ITGI Japan

IT
GOVERNANCE
INSTITUTE®
LEADING THE IT GOVERNANCE COMMUNITY

COBIT & ITIL usage for SOX
- current and future

Robert E Stroud
International Vice President ISACA
Evangelist ITSM & IT Governance CA, Inc.

Japan, November 8, 2007

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ITGI, CA nor the speaker warrant or guarantee the concepts or the accuracy of information provided herein.

Robert Stroud

- 26 years Industry Experience
- 15+ years Banking Industry
- IT Governance
  - International Vice President ISACA¥ITGI
  - Chair COBIT Steering Committee
  - Member ITGC
  - Contributor to COBIT V4 and V4.1
  - Contributor to Basel II Guidance
- ITSM
  - itSMF USA Board of Directors
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  - Member ITIL V3 Advisory Group
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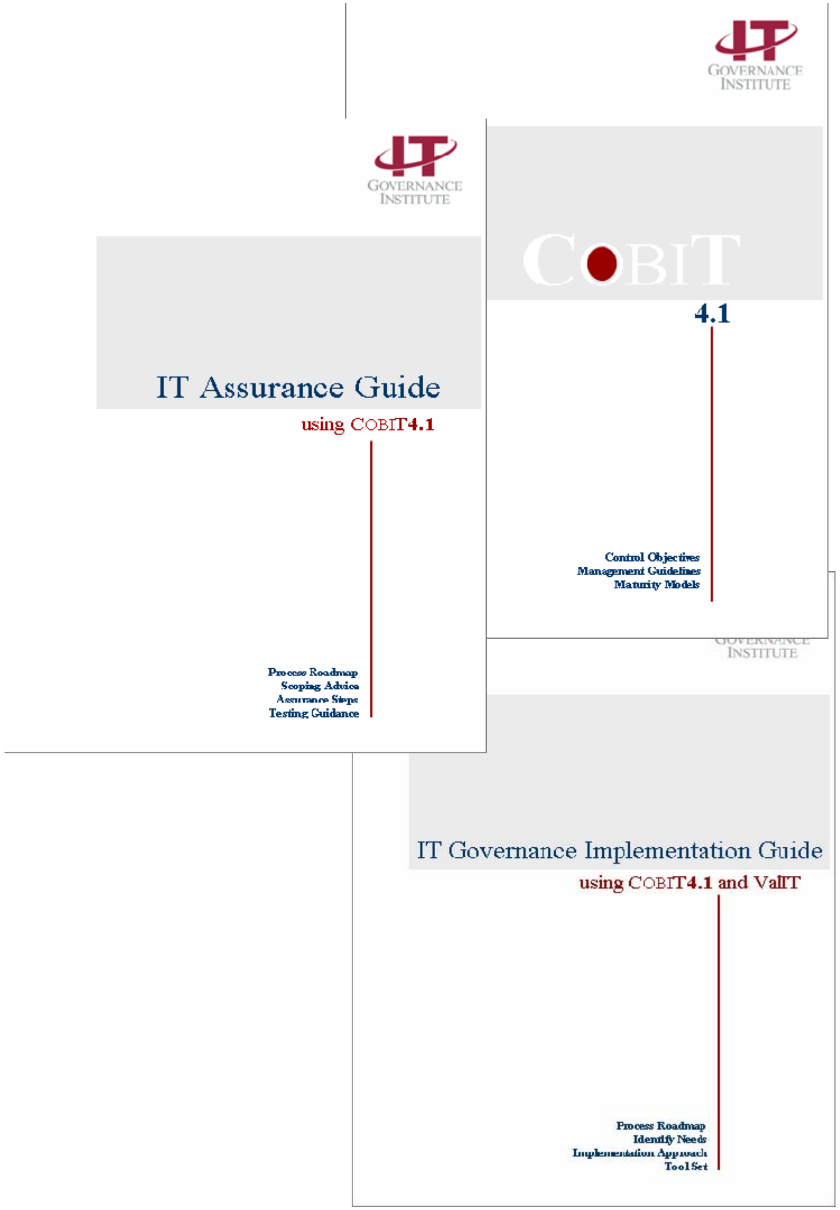
  - Reviewer ITIL V3
  - Contributor ITIL Business Perspectives Volume II
  - Author ITIL¥COBIT¥ISO17799 Management Overview

Agenda

- Frameworks
  - COBIT
  - ITIL
  - ISO/IEC 20000
- USING COBIT with ITIL
- Summary

Agenda

- SOX and JSOX
- Frameworks
  - **COBIT**
  - ITIL
  - ISO/IEC 20000
- USING COBIT with ITIL
- Practical experience
- Summary



IT Governance Institute

COBIT 4.1

Control Objectives
Management Guidelines
Maturity Models

IT Governance Institute

IT Assurance Guide
using COBIT 4.1

Process Roadmap
Scoping Advice
Assurance Steps
Testing Guidance

IT Governance Institute

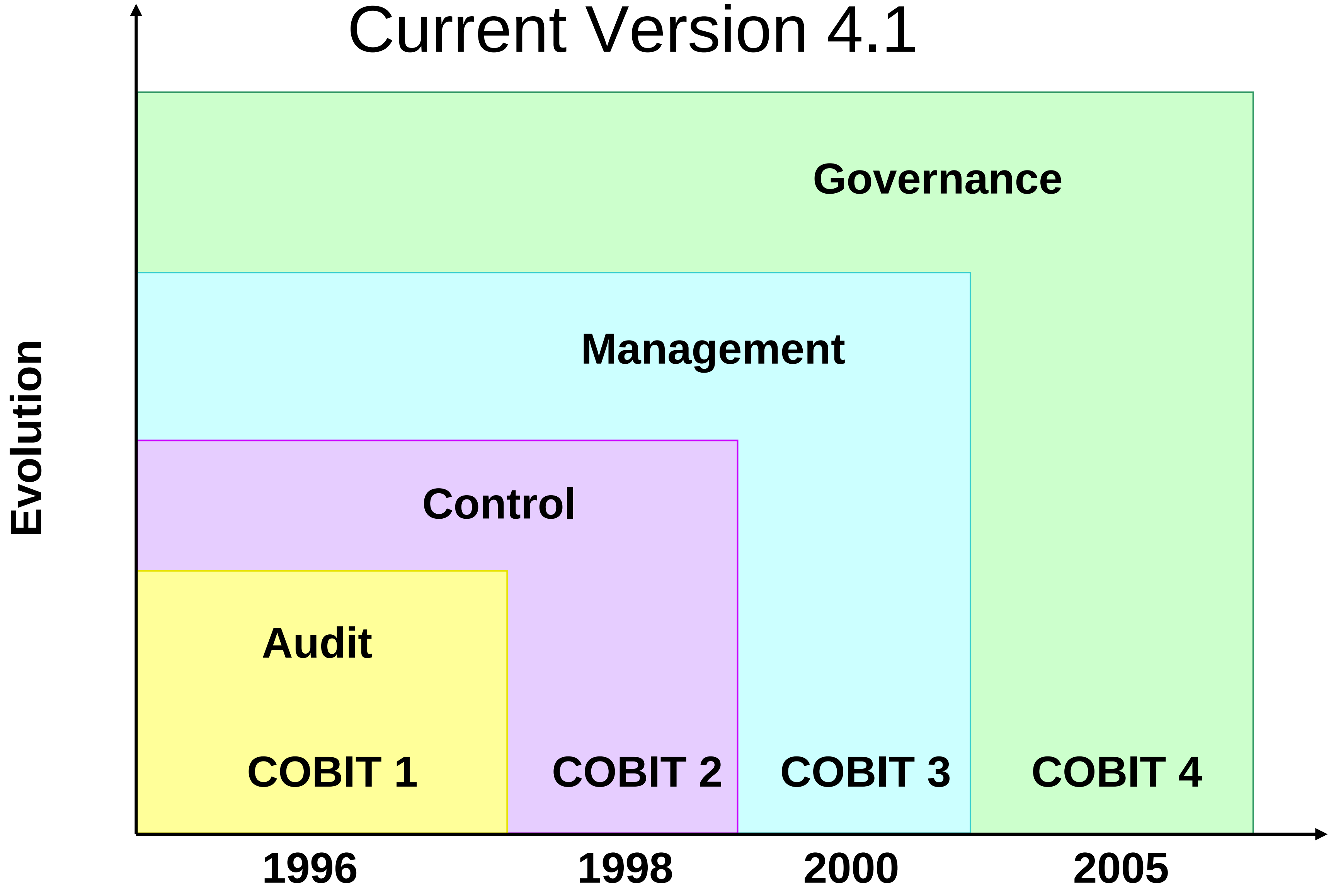
IT Governance Implementation Guide
using COBIT 4.1 and ValIT

Process Roadmap
Identify Needs
Implementation Approach
Tool Set

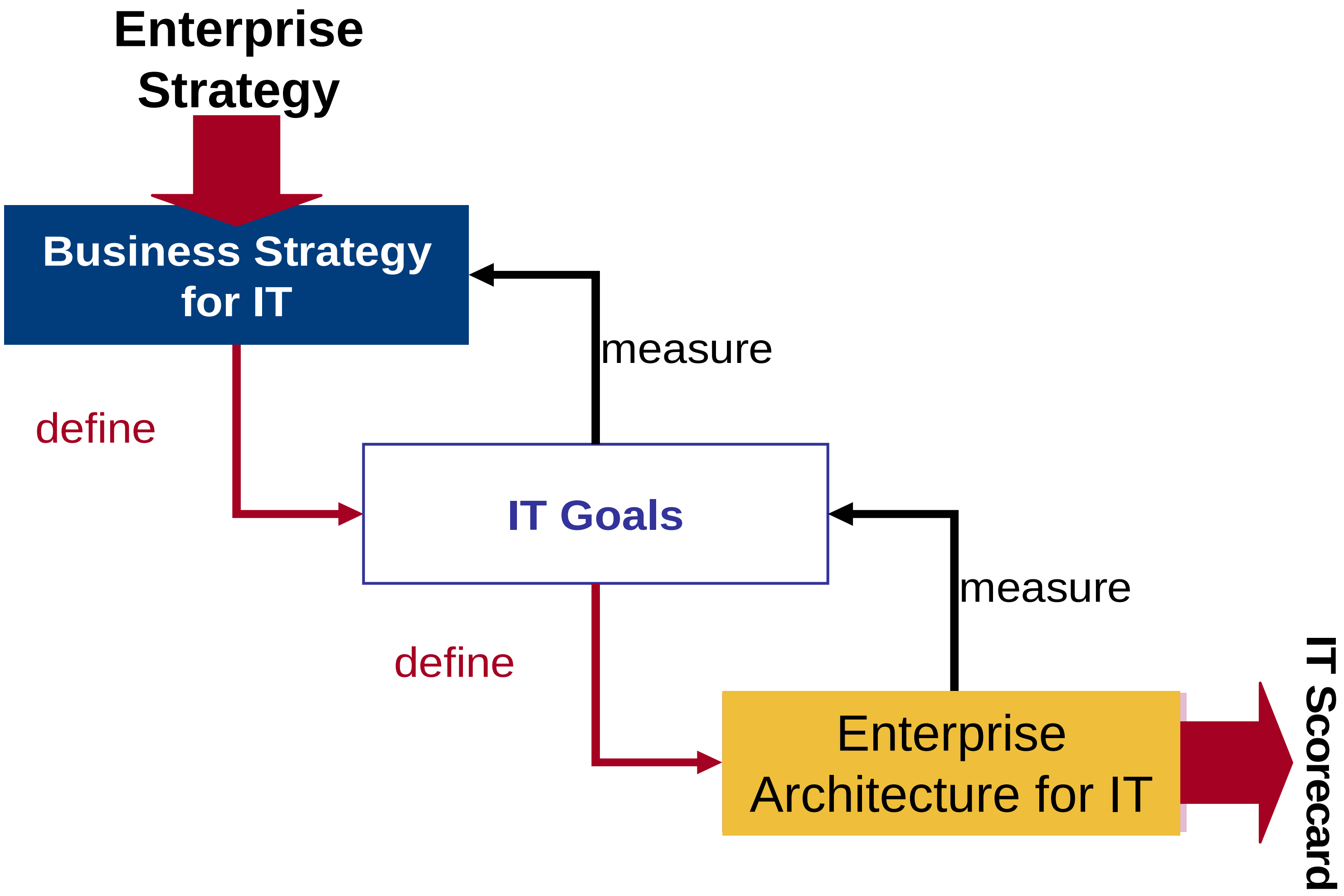
What is COBIT®?

- **C**ontrol **OB**jectives for **I**nformation and related **T**echnology
- A framework for IT governance
- Bridges the gaps between business risks, control needs and technical issues
- Documents good (best) practices
- Increasing Global 2000 adoption
- Compliance has lead to increasing use…..

COBIT Evolution



Top-down approach



Enterprise Strategy

Business Strategy for IT

define

IT Goals

measure

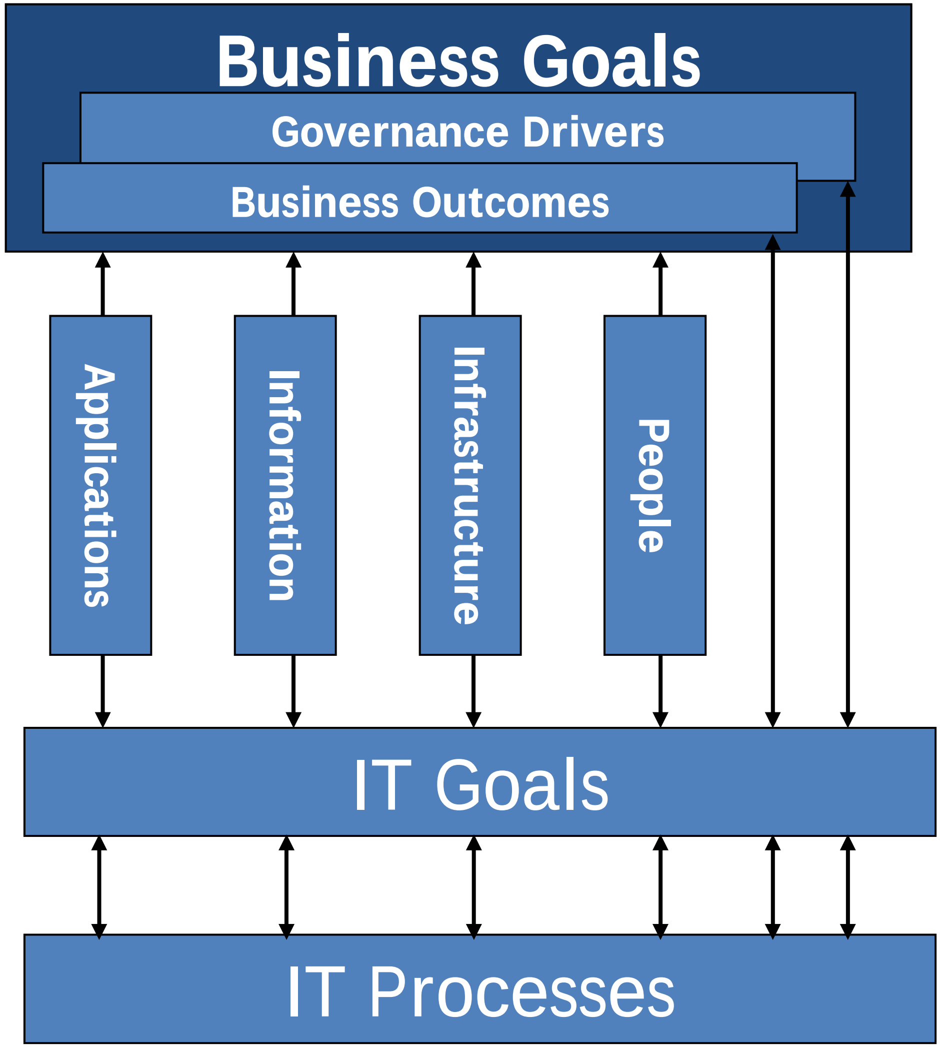
define

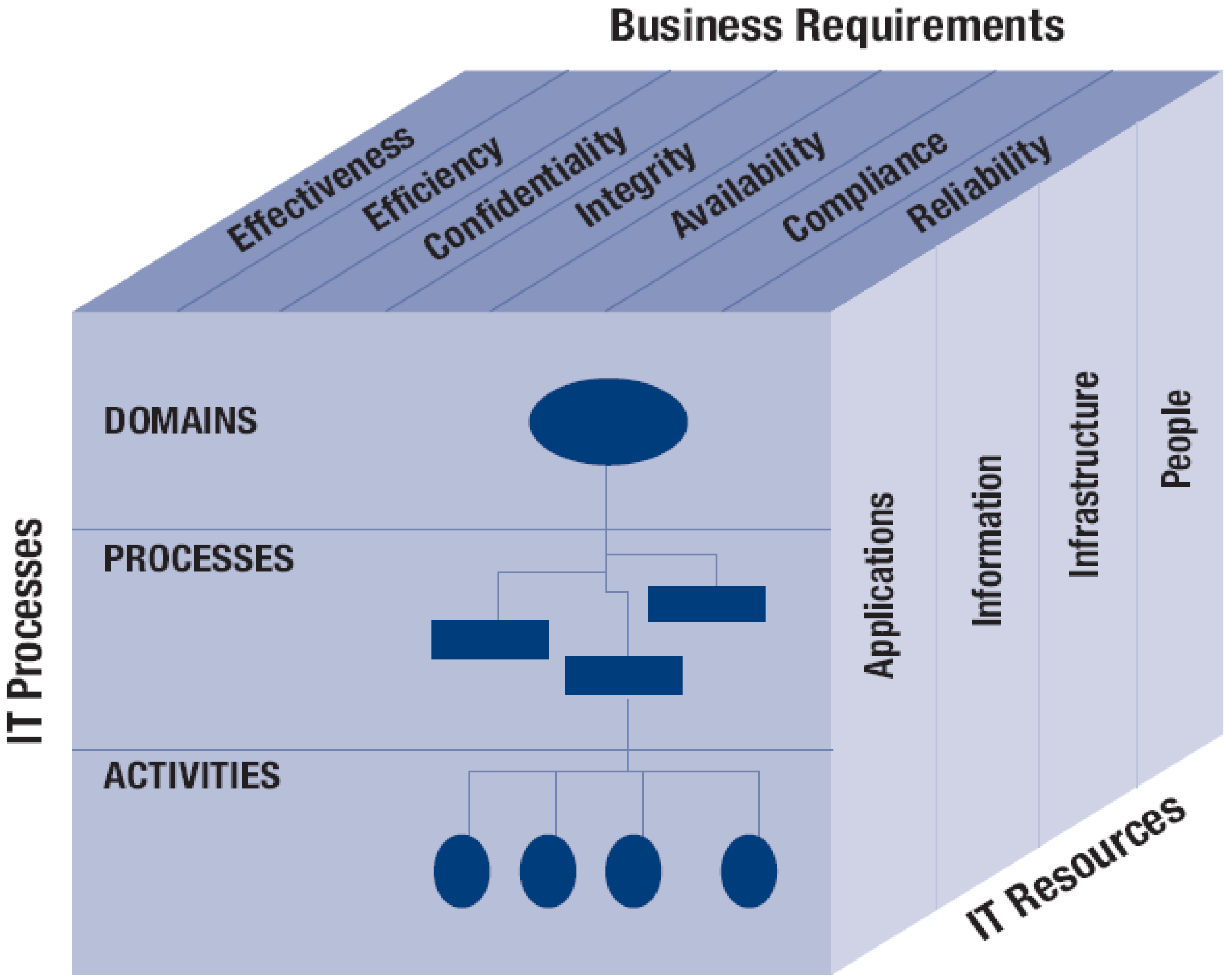
Enterprise Architecture for IT

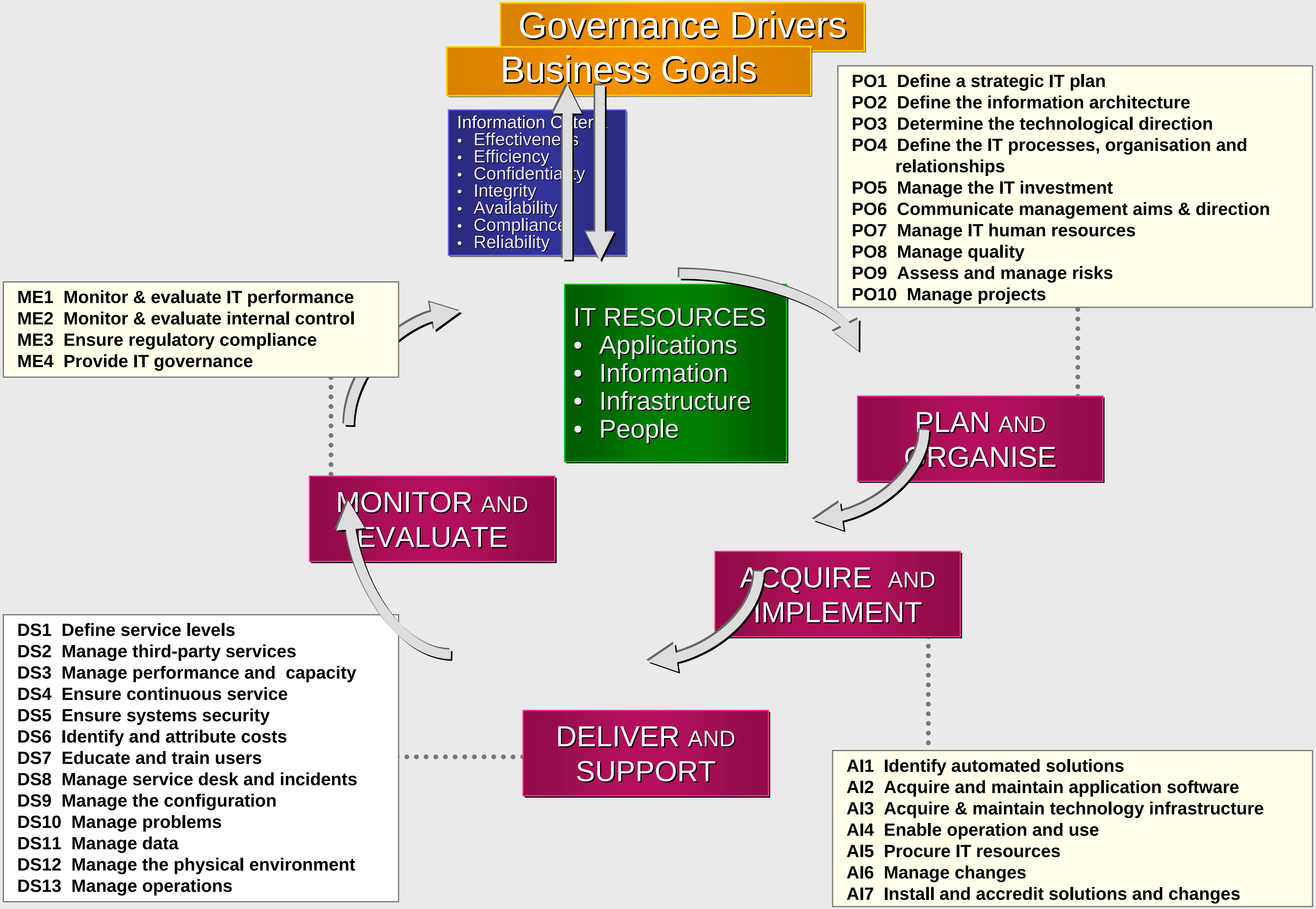
measure

IT Scorecard

How Do Governance and the Business Drive IT?




