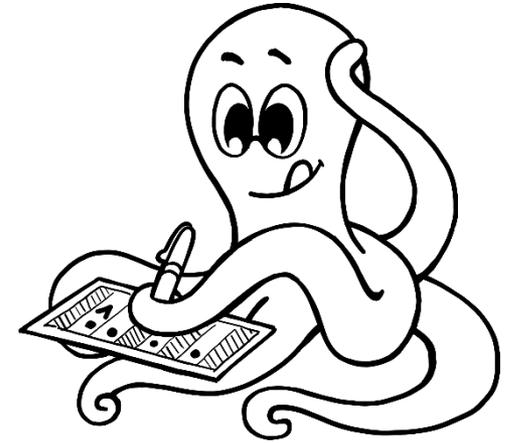# IT Processes

April 27, 2020
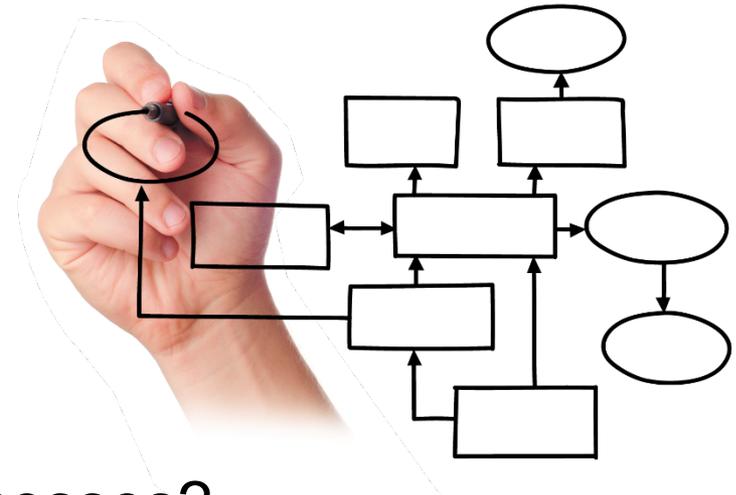Lionel Pilorget

KNOWDigital

- Modeling Techniques

- Current Standards for IT Processes

- Implementing IT Processes

- Backup Slides for ITIL and COBIT

- What is the objective?

- What are the main steps?

- Which roles are needed?

- What triggers the process?

- Which dependencies to other processes?

- What is the output of the process?

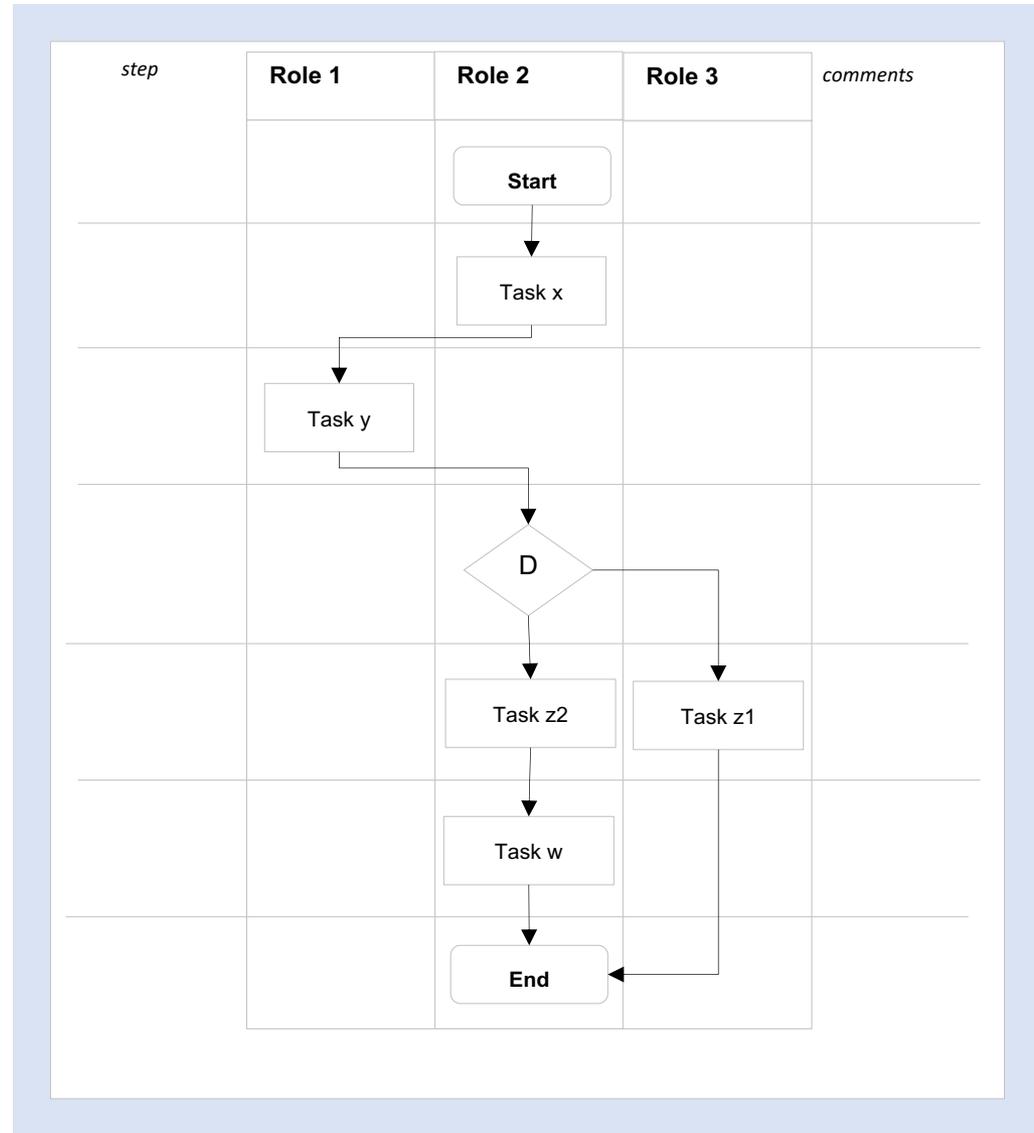
- Which KPIs (Key Performance Indicators)?

- Which CSFs (Critical Success Factors)?

- Flow Chart

- Swim Lane

- Cycle

- SIPOC

- RACI

Flow Chart

Flow chart

step	Role 1	Role 2	Role 3	comments
		Start		
		Task x		
	Task y			
		D		
		Task z2	Task z1	
		Task w		
		End		

