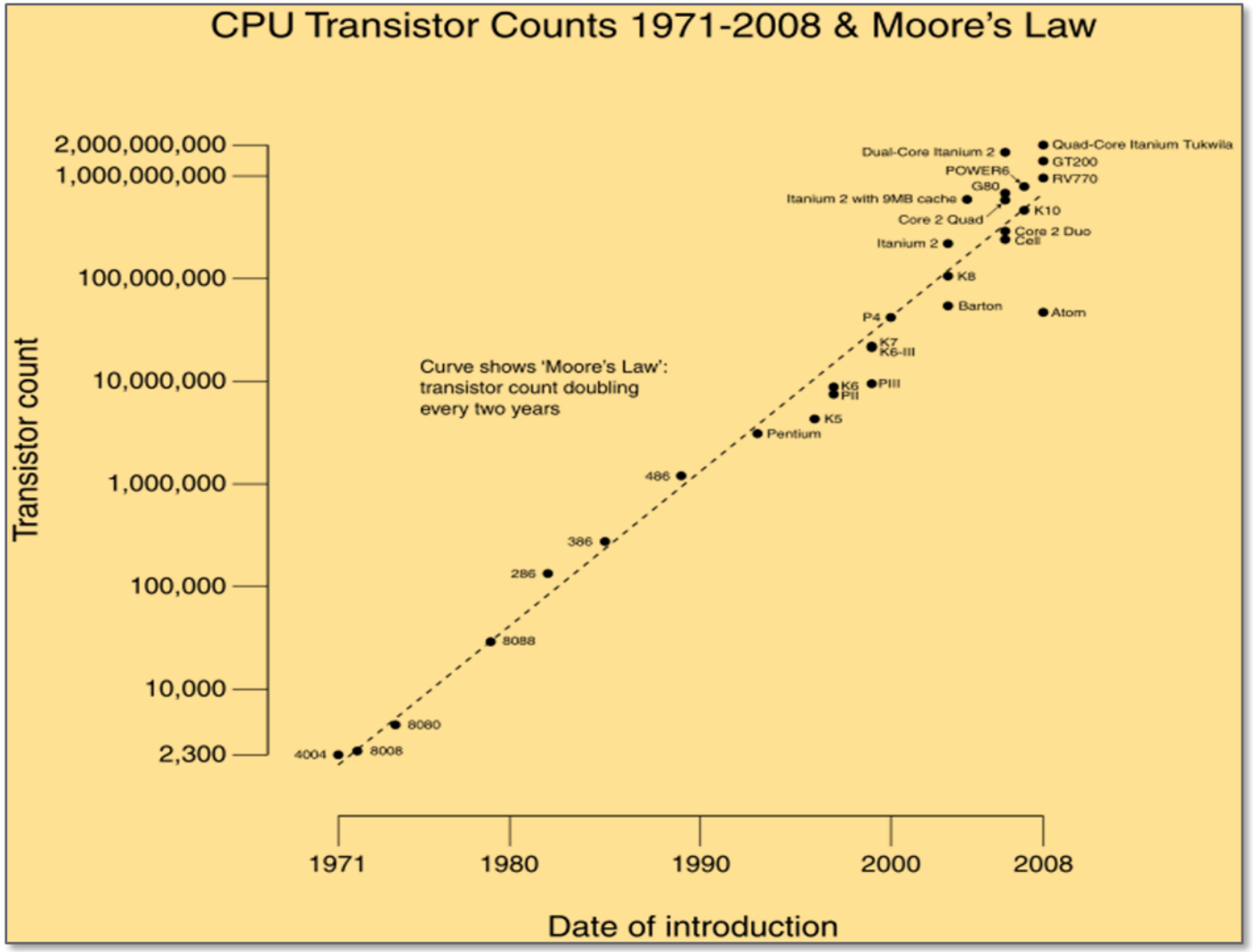
Moore's Law



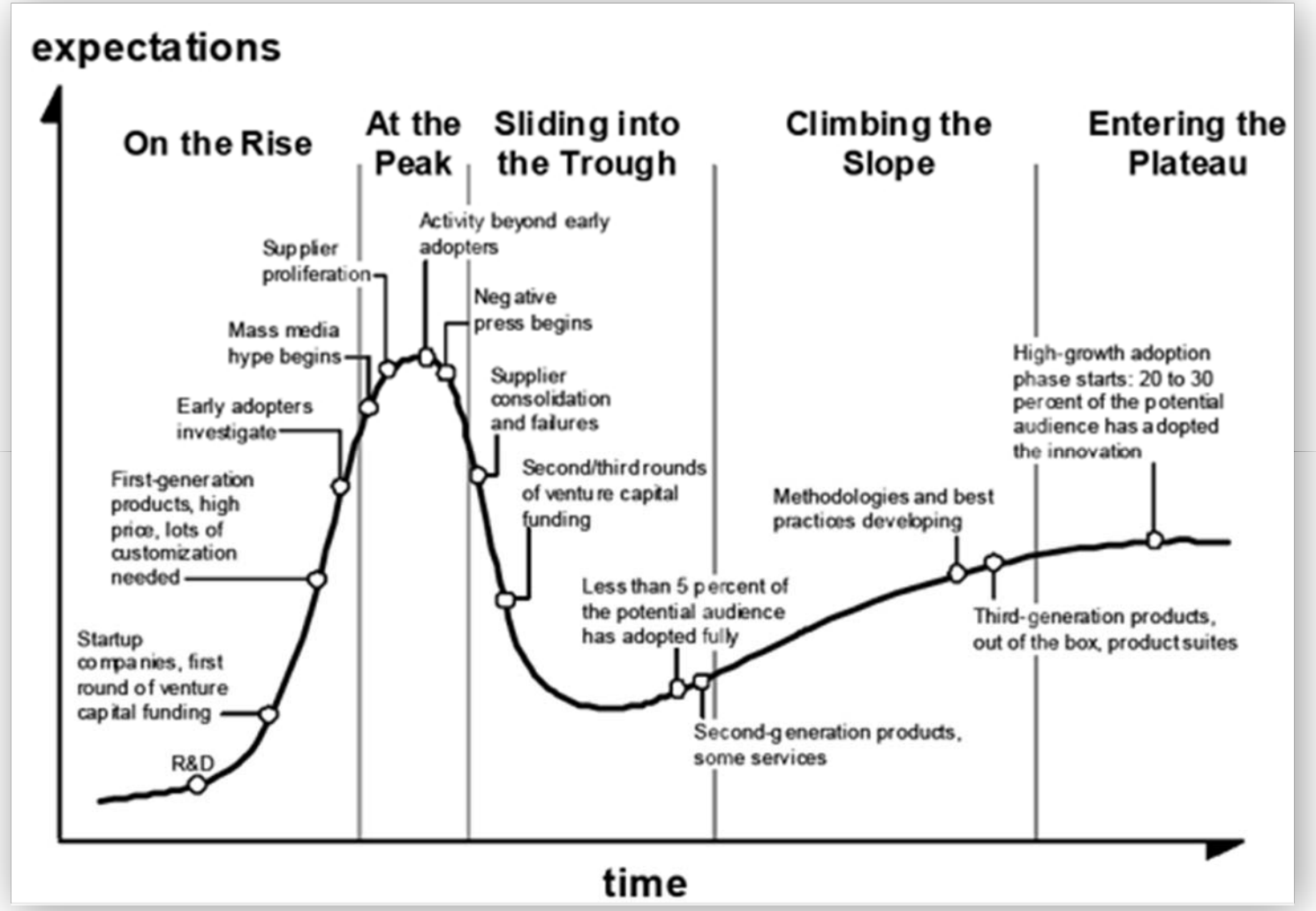
Gordon E. Moore: 1929-

- The observation, made in 1965 by Gordon E. Moore
- "The complexity for minimum component costs has increased at a rate of roughly a factor of two per year… "
- The capabilities of many digital electronic devices are strongly linked to Moore's law:
  - processing speed
  - memory capacity
  - sensors and even the number and size of pixels in digital cameras