Business Requirements
Effectiveness
Efficiency
Confidentiality
Integrity
Availability
Compliance
Reliability
IT Processes
DOMAINS
PROCESSES
ACTIVITIES
Applications
Information
Infrastructure
People
IT Resources



Governance Drivers

Business Goals

Information Criteria
- Effectiveness
- Efficiency
- Confidentiality
- Integrity
- Availability
- Compliance
- Reliability

IT RESOURCES
- Applications
- Information
- Infrastructure
- People

PO1 Define a strategic IT plan
PO2 Define the information architecture
PO3 Determine the technological direction
PO4 Define the IT processes, organisation and relationships
PO5 Manage the IT investment
PO6 Communicate management aims & direction
PO7 Manage IT human resources
PO8 Manage quality
PO9 Assess and manage risks
PO10 Manage projects

PLAN AND ORGANISE

ME1 Monitor & evaluate IT performance
ME2 Monitor & evaluate internal control
ME3 Ensure regulatory compliance
ME4 Provide IT governance

MONITOR AND EVALUATE

ACQUIRE AND IMPLEMENT

AI1 Identify automated solutions
AI2 Acquire and maintain application software
AI3 Acquire & maintain technology infrastructure
AI4 Enable operation and use
AI5 Procure IT resources
AI6 Manage changes
AI7 Install and accredit solutions and changes

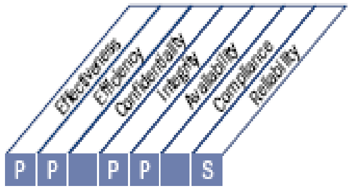
DELIVER AND SUPPORT

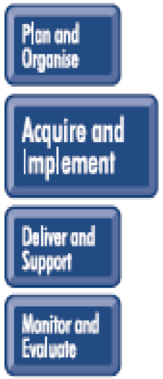
DS1 Define service levels
DS2 Manage third-party services
DS3 Manage performance and capacity
DS4 Ensure continuous service
DS5 Ensure systems security
DS6 Identify and attribute costs
DS7 Educate and train users
DS8 Manage service desk and incidents
DS9 Manage the configuration
DS10 Manage problems
DS11 Manage data
DS12 Manage the physical environment
DS13 Manage operations

AI6 Manage Changes

All changes, including emergency maintenance and patches, relating to infrastructure and applications within the production environment must be formally managed in a controlled manner. Changes (including procedures, processes, system and service parameters) must be logged, assessed and authorised prior to implementation and reviewed against planned outcomes following implementation. This assures mitigation of the risks of negatively impacting the stability or integrity of the production environment.

Process description





IT domain & Information indicators

Control over the IT process of

Manage changes

that satisfies the business requirement for IT of

responding to business requirements in alignment with the business strategy, whilst reducing solution and service delivery defects and rework

IT goals

by focusing on

controlling impact assessment, authorisation and implementation of all changes to the IT infrastructure, applications and technical solutions, minimising errors due to incomplete request specifications and halting implementation of unauthorised changes

Process goals

is achieved by

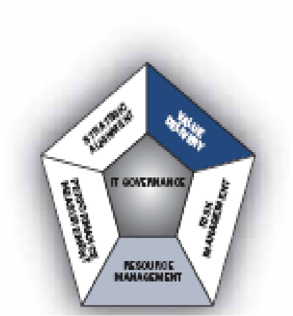
- Defining and communicating change procedures, including emergency changes
- Assessing, prioritising and authorising changes
- Tracking status and reporting on changes

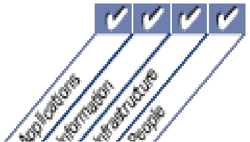
Key practices

and is measured by

- Number of disruptions or data errors caused by inaccurate specifications or incomplete impact assessment
- Application or infrastructure rework caused by inadequate change specifications
- Percent of changes that follow formal change control processes

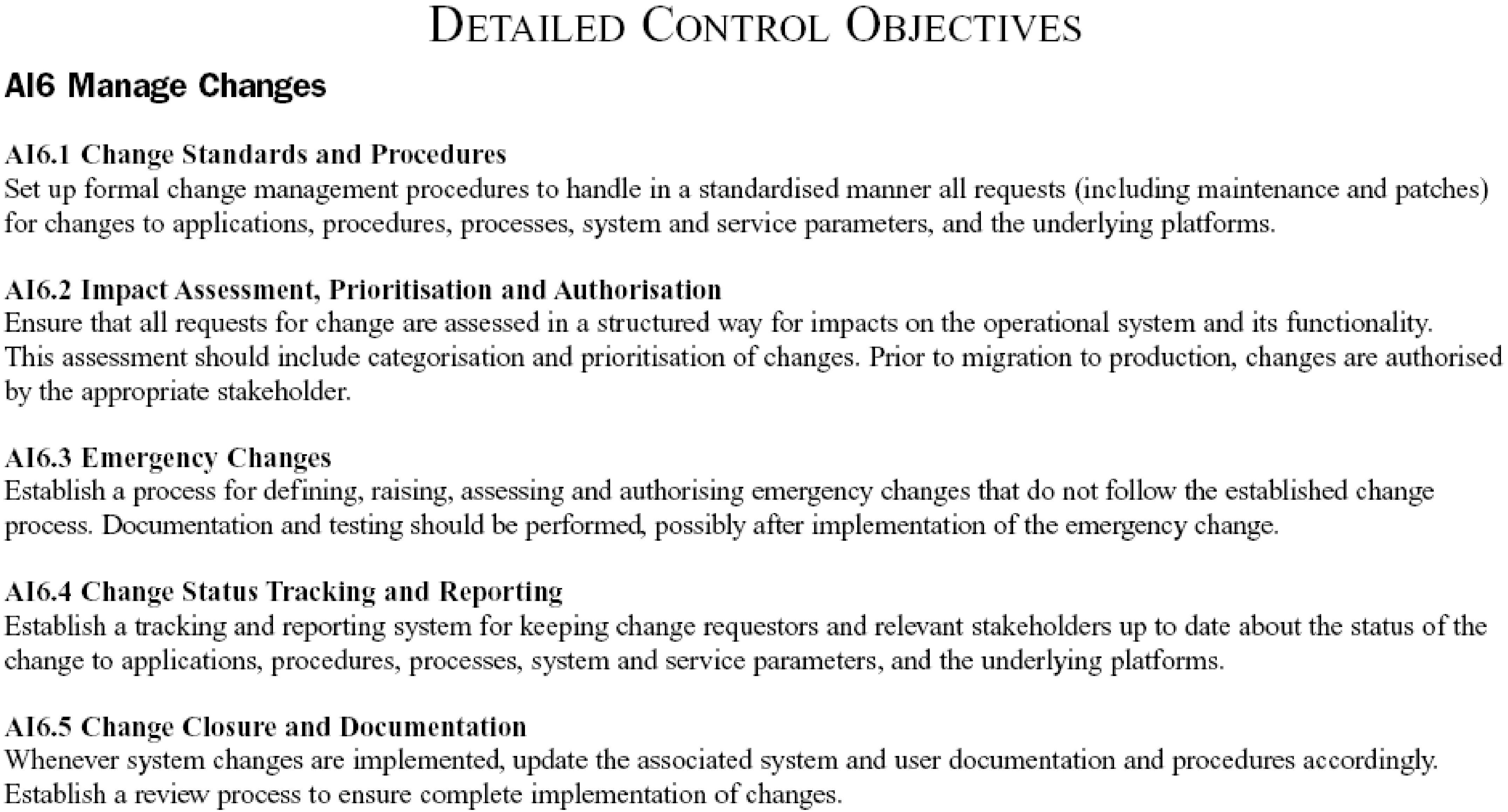
Key metrics





IT Governance & IT Resource indicators

Detailed Control Objectives



Detailed Control Objectives

AI6 Manage Changes

AI6.1 Change Standards and Procedures
Set up formal change management procedures to handle in a standardised manner all requests (including maintenance and patches) for changes to applications, procedures, processes, system and service parameters, and the underlying platforms.

AI6.2 Impact Assessment, Prioritisation and Authorisation
Ensure that all requests for change are assessed in a structured way for impacts on the operational system and its functionality. This assessment should include categorisation and prioritisation of changes. Prior to migration to production, changes are authorised by the appropriate stakeholder.

AI6.3 Emergency Changes
Establish a process for defining, raising, assessing and authorising emergency changes that do not follow the established change process. Documentation and testing should be performed, possibly after implementation of the emergency change.

AI6.4 Change Status Tracking and Reporting
Establish a tracking and reporting system for keeping change requestors and relevant stakeholders up to date about the status of the change to applications, procedures, processes, system and service parameters, and the underlying platforms.

AI6.5 Change Closure and Documentation
Whenever system changes are implemented, update the associated system and user documentation and procedures accordingly. Establish a review process to ensure complete implementation of changes.

AI6 – Manage Changes

- All changes, including emergency maintenance and patches, relating to infrastructure and applications within the production environment are formally managed in a controlled manner. Changes (including those to procedures, processes, system and service parameters) are logged, assessed and authorised prior to implementation and reviewed against planned outcomes following implementation. This assures mitigation of the risks of negatively impacting the stability or integrity of the production environment..
- Control over the IT Process of
  - Manage Changes
  - that satisfies the business requirement for IT of responding to business requirements in alignment with the business strategy, whilst reducing solution and service delivery defects and rework
  - by focusing on
  - controlling impact assessment, authorisation and implementation of all changes to the IT infrastructure, applications and technical solutions; minimising errors due to incomplete request specifications; and halting implementation of unauthorised changes
    - is achieved by
    - Defining and communicating change procedures, including emergency changes
    - Assessing, prioritising and authorising change
    - Tracking status and reporting on changes
    - and is measured by
      - Number of disruptions or data errors caused by inaccurate specifications or incomplete impact assessment
      - Amount of application or infrastructure rework caused by inadequate change specifications
      - Percent of changes that follow formal change control processes

AI6 Manage Changes

From	Inputs
PO1	IT project portfolio
PO8	Quality improvement actions
PO9	IT-related risk remedial action plans
PO10	Project management guidelines and detailed project plan
DS3	Required changes
DS5	Required security changes
DS8	Service requests/requests for change
DS9-10	Requests for change (where and how to apply the fix)
DS10	Problem records

Outputs	To						
Change process description	AI1…AI3						
Change status reports	ME1						
Change authorisation	AI7	DS8	DS10				

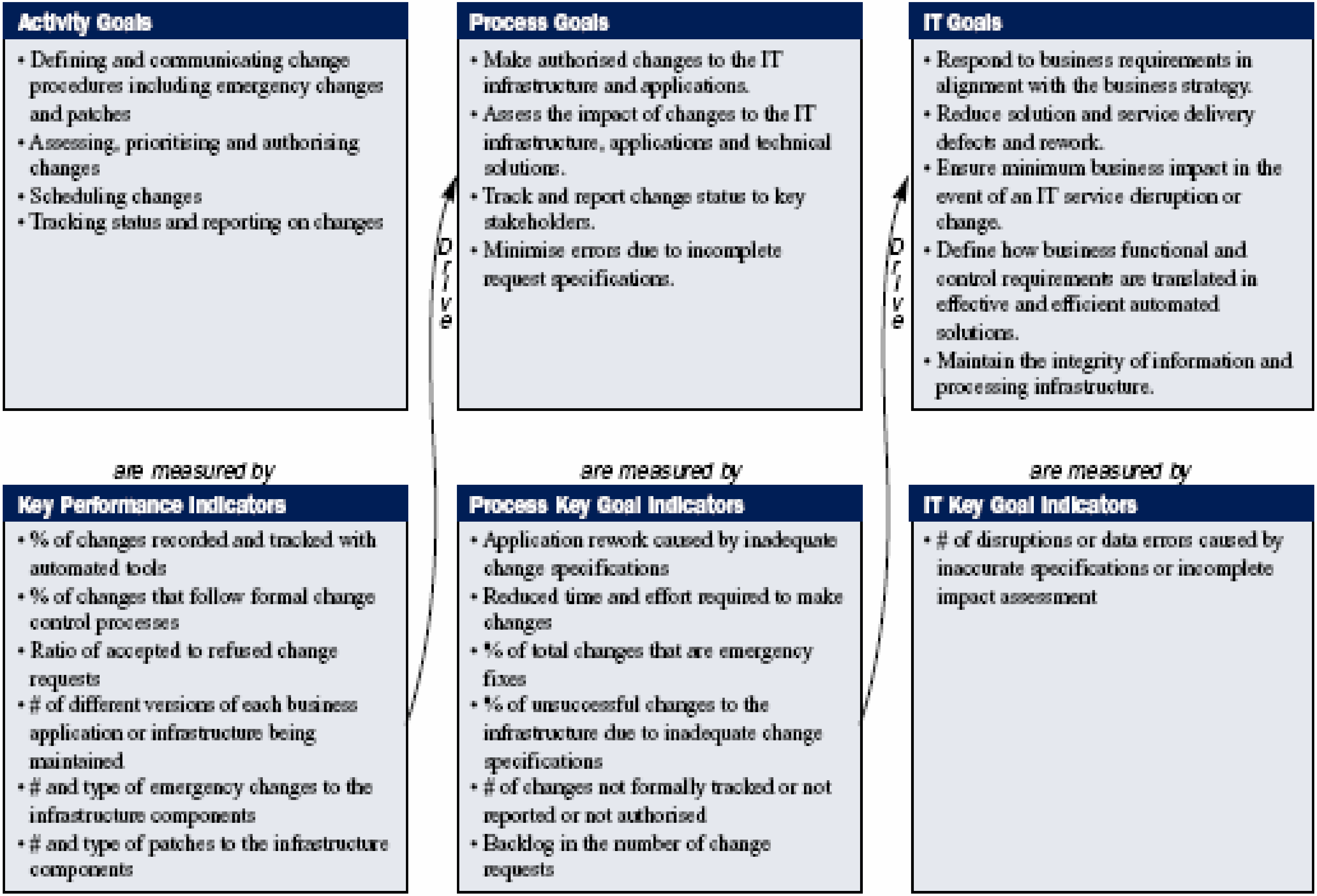
RACI Chart

Functions

Activities	CEO	CFO	Business Executive	CIO	Business Process Owner	Head Operations	Chief Architect	Head Development	Head IT Administration	PMO	Compliance, Audit, Risk and Security
Develop and implement a process to consistently record, assess and prioritise change requests.				A	I	R	C	R	C	C	C
Assess impact and prioritise changes based on business needs.				I	R	A/R	C	R	C	R	C
Assure that any emergency and critical change follows the approved process.				I	I	A/R	I	R			C
Authorise changes.				I	C	A/R		R			
Manage and disseminate relevant information regarding changes.				A	I	R	C	R	I	R	C

A RACI chart identifies who is Responsible, Accountable, Consulted and/or Informed.

Goals and Metrics



Activity Goals

- Defining and communicating change procedures including emergency changes and patches
- Assessing, prioritising and authorising changes
- Scheduling changes
- Tracking status and reporting on changes

Process Goals

- Make authorised changes to the IT infrastructure and applications.
- Assess the impact of changes to the IT infrastructure, applications and technical solutions.
- Track and report change status to key stakeholders.
- Minimise errors due to incomplete request specifications.

IT Goals

- Respond to business requirements in alignment with the business strategy.
- Reduce solution and service delivery defects and rework.
- Ensure minimum business impact in the event of an IT service disruption or change.
- Define how business functional and control requirements are translated in effective and efficient automated solutions.
- Maintain the integrity of information and processing infrastructure.

Key Performance Indicators

- % of changes recorded and tracked with automated tools
- % of changes that follow formal change control processes
- Ratio of accepted to refused change requests
- # of different versions of each business application or infrastructure being maintained
- # and type of emergency changes to the infrastructure components
- # and type of patches to the infrastructure components

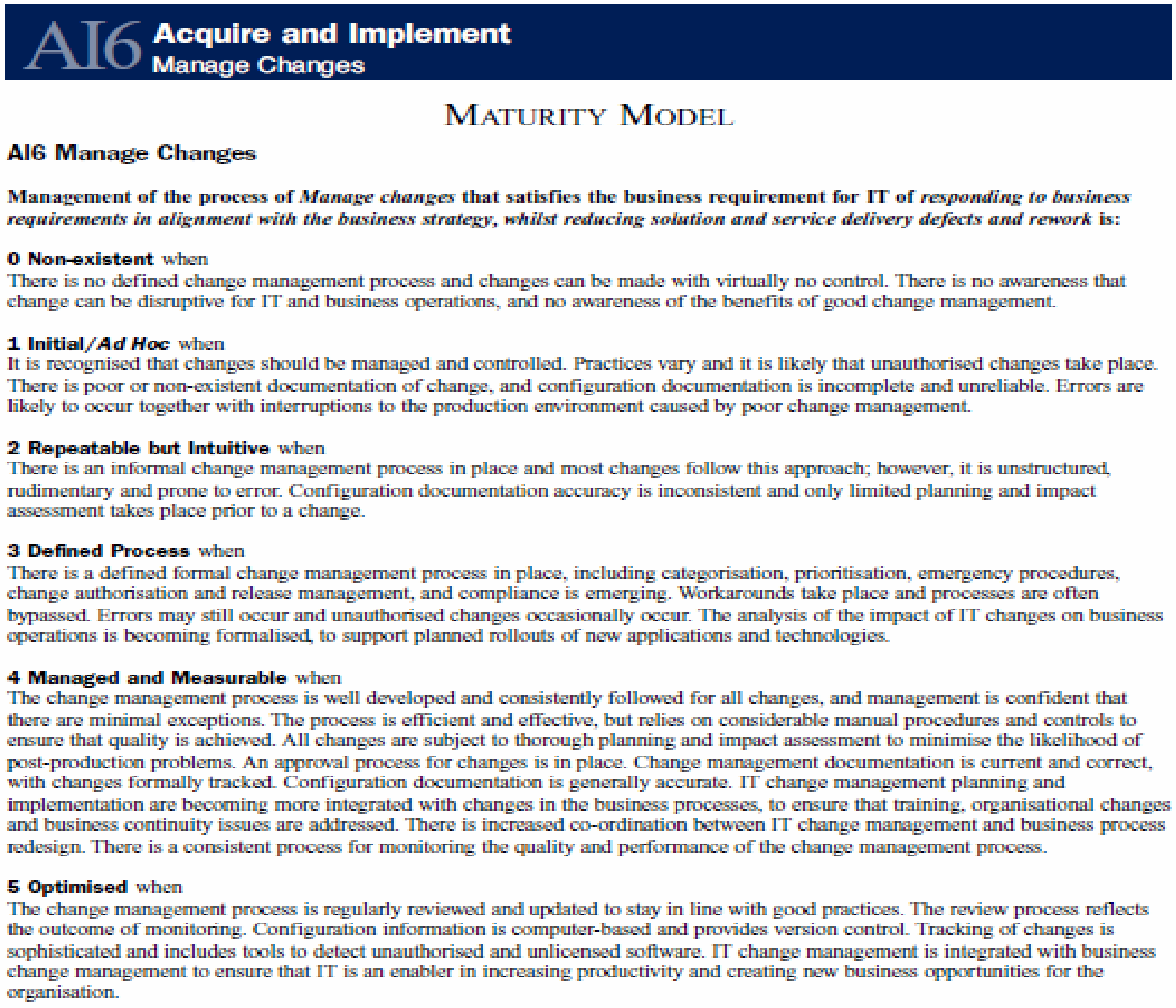
Process Key Goal Indicators

- Application rework caused by inadequate change specifications
- Reduced time and effort required to make changes
- % of total changes that are emergency fixes
- % of unsuccessful changes to the infrastructure due to inadequate change specifications
- # of changes not formally tracked or not reported or not authorised
- Backlog in the number of change requests

IT Key Goal Indicators

- # of disruptions or data errors caused by inaccurate specifications or incomplete impact assessment

COBIT Maturity Model



AI6 **Acquire and Implement**
Manage Changes

Maturity Model

AI6 Manage Changes

Management of the process of *Manage changes* that satisfies the business requirement for IT of *responding to business requirements in alignment with the business strategy, whilst reducing solution and service delivery defects and rework* is:

0 Non-existent when
There is no defined change management process and changes can be made with virtually no control. There is no awareness that change can be disruptive for IT and business operations, and no awareness of the benefits of good change management.

1 Initial/*Ad Hoc* when
It is recognised that changes should be managed and controlled. Practices vary and it is likely that unauthorised changes take place. There is poor or non-existent documentation of change, and configuration documentation is incomplete and unreliable. Errors are likely to occur together with interruptions to the production environment caused by poor change management.

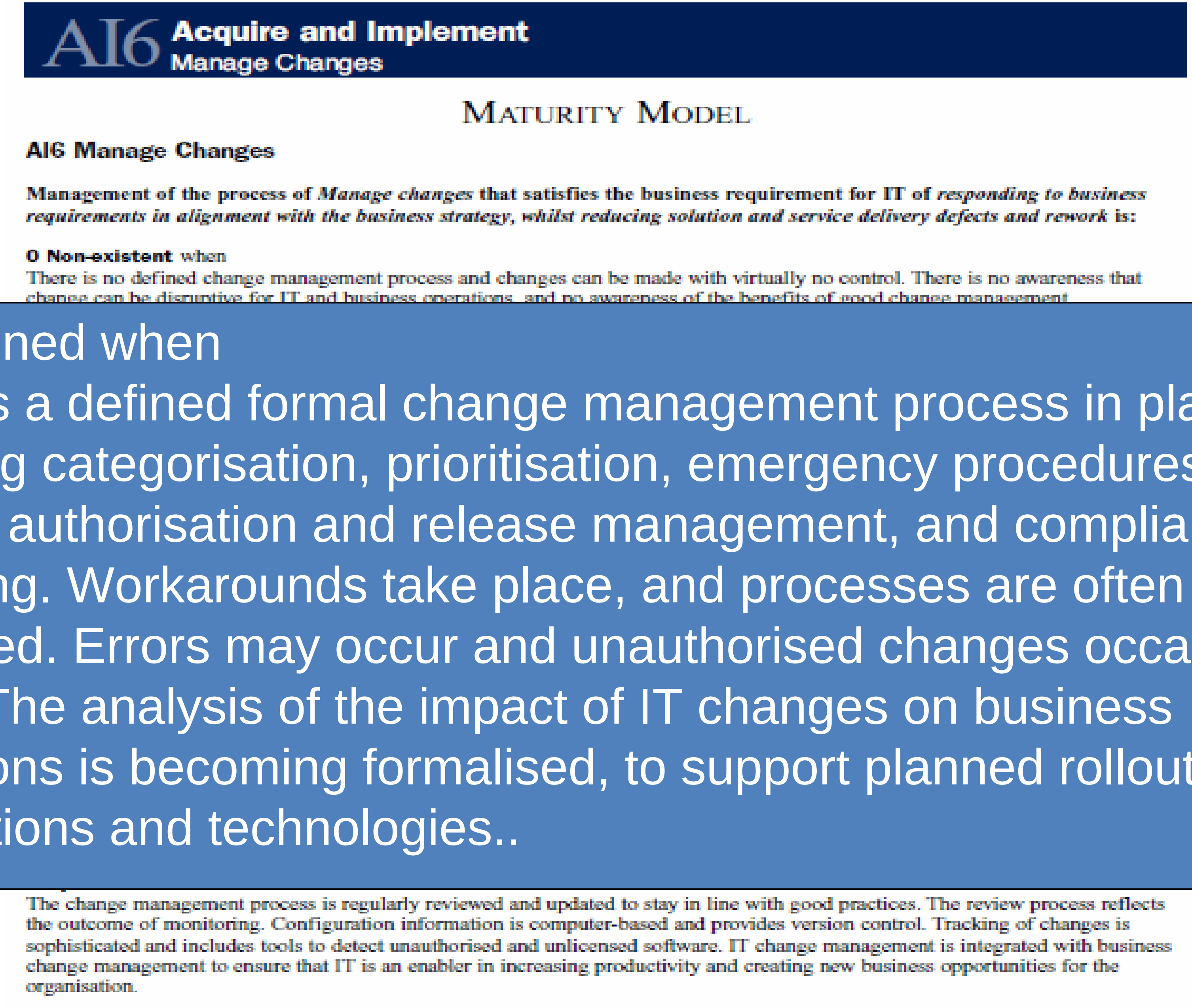
2 Repeatable but Intuitive when
There is an informal change management process in place and most changes follow this approach; however, it is unstructured, rudimentary and prone to error. Configuration documentation accuracy is inconsistent and only limited planning and impact assessment takes place prior to a change.

3 Defined Process when
There is a defined formal change management process in place, including categorisation, prioritisation, emergency procedures, change authorisation and release management, and compliance is emerging. Workarounds take place and processes are often bypassed. Errors may still occur and unauthorised changes occasionally occur. The analysis of the impact of IT changes on business operations is becoming formalised, to support planned rollouts of new applications and technologies.