circular

Planning

Building

Managing

Improving

Maintaining
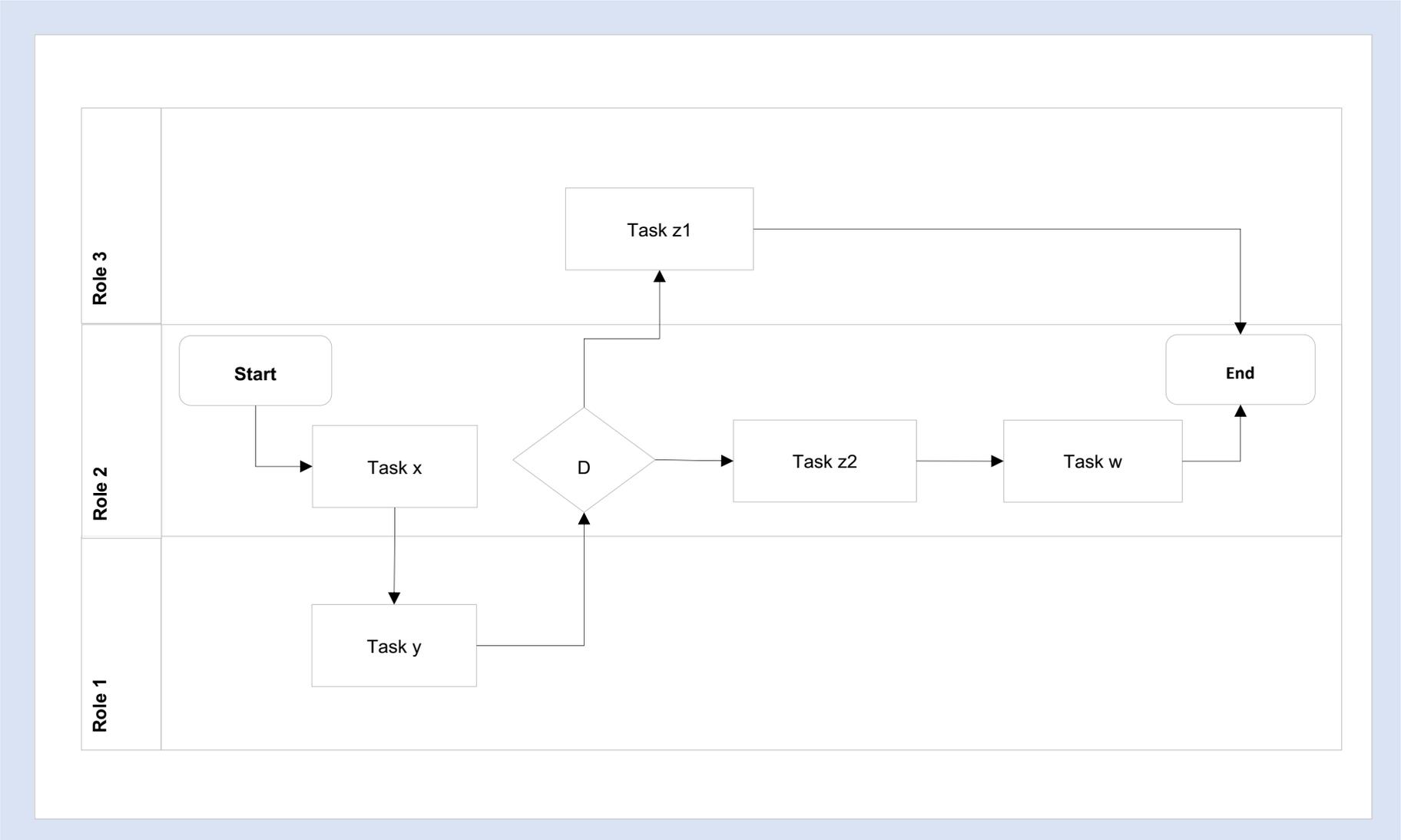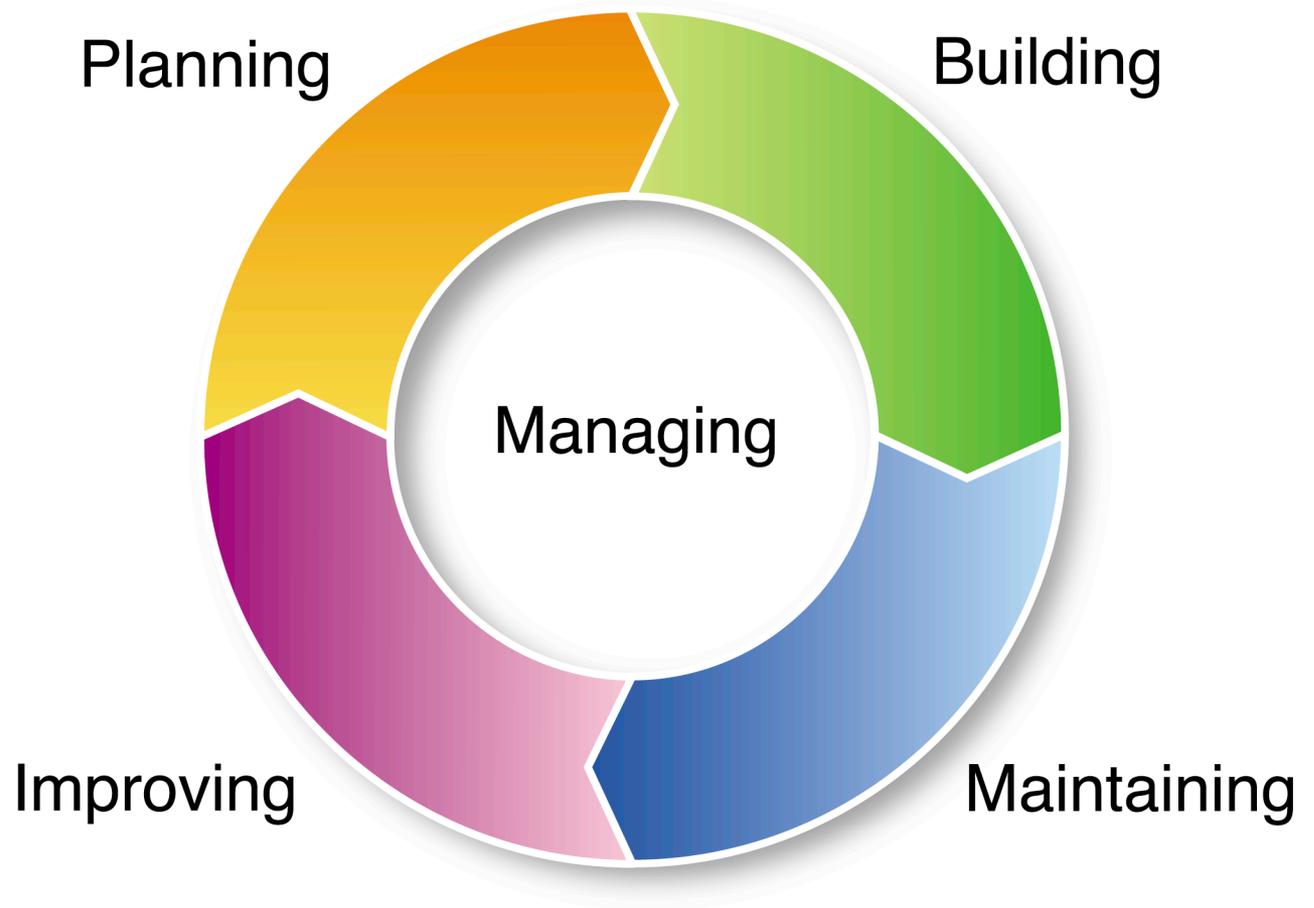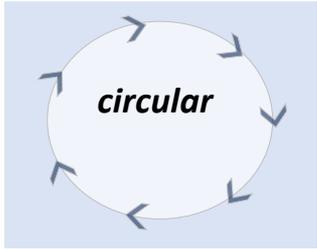
Supplier	Input	Process step	Output	Customer
		1.		
		2.		
		3.		
		...		
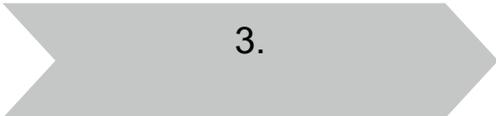
RACI Matrix
Process Name: ……………………
Process Owner: ……………………..

Nr.	Process step	Department / Area / Role					Inputs	Outputs	Comments
		A	B	C	D	E			
1									
2									
3									
4									
…									

R: Responsible ("doer" who performs the task and ensures that everything has been completed)
A: Accountable (person in charge, no delegation possible to another role)
C: Consulted (person who gives advice before or during a task completion, can influence a decision)
I: Informed (people or roles informed after finalisation of the task)

Let´s start modelling!