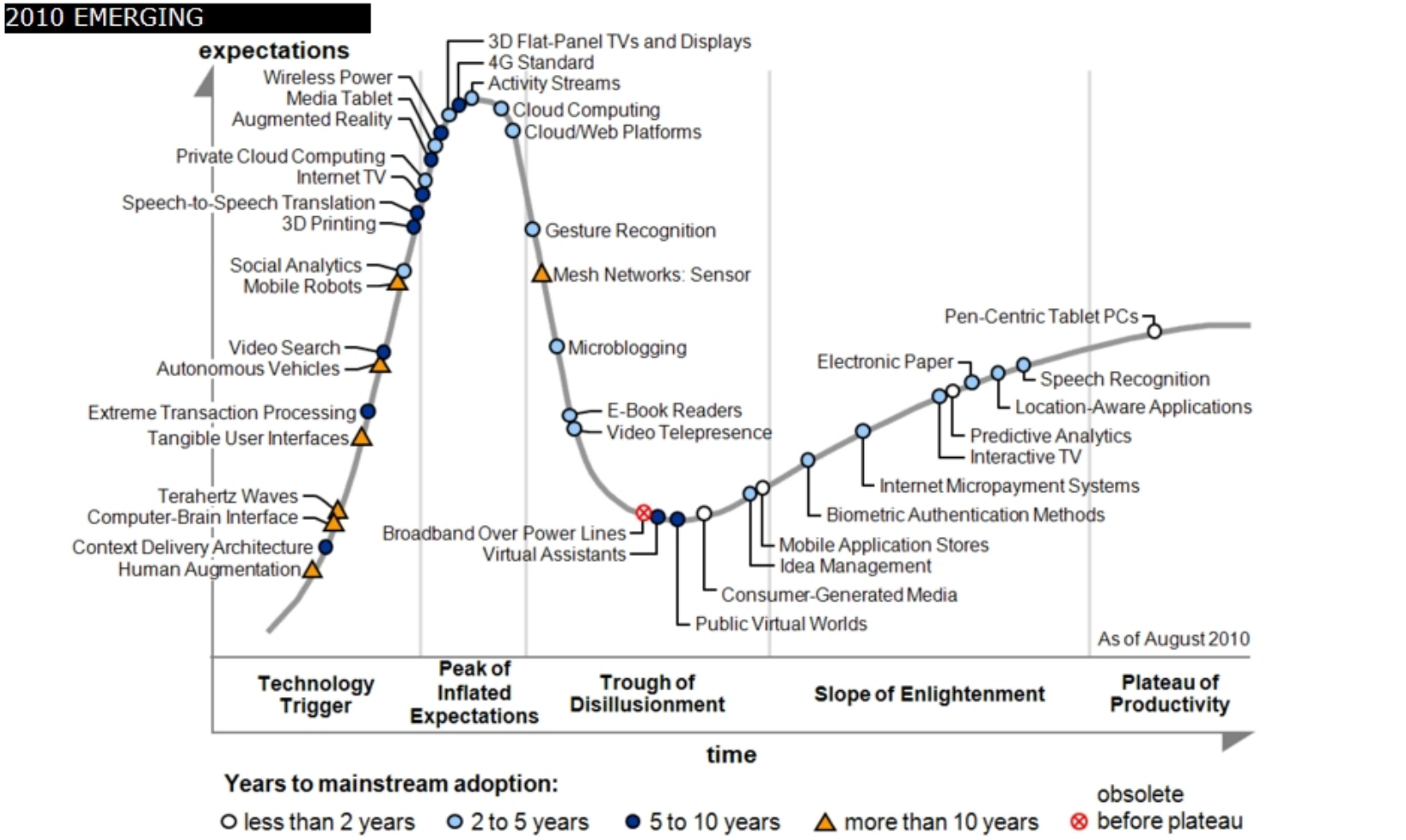
Sample Moore's Law Graph



Gartner Hype Cycle



Gartner Hype Cycle 2010



Gartner

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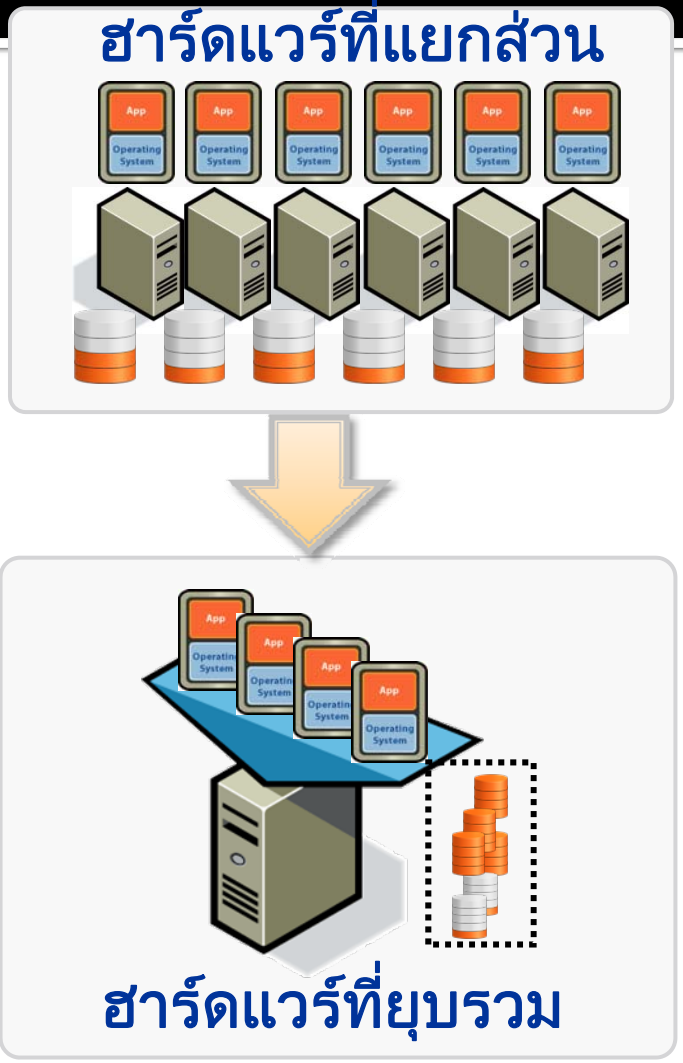
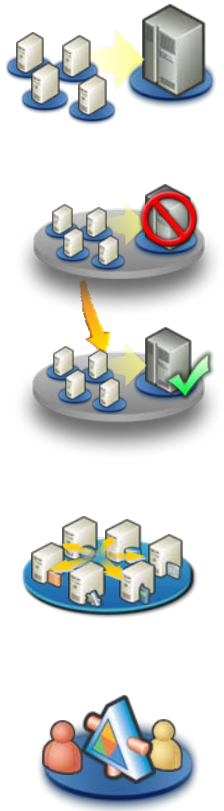
Virtualization

- กระบวนการแปลงทรัพยากรเสมือนให้เชื่อมต่อเข้ากับทรัพยากรจริง
- การเวอร์ชวลไลซ์อาจเป็นการ แบ่ง หรือ รวม ทรัพยากรก็ได้
  - ทำให้มีเซิร์ฟเวอร์เสมือนอยู่หลายเครื่องภายใต้เซิร์ฟเวอร์จริงเครื่องหนึ่ง ๆ
  - ทำให้มีหน่วยเก็บข้อมูลเสมือนขนาดใหญ่อยู่หน่วยเดียวจากหน่วยเก็บข้อมูลขนาดเล็กหลาย ๆหน่วย



Benefit of Virtulization

- **รวมกำลังเป็นกลุ่มก้อน (consolidation)**
  - รวมภาระงานเล็กที่กระจัดกระจาย เพื่อใช้ทรัพยากรระบบให้เกิดประโยชน์สูงสุด
  - การบริหารและบริการระบบเพิ่มประสิทธิภาพขึ้นเนื่องจากลดความซับซ้อนของฮาร์ดแวร์ลง
- **การให้บริการอย่างต่อเนื่อง (Continuity)**
  - การสร้างระบบงานใหม่ได้เร็ว
  - การกู้คืนโดยสำเนาระบบและย้ายไปที่ใหม่ได้รวดเร็ว
- **ศูนย์ข้อมูลพลวัต (Dynamic Data Center)**
  - การบริการจัดการภาระงานในศูนย์ข้อมูล
- **การพัฒนาและทดสอบระบบ**
  - ระบบทดสอบที่สร้างและปรับเปลี่ยนได้สะดวกตามสภาพแวดล้อมที่ต้องการ