4 Managed and Measurable when
The change management process is well developed and consistently followed for all changes, and management is confident that there are minimal exceptions. The process is efficient and effective, but relies on considerable manual procedures and controls to ensure that quality is achieved. All changes are subject to thorough planning and impact assessment to minimise the likelihood of post-production problems. An approval process for changes is in place. Change management documentation is current and correct, with changes formally tracked. Configuration documentation is generally accurate. IT change management planning and implementation are becoming more integrated with changes in the business processes, to ensure that training, organisational changes and business continuity issues are addressed. There is increased co-ordination between IT change management and business process redesign. There is a consistent process for monitoring the quality and performance of the change management process.

5 Optimised when
The change management process is regularly reviewed and updated to stay in line with good practices. The review process reflects the outcome of monitoring. Configuration information is computer-based and provides version control. Tracking of changes is sophisticated and includes tools to detect unauthorised and unlicensed software. IT change management is integrated with business change management to ensure that IT is an enabler in increasing productivity and creating new business opportunities for the organisation.

COBIT Maturity Model



AI6 Acquire and Implement
Manage Changes

Maturity Model

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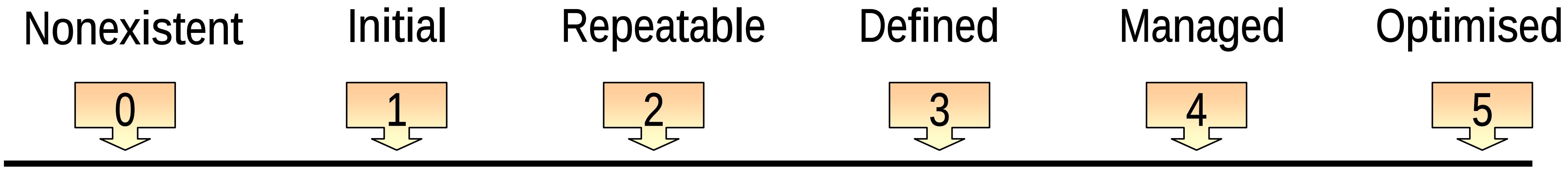
Maturity Levels in COBIT



Nonexistent 0

Initial 1

Repeatable 2

Defined 3

Managed 4

Optimised 5

0 - Management processes are not applied at all.
1 - Processes are *ad hoc* and disorganised.
2 - Processes follow a regular pattern.
3 - Processes are documented and communicated.
4 - Processes are monitored and measured.
5 - Best practices are followed and automated.

Process Controls

- 6 control principles that apply to every process
- Enabled streamlining of 4.0
- Verified and enhanced for 4.1

PC1 Process Goals and Objectives

PC2 Process Ownership

PC3 Process Repeatability

PC4 Roles and Responsibilities

PC5 Policy, Plans and Procedures

PC6 Process Performance Improvement

Application Controls

- Moved from 18 to 6
- Removed manual controls
- Moved security controls
- Consolidated and enhanced

AC1 Source Data Preparation and Authorisation

AC2 Source Data Collection and Entry

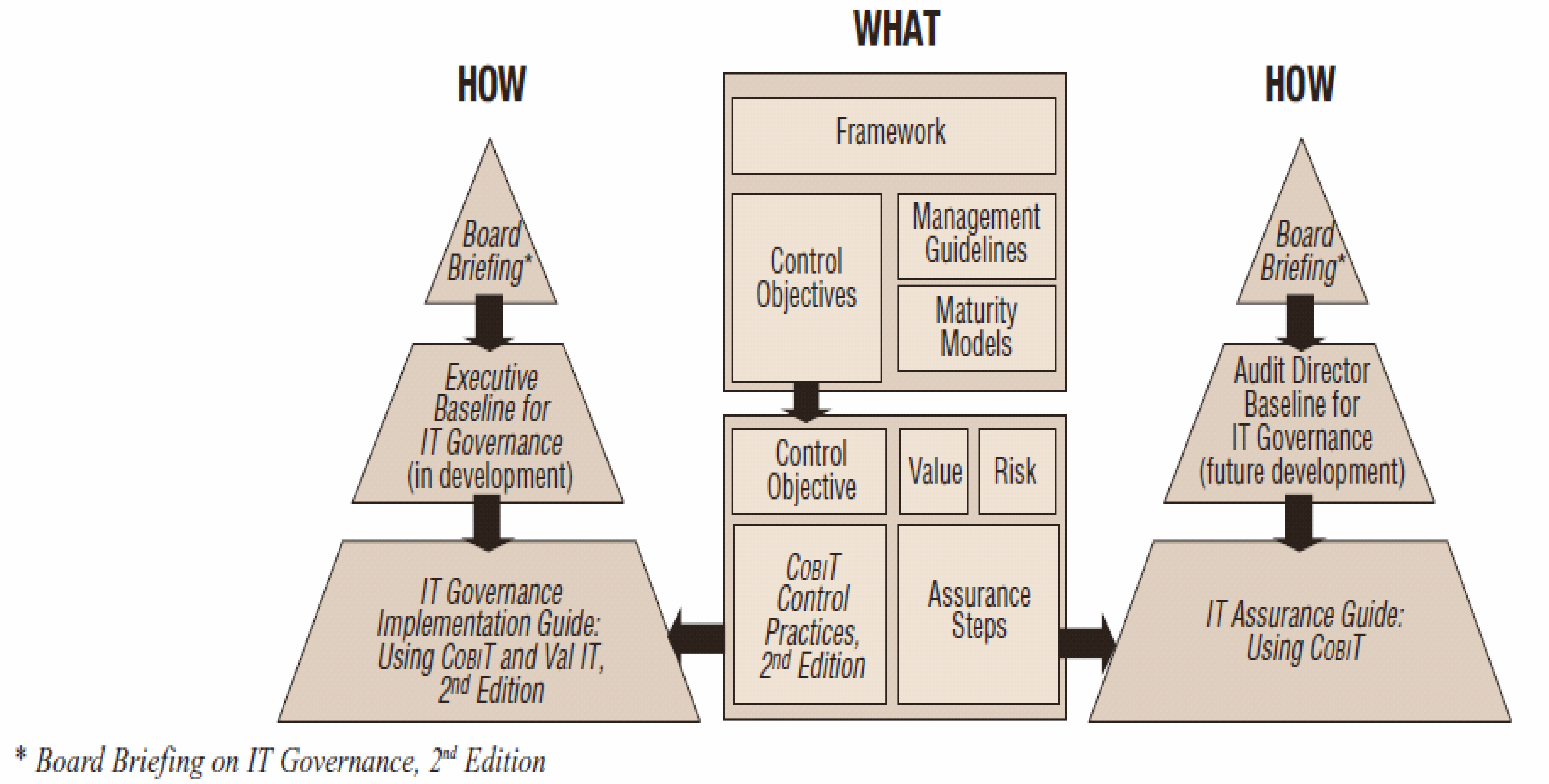
AC3 Accuracy, Completeness and Authenticity Checks

AC4 Processing Integrity and Validity

AC5 Output Review, Reconciliation and Error Handling

AC6 Transaction Authentication and Integrity

Documentation usage


WHAT
HOW
HOW
Framework
Control Objectives
Management Guidelines
Maturity Models
Board Briefing*
Executive Baseline for IT Governance (in development)
IT Governance Implementation Guide: Using CobiT and Val IT, 2nd Edition
Control Objective
Value
Risk
CobiT Control Practices, 2nd Edition
Assurance Steps
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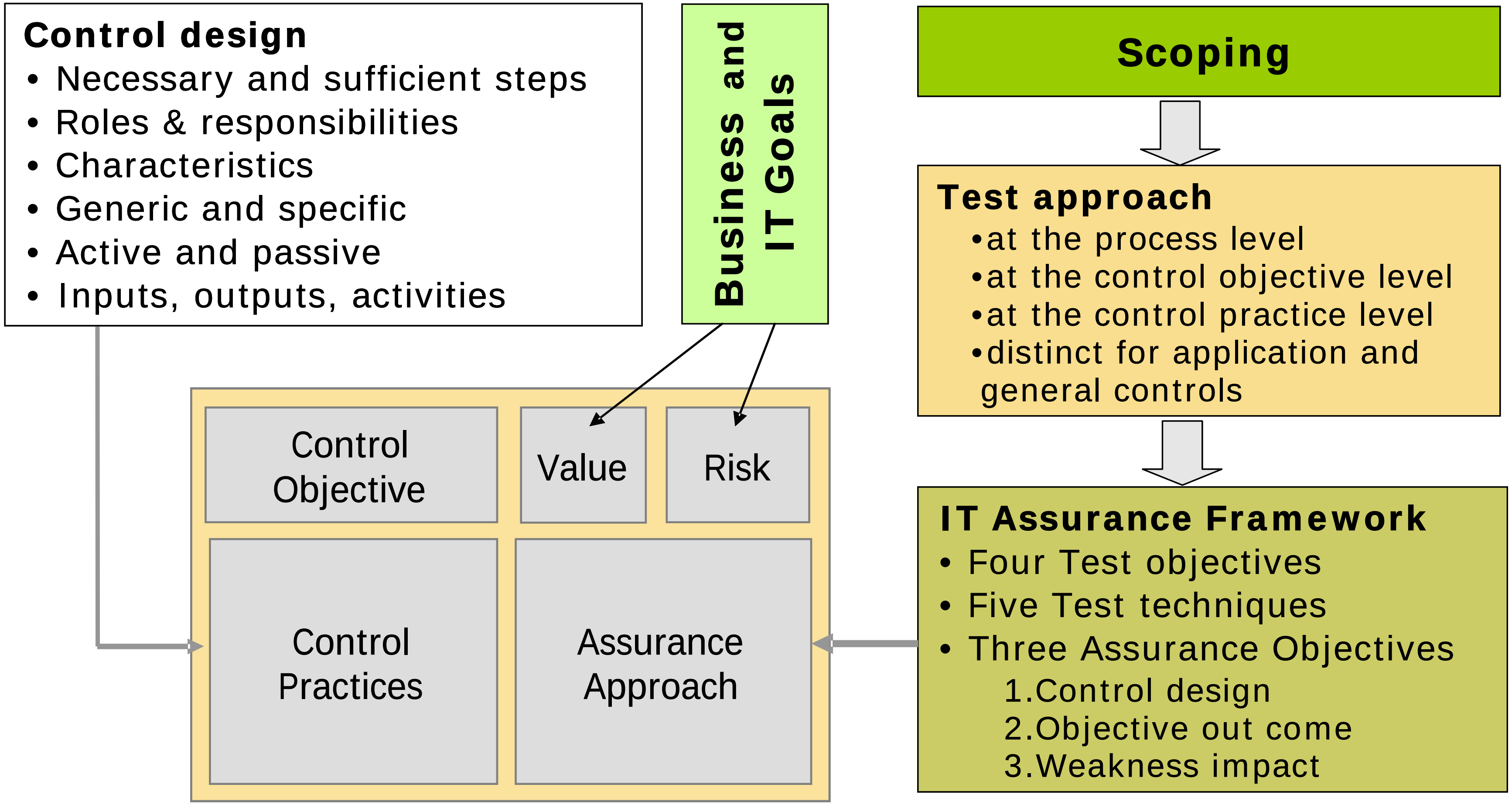
Audit Director Baseline for IT Governance (future development)
IT Assurance Guide: Using CobiT
* Board Briefing on IT Governance, 2nd Edition

IT Control Practices and Assurance Steps



Control design

- Necessary and sufficient steps
- Roles & responsibilities
- Characteristics
- Generic and specific
- Active and passive
- Inputs, outputs, activities

Business and IT Goals

Control Objective

Value

Risk

Control Practices

Assurance Approach

Scoping

Test approach

- at the process level
- at the control objective level
- at the control practice level
- distinct for application and general controls

IT Assurance Framework

- Four Test objectives
- Five Test techniques
- Three Assurance Objectives
  1. Control design
  2. Objective out come
  3. Weakness impact

Agenda

- SOX and JSOX
- Frameworks
  - COBIT
  - **ITIL**
  - ISO/IEC 20000
- USING COBIT with ITIL
- Practical experience
- Summary

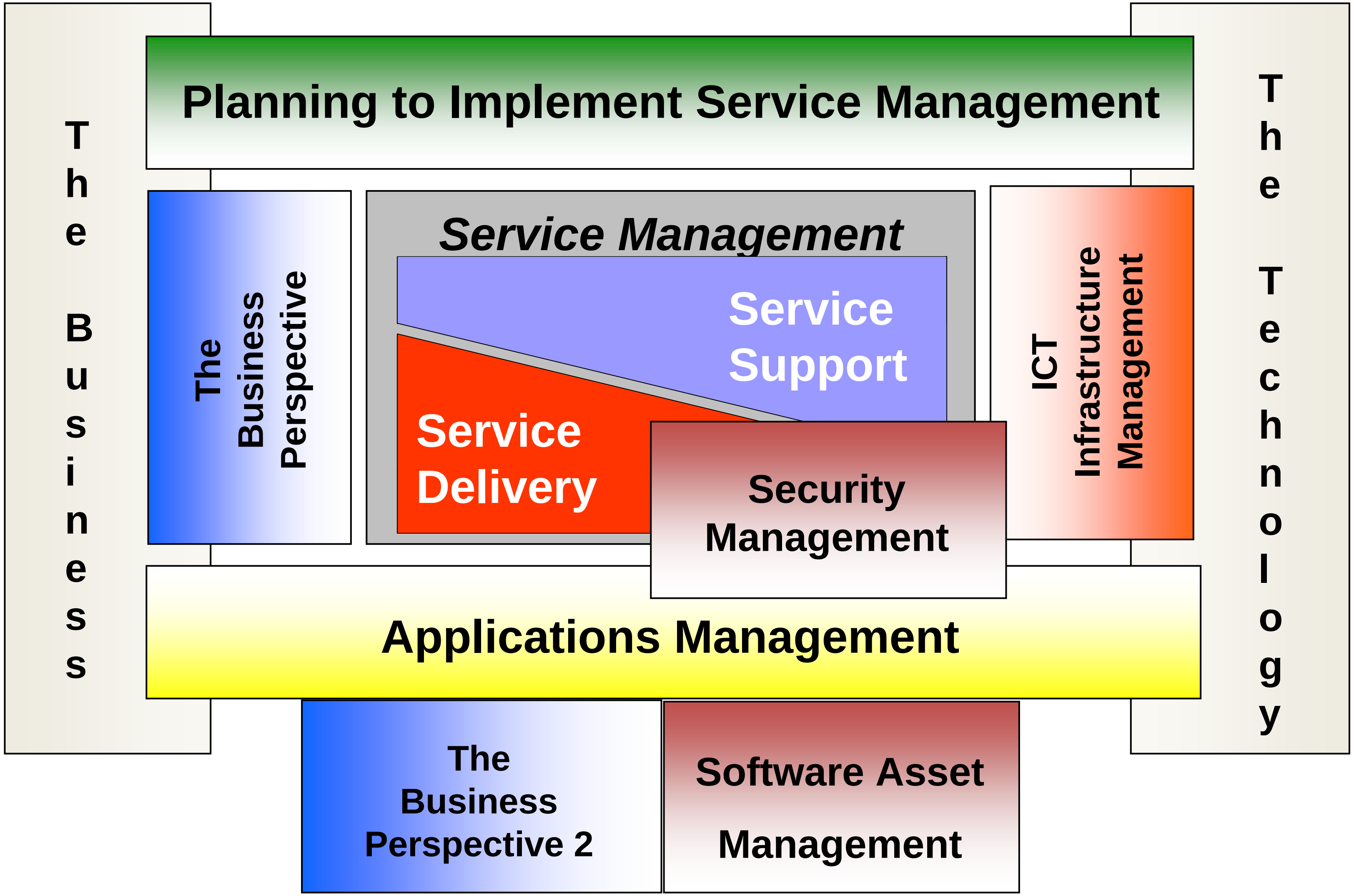
What Is ITIL®?

- IT Infrastructure Library
- An integrated best practice for the Service Lifecycle Management of IT enabled services
- The de-facto standard in IT Service Management
- A framework developed by the UK’s Office of Government Commerce (OGC) captured in a series of books

ITIL Evolution

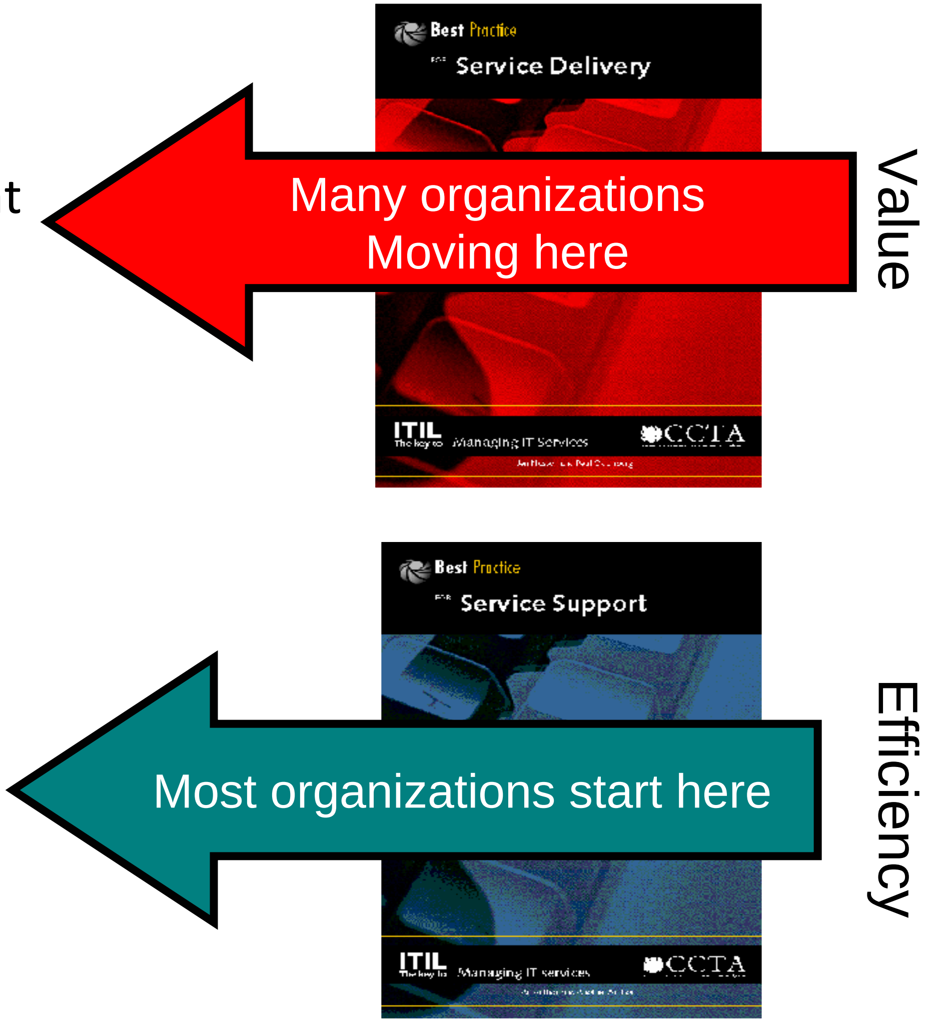
- Late 1980s
  - UK government project started
  - CCTA (OGC) involved in development plus practitioner and consulting organizations
  - First books published
- Early 1990s
  - The library completed
- Late 1990s
  - Generally accepted as the de-facto standard for IT service management worldwide
  - Introduced ITIL to North America
- 2000-2005
  - Submission to ISO¥IEC20000 – fast tracked and accepted
  - Vendor community supports ITIL and are developing products and practices in support of the framework
  - ITIL Version 3 commenced
- 2006
  - ITIL – a defacto global standard
- 2007
  - ITIL Version 3 released

The Magnificent Nine, Ten etc



Version 2 – 10 books, 2 used

- **Service Delivery**
  - Five tactical processes.
  - Describe the services a customer needs and what is needed to provide those services.
  - Transforms IT activities into strategic business value
- **Service Support**
  - Five operational processes and one function (Service Desk)
  - Describe how a customer gains access to support services
  - A foundation upon which to build business value



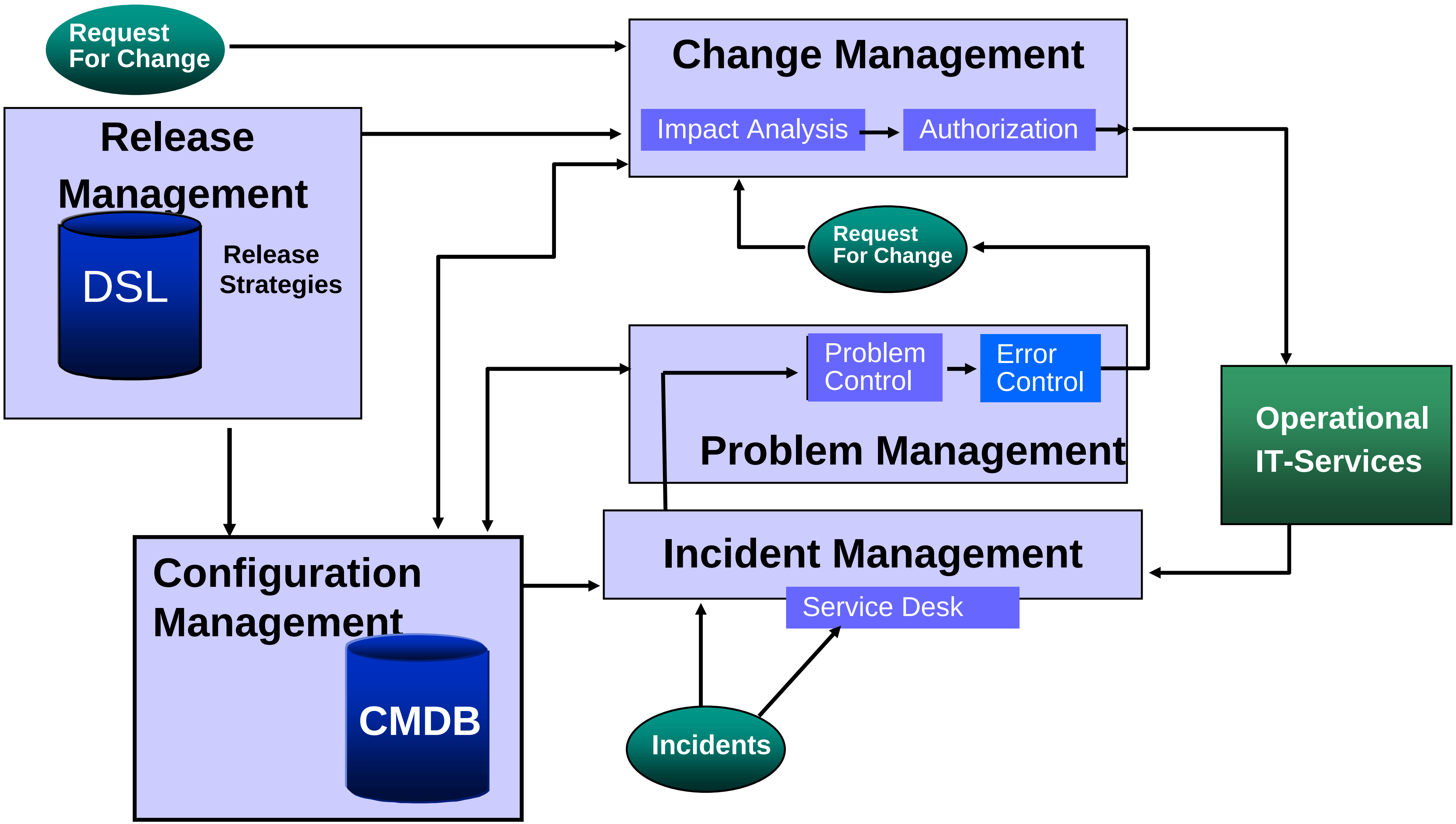
Many organizations Moving here

Value

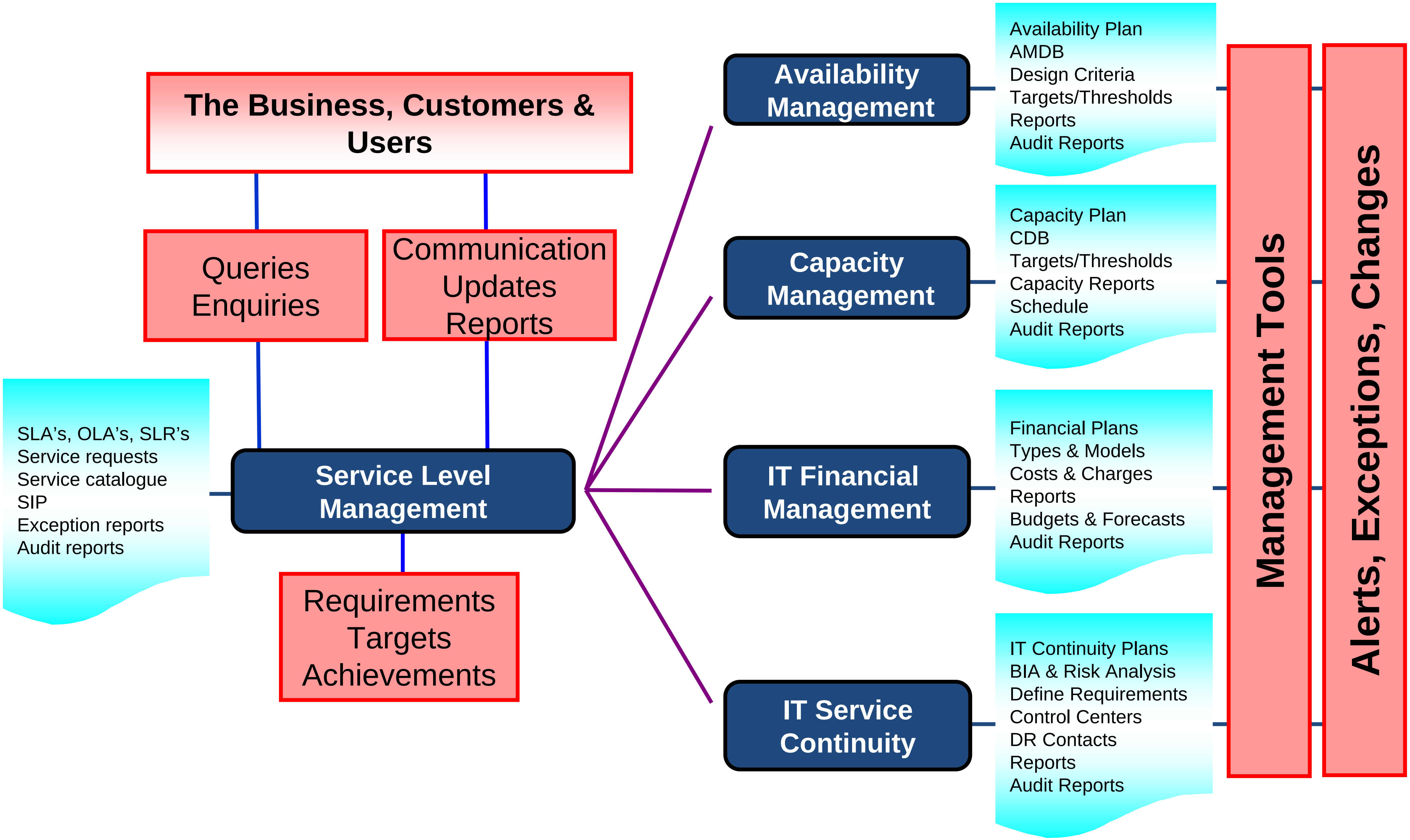
Most organizations start here

Efficiency

Service Support



Service Delivery



The Business, Customers & Users

Queries
Enquiries

Communication
Updates
Reports

SLA's, OLA's, SLR's
Service requests
Service catalogue
SIP
Exception reports
Audit reports