Group	Step 1: IT Process	Step 2: Design technique	**Exercise**: Modelling
	Choose an IT process	Select a design technique	Exercise: do the modelling of your chosen process with the selected technique
	Choose an IT process	Select a design technique	Exercise: do the modelling of your chosen process with the selected technique
	Choose an IT process	Select a design technique	Exercise: do the modelling of your chosen process with the selected technique
	Choose an IT process	Select a design technique	Exercise: do the modelling of your chosen process with the selected technique
...	Choose an IT process	Select a design technique	Exercise: do the modelling of your chosen process with the selected technique

Many standards are available!

13
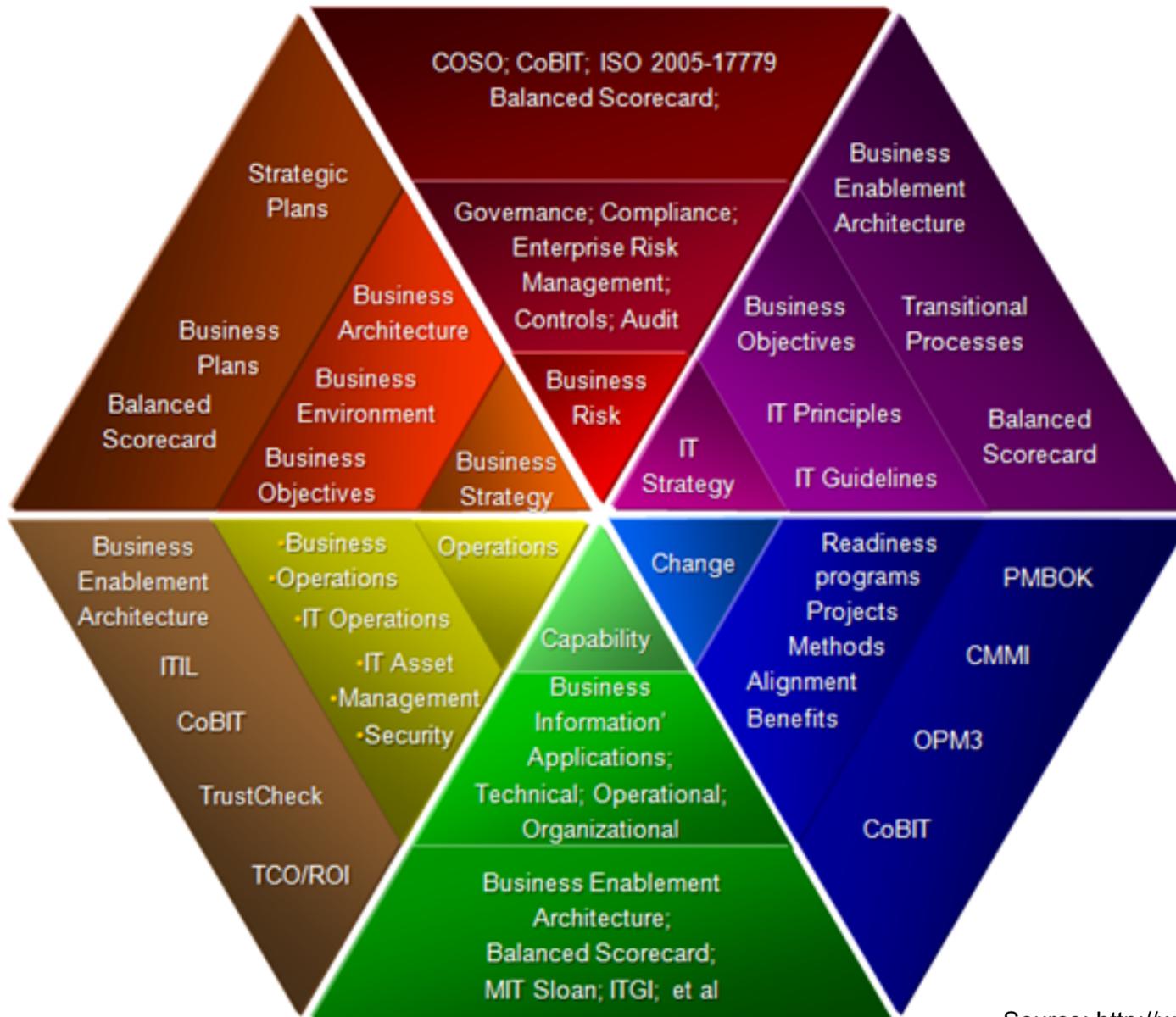
- ITIL

- COBIT

- IT4IT

Short history of ITIL (IT Infrastructure Library)

Improvement of the management of IT Services in UK Central Government

1989 / 1996	2000 / 2001	2007	2011
ITIL V1 book	ITIL V2 books	ITIL V3 books	Updated ITIL books
IT Service Management, including 10 processes	**Definition of Service Support & Service Delivery**	**5 lifecycle phases have been defined**	**No version anymore**
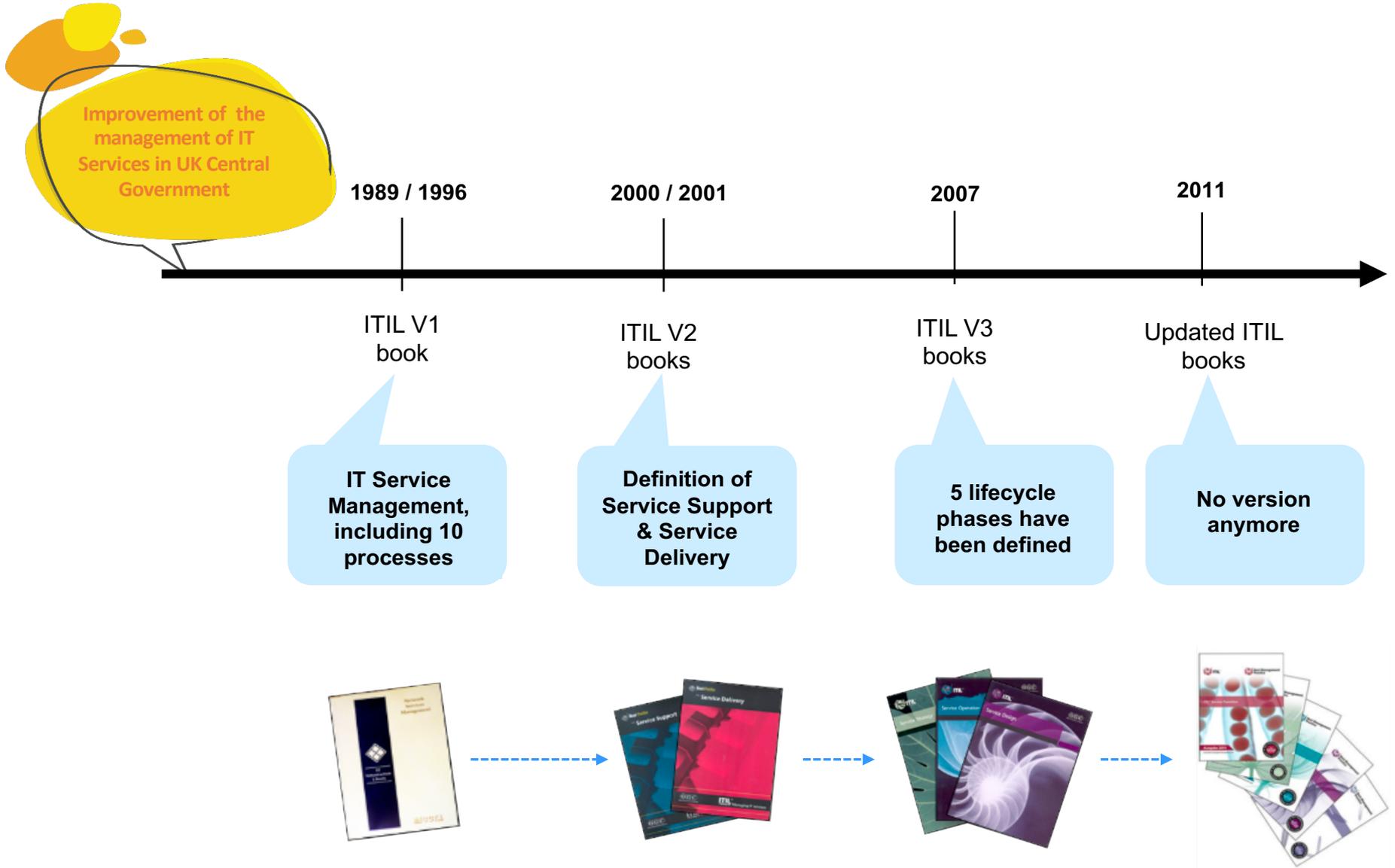
ITIL V1