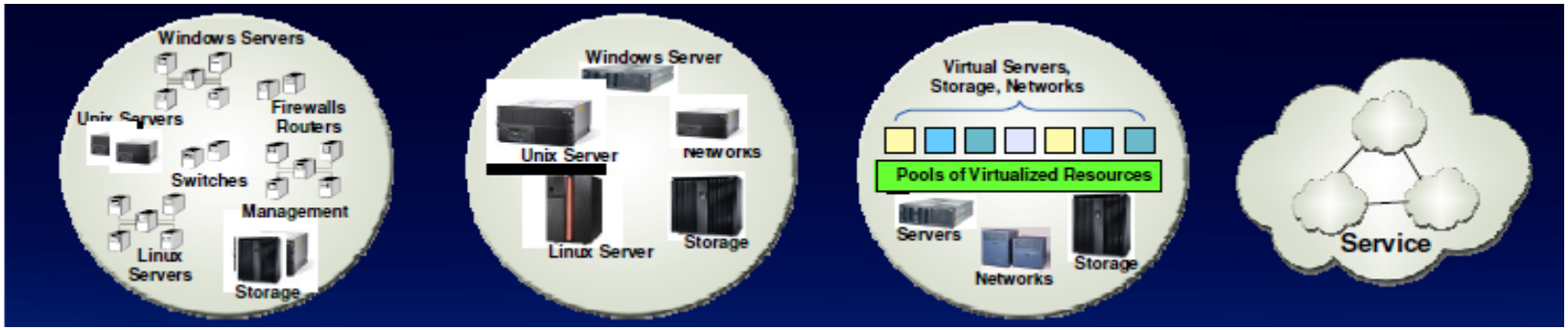


What is cloud computing?

- **Cloud computing** is a style of computing in which **dynamically scalable** and often **virtualized** resources are provided as a serve over the Internet

- Users need not have knowledge of, expertise in, or control over the technology infrastructure in the "cloud" that supports them.

Technical Evolutionary Path



Complex Infrastructure Sprawl

- IT Asset and Data Center Growth
- Outdated Legacy System Tools
- Inconsistent Processes
- Soaring IT & Energy Costs

Physical Consolidation

- Consolidate IT Assets and Data Centers
- Standardize and Centralize Management
- Streamline Processes, incorporating best practices (i.e. ITIL)
- Energy Savings – Phase out inefficient hardware

Virtualization

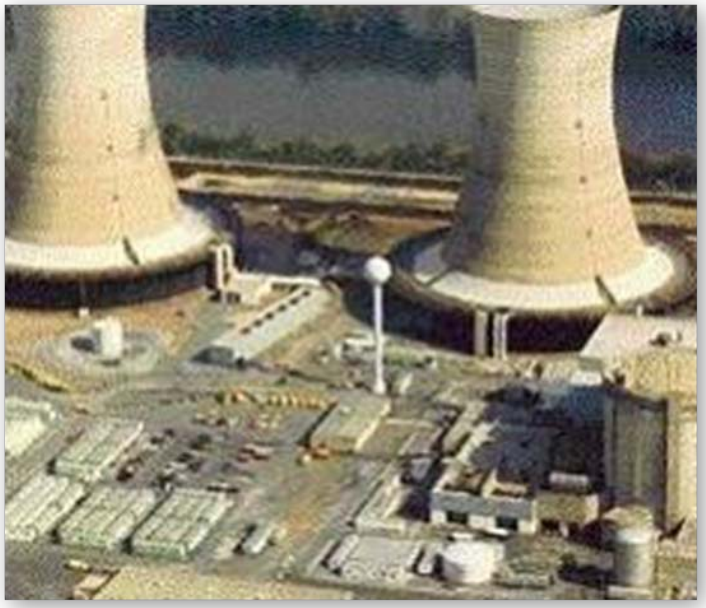
- Virtualize infrastructure, resulting in increased system utilization
- Unify virtual & physical management
- Promote resource sharing across the organization
- Energy Savings – maximize effective usage.

Cloud

- Service Oriented Architecture
- On-demand provisioning of IT resources; Elastic scaling up and down
- Dynamic Service Management
- Energy Savings via automated workload distribution

Cloud Philosophy

Traditional



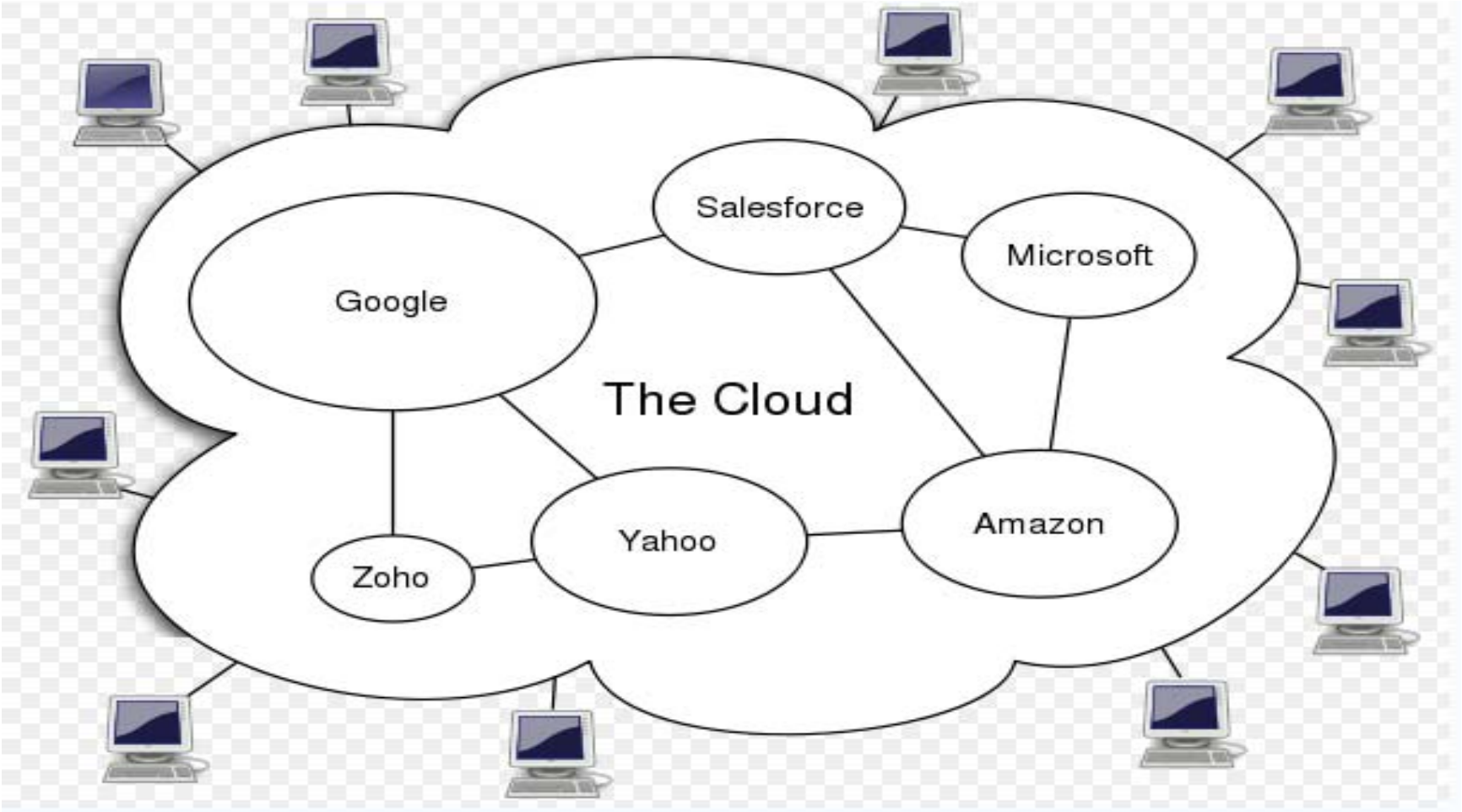
Build Your Own

On-Demand Utility

Plug In, Subscribe

Pay-per-Use

Cloud architecture



Characteristics of cloud computing

- **Virtual.**
  software, databases, Web servers, operating systems, storage and networking as virtual servers.