Service Level Management

Requirements
Targets
Achievements

Availability Management

Availability Plan
AMDB
Design Criteria
Targets/Thresholds
Reports
Audit Reports

Capacity Management

Capacity Plan
CDB
Targets/Thresholds
Capacity Reports
Schedule
Audit Reports

IT Financial Management

Financial Plans
Types & Models
Costs & Charges
Reports
Budgets & Forecasts
Audit Reports

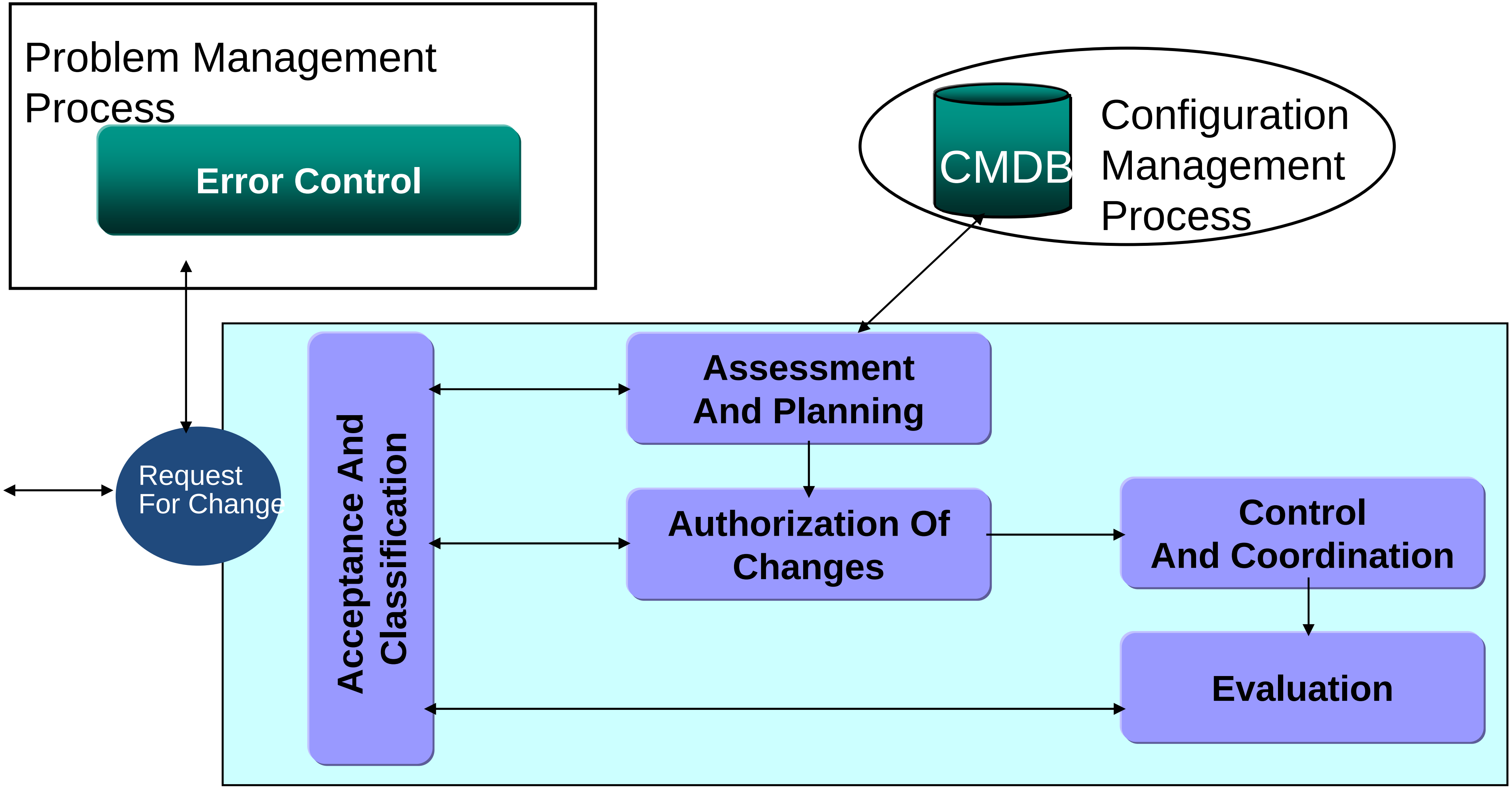
IT Service Continuity

IT Continuity Plans
BIA & Risk Analysis
Define Requirements
Control Centers
DR Contacts
Reports
Audit Reports

Management Tools

Alerts, Exceptions, Changes

Change Management Activities



Problem Management Process

Error Control

CMDB

Configuration Management Process

Request For Change

Acceptance And Classification

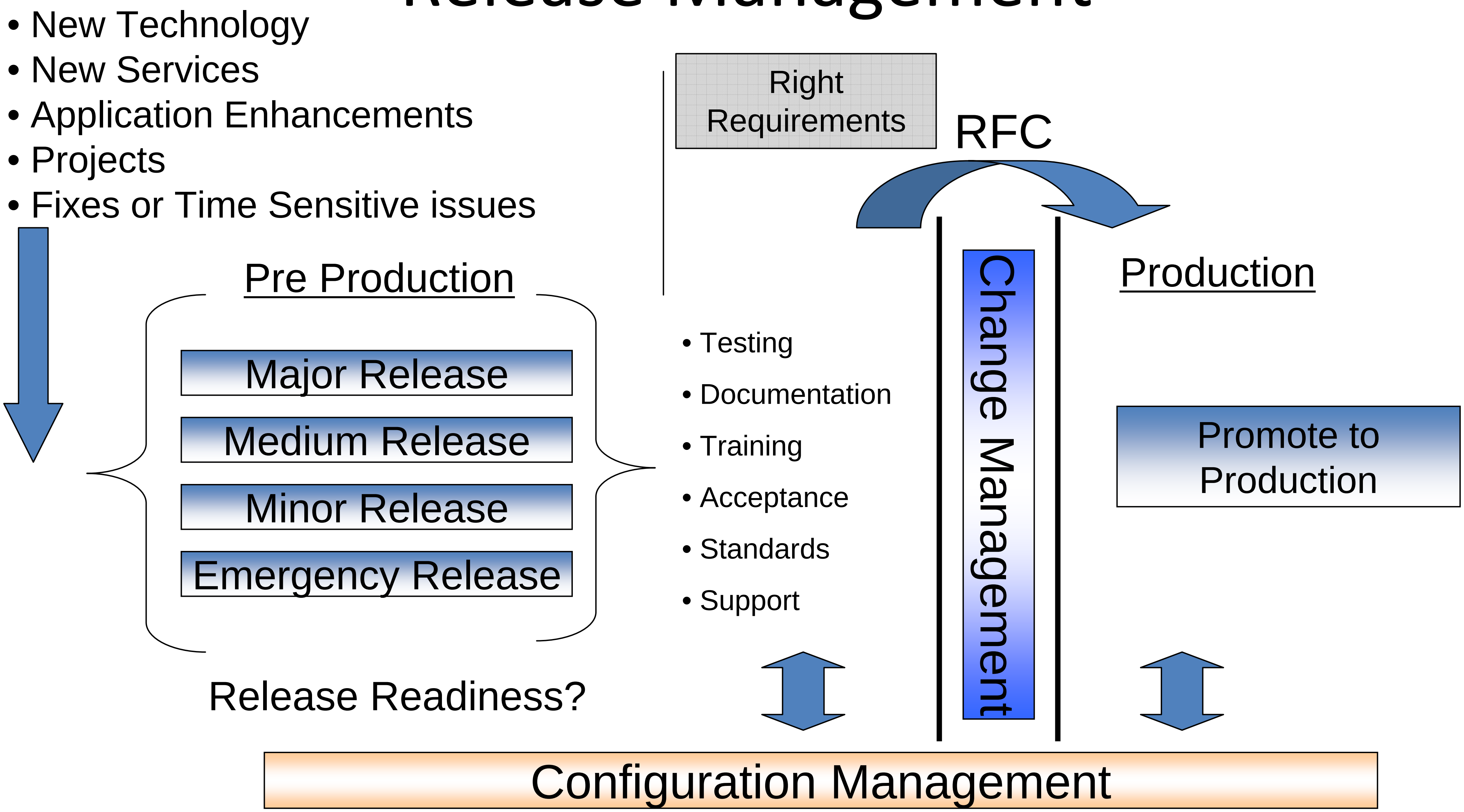
Assessment And Planning

Authorization Of Changes

Control And Coordination

Evaluation

Release Management



- New Technology
- New Services
- Application Enhancements
- Projects
- Fixes or Time Sensitive issues

Pre Production

Major Release

Medium Release

Minor Release

Emergency Release

Release Readiness?

Right Requirements

RFC

- Testing
- Documentation
- Training
- Acceptance
- Standards
- Support

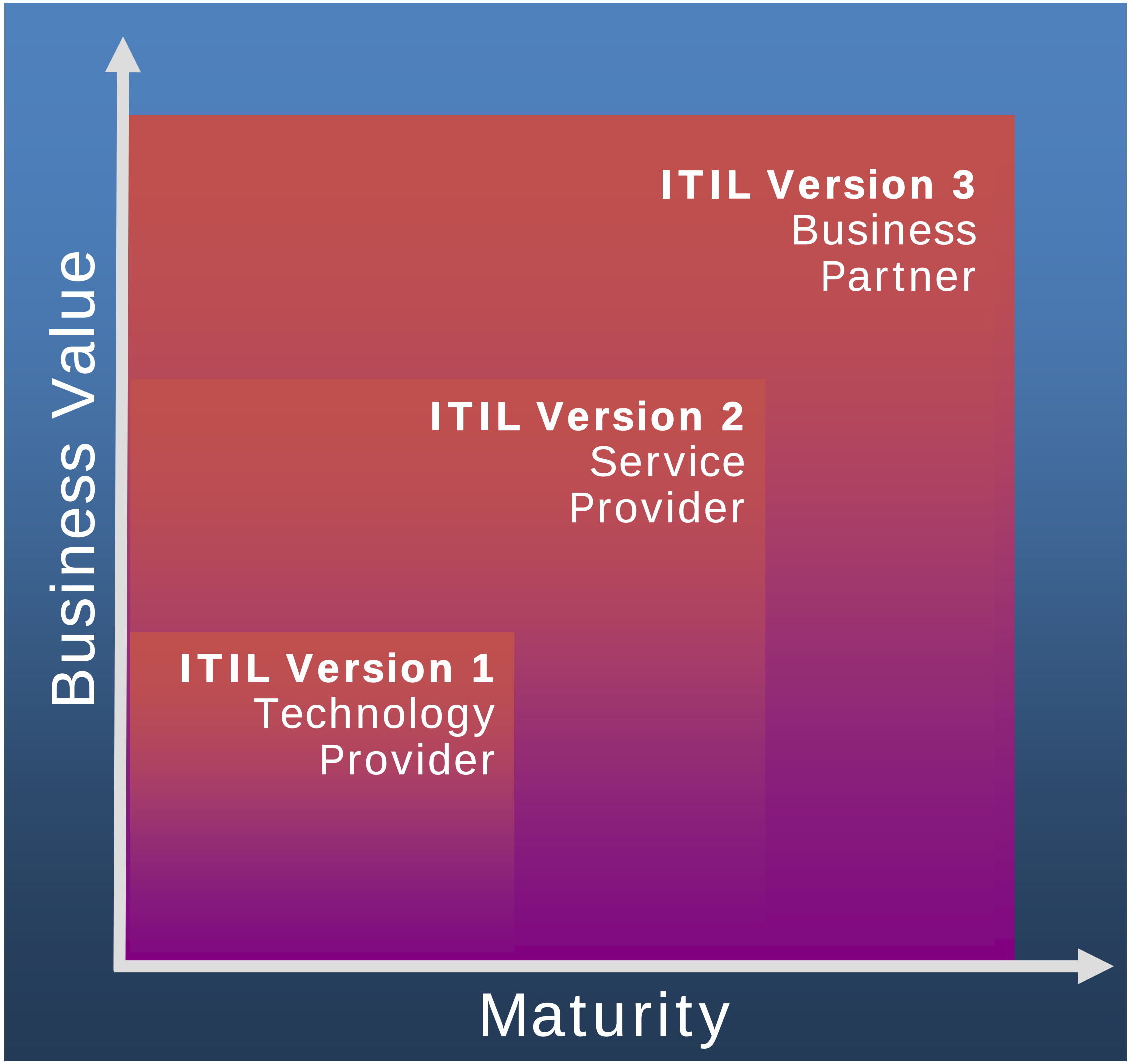
Change Management

Production

Promote to Production

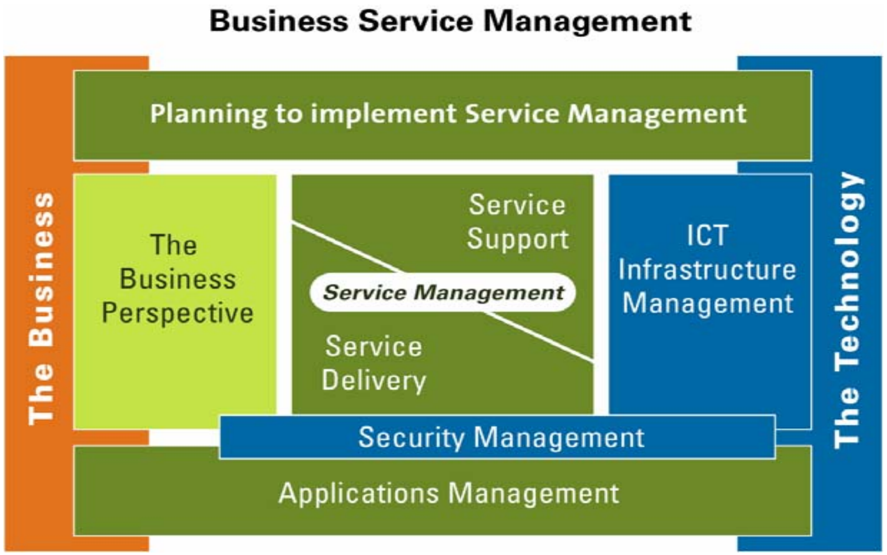
Configuration Management

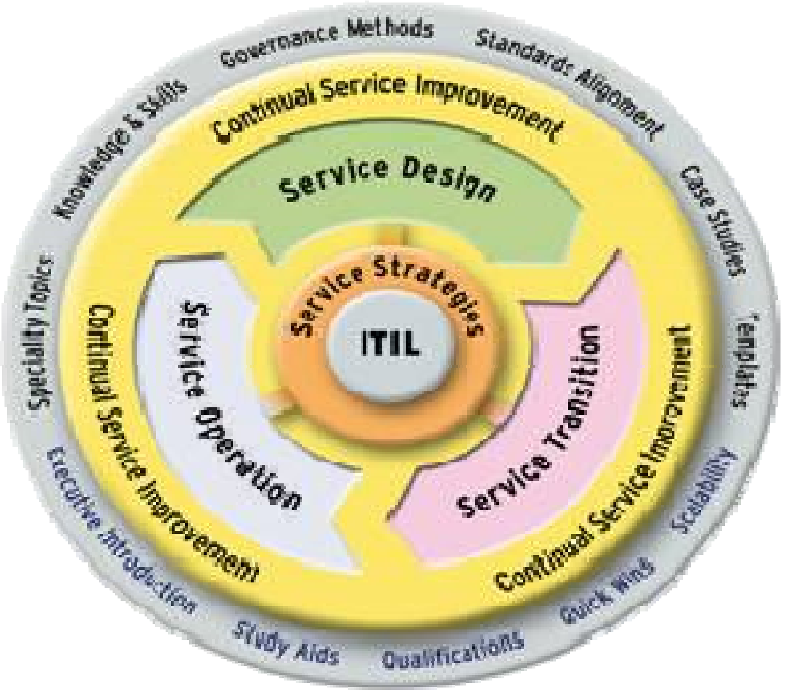
ITIL: 21 Years of Service Improvement



- ITIL Version 3
  - Business-IT service **integration** and value generation
  - Service Management for business and technology
- ITIL Version 2
  - Business-IT **alignment**
  - Quality and efficiency of IT processes
- ITIL Version 1
  - **Stability and control** of IT infrastructure
  - IT Infrastructure Management process

ITIL Changed From V2 To V3

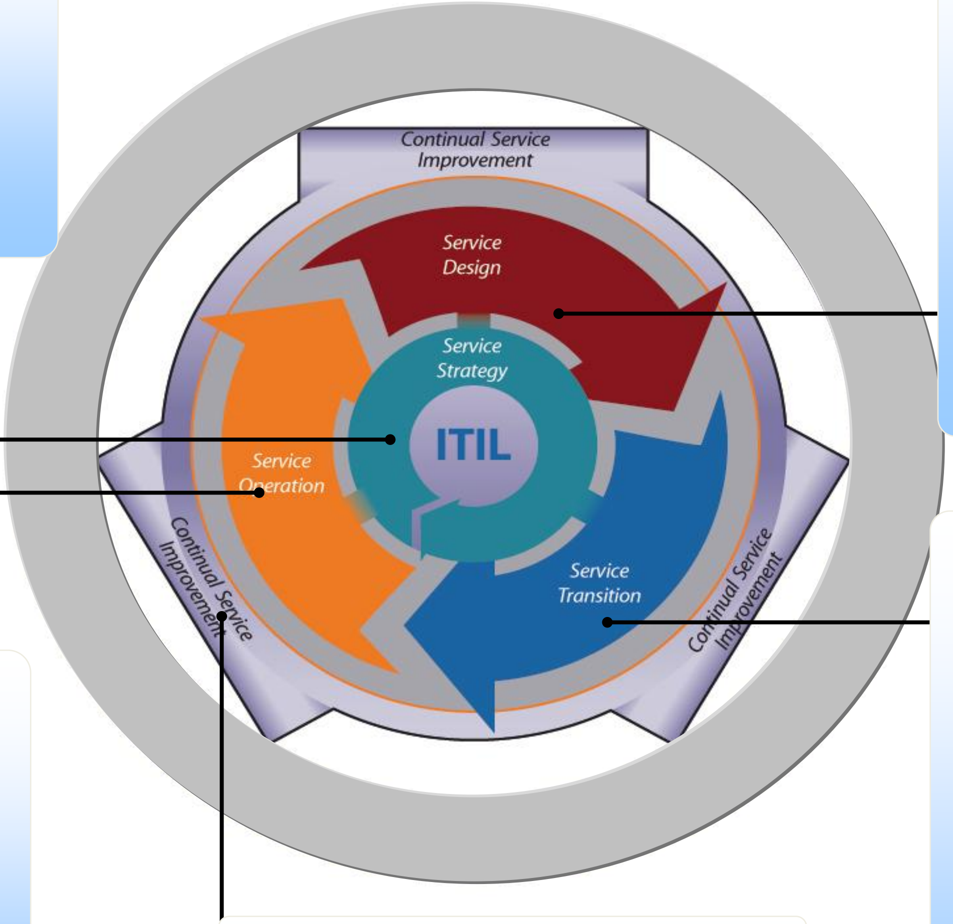




- V2 Focus: **IT to Business** Alignment
  - **Service Support:** support day-to-day activities maintain IT services
  - **Service Delivery:** plan and deliver quality IT services

- V3 Focus: **IT to Business** Integration **through the Service Lifecycle approach**

Lifecycle Processes



Continual Service Improvement
Service Design
Service Strategy
ITIL
Service Operation
Service Transition
Continual Service Improvement
Continual Service Improvement

SERVICE STRATEGY
- Service Strategy
- Service Portfolio Management
- Financial Management
- Demand Management

SERVICE DESIGN
- Service Catalog Management
- Service Level Management
- Supplier Management
- Capacity Management
- Availability Management
- IT Service Continuity Management
- Information Security Management

SERVICE TRANSITION
- Transition Planning and Support
- Change Management
- Service Asset & Configuration Management
- Release & Deployment Management
- Service Validation
- Evaluation
- Knowledge Management

SERVICE OPERATION
- Event Management
- Incident Management
- Request Fulfillment
- Problem Management
- Access Management

CONTINUAL SERVICE IMPROVEMENT
- Seven Step Improvement

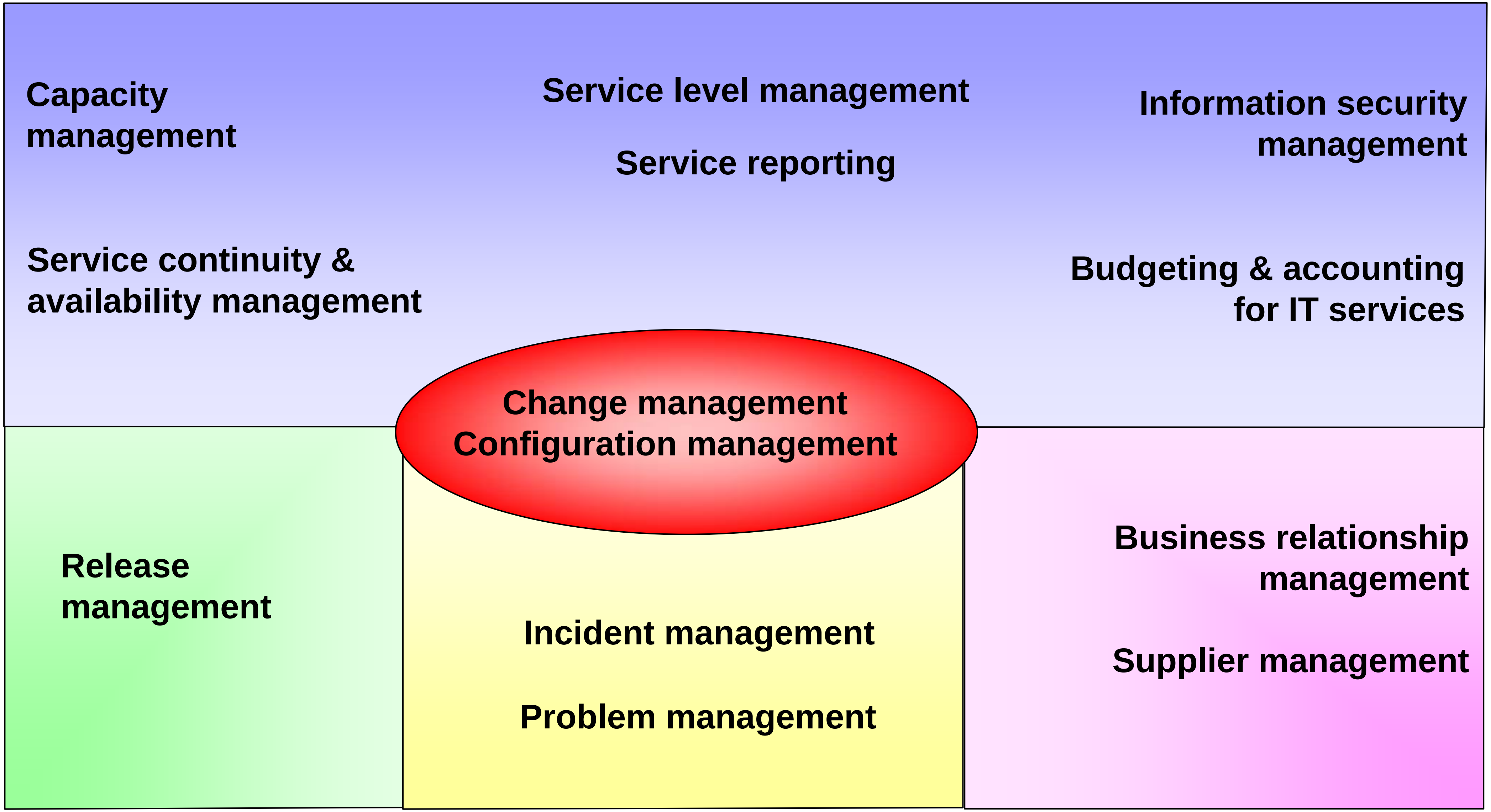
Agenda

- Frameworks
  - COBIT
  - ITIL
  - **ISO/IEC 20000**
- USING COBIT with ITIL
- Practical experience
- Summary

What is ISO/IEC 20000?