Service Support

- Configuration Management
- Incident Management
- Problem Management
- Change Management
- Release Management

Service Delivery

- Service Level Management
- Capacity Management
- Availability Management
- Continuity Management
- Financial Management

Advantages

- reduced costs for the organization
- better productivity of the organization
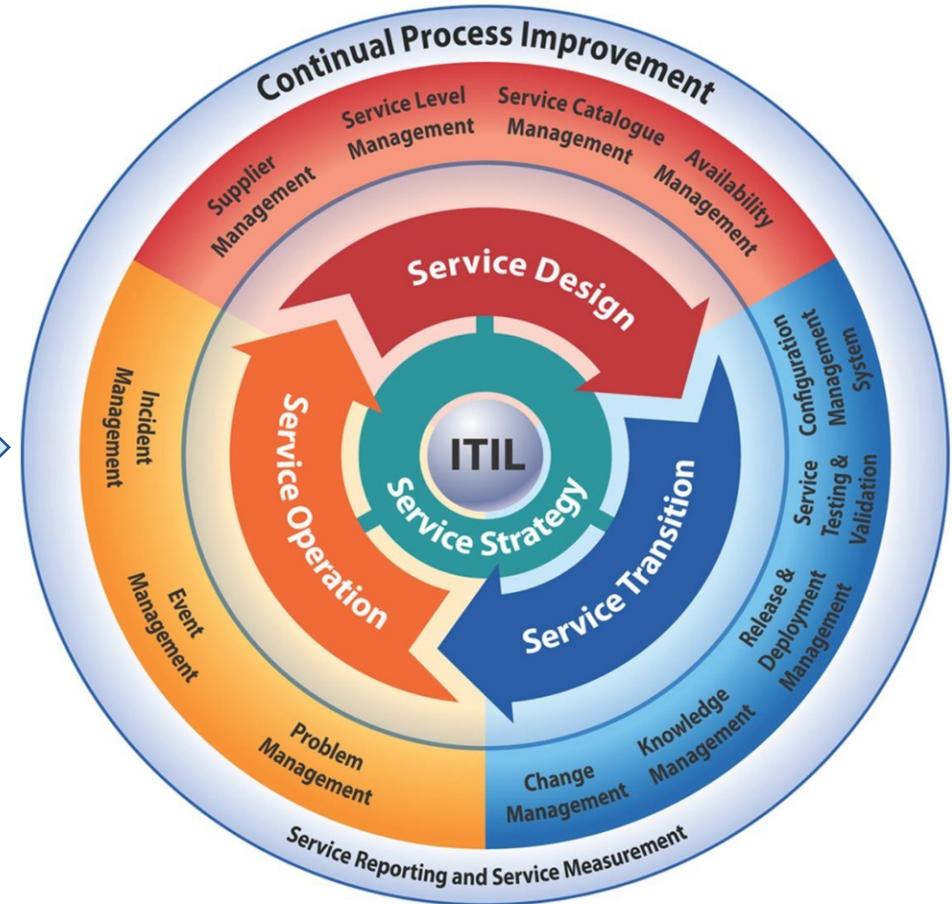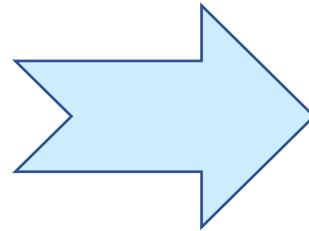- improved IT services through the use of proven best practice processes
- improved quality control
- improved utilization of skills and experience of the employees
- improved customer satisfaction
- utilization of industry standards
- improved delivery of third party services as the standard for service delivery in services procurements

Disadvantages

- extensive use may lead to considerable costs
- not easily understandable (Version 2 is more easily understandable)
- expensive books and not affordable for non-commercial users.
- specific training required

- COBIT = Framework created by ISACA for IT Management and Governance

- Toolset that allows managers to bridge the gap between control requirements, technical issues and business risks.

- ISACA first released COBIT in 1996

- ISACA published the current version, COBIT 5, in 2012

https://en.wikipedia.org/wiki/COBIT

http://www.isaca.org/cobit/pages/default.aspx

COBIT 2019

Reference: COBIT® 2019 Framework: Introduction and Methodology, Chapter 4 Basic Concepts: Governance Systems and Components, Figure 4.2

https://blog.itil.org/2018/11/cobit-2019-das-neue-enterprise-governance-modell-fuer-informationen-und-technologien/

IT Value chain

Rolling up your sleeves

Defining the "big picture" for the IT Process Landscape

Analysing existing processes

Checking standards

- Customers (as internal customer)

- Time frame

- Suppliers
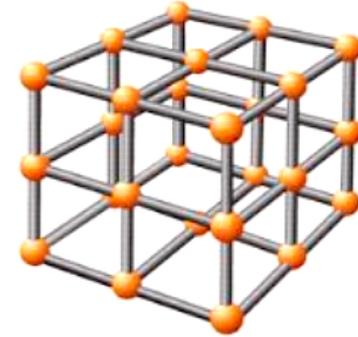
Customers	Time Frame	IT Suppliers
Upper management	strategic	Partner
Middle management	tactical	Provider
Employee	operational	Seller

Strategic decision processes
IT Management Processes

Tactical processes

Development (change)

Services (run)