- **On demand.**
  add and subtract processors, memory, network bandwidth, storage.

Cloud Delivery Model

SaaS
Software as a Service

PaaS
Platform as a Service

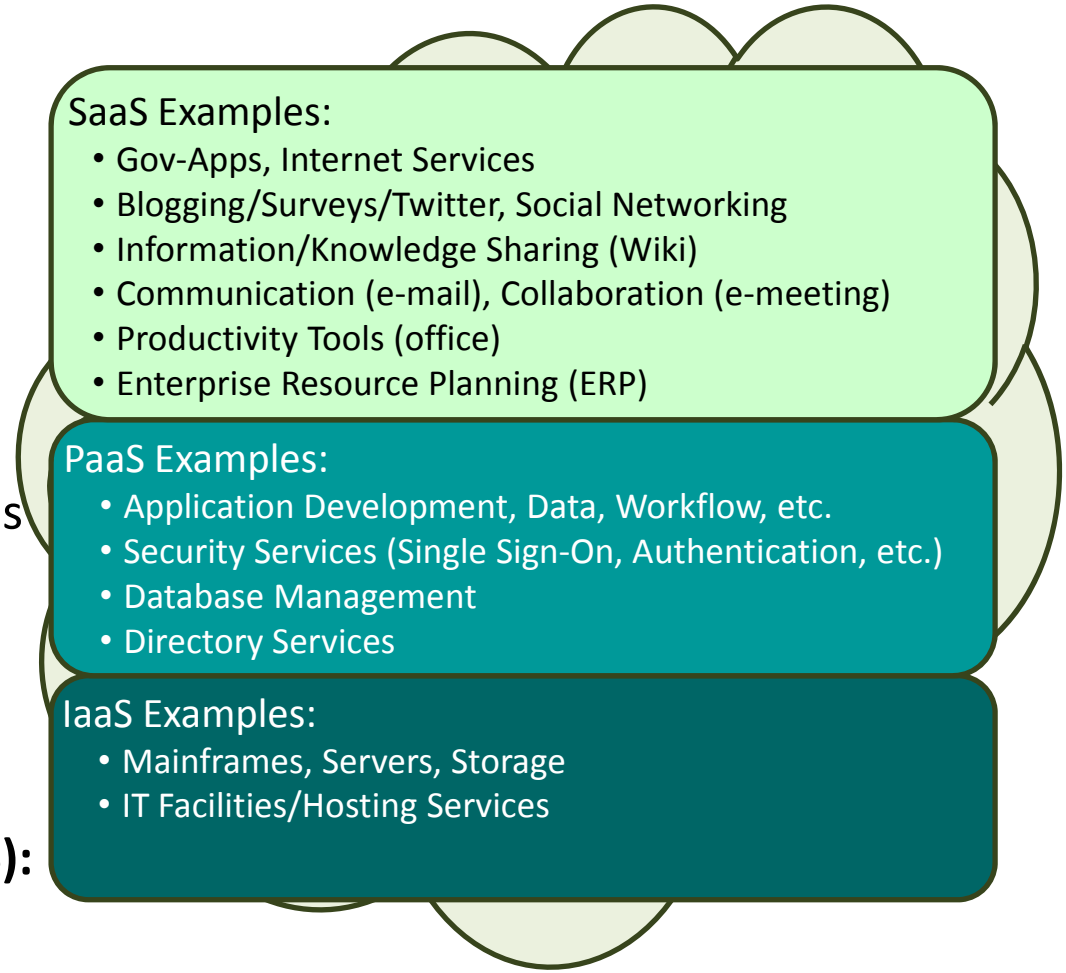
IaaS
Infrastructure as a Service

Types of Services

- **Software as a Service (SaaS):** Software deployment model whereby a provider licenses an application to customers for use as a service on demand

- **Platform as a service (PaaS):** Optimized IT and developer tools offered through Platform as a Service (PaaS) for Database and Testing Environments

- **Infrastructure as a Service (IaaS):** On-demand, highly scalable Computing, Storage and Hosting Services



Market Overview

- **SaaS Providers**
  - Run on top of underlying cloud infrastructure platforms
  - CRM, ERP, VoIP, BI, supply chain
- **PaaS Providers**
  - ERP,DB,XML files, flat files,web services, on-demand apps, SaaS hoster, API′s,
  - load balancing, DNS configuration, storage
- **IaaS Providers**
  - Proxy for buying servers, software, data center space or network equipment
  - Pay for memory, bandwidth, storage consumed

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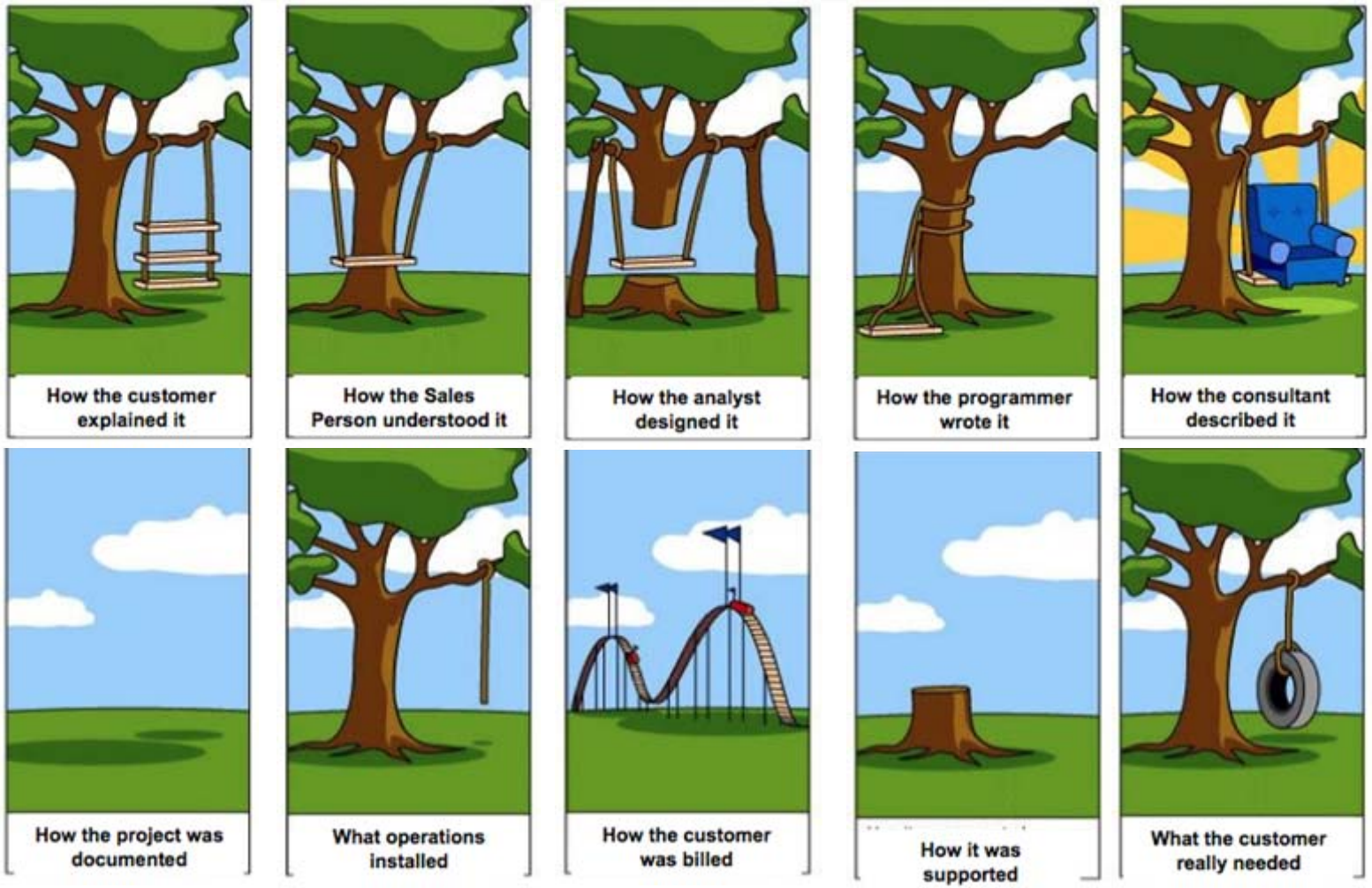
IT's nature..