- Based on the UK standard, BS 15000
- Published as ISO/IEC 20000 in December 2005
  - Part 1 is the ‘must do’ requirements
  - Part 2 is code of practice (advice on Part 1)
- Often referred to as ‘The ITIL standard’
- Management involvement and accountability
- Competence, awareness and training
- Continual improvement
- Introducing services
- ‘Doing not documenting’

Processes covered



Capacity management

Service level management

Service reporting

Information security management

Service continuity & availability management

Budgeting & accounting for IT services

Change management
Configuration management

Release management

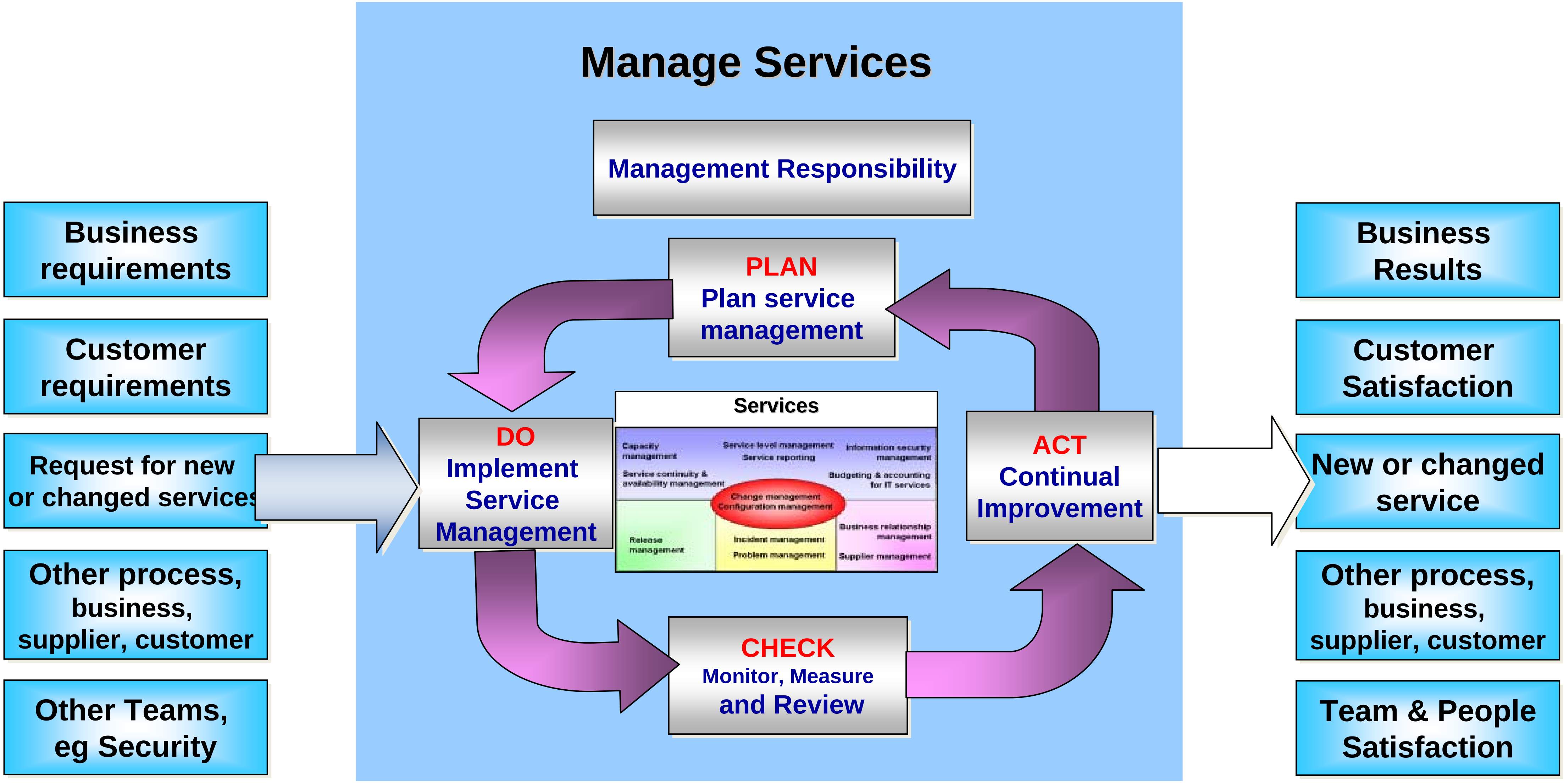
Incident management

Problem management

Business relationship management

Supplier management

What is service management?



Business requirements

Customer requirements

Request for new or changed services

Other process, business, supplier, customer

Other Teams, eg Security

Manage Services

Management Responsibility

PLAN
Plan service management

DO
Implement Service Management

Services

Capacity management

Service level management
Service reporting

Information security management

Service continuity & availability management

Budgeting & accounting for IT services

Change management
Configuration management

Release management

Incident management
Problem management

Business relationship management

Supplier management

ACT
Continual Improvement

CHECK
Monitor, Measure and Review

Business Results

Customer Satisfaction

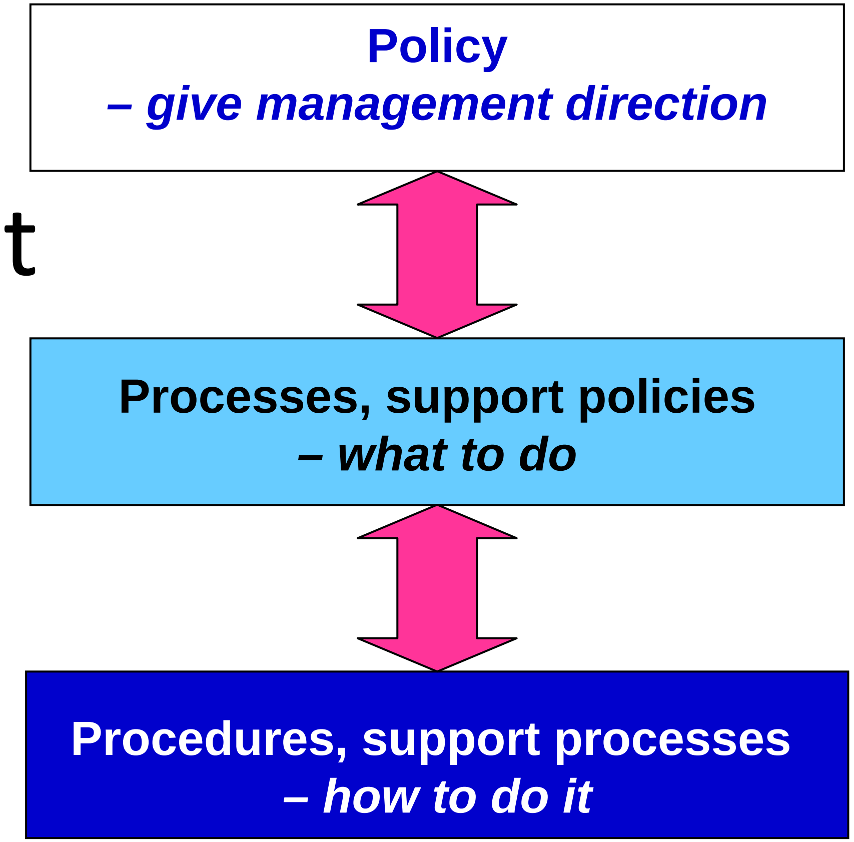
New or changed service

Other process, business, supplier, customer

Team & People Satisfaction

‘shall’ requirements

- Leadership
- Management commitment
  - Accountability
  - Top-down approach
  - Policy driven
- Integrated processes
- Intelligent use of metrics



Policy
– give management direction

Processes, support policies
– what to do

Procedures, support processes
– how to do it

Positioning with ITIL

- Real proof of best practices
- Reassurance for the customer
- Common inter-enterprise operational processes
- Ability to manage across a diverse environment
- Improved automation of service management
- Inter-changeability of service providers
- For staff and managers:
  - Common goal
  - Common framework for staff training
  - Inter-changeability of staff
- Reduced risk

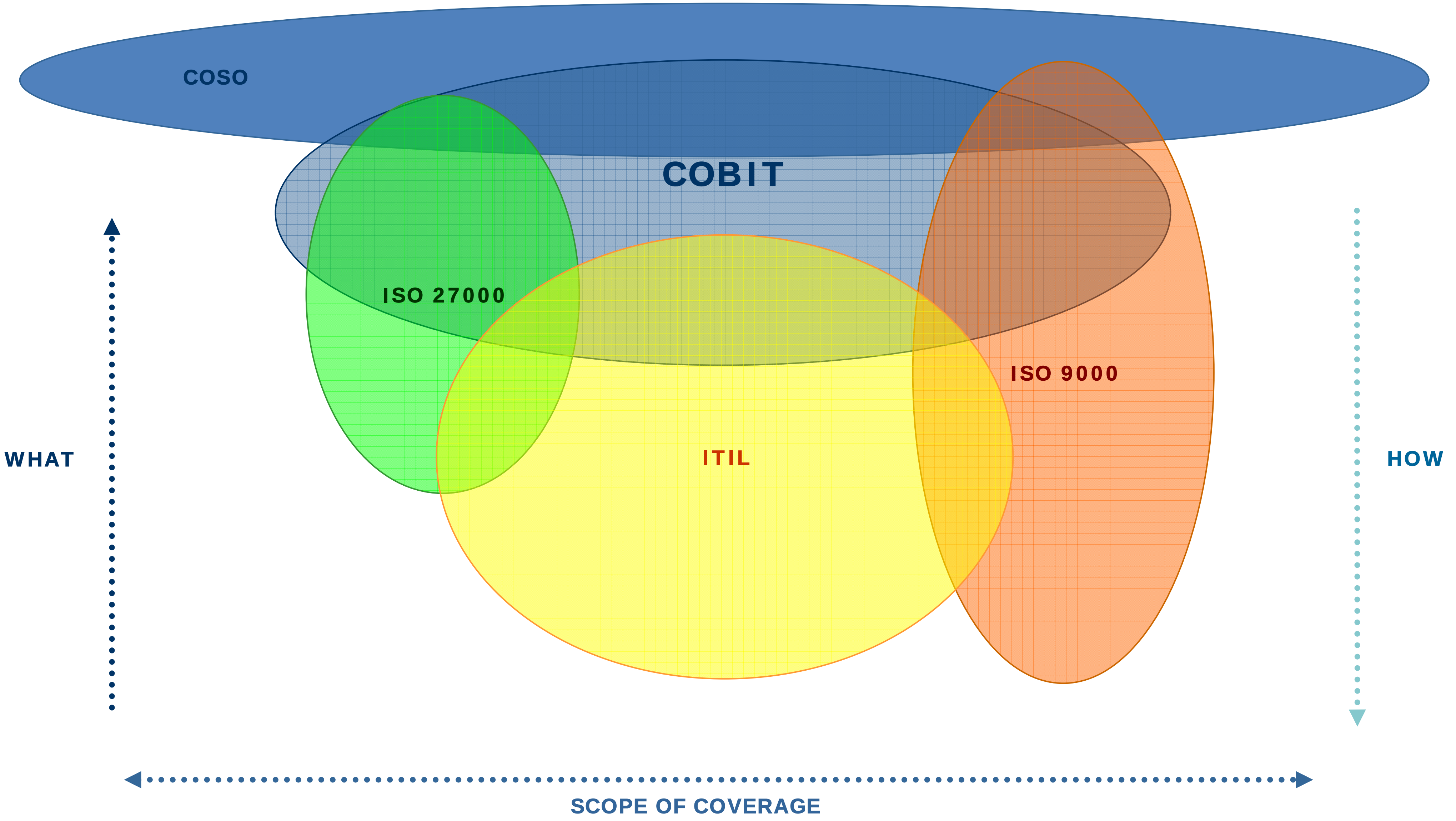
ISO/IEC 20000 moving forward

- Links to study group on governance standards
- Part 3 - additional advice
  - Scoping, scope statements, applicability
  - For the service provider
- Parts 1 and 2
  - Integrated management system (with ISO 9001)
  - Alignment between ISO/IEC 20000 and ITIL v 3
  - "Adoption of ITIL can position a service provider to achieve ISO/IEC 20000"
- Harmonisation of standards

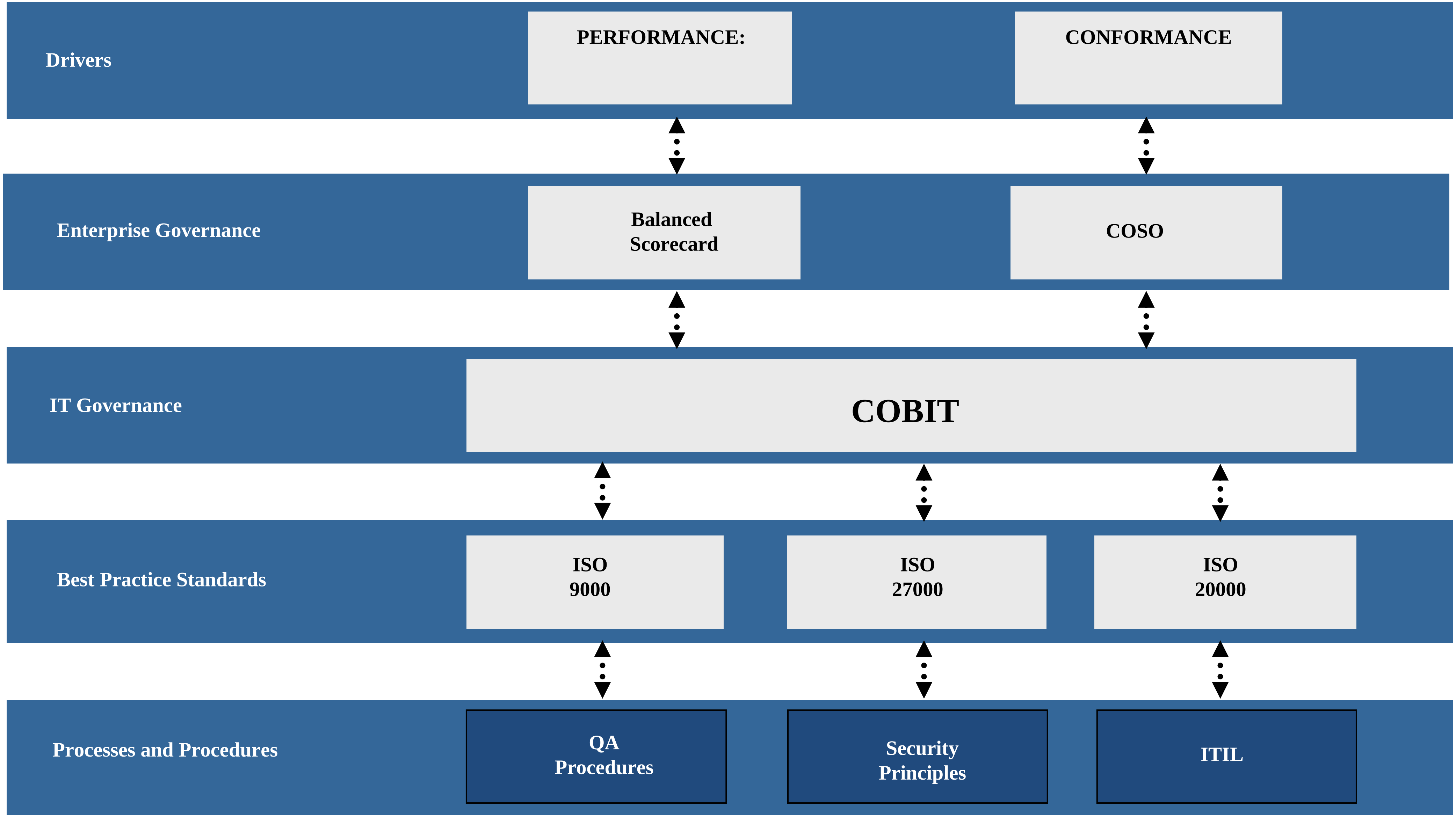
Agenda

- Frameworks
  - COBIT
  - ITIL
  - ISO/IEC 20000
- **USING COBIT with ITIL**
- Practical experience
- Summary

IT Models, Standard, best practices



How that fits?



Drivers

PERFORMANCE:

CONFORMANCE

Enterprise Governance

Balanced Scorecard

COSO

IT Governance

COBIT

Best Practice Standards

ISO 9000

ISO 27000

ISO 20000

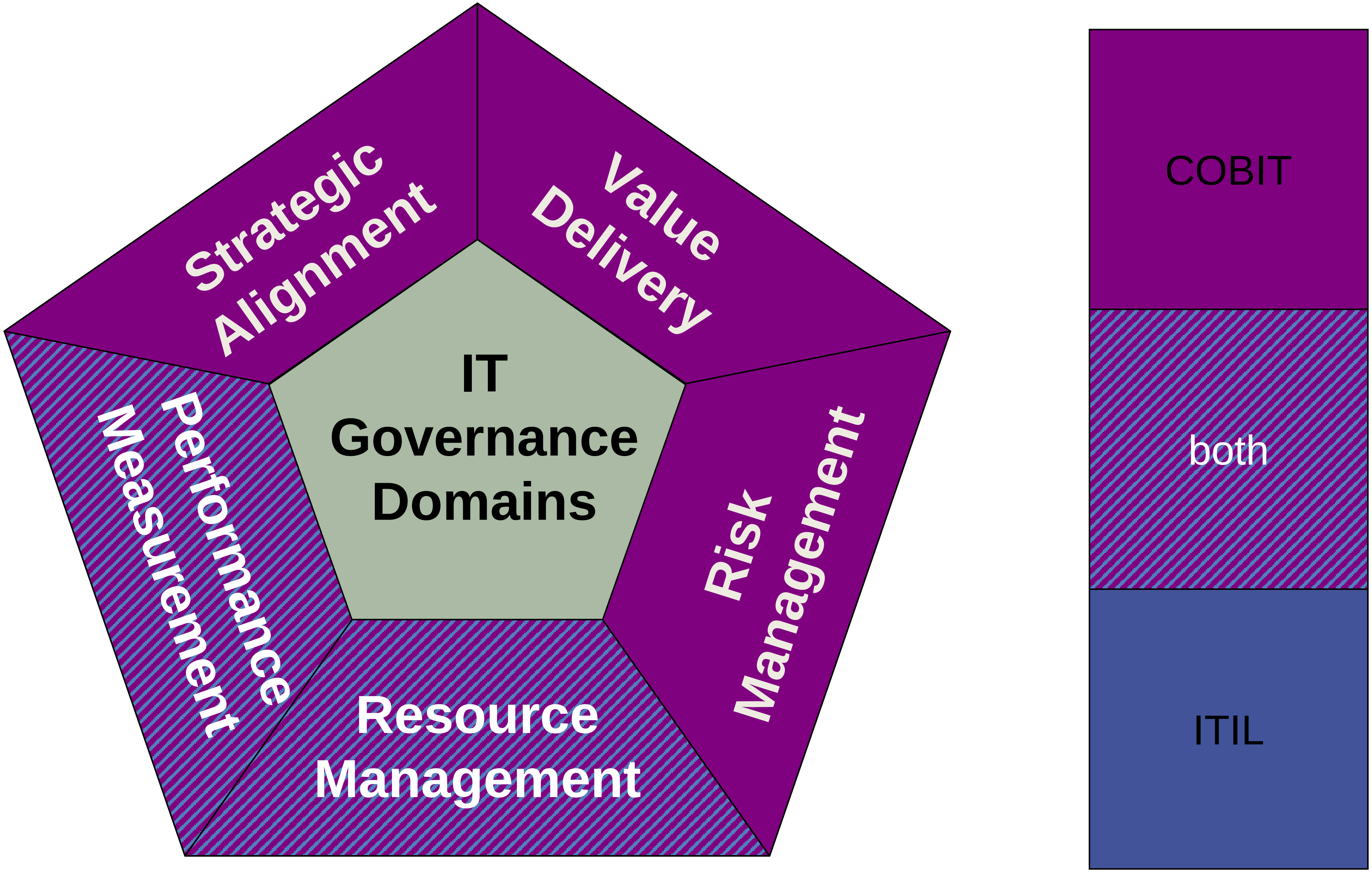
Processes and Procedures

QA Procedures

Security Principles

ITIL

Potential COBIT & ITIL



IT Governance Domains

Strategic Alignment

Value Delivery

Risk Management

Resource Management

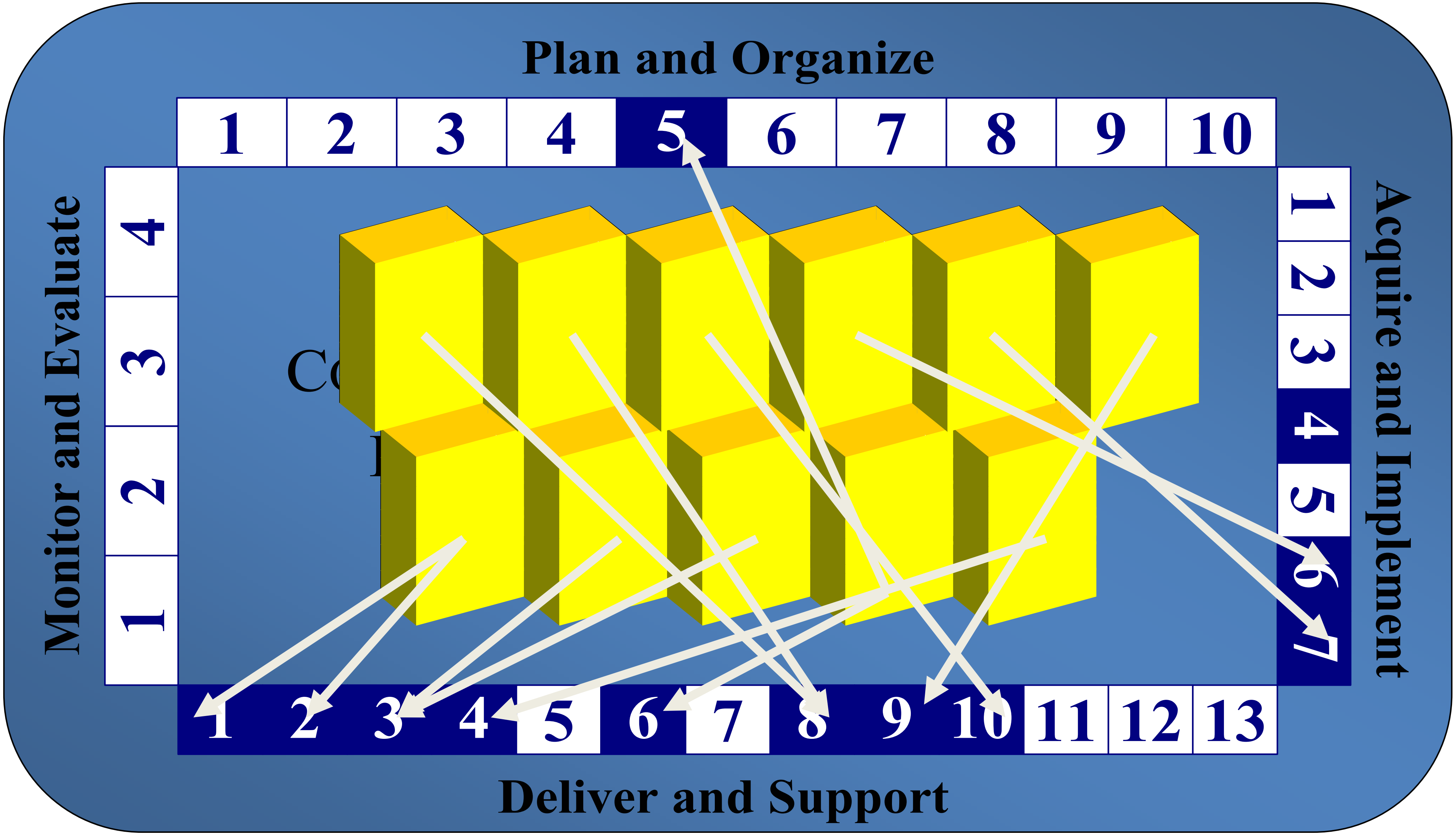
Performance Measurement

COBIT

both

ITIL

COBIT & ITIL



Plan and Organize

1 2 3 4 5 6 7 8 9 10

Acquire and Implement

1 2 3 4 5 6 7

Deliver and Support

1 2 3 4 5 6 7 8 9 10 11 12 13

Monitor and Evaluate

1 2 3 4

COBIT & ITIL Mapping

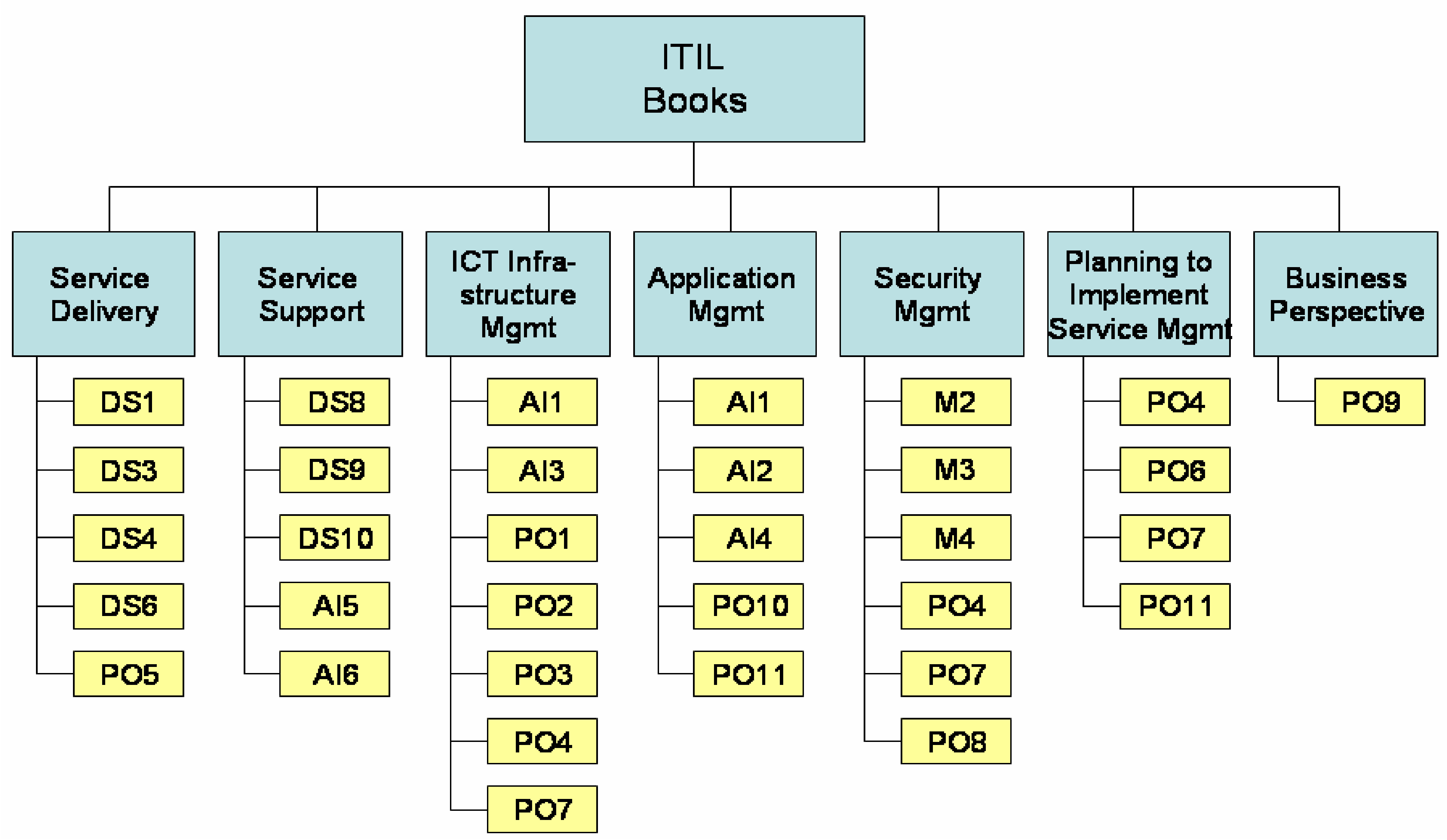
PO: Assess Risk
DS: Define & Manage Service Levels
DS: Manage 3rd Party Services
DS: Manage Performance & Capacity
DS: Ensure Continuous Service
DS: Identify & Allocate Costs
DS: Ensure System Security

AI: Manage Change
AI: Install & Accredit Systems
DS: Assist & Advise IT Customers
DS: Manage Problems & Incidents
DS: Manage Configuration

DS: Manage Operations
DS: Manage Facilities
DS: Manage Data
AI: Acquire & Maintain Technology Infrastructure

AI: Acquire & Maintain Application Software

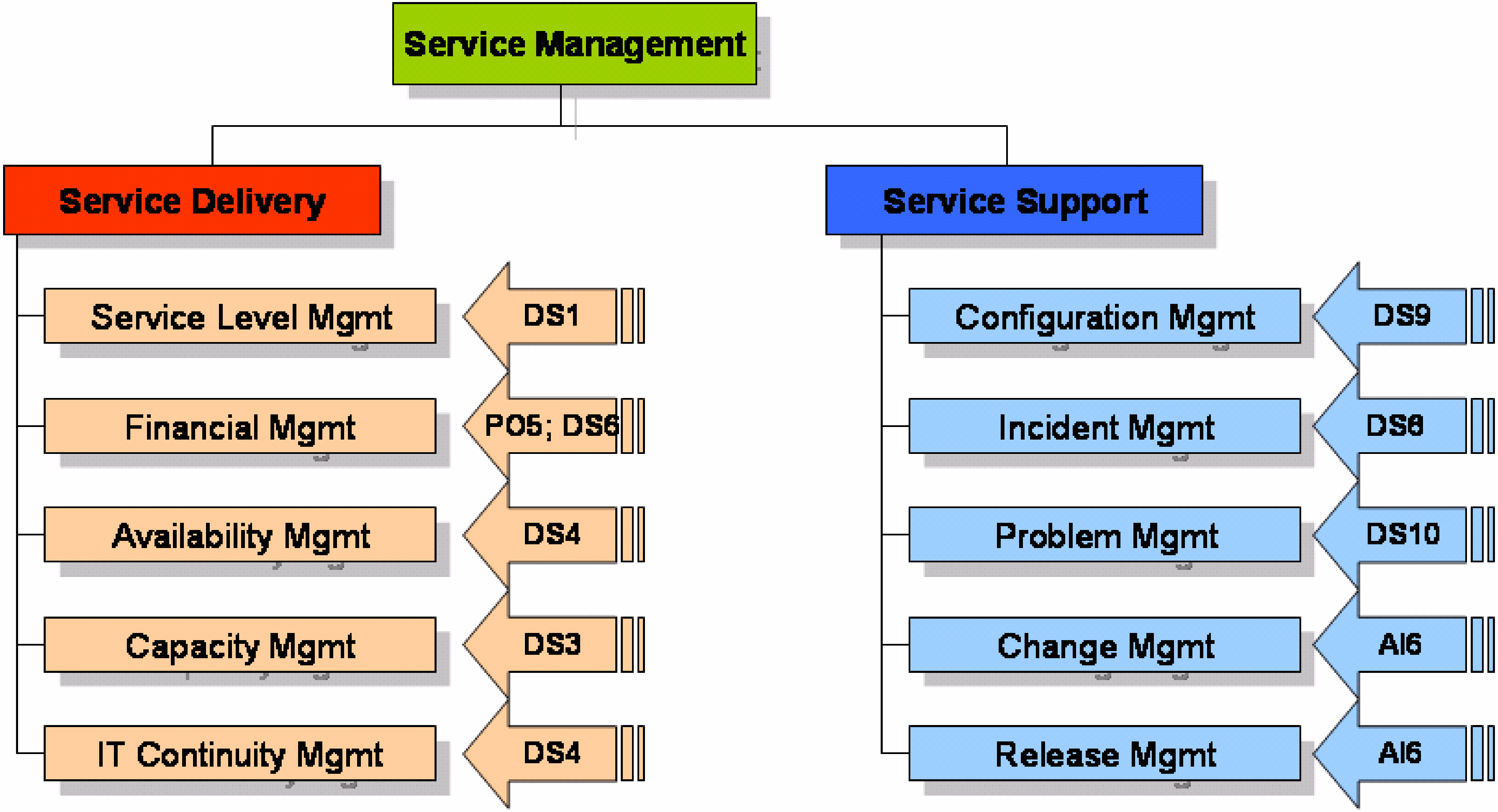
ITIL Books to COBIT Control Objectives



ITIL Books

- Service Delivery
  - DS1
  - DS3
  - DS4
  - DS6
  - PO5
- Service Support
  - DS8
  - DS9
  - DS10
  - AI5
  - AI6
- ICT Infra-structure Mgmt
  - AI1
  - AI3
  - PO1
  - PO2
  - PO3
  - PO4
  - PO7
- Application Mgmt
  - AI1
  - AI2
  - AI4
  - PO10
  - PO11
- Security Mgmt
  - M2
  - M3
  - M4
  - PO4
  - PO7
  - PO8
- Planning to Implement Service Mgmt
  - PO4
  - PO6
  - PO7
  - PO11
- Business Perspective
  - PO9

Mapping to ITIL Service Support and Service Delivery



COBIT and ITIL compliment each other

COBIT and ITIL together

ITIL

- Best Practice
- Process
- Relationships

COBIT

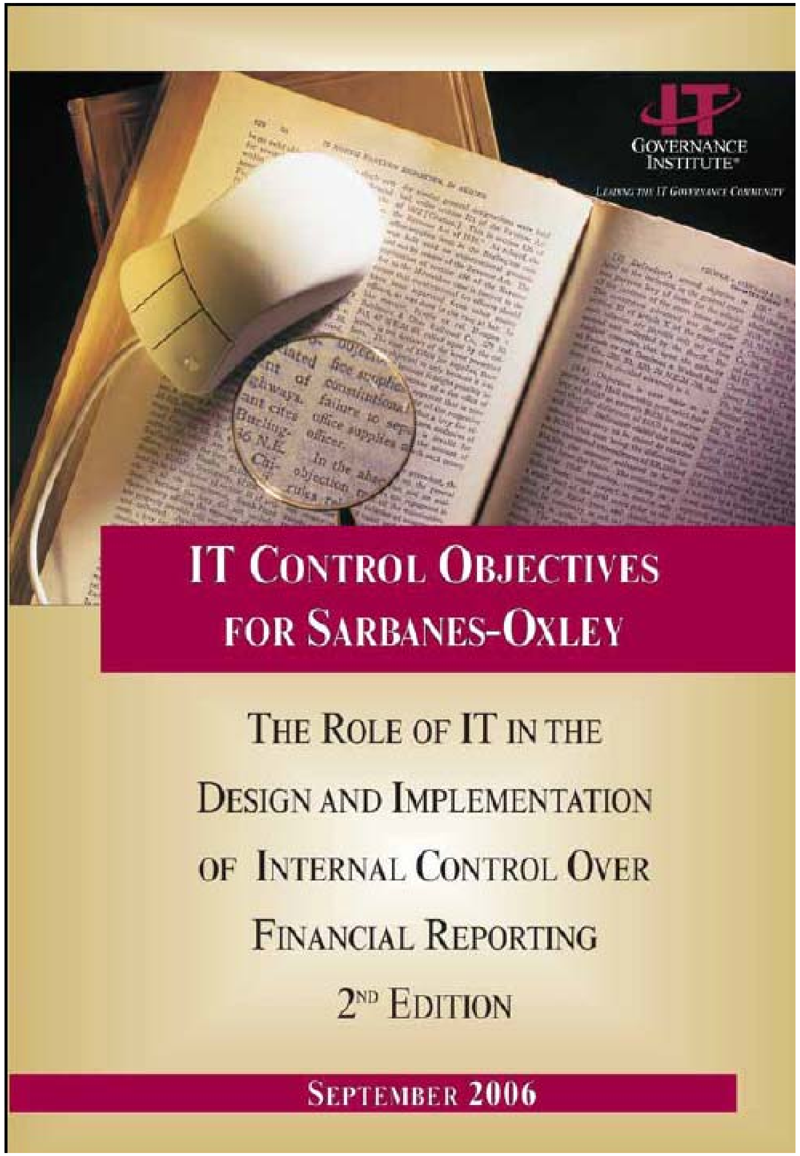
- Controls Audit
- Requirements
- Maturity Scale

PROCESS / PROCEDURE & RESULTS

Agenda

- Frameworks
  - COBIT
  - ITIL
  - ISO/IEC 20000
- USING COBIT with ITIL
- **Practical experience**
- Summary

IT Control Objectives for SOX



GOVERNANCE INSTITUTE®

LEADING THE IT GOVERNANCE COMMUNITY

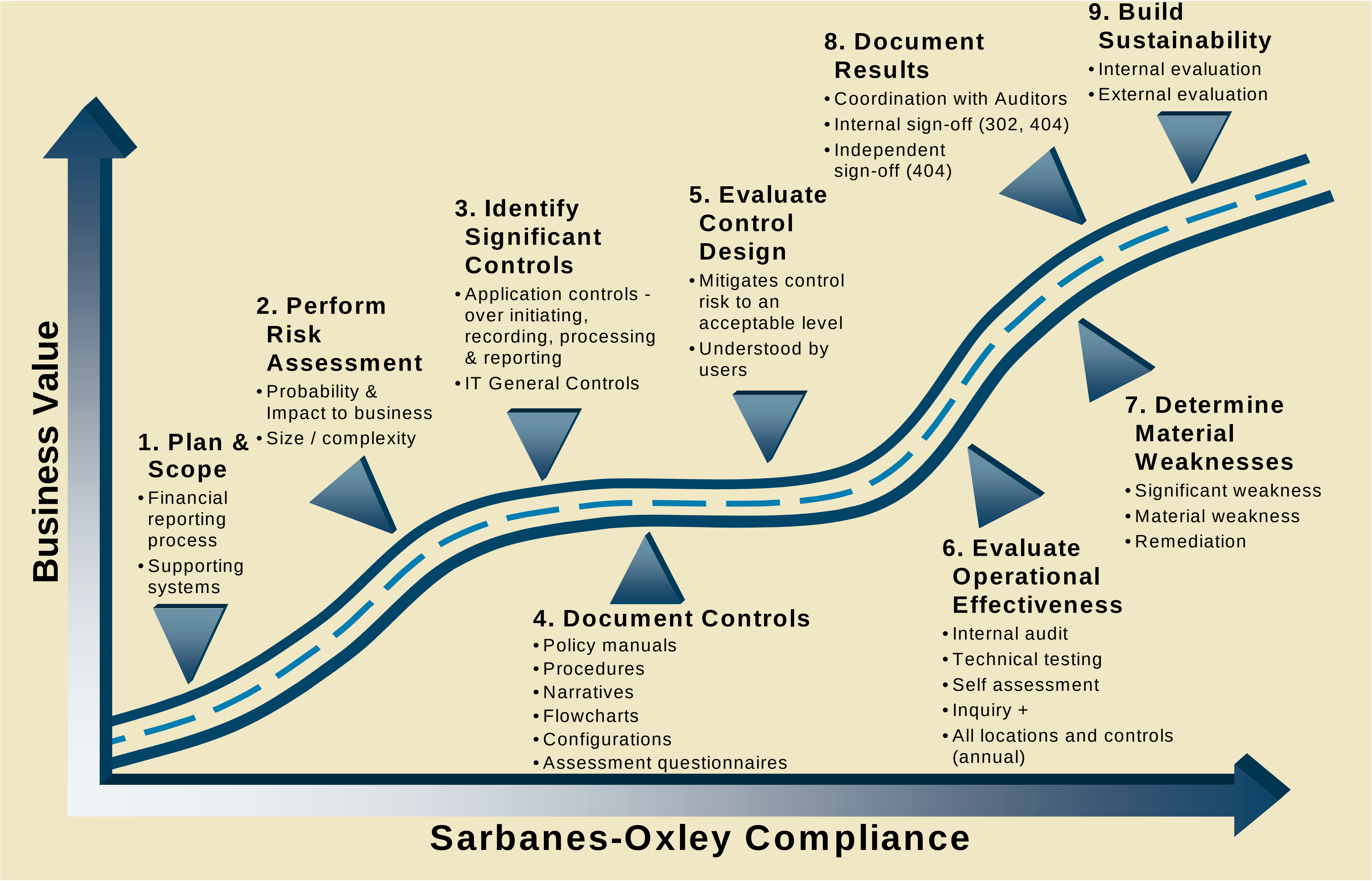
IT CONTROL OBJECTIVES FOR SARBANES-OXLEY

THE ROLE OF IT IN THE DESIGN AND IMPLEMENTATION OF INTERNAL CONTROL OVER FINANCIAL REPORTING

2ND EDITION

SEPTEMBER 2006

Implementation Road Map



1. Plan & Scope
- Financial reporting process
- Supporting systems

2. Perform Risk Assessment
- Probability & Impact to business
- Size / complexity

3. Identify Significant Controls
- Application controls - over initiating, recording, processing & reporting
- IT General Controls

4. Document Controls
- Policy manuals
- Procedures
- Narratives
- Flowcharts
- Configurations
- Assessment questionnaires

5. Evaluate Control Design
- Mitigates control risk to an acceptable level
- Understood by users

6. Evaluate Operational Effectiveness
- Internal audit
- Technical testing
- Self assessment
- Inquiry +
- All locations and controls (annual)