IT Clients

IT Suppliers

Operational processes
IT Operations
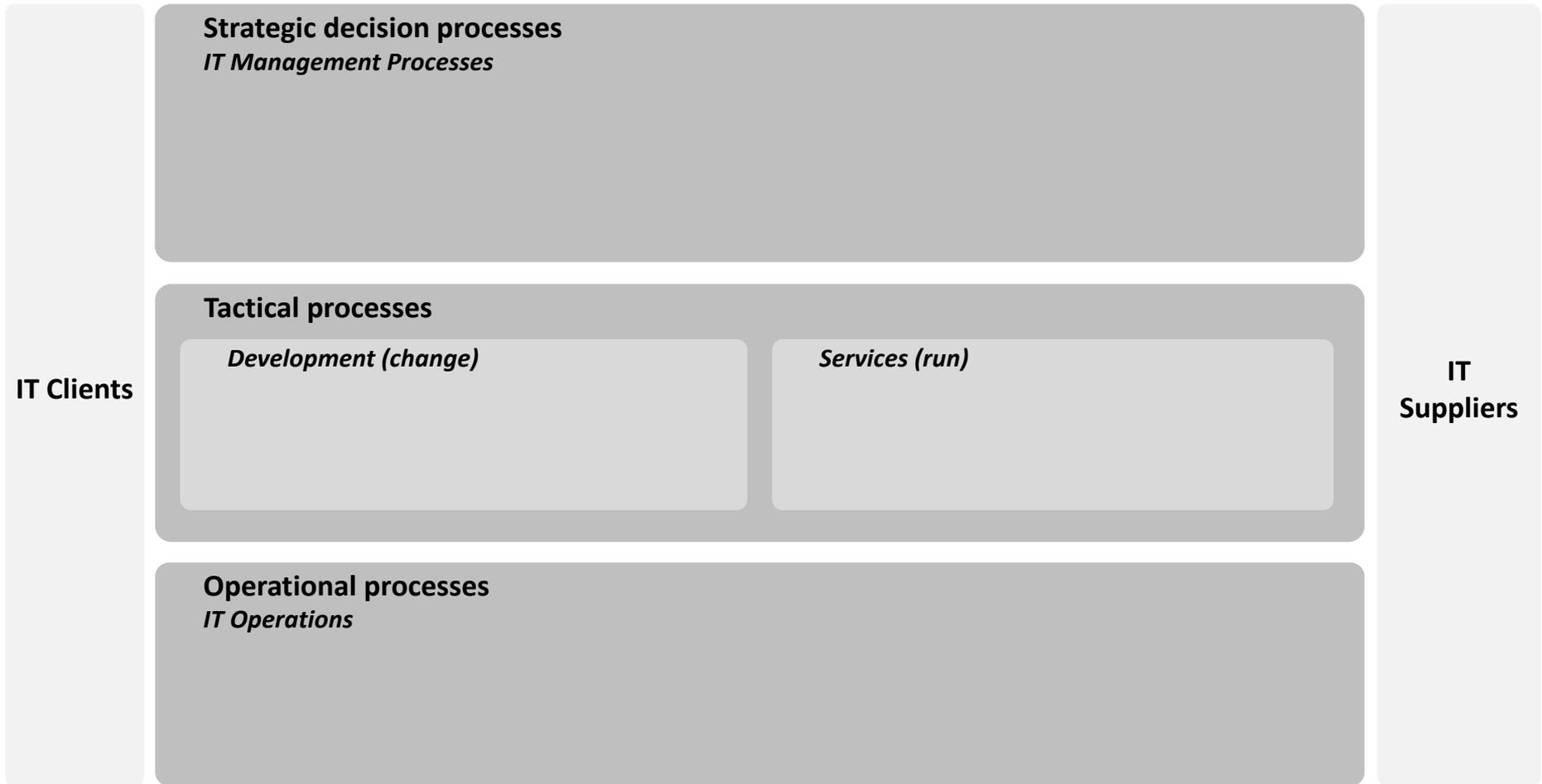
Strategic level
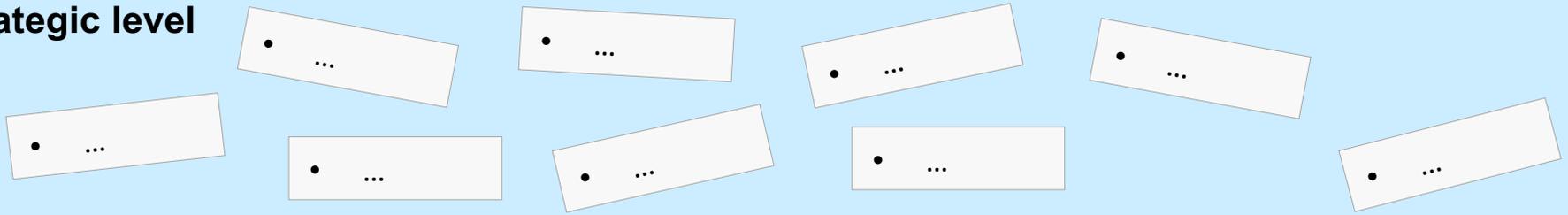
Tactical level

Operational level

IT-Strategie und Management

| IT Strategy | Performance | IT Architecture | Process & Quality | HR | Portfolio |

Management

Service Delivery

Anforderungen

Relationship / Communication Mgt

Kunde

Service Level Management

Entwicklung

Projektmgmt Service Design

Systementwicklung Service Built & Test

IT-Service-Planung

Security & Risk Management

Availability & Continuity Management

Financial / Cost Management

Capacity Management

Procurement & Legal

Change Management

RFC

Service Support

Benutzer

Incident Management

Problem Management

RFC

Configuration Management

Release Mgmt & User Training

Manage Operations

Data

IT-Service-Betrieb

Lieferanten

Services

Prozessmodell basierend auf CobiT und IPW™

IT Process Landscape: 2nd Example

IT Process

Existing Process outside of IT

IT Clients

Management Boards

IT Customers

IT Users

IT Management Processes

Strategy & Architecture

- **IT Strategy**
- **IT Architecture**
- **IT Security & Risks Management**

People Management

- **People Management & Training**

Process & Quality Management

- **Quality Management**

Finance & Reporting

- **Financial Management**
- **IT Controlling**
- **Performance reporting**

Development *(change the bank)*

Project Management

- **Project Management**
- **Release & Deployment Management**

Application & Platform Development

- **Application Development**
- **Defect Management**
- **Test Management**
- **Platform Engineering**

Change & Control Management

- **Change Management**

Services *(run the bank)*

Service Management

- **Service Level Management**
- **Availability & Capacity Management**
- **Service Continuity Management**

Project request

Supplier Management

IT Operations
(run the bank)

Resolution

- **Incident Management**
- **Problem Management**

IT Operations

- **Monitoring & Reporting**
- **Configuration Management**
- **Output Management**
- **User training**
- **Backup & Restore**

IT Suppliers

- Process design (objective, trigger, steps, roles, input, output, process dependency, CSFs)

- 5 Techniques for process modelling

- Acronyms for ITIL and COBIT

- Strategic, tactical and operational levels of a process landscape
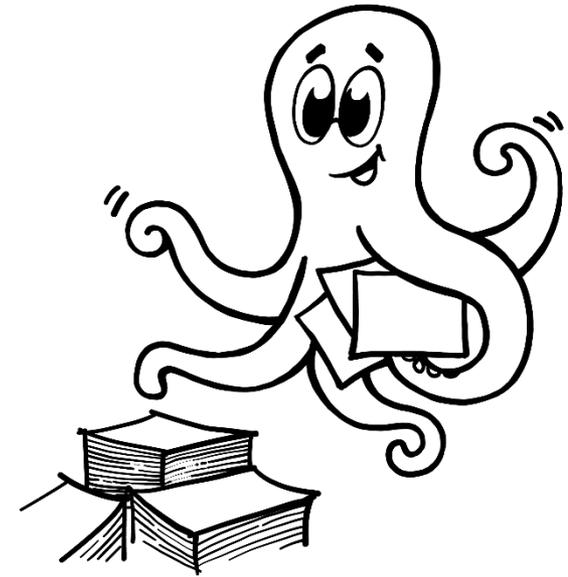
- Pilorget L (2015) Implementing IT Processes. Springer, Wiesbaden

- Pilorget L, Schell T (2018) IT Management. Springer, Wiesbaden
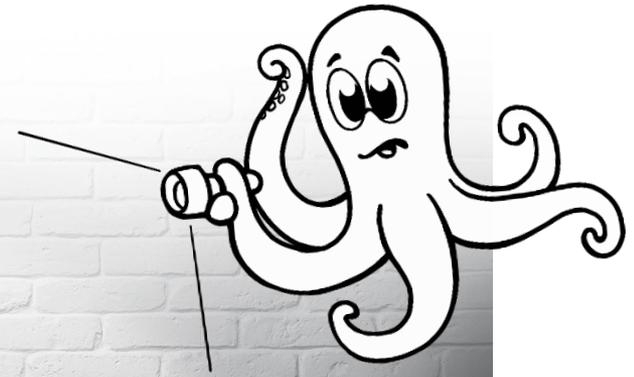
ITIL