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Key Questions

- Does a systematic approach to high quality IT service delivery exist?
- What are best practices for IT Service Management?

Service..

- **Service**
  - Delivering value to users by facilitating outcomes users want to achieve with optimize costs and low risks
- **Service Level**
  - Measuring and reporting achievement against one or more service level targets
- **Service Level Agreement**
  - Written and negotiated agreement between service provider and customer documenting agreed service levels and costs

Management Standards

- **ITIL**
  - **IT Infrastructure Library**
  - Focuses on the management of services
- **CobiT**
  - **Control objectives for information and related Technology**
  - Describes best practice for the control of IT resources

What is ITIL?

A comprehensive and consistent set of best practices for IT service management, promoting a quality approach to achieving business effectiveness and efficiency in the use of information systems

- Commissioned by the UK's Central Computing and Telecommunications Agency (CCTA) to drive down IT costs and improve performance and efficiency in the 80's
- ITIL consists of a series of books giving guidance on the provision of quality IT services, and on the accommodation and environmental facilities needed to support IT
- *Currently ITIL V3*

Why ITIL?

- Systematic approach to high quality IT service delivery
- Huge range of benefits that include:
  - Reduced costs
  - Improved IT services through the use of proven best practice processes
  - Improved customer satisfaction through a more professional approach to service delivery standards and guidance
  - Improved productivity
  - Improved use of skills and experience
  - Improved delivery of third party services through the specification of ITIL or ISO 20000 as the standard for service delivery in services procurements

What about v3?

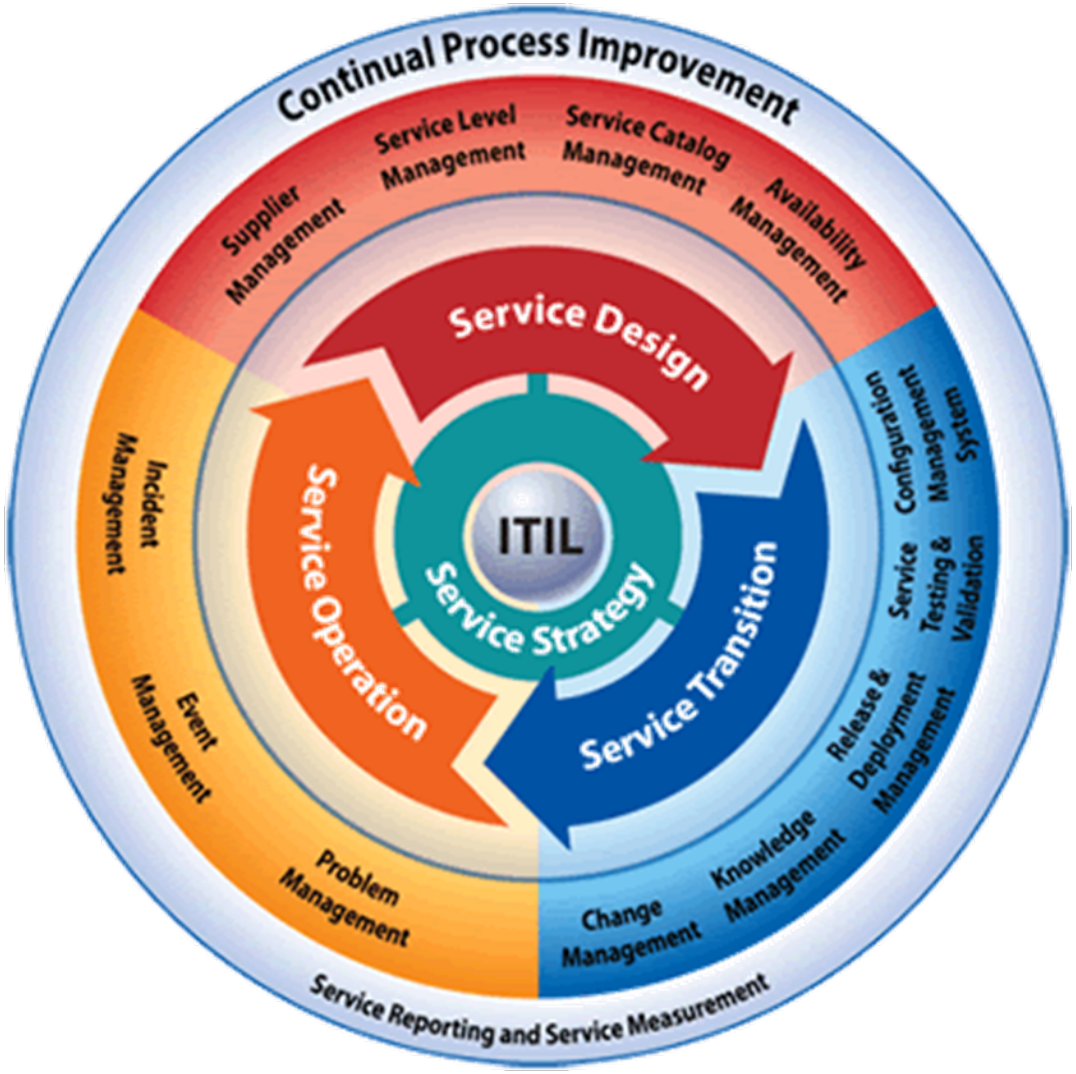
- **Started in 80s**
  - 40 publications!
- **v2 (2000-2002)**
  - Still Large and complex
  - 8 Books
- **v3 (2007)**
  - More simplified and rationalised to 5 books
  - Much clearer guidance on how to provide service
  - More modular accreditation paths
  - Keeps tactical and operational guidance
  - More prominence to strategic relevant to senior staff
  - Aligned with ISO20000 standard for service management

ITIL v3 Library

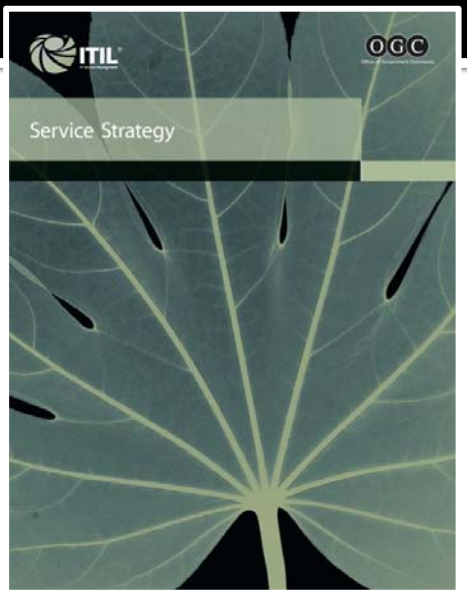
Five volumes comprise the ITIL v3, published in May 2007:

1. *ITIL Service Strategy*
2. *ITIL Service Design*
3. *ITIL Service Transition*
4. *ITIL Service Operation*
5. *ITIL Continual Service Improvement*

ITIL Cycle

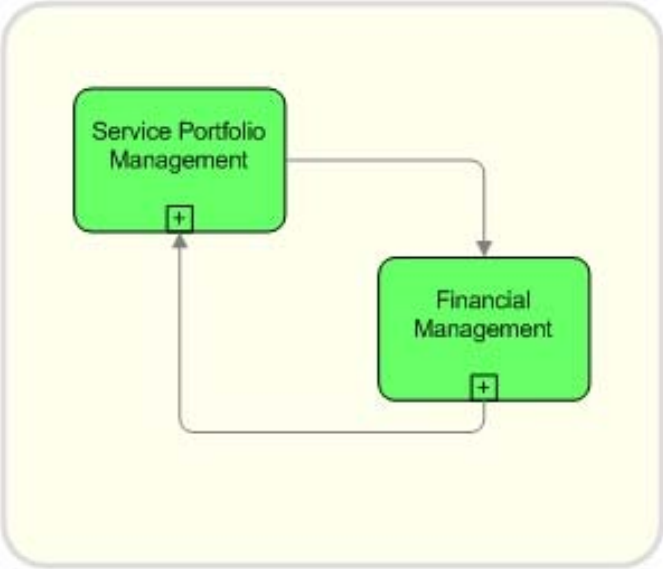

Continual Process Improvement
Service Level Management
Service Catalog Management
Availability Management
Supplier Management
Service Design
Service Operation
Service Transition
Service Strategy
ITIL
Incident Management
Event Management
Problem Management
Change Management
Knowledge Management
Release & Deployment Management
Service Testing & Validation
Configuration Management System
Service Reporting and Service Measurement