7. Determine Material Weaknesses
- Significant weakness
- Material weakness
- Remediation

8. Document Results
- Coordination with Auditors
- Internal sign-off (302, 404)
- Independent sign-off (404)

9. Build Sustainability
- Internal evaluation
- External evaluation

Mapping PCAOB and COBIT

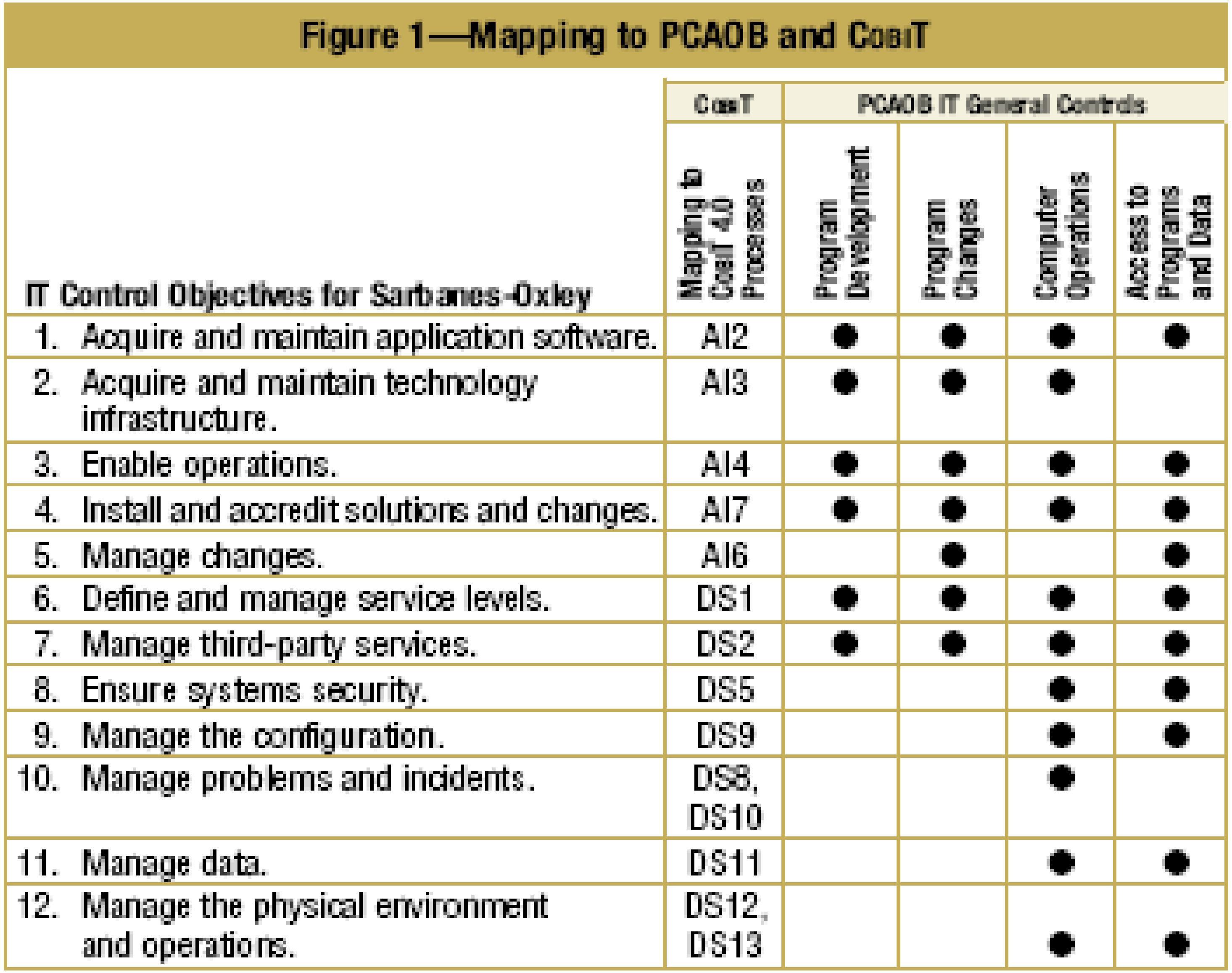
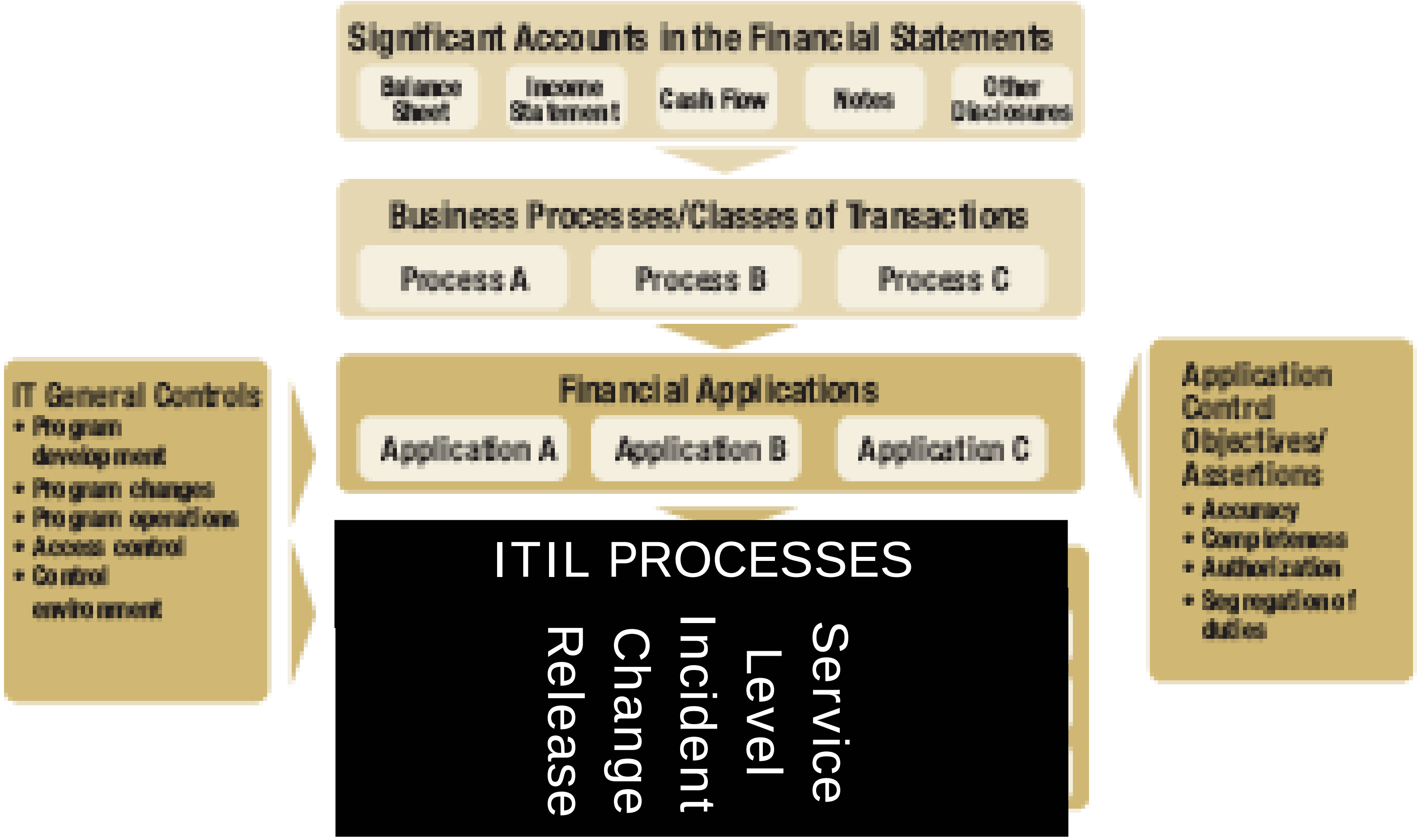


Figure 1—Mapping to PCAOB and CobiT

IT Control Objectives for Sarbanes-Oxley	CobiT	PCAOB IT General Controls			
	Mapping to CobiT 4.0 Processes	Program Development	Program Changes	Computer Operations	Access to Programs and Data
1. Acquire and maintain application software.	AI2	●	●	●	●
2. Acquire and maintain technology infrastructure.	AI3	●	●	●	
3. Enable operations.	AI4	●	●	●	●
4. Install and accredit solutions and changes.	AI7	●	●	●	●
5. Manage changes.	AI6		●		●
6. Define and manage service levels.	DS1	●	●	●	●
7. Manage third-party services.	DS2	●	●	●	●
8. Ensure systems security.	DS5			●	●
9. Manage the configuration.	DS9			●	●
10. Manage problems and incidents.	DS8, DS10			●	
11. Manage data.	DS11			●	●
12. Manage the physical environment and operations.	DS12, DS13			●	●

Scoping the IT Control Project



Significant Accounts in the Financial Statements

Balance Sheet | Income Statement | Cash Flow | Notes | Other Disclosures

Business Processes/Classes of Transactions

Process A | Process B | Process C

Financial Applications

Application A | Application B | Application C

IT General Controls

- Program development
- Program changes
- Program operations
- Access control
- Control environment

Application Control Objectives/ Assertions

- Accuracy
- Completeness
- Authorization
- Segregation of duties

ITIL PROCESSES

Service Level

Incident

Change

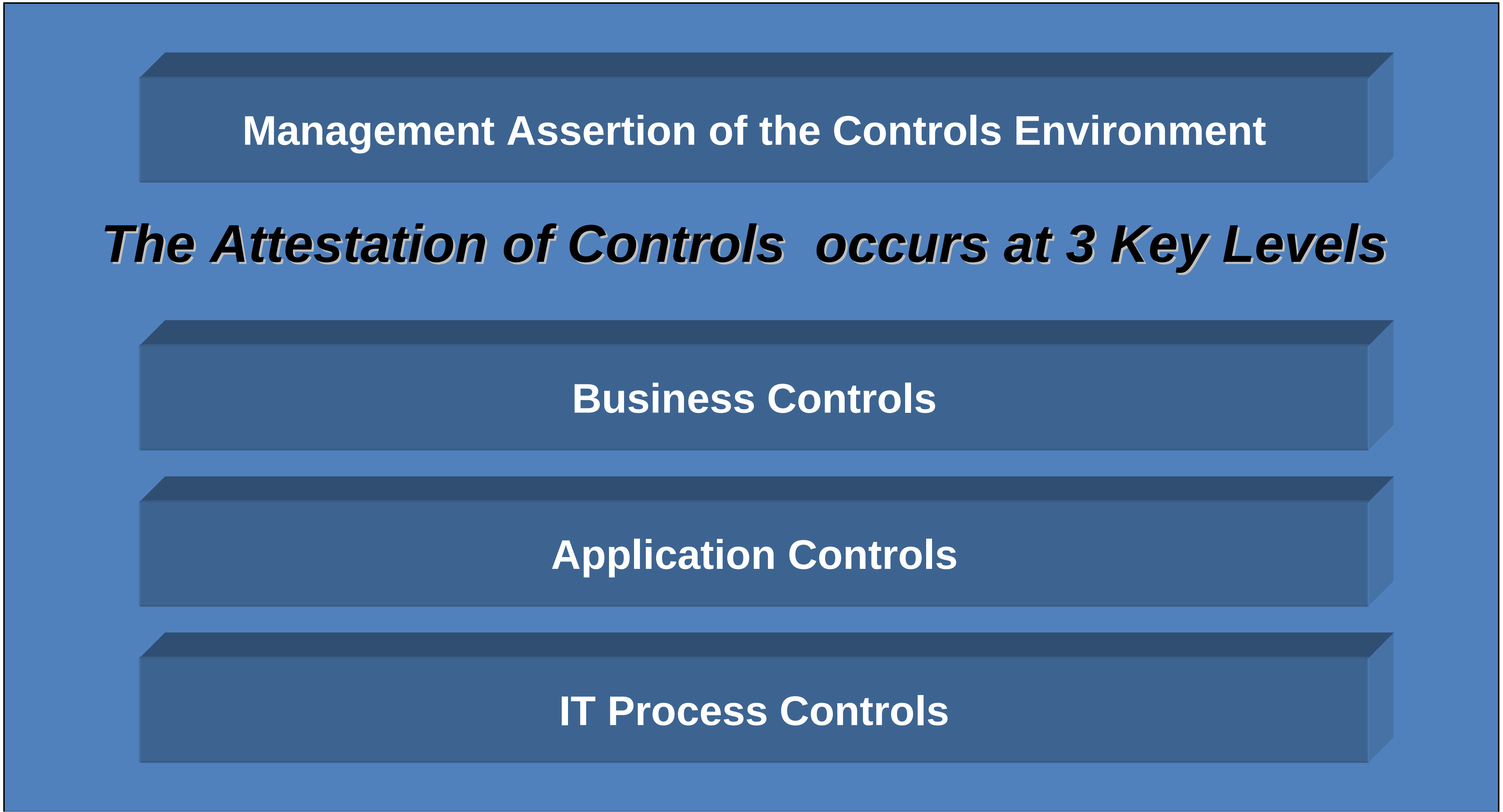
Release

Target range of Internal Control

Targeted Business Processes	Target country									
	US/ Canada	Japan	UK	Italy	Germany	Holland	France	Brazil	Australia	Switzerland
1. Fixed Assets	🟨 P	V	🟨 P	P	V	V	V	V	V	V
2. Tax	🟨 P	P	🟨 P	P	P	P	P	P	P	V
3. Financial Reporting	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	P	P	V
4. Accounts Payable	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	P	P	P	P	V
5. Payroll	🟨 P	P	🟨 P	P	🟨 P	P	P	P	P	V
6. HR	🟨 P	P	🟨 P	P	🟨 P	P	P	P	P	V
7. Treasury	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	P	P	P	P	V
8. Indirect Sales	🟨 P	🟨 P	🟨 P	V	V	V	V	V	V	V
9. Professional Services	🟨 P	V	🟨 P	🟨 P	P	V	P	V	P	V
10. Direct Sales	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	🟨 P	P	P	V
11. Capitalized Software	🟨 P	N/A	🟨 P	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12. IT	🟨 P	🟨 P	🟨 P	P	P	P	P	P	P	V
13. Swiss Cash Pooling	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	P
14. Entity Level Controls	🟨 P	P	🟨 P	P	P	P	P	P	P	P

P	In Scope
V	Not in scope
🟨 P	In Scope for External Auditor – However, External Auditor will review all documentation

It is required that executive management to attest quarterly that reasonable and prudent controls are in place to provide accurate and complete financial management reports.



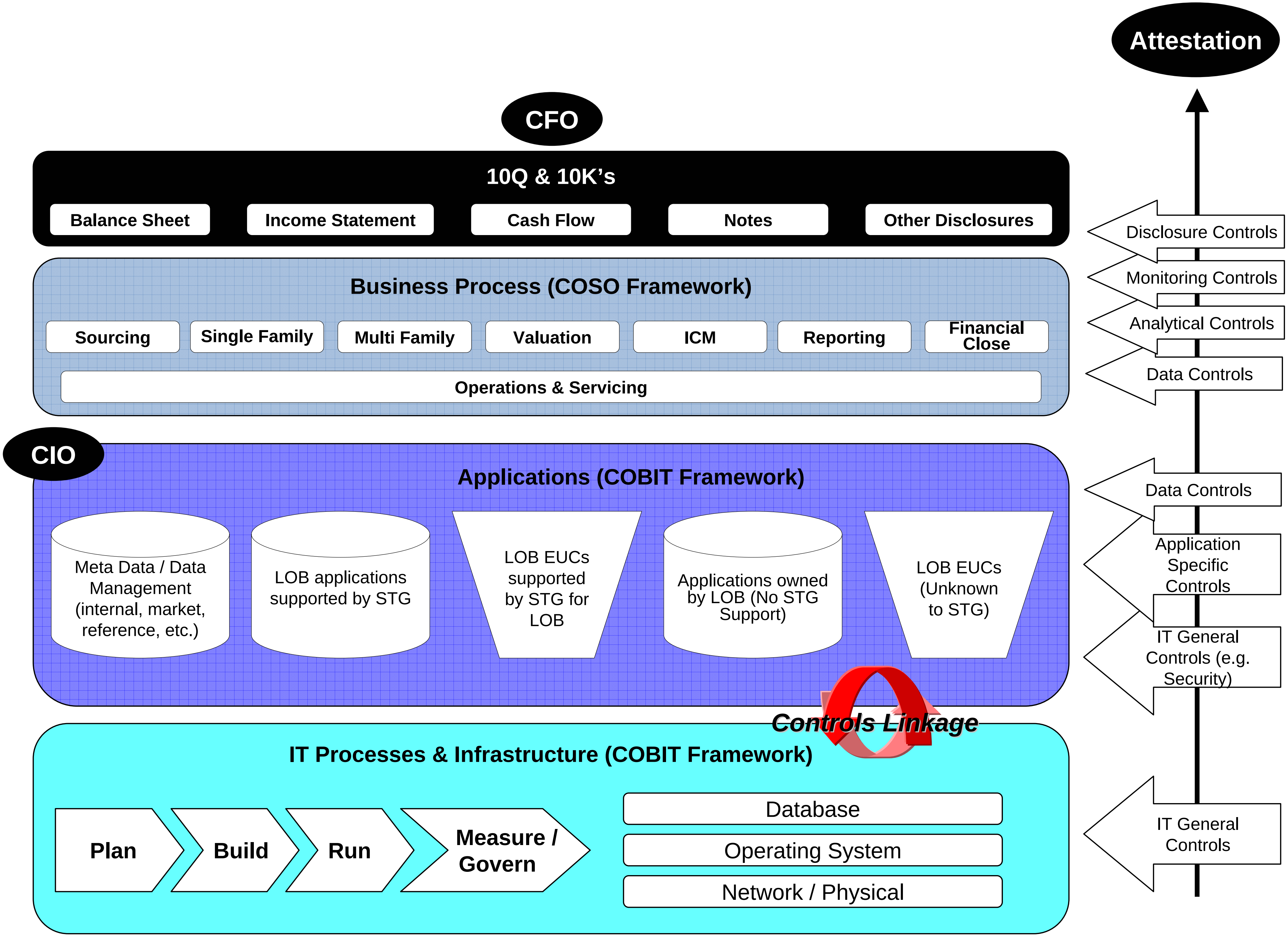
Management Assertion of the Controls Environment

The Attestation of Controls occurs at 3 Key Levels

Business Controls

Application Controls

IT Process Controls



Attestation

CFO

10Q & 10K's

Balance Sheet

Income Statement

Cash Flow

Notes

Other Disclosures

Business Process (COSO Framework)

Sourcing

Single Family

Multi Family

Valuation

ICM

Reporting

Financial Close

Operations & Servicing

CIO

Applications (COBIT Framework)

Meta Data / Data Management (internal, market, reference, etc.)

LOB applications supported by STG

LOB EUCs supported by STG for LOB

Applications owned by LOB (No STG Support)

LOB EUCs (Unknown to STG)

Controls Linkage

IT Processes & Infrastructure (COBIT Framework)

Plan

Build

Run

Measure / Govern

Database

Operating System

Network / Physical

Disclosure Controls

Monitoring Controls

Analytical Controls

Data Controls

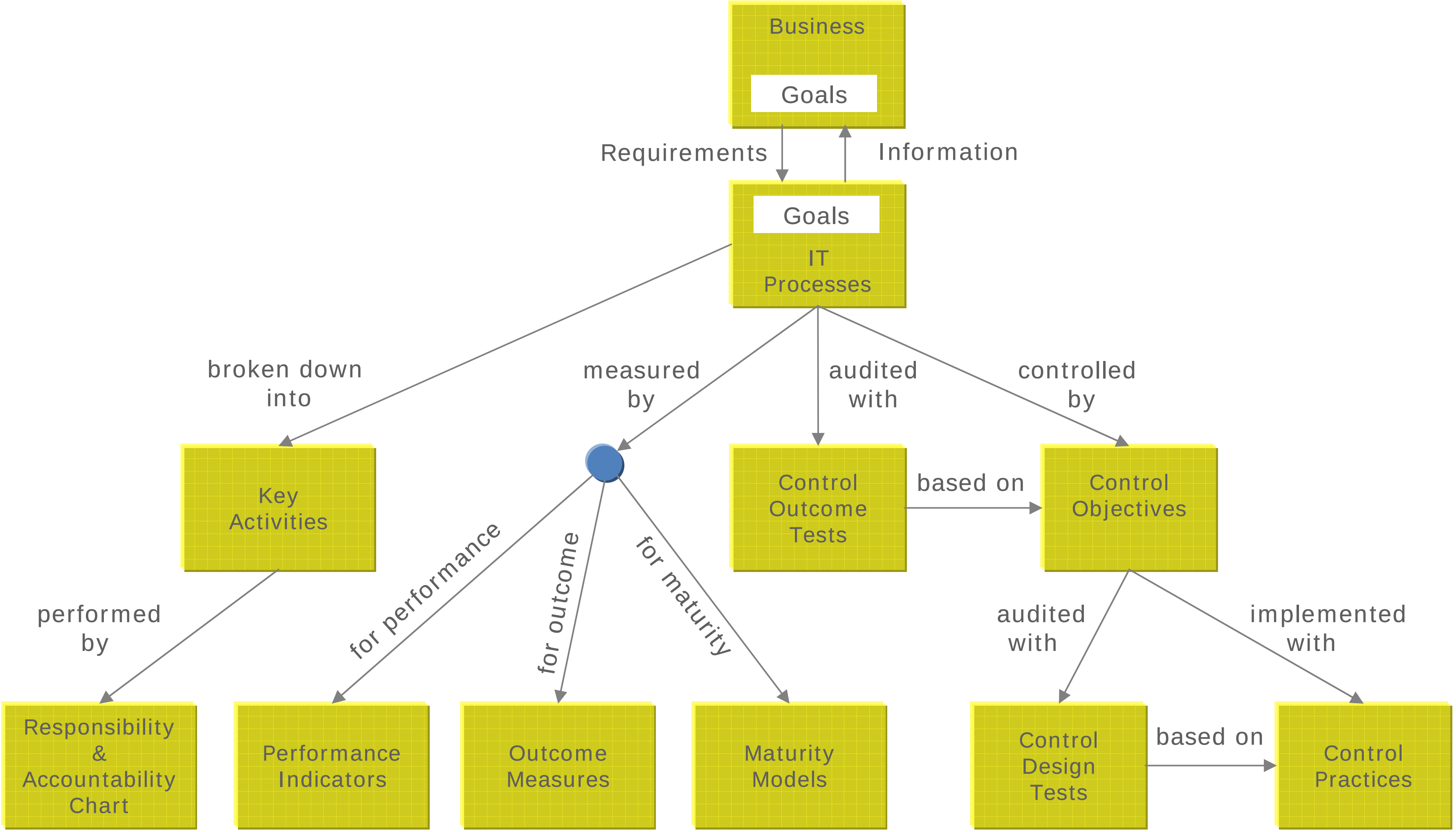
Data Controls

Application Specific Controls

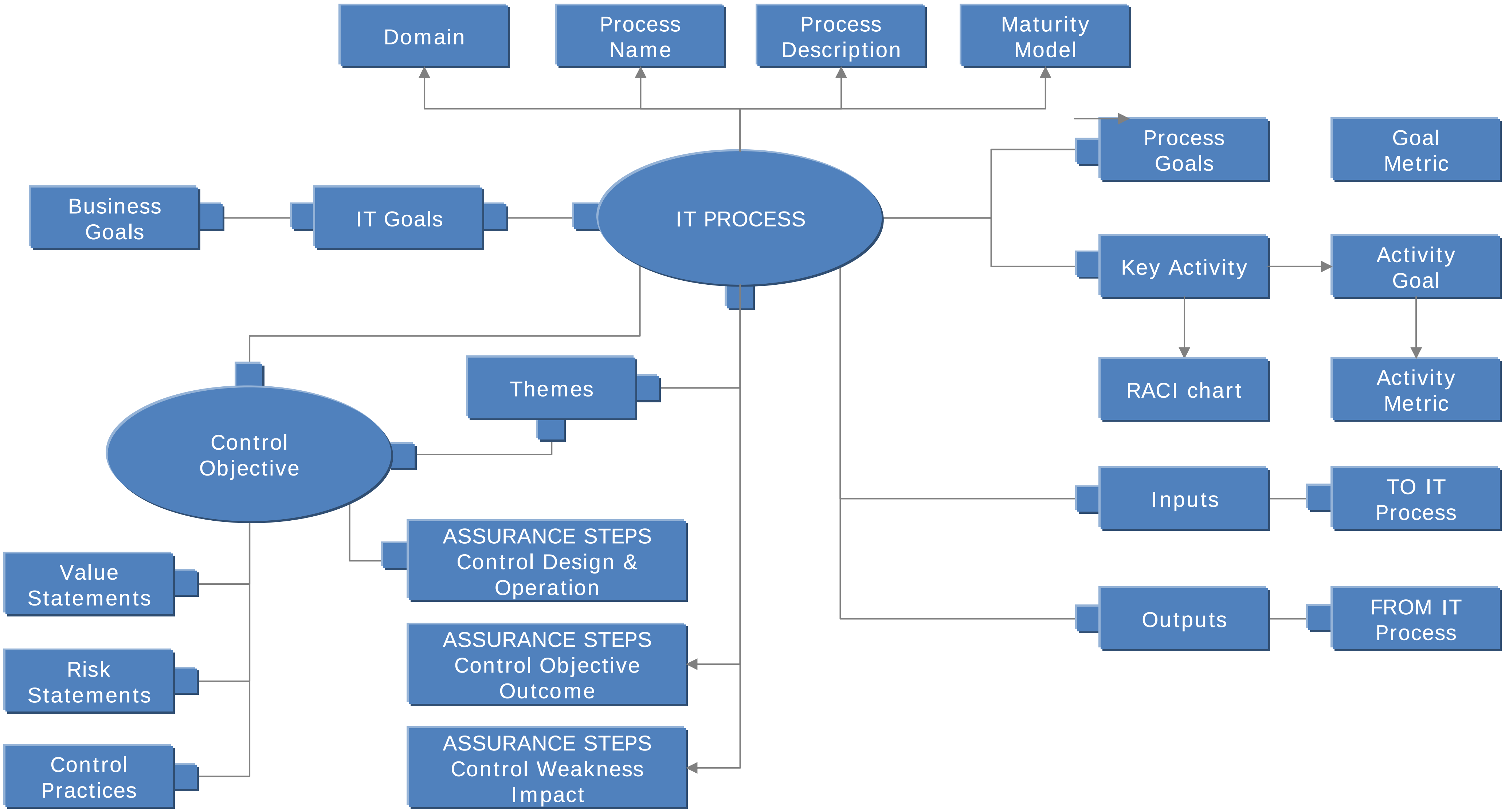
IT General Controls (e.g. Security)

IT General Controls

COBIT – providing extensive IT Governance material



COBIT : An IT governance framework



Domain

Process Name

Process Description

Maturity Model

Business Goals

IT Goals

IT PROCESS

Process Goals

Goal Metric

Key Activity

Activity Goal

RACI chart

Activity Metric

Themes

Control Objective

Inputs

TO IT Process

Outputs

FROM IT Process

Value Statements

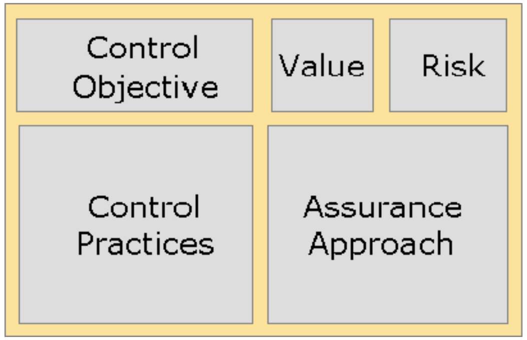
Risk Statements

Control Practices

ASSURANCE STEPS Control Design & Operation

ASSURANCE STEPS Control Objective Outcome

ASSURANCE STEPS Control Weakness Impact



Control Objective

Value

Risk

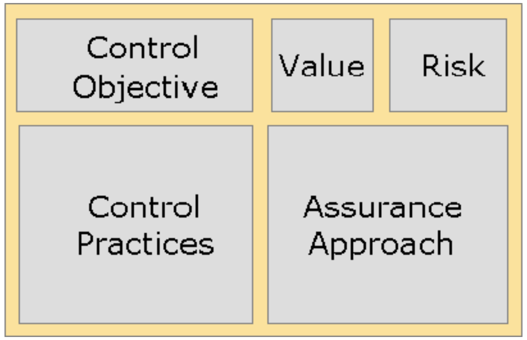
Control Practices

Assurance Approach

IT Control Practices

- A non-prescriptive control design for achieving the control objective
- Describing the different necessary and sufficient steps to achieve a control objective
- Action-oriented, enabling timely execution and measurable
- Relevant to the purpose of the control objective
- Covering all inputs, activities and outputs of the process
- Supporting clear roles and responsibility including segregation
- Concepts of active and passive components
- Generic and specific practices