- Service Strategy

- Service Design

- Service Transition

- Service Operation

- Continual Service Improvement
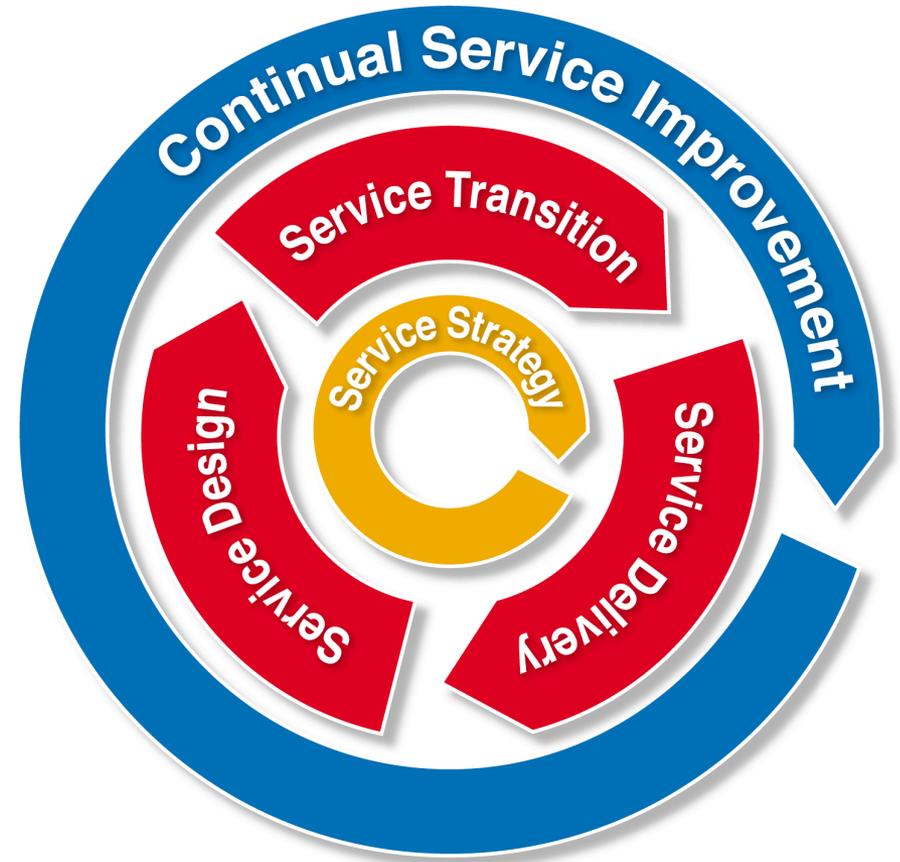
- What IT Services should we provide?

- Who should we provide these services too?

- How do we genuinely differentiate from competitors?

- How do we create lasting business value for our customers?

- How can we make a case for ROI and other investments?

- How should we best define and measure service quality?

- How do we choose between different paths for improving service quality?

- How do we efficiently (re)allocate resources across a portfolio of services?

- How do we resolve conflicting demands for shared resources?
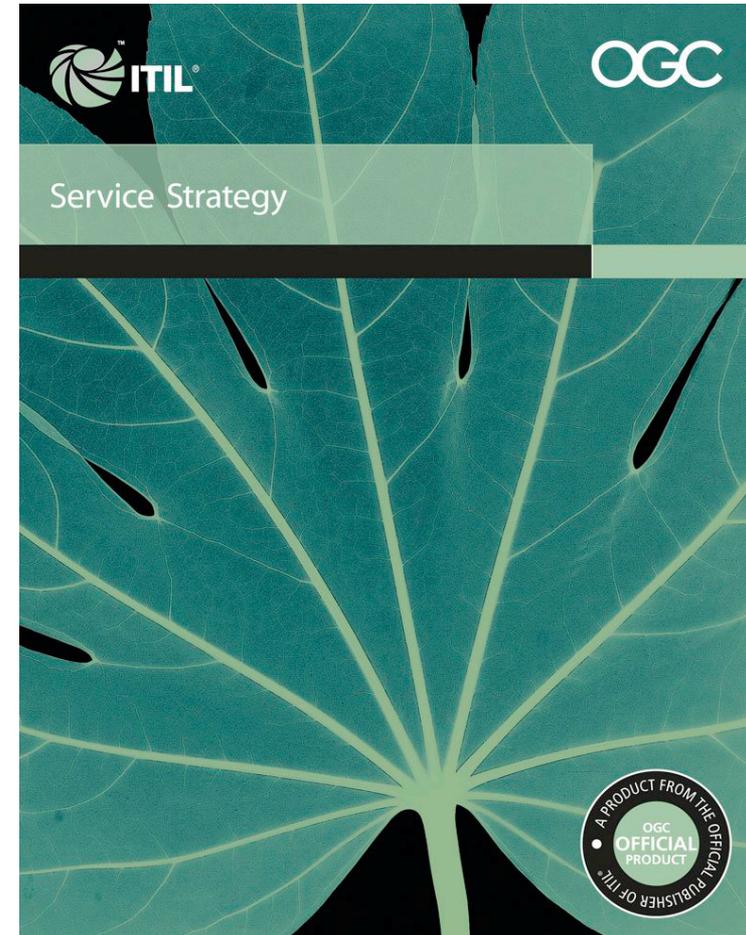
- Design coordination

- Service catalogue management

- Service level management

- Availability management

- Capacity management

- IT service continuity management

- Information security management

- Supplier management

- Knowledge management

- Transition planning and support

- Change management

- Availability management

- Service asset and configuration management (SACM)

- Release and deployment management
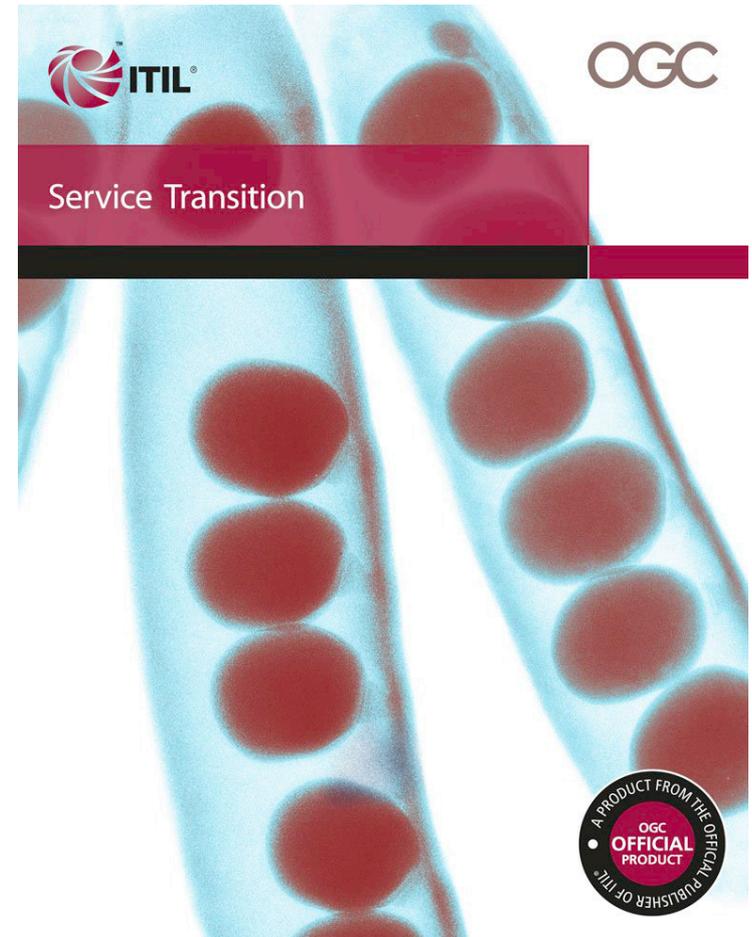
- Evaluation

- Technical management
  - Manage the IT infrastructure
  - Provide skilled staff and support operations staff members

- Application management
  - Manage the IT applications
  - Ensure knowledge and provide training to technical staff