ITIL v3 Books : Service Strategy



- Provide guidance on how to design, develop and implement Service Management
- Provides the direction and vision for establishing IT services
- Ultimate goal : to make the IT organization think and act in a strategic manner

Processes in Service Strategy

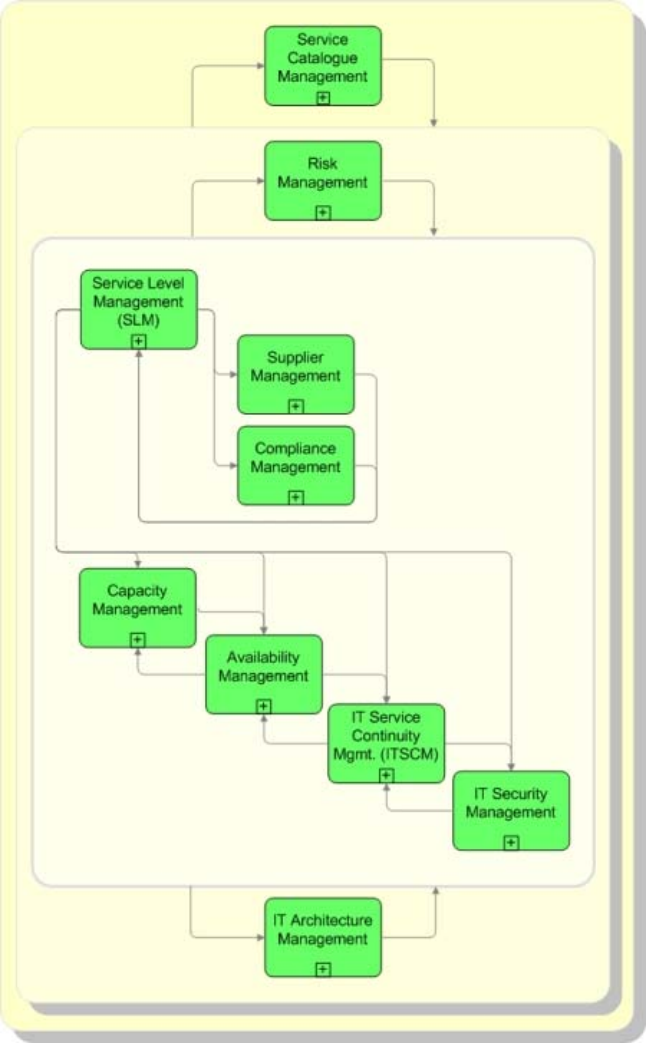


- Service Portfolio Management
  - To decide on a strategy to serve customers, and to develop the service provider's offerings and capabilities
- Financial Management
  - To manage the service provider's budgeting, accounting and charging requirements

ITIL v3 Books : Service Design

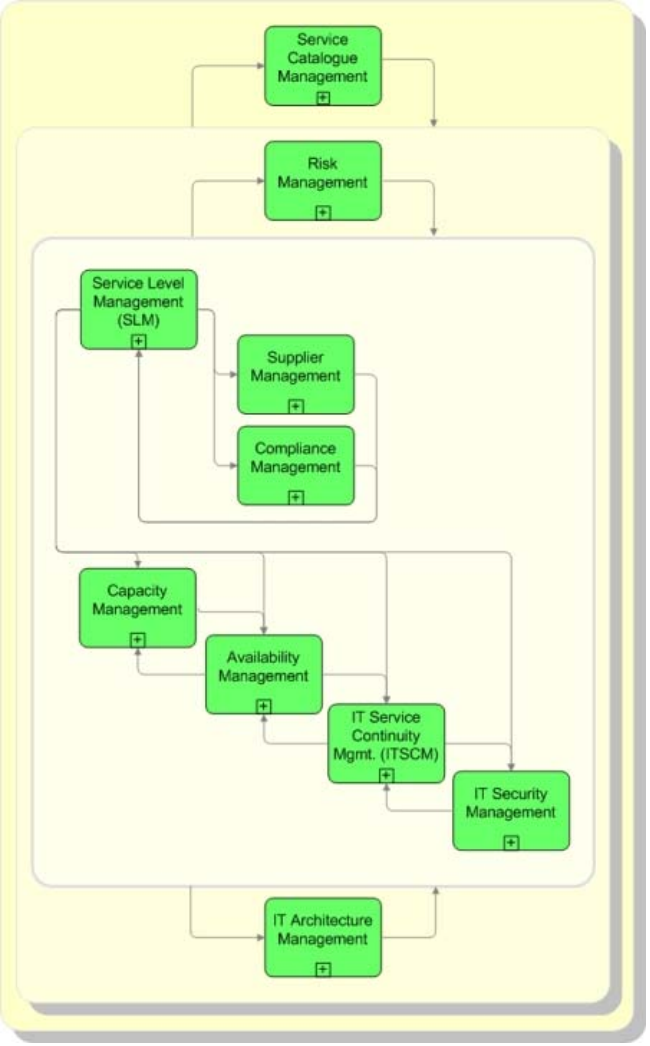
- To design and develop IT services.
- Design of new services, changes and improvements to existing ones

Processes in Service Design (I)



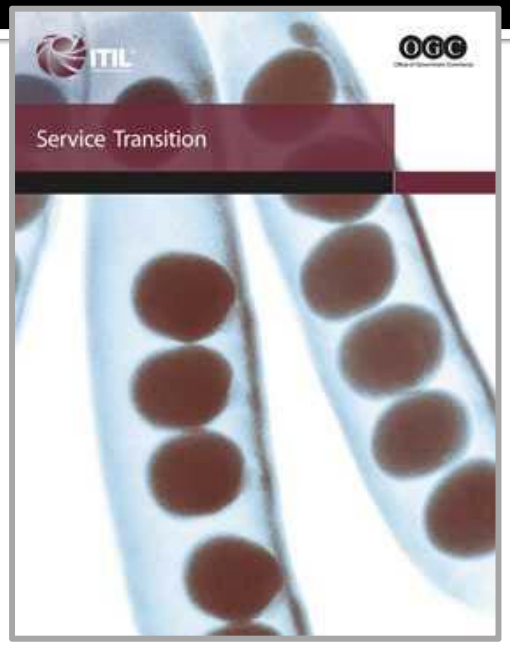
- **Availability Management**
  - Ensuring that all IT infrastructure, processes, tools, roles, etc. are appropriate for the agreed availability targets
- **Capacity Management**
  - To ensure that the capacity of IT services and the IT infrastructure is able to deliver the agreed service level targets in a cost effective.
- **ITSCM (disaster recovery)**
  - Manage risks that could seriously impact IT services
  - Reducing the risk from disaster events to an acceptable level and planning for the recovery of IT services

Processes in Service Design (II)