IT Assurance Steps



Control Objective

Value

Risk

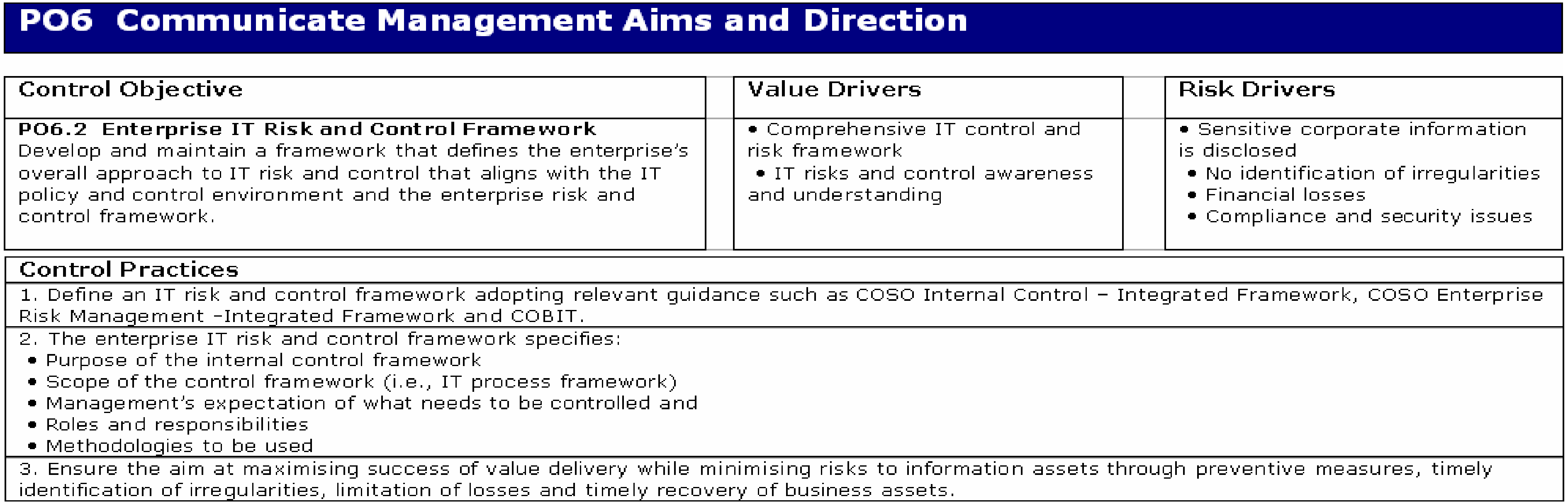
Control Practices

Assurance Approach

- Testing of a control approach covering 4 assurance objectives
  - Existence
  - Design effectiveness
  - Operating effectiveness (implemented, consistent application and proper use)
  - Design and operating efficiency (cost/benefit and possible use of automation)
- Providing 3 types of assurance guidance
  - Testing the suggested control design
  - Testing control objective achievement
  - Documenting impact of control weaknesses
- Tests based on a documented taxonomy of relevant assurance methods
  - Enquire and confirm (via different source)
  - Inspect (walk-through, search, compare, review)
  - Observe (confirmation is inherent)
  - Re-perform or re-calculate and analyse (often based on a sample)
  - Automated evidence collection (sample, trace, extract) and analyse

IT Control Practices and Assurance Steps

Implementation Guide

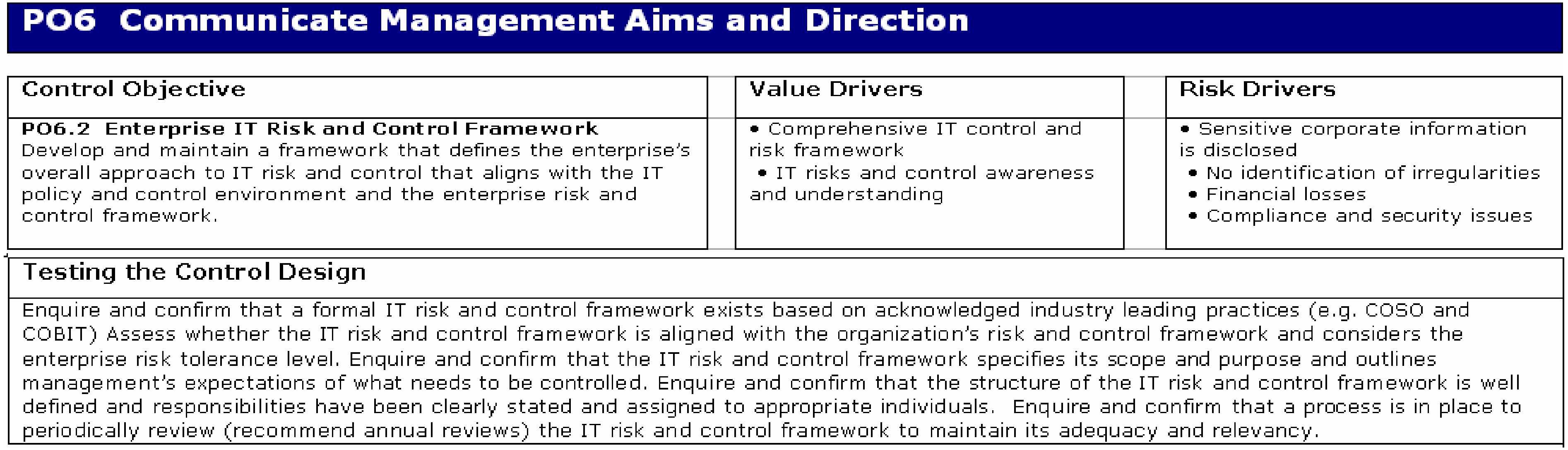


PO6 Communicate Management Aims and Direction

Control Objective	Value Drivers	Risk Drivers
PO6.2 Enterprise IT Risk and Control Framework Develop and maintain a framework that defines the enterprise's overall approach to IT risk and control that aligns with the IT policy and control environment and the enterprise risk and control framework.	• Comprehensive IT control and risk framework • IT risks and control awareness and understanding	• Sensitive corporate information is disclosed • No identification of irregularities • Financial losses • Compliance and security issues

Control Practices
1. Define an IT risk and control framework adopting relevant guidance such as COSO Internal Control – Integrated Framework, COSO Enterprise Risk Management –Integrated Framework and COBIT.
2. The enterprise IT risk and control framework specifies: • Purpose of the internal control framework • Scope of the control framework (i.e., IT process framework) • Management's expectation of what needs to be controlled and • Roles and responsibilities • Methodologies to be used
3. Ensure the aim at maximising success of value delivery while minimising risks to information assets through preventive measures, timely identification of irregularities, limitation of losses and timely recovery of business assets.

Assurance Guide



PO6 Communicate Management Aims and Direction

Control Objective	Value Drivers	Risk Drivers
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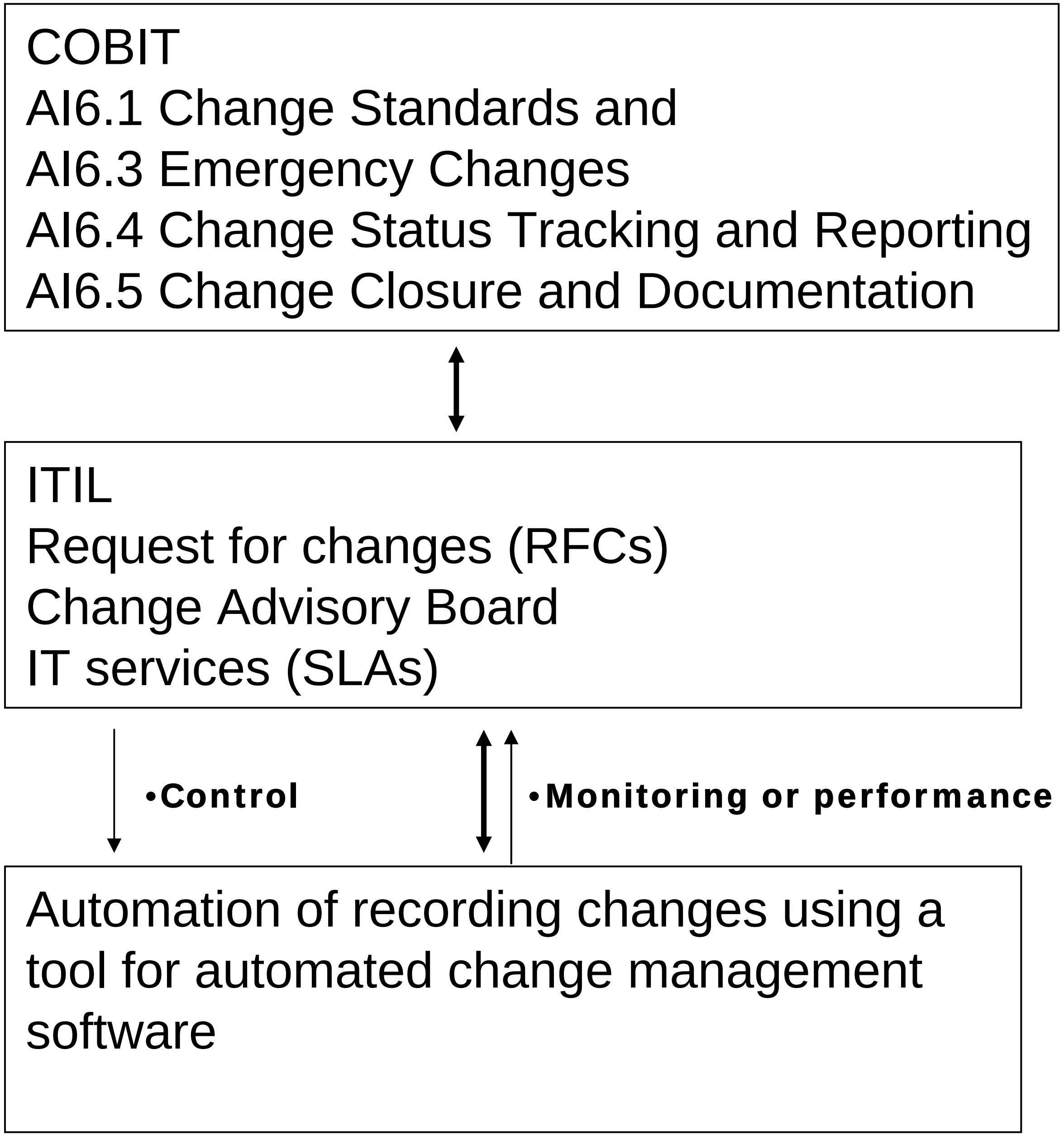
Testing the Control Design
Enquire and confirm that a formal IT risk and control framework exists based on acknowledged industry leading practices (e.g. COSO and COBIT) Assess whether the IT risk and control framework is aligned with the organization's risk and control framework and considers the enterprise risk tolerance level. Enquire and confirm that the IT risk and control framework specifies its scope and purpose and outlines management's expectations of what needs to be controlled. Enquire and confirm that the structure of the IT risk and control framework is well defined and responsibilities have been clearly stated and assigned to appropriate individuals. Enquire and confirm that a process is in place to periodically review (recommend annual reviews) the IT risk and control framework to maintain its adequacy and relevancy.

Example 1
COBIT and ITIL

- Large Global Bank
- Implementing ITIL and have multiple compliance frameworks
- Using COBIT for Governance, Audit, SOX and JSOX
- ITIL implementation required parameters, metrics and validation
- Control practices aligned to metrics from the ITIL processes

Example 1
COBIT and ITIL



COBIT
AI6.1 Change Standards and
AI6.3 Emergency Changes
AI6.4 Change Status Tracking and Reporting
AI6.5 Change Closure and Documentation

ITIL
Request for changes (RFCs)
Change Advisory Board
IT services (SLAs)

- **Control**
- **Monitoring or performance**

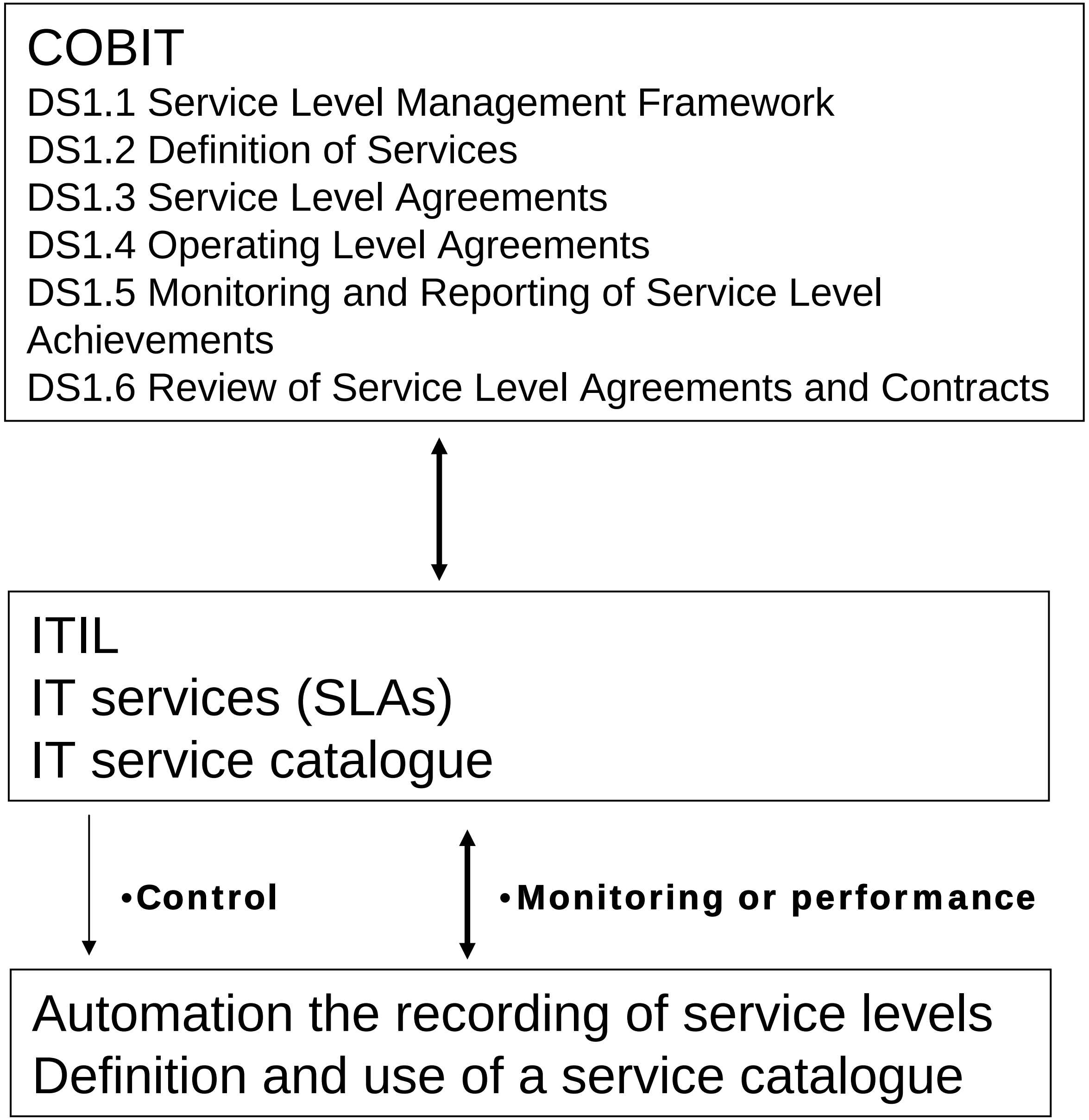
Automation of recording changes using a tool for automated change management software

- Activity Goals measuring the ITIL processes
  - Develop and implement a process to consistently record, assess and prioritise change requests.
  - Assess impact and prioritise changes based on business needs.
  - Assure that any emergency and critical change follows the approved process.
  - Authorise changes
  - Manage and disseminate relevant information regarding changes

Example 2
COBIT and ITIL

- Health Care Provider
- Started implementing ITIL and halted pending Governance
- Using COBIT for Governance, Audit, SOX and JSOX
- Service Levels– failure to deliver a risk to revenue
- Control practices aligned to metrics from the ITIL processes

Example 2
COBIT and ITIL



COBIT

DS1.1 Service Level Management 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

ITIL

IT services (SLAs)
IT service catalogue

•**Control**

•**Monitoring or performance**

Automation the recording of service levels
Definition and use of a service catalogue

Activity Goals

- Create a framework for defining IT services.
- Build an IT service catalogue. I Define service level agreements (SLAs) for critical IT services.
- Define operating level agreements (OLAs) for meeting SLAs.
- Monitor and report end-to-end service level performance.
- Review SLAs and underpinning contracts.
- Review and update IT service catalogue.

Agenda

- Frameworks
  - COBIT
  - ITIL
  - ISO/IEC 20000
- USING COBIT with ITIL
- Practical experience
- **Summary**

Implications for IT Professionals

- Develop solid understanding of control theory
  - General controls
  - Automated application controls
- Develop and incorporate an ongoing risk assessment process into IT management activities
- Develop and implement new controls for new risks identified in risk assessment process
- Develop and maintain documentation of controls performed within the IS environment
- Continuously assess design of controls in changing IS environments
- Learn how to test the operating effectiveness of controls with the IS environment and conduct annual tests of key controls
- Develop and maintain evidence of tests of controls
- Automate
- Use Change Management

Compliance = Competitive Advantage

- Enhance overall IT governance
- Enhance the understanding of IT among executives
- Aid better business decisions
- Align project initiatives with business requirements
- Prevent loss of intellectual assets and the possibility of system breach
- Contribute to the compliance of other regulatory requirements
- Realize more efficient and effective operations
- Optimize operations
- Enhance risk management competencies

IT Governance Institute
ITGI

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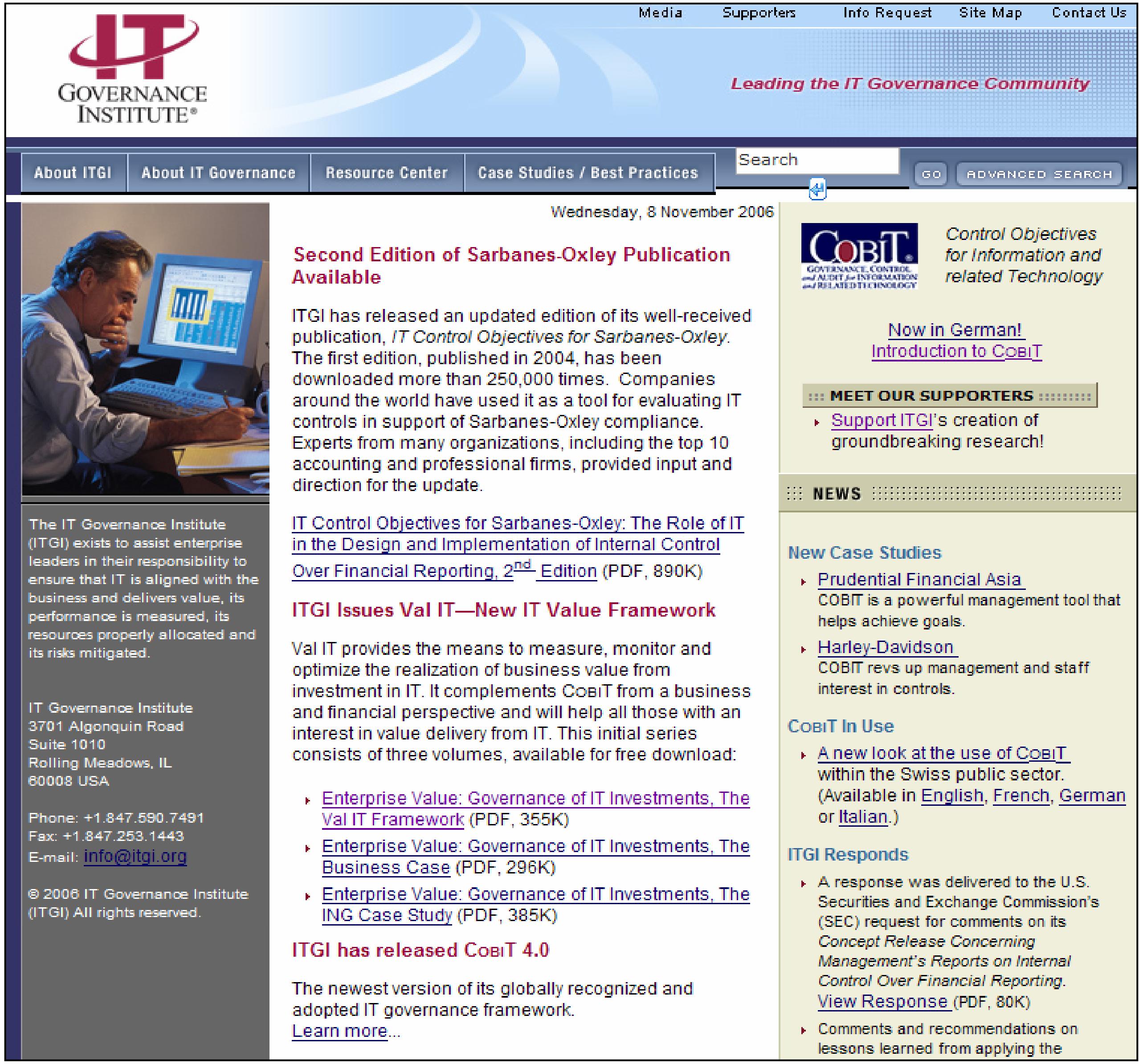

Wednesday, 8 November 2006

Second Edition of Sarbanes-Oxley Publication Available

ITGI has released an updated edition of its well-received publication, *IT Control Objectives for Sarbanes-Oxley*. The first edition, published in 2004, has been downloaded more than 250,000 times. Companies around the world have used it as a tool for evaluating IT controls in support of Sarbanes-Oxley compliance. Experts from many organizations, including the top 10 accounting and professional firms, provided input and direction for the update.

IT Control Objectives for Sarbanes-Oxley: The Role of IT in the Design and Implementation of Internal Control Over Financial Reporting, 2nd Edition (PDF, 890K)

ITGI Issues Val IT—New IT Value Framework

Val IT provides the means to measure, monitor and optimize the realization of business value from investment in IT. It complements COBIT from a business and financial perspective and will help all those with an interest in value delivery from IT. This initial series consists of three volumes, available for free download:

- Enterprise Value: Governance of IT Investments, The Val IT Framework (PDF, 355K)
- Enterprise Value: Governance of IT Investments, The Business Case (PDF, 296K)
- Enterprise Value: Governance of IT Investments, The ING Case Study (PDF, 385K)

ITGI has released COBIT 4.0

The newest version of its globally recognized and adopted IT governance framework.
Learn more...

The IT Governance Institute (ITGI) exists to assist enterprise leaders in their responsibility to ensure that IT is aligned with the business and delivers value, its performance is measured, its resources properly allocated and its risks mitigated.

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NEWS

New Case Studies

- Prudential Financial Asia
COBIT is a powerful management tool that helps achieve goals.
- Harley-Davidson
COBIT revs up management and staff interest in controls.

COBIT In Use

- A new look at the use of COBIT within the Swiss public sector. (Available in English, French, German or Italian.)

ITGI Responds

- A response was delivered to the U.S. Securities and Exchange Commission's (SEC) request for comments on its *Concept Release Concerning Management's Reports on Internal Control Over Financial Reporting.* View Response (PDF, 80K)
- Comments and recommendations on lessons learned from applying the

COBIT & ITIL usage for SOX
- current and future

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Japan, November 8, 2007