- Operations management
  - Conduct day-to-day activities to ensure that SLAs are met
  - Ensure availability and stability of IT systems
  - Schedule and monitor batch-jobs

- Service desk
  - SPOC (Single Point of Contact) for users of IT services
  - Prioritize issues and escalates if necessary
  - Solves as far as possible incidents

Continual Service Improvement (CSI) in seven steps
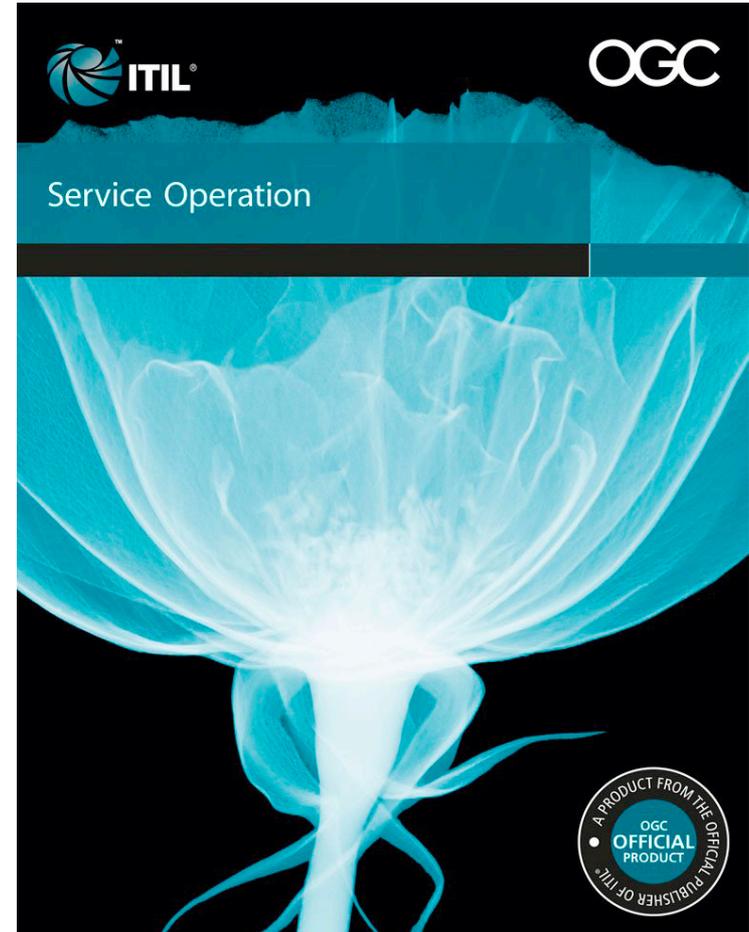
1) Identify the strategy for improvement

2) Define what you will measure

3) Gather the data

4) Process the data

5) Analyse the information and data

6) Present and use the information

7) Implement improvement

COBIT 4

COBIT 4, Plan and Organise (PO)
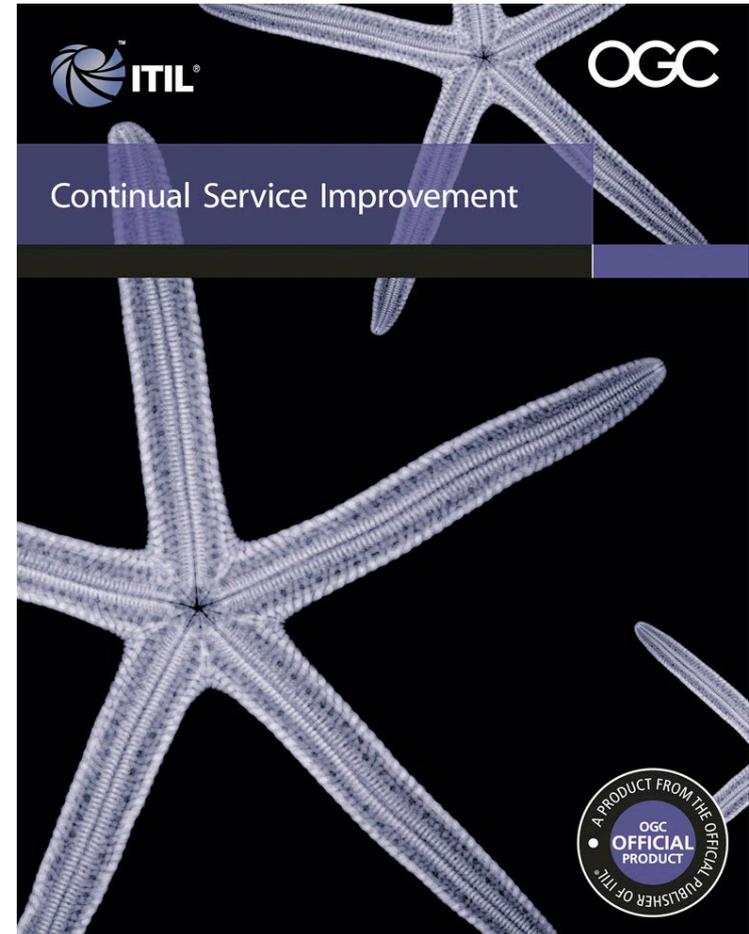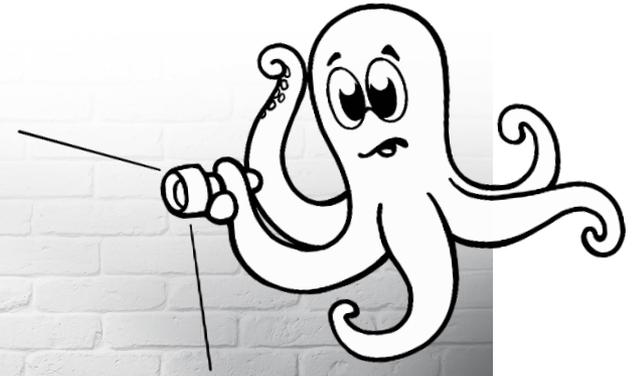
PO1	**Define a strategic IT plan**
PO1.1	IT value management
PO1.2	Business-IT alignment
PO1.3	Assessment of current performance
PO1.4	IT strategic plan
PO1.5	IT tactical plans
PO1.6	IT portfolio management
PO2	**Define the information architecture**
PO2.1	Information architecture model
PO2.2	Enterprise data dictionary and data syntax rules
PO2.3	Data classification scheme
PO2.4	Integrity Management
PO3	**Determine technological direction**
PO3.1	Technological direction planning
PO3.2	Technical infrastructure plan - scope and coverage
PO3.3	Monitoring of future trends and regulations
PO3.4	Technology standards
PO3.5	IT architecture board
PO4	**Define the IT processes, organization and relationships**
PO4.1	IT process framework
PO4.2	IT strategy committee
PO4.3	IT steering committee
PO4.4	Organisational placement of the IT function
PO4.5	IT organisational structure
PO4.6	Roles and responsibilities
PO4.7	Responsibility for IT quality assurance
PO4.8	Responsibilty for risk, security and compliance
PO4.9	Data and system ownership
PO4.10	Supervision
PO4.11	Segregation of duties
PO4.12	IT staffing
PO4.13	Key IT personnel
PO4.14	Contracted staff policies and procedures
PO4.15	Relationships