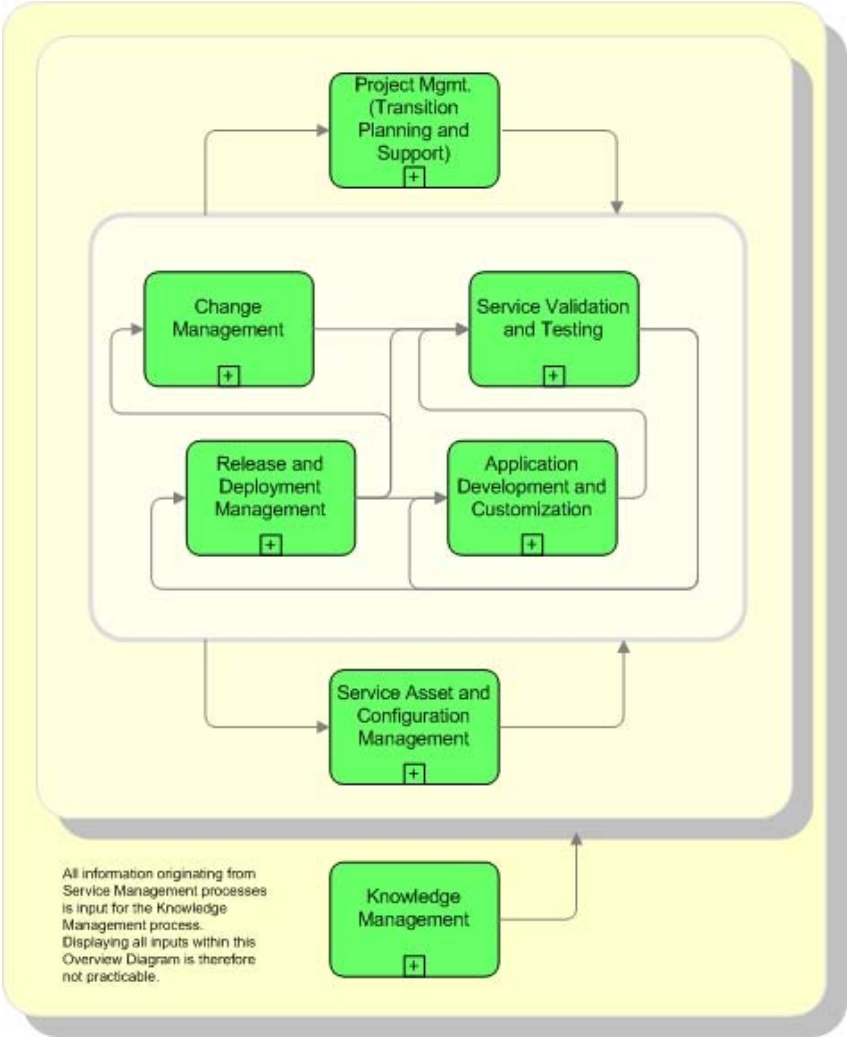
- **Service Level Management**
  - *Managing the level of IT services for the cost effective delivery of services*
- **IT Security Management**
  - *Ensure the confidentiality, integrity and availability of information, data and* services
- **Supplier Management**
  - *Ensure that all contracts with suppliers support the needs of the business, and that all suppliers meet contractual commitments*
- **Services Catalogue Management**
  - *Ensure that a service catalogue is produced and maintained, containing accurate information on all operational services*

ITIL v3 Books : Service Transition



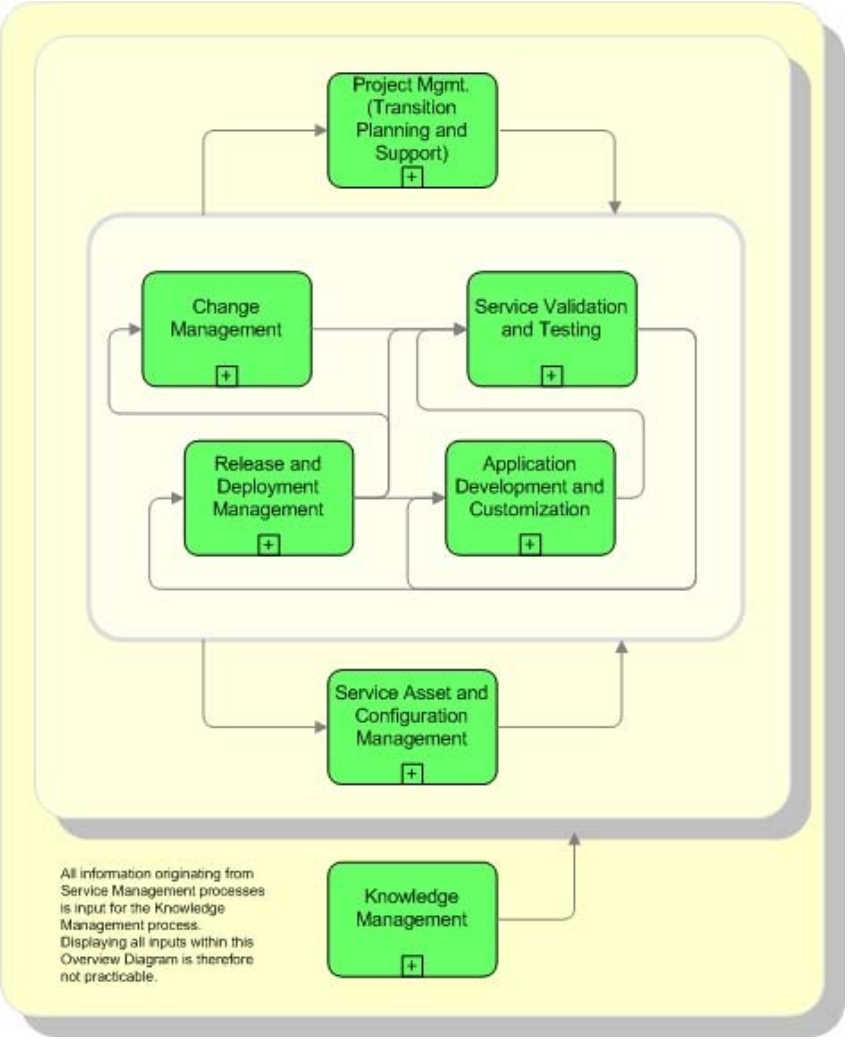
- To build and deploy IT services.
- Makes sure that changes to services and Service Management processes are carried out in a coordinated way.

Processes in Service Transition (I)



- **Change Management**
  - *To control the lifecycle of all changes.*
  - *Changes to be made, with minimum disruption to IT services*
- **Service Validation and Testing**
  - *To ensure that deployed services meet customer expectations,*
  - *To verify that IT operations is able to support the new service*
- **Release and Deployment Management**
  - *To plan, schedule and control the movement of releases to test and live environments*
- **Application Development and Customization**
  - *Development and maintenance of custom applications as well as the customization of products from software vendors*

Processes in Service Transition (II)

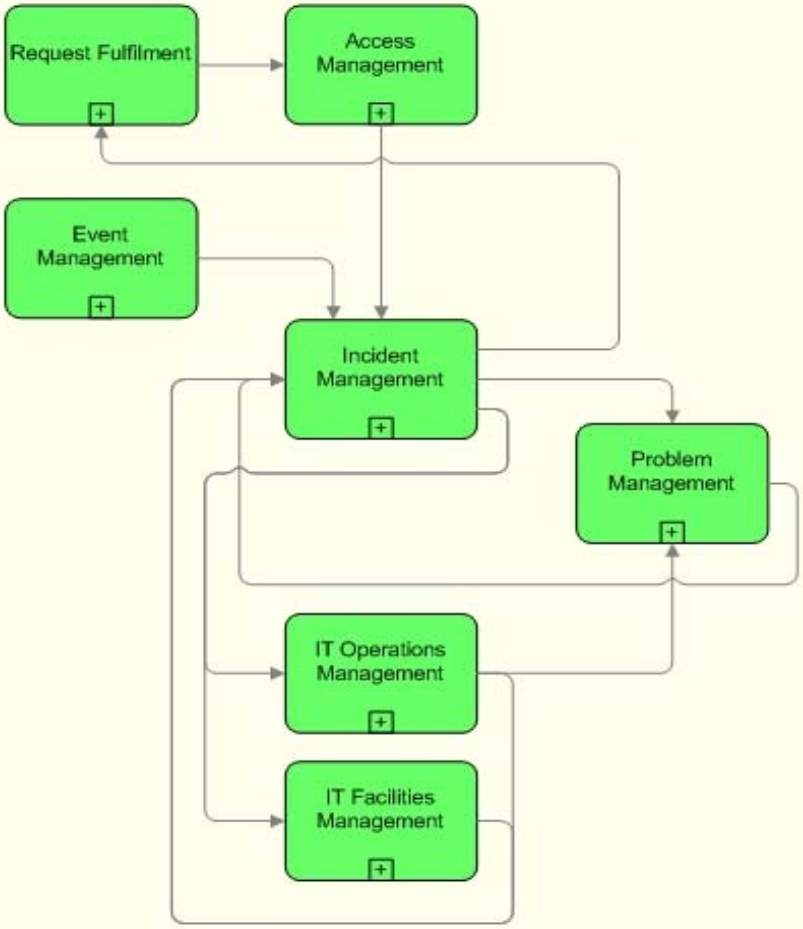


- **Project Management**
  - *To plan and coordinate the resources to deploy a major Release within the predicted cost, time and quality estimates*
- **Service Asset and Configuration Management**
  - *To maintain information about Configuration*
- **Knowledge Management**
  - *To gather, analyze, store and share organization's knowledge, improve efficiency by reducing the need to rediscover knowledge*

ITIL v3 Books : Service Operation

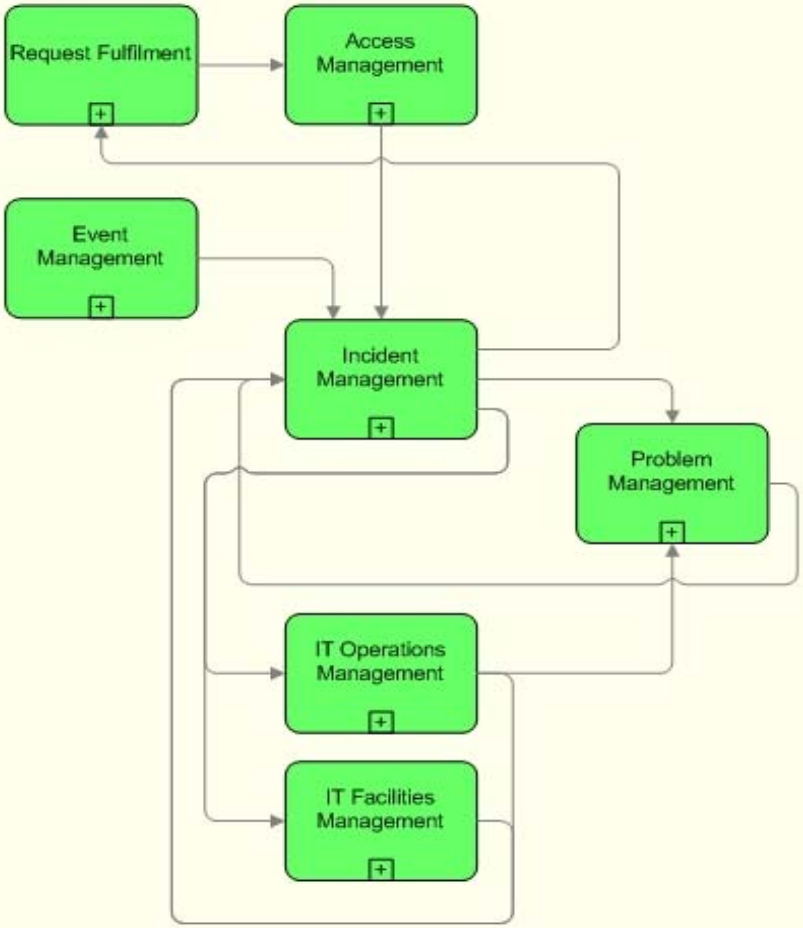
- To make sure that IT services are delivered effectively and efficiently.
- This includes :
  - carrying out routine operational tasks
  - fulfilling user requests,
  - resolving service failures,
  - fixing problems,

Processes in Service Operation (I)



- **Incident Management**
  - *Restoring normal service operation as quickly as possible and minimizing the adverse impact on operations*
- **Problem Management**
  - *To prevent Incidents from happening, and to minimize the impact of incidents that cannot be prevented*
- **Event Management**
  - *To filter and categorize Events and to decide on appropriate actions*
- **Access Management**
  - *To grant authorized users the right to use a service, while preventing access to non-authorized users*

Processes in Service Operation (II)

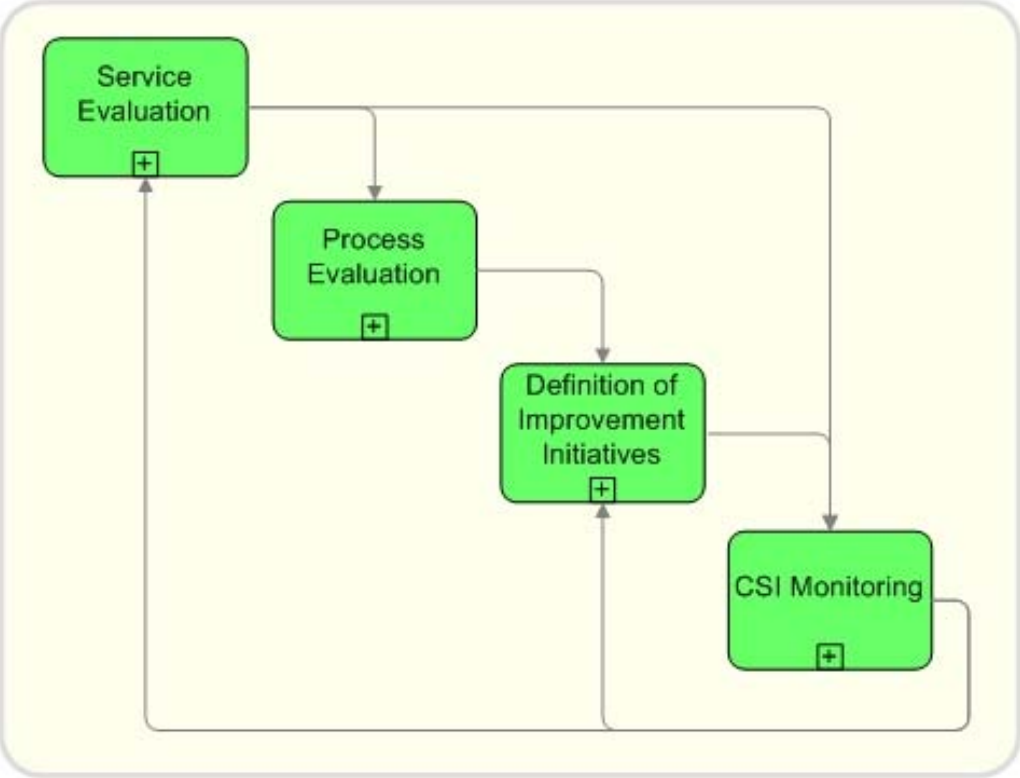


- **Request Fulfilment**
  - *Dedicated process dealing with service requests*
- **IT Operations Management**
  - *To monitor and control the IT services and IT infrastructure, execution of day-to-day routine tasks*
- **IT Facilities Management**
  - *To manage the physical environment where the IT infrastructure (power and cooling, building access management, and environmental monitoring)*

ITIL v3 Books : CSI

- **Continual Service Improvement (CSI)**
  - Utilizing methods from quality management in order to learn from past successes and failures
  - Implements a closed-loop feedback system as specified in ISO 20000 as a means to continually improve the effectiveness and efficiency of IT services and processes.

Process of CSI



- **Service Evaluation**
  - *To evaluate service quality on a regular basis*
- **Process Evaluation**
  - *To evaluate processes on a regular basis*
- **Definition of Improvement Initiatives**
  - *To define specific initiatives improving services and processes*
- **CSI Monitoring**
  - *To verify if improvement initiatives are proceeding according to plan, and to introduce corrective measures*

Final Issues

- **Strategy Development**
  - Without an IT strategy, short term responsibilities and long term goals will fail
- **What we need**
  - Clear vision/mission
  - Develop strategy
  - Applying ITIL

Thanks for Attention
&
Discussions

Sample KPI : Uptime

	Total Downtime (HH:MM:SS)		
Availability	**Per day**	**Per month**	**Per year**
99%	00:14:24	07:18:17	87:39:30
99.9%	00:01:26	00:43:50	08:39:30
99.99%	00:00:09	00:04:50	00:52:36
99.999%	00:00:00.9	00:00:26	00:05:16

Sample KPI Development

KPI	Measurement
Availability	$\frac{\text{Total Uptime}*100\ \%}{\text{Total Uptime+Total Downtime}}$
Performance/Quality	At least N% of service response times are met under predefined quality level
Satisfaction	Get at least N% of user survey rates 4 (Satisfy) from 1-5 scale.

Things about SLA

Service Description	Hours of operation	User Response times
Incident Response times	Problem Resolution times	Availability & Continuity targets
User Responsibilities	Critical Operational periods	Change Response Times