PO5	**Manage the IT investment**
PO5.1	Financial management framework
PO5.2	Priorisation within IT budget
PO5.3	IT budgeting process
PO5.4	Cost management
PO5.5	Benefit management
PO6	**Communicate management aims and direction**
P6.1	IT policy and control environment
P6.2	Enterprise IT risk and internal control framework
P6.3	IT policies management
P6.4	Policy rollout
P6.5	Communication of IT objectives and direction
PO7	**Manage IT human resources**
PO7.1	Personnel recruitment and retention
PO7.2	Personnel competencies
PO7.3	Staffing of roles
PO7.4	Personnel training
PO7.5	Dependence upon individuals
PO7.6	Personnel clearance procedures
PO7.7	Employee job performance evaluation
PO7.8	Job change and termination
PO8	**Manage quality**
PO8.1	Quality management system
PO8.2	IT standards and quality practices
PO8.3	Development and acquisition standards
PO8.4	Customer focus
PO8.5	Continuous improvement
PO8.6	Quality measurement, monitoring and review
PO9	**Assess and manage IT risks**
PO9.1	IT and business risk management alignment
PO9.2	Establishment of risk context
PO9.3	Event identification
PO9.4	Risk assessment
PO9.5	Risk response
PO9.6	Maintenance and monitoring of a risk action plan

PO10	**Manage projects**
PO10.1	Programme management framework
PO10.2	Project management framework
PO10.3	Project management approach
PO10.4	Stakeholder commitment
PO10.5	Project scope statement
PO10.6	Project phase initiation
PO10.7	Integrated project plan
PO10.8	Project resources
PO10.9	Project risk management
PO10.10	Project quality plan
PO10.11	Project change control
PO10.12	Project planning of assurance methods
PO10.13	Project performance measurement, reporting and monitoring
PO10.14	Project closure

AI1	**Identify automated solutions**
AI1.1	Definition and maintenance of business functional and technical requirements
AI1.2	Risk analysis report
AI1.3	Feasibility study and formulation of alternative courses of action
AI1.4	Requirements and feasibility decision and approval
AI2	**Acquire and maintain application software**
AI2.1	High-level design
AI2.2	Detailed design
AI2.3	Application control and auditability
AI2.4	Application security and availability
AI2.5	Configuration and implementation of acquired application software
AI2.6	Major upgrades to existing systems
AI2.7	Development of application software
AI2.8	Software quality assurance
AI2.9	Application requirements management
AI2.10	Application software maintenance
AI3	**Acquire and maintain technology infrastructure**
AI3.1	Technological infrastructure acquisition plan
AI3.2	Infrastructure resource protection and availability
AI3.3	Infrastructure maintenance
AI3.4	Feasibility test environment
AI4	**Enable operation and use**
AI4.1	Planning for operational solutions
AI4.2	Knowledge transfer to business management
AI4.3	Knowledge transfer to end users
AI4.4	Knowledge transfer to operations and support staff

AI5	**Procure IT resources**
AI5.1	Procurement control
AI5.2	Supplier contract management
AI5.3	Supplier selection
AI5.4	Software acquisition
AI5.5	Acquisition of development resources
AI5.6	Acquisition of infrastructure, facilities and related services
AI6	**Manage changes**
AI6.1	Change standards and procedures
AI6.2	Impact assessment, prioritisation and authorisation
AI6.3	Emergency changes
AI6.4	Change status tracking and reporting
AI6.5	Change closure and documentation
AI7	**Install and accredit solutions and changes**
AI7.1	Training
AI7.2	Test plan
AI7.3	Implementation plan
AI7.4	Test environment
AI7.5	System and data conversion
AI7.6	Testing of changes
AI7.7	Final acceptance test
AI7.8	Promotion to production
AI7.9	Software release
AI7.10	System distribution
AI7.11	Recording and tracking of changes
AI7.12	Post-implementation review

COBIT 4, Deliver and Support (DS)

DS1	**Define and manage service levels**	
DS1.1	Service level agreement framework	
DS1.2	Definition of services	
DS1.3	Service level agreements	
DS1.4	Operating level agreements	
DS1.5	Monitoring and reporting of service level achievements	
DS1.6	Review of service level agreements and contracts	
DS2	**Manage third-party services**	
DS2.1	Identification of all supplier relationships	
DS2.2	Supplier relationship management	
DS2.3	Supplier risk management	
DS2.4	Supplier performance monitoring	
DS3	Manage performance and capacity	
DS3.1	Performance and capacity planning	
DS3.2	Current capacity and performance	
DS3.3	Future capacity and performance	
DS3.4	IT resources availability	
DS3.5	Monitoring and reporting	
DS4	**Ensure continuous service**	
DS4.1	IT continuity framework	
DS4.2	IT continuity plans	
DS4.3	Critical IT resources	
DS4.4	Maintenance of the IT continuity plan	
DS4.5	Testing of the IT continuity plan	
DS4.6	IT continuity plan training	
DS4.7	Distribution of the IT continuity plan	
DS4.8	IT-Services recovery and resumption	
DS4.9	Offsite backup storage	
DS4.10	Post-resumption review	
DS5	**Ensure systems security**	
DS5.1	Management of IT security	
DS5.2	IT security plan	
DS5.3	Identity management	
DS5.4	User account management	
DS5.5	Security testing, surveillance and monitoring	
DS5.6	Security incident definition	
DS5.7	Protection of security technology	
DS5.8	Cryptographic key management	
DS5.9	Malicious software prevention, detection and correction	
DS5.10	Network security	
DS5.11	Exchange of sensitive data	

DS6	**Identify and allocate costs**	
DS6.1	Definition of services	
DS6.2	IT accounting	
DS6.3	Cost modelling and charging	
DS6.4	Cost model maintenance	
DS7	**Educate and train users**	
DS7.1	Identification of education and training needs	
DS7.2	Delivery of training and education	
DS7.3	Evaluation of training received	
DS8	**Manage service desk and incidents**	
DS8.1	Service desk	
DS8.2	Registration of customer queries	
DS8.3	Incident escalation	
DS8.4	Incident closure	
DS8.5	Trend analysis	
DS9	**Manage the configuration**	
DS9.1	Configuration Repository and Baseline	
DS9.2	Identification and maintenance of configuration items	
DS9.3	Configuration Integrity Review	
DS10	**Manage problems**	
DS10.1	Identification and classification of problems	
DS10.2	Problem tracking and resolution	
DS10.3	Problem closure	
DS10.4	Integration of change, configuration and problem management	
DS11	**Manage data**	
DS11.1	Business requirements for data management	
DS11.2	Storage and retention arrangements	
DS11.3	Media library management system	
DS11.4	Disposal	
DS11.5	Backup and Restoration	
DS11.6	Security requirements for data management	
DS12	**Manage the physical environment**	
DS12.1	Site selection and layout	
DS12.2	Physical security measures	
DS12.3	Physical access	
DS12.4	Protection against environmental factors	
DS12.5	Physical facility management	
DS13	Manage operations	
DS13.1	Operations procedures and instructions	
DS13.2	Job scheduling	
DS13.3	IT infrastructure monitoring	
DS13.4	Sensitive documents and output devices	
DS13.5	Preventive maintenance for hardware	

ME1	**Monitor and evaluate IT performance**
ME1.1	Monitoring approach
ME1.2	Definition and collection of monitoring data
ME1.3	Monitoring method
ME1.4	Performance assessment
ME1.5	Board and executive reporting
ME1.6	Remedial actions
ME2	**Monitor and evaluate internal control**
ME2.1	Monitoring of internal control framework
ME2.2	Supervisory review
ME2.3	Control exceptions
ME2.4	Control self-assessment
ME2.5	Assurance of internal control
ME2.6	Internal control at third parties
ME2.7	Remedial Actions
ME3	**Ensure regulatory compliance**
ME3.1	Identification of laws and regulations having potential impact on IT
ME3.2	Optimisation of response to regulatory requirements
ME3.3	Evaluation of compliance with regulatory requirements
ME3.4	Positive assurance of compliance
ME3.5	Integrated Reporting
ME4	**Provide IT-governance**
ME4.1	Establishment of an IT governance framework
ME4.2	Strategic alignment
ME4.3	Value delivery
ME4.4	Ressource management
ME4.5	Risk management
ME4.6	Performance measurement
ME4.7	Independent assurance