WAVESTONE

IT services organization and management

November 27th, 2019

ECE PARIS
ÉCOLE D'INGÉNIEURS

Agenda

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1 Module overview

Module Organization

Date	Time	Chapter	Speaker	Room
09/10/19	13:45 - 17:00	Socle On-premise (1/2)	Adrien Zveguintzoff	EM009 Amphi - E1
16/10/19	13:45 - 17:00	Socle On-premise (2/2)	Nicolas Thierry	EM009 Amphi - E1
30/10/19	13:45 - 17:00	Cloud & outsourcing	Geoffrey Menudier	EM009 Amphi - E1
20/11/19	13:45 - 17:00	PRA	Axel Petersen	EM009 Amphi - E1
27/11/19	**13:45 - 17:00**	**ITIL**	**Mohammed Lafendi**	**EM010 Amphi - E1**
04/12/19	13:45 - 17:00	Poste de travail	Lassoued Azza / Talha Sara	EM009 Amphi - E1

WAVESTONE

A NEW MAJOR CONSULTANCY

We believe that …

… **innovation** has become an imperative for every organization

… developing a successful **business strategy** demands **mastering enabling technologies**

… an idea remains just a concept until the right resources can **make it happen**

In a world where permanent evolution is key to success,
we enlighten and partner our clients in making their most critical business decisions

Tier one clients
leaders in their industry

2,500 professionals
across 4 continents

Among the leading independent
consultancies in Europe,
n°1 in France

Paris | London | New York | Hong Kong | Singapore* | Dubai*
Brussels | Luxembourg | Geneva | Casablanca
Lyon | Marseille | Nantes

* Partners

A unique ability to combine in-depth industry expertise, business functions know-how and technology mastering

BUSINESS FUNCTIONS

Strategy

Innovation management & funding

Marketing, sales & customer experience

People & change

Finance & performance

Operations & supply chain

INDUSTRIES

Financial services

Telecom, media & entertainment

Consumer goods & retail

Manufacturing

Energies & utilities

Transportation & travel

Real estate

Public sector & international institutions

TECHNOLOGY

Digital & IS strategy

Digital & emerging technologies

IT & data architecture

Cybersecurity & digital trust

Our mission

- Accelerate the added-value of IT departments

- Establish IT departments recognized for their strength and their capacity to manage effectively the Business transformation

DIGITAL & IT STRATEGY

Our cutomsers enounter many technologic challenges …

CIO
Chief Information Officer

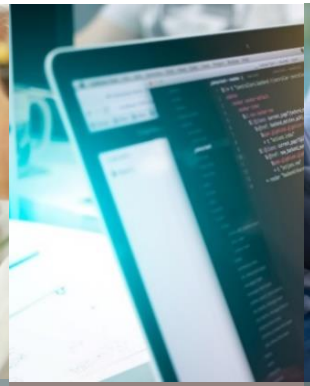
CDO
Chief Digital Officer

CLOUD

Intégrer le Cloud comme une nouvelle étape dans l'industrialisation du SI

OPEN ARCHITECTURE

Contribuer au développement des plateformes des entreprises en agilisant le système d'information



CYBERSECURITY

Contrôler les risques liés à la cybersécurité et renforcer la confiance dans le digital

NEW WAYS OF WORKING

Penser et créer de nouveaux modes de fonctionnement, plus flexibles et mobiles, en construisant le pont entre RH, Immobilier et SI

IoT

Participer à la création et l'industrialisation de l'IoT

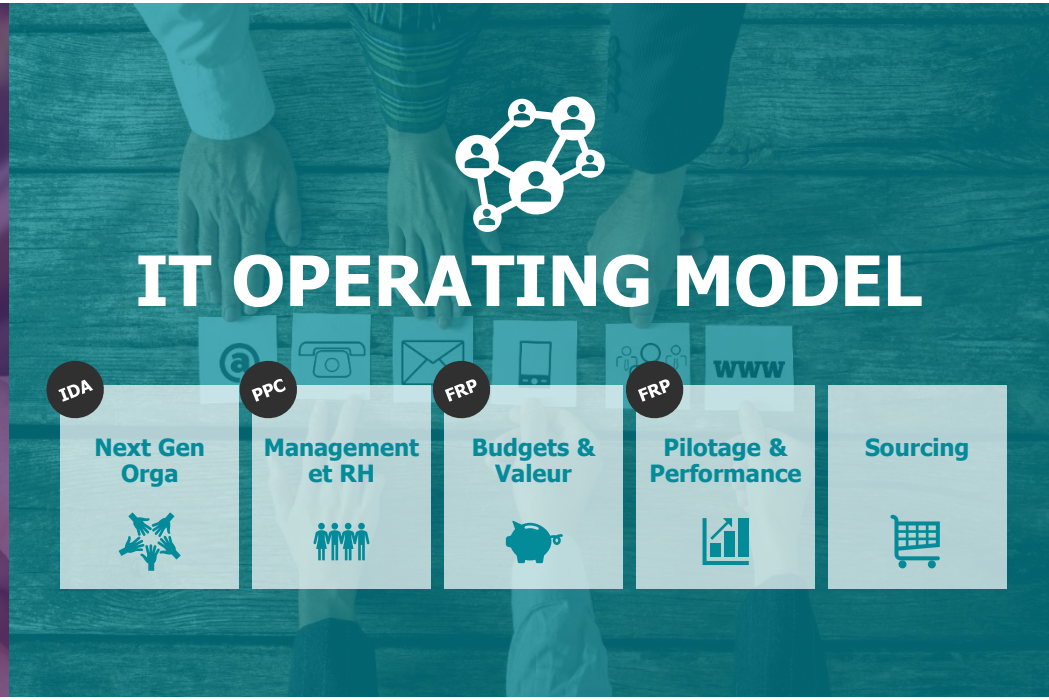
AI

Valoriser l'information et plus généralement démontrer les bénéfices de l'intelligence artificielle

USER EXPERIENCE

Emmener la transformation digitale au cœur des métiers grâce à l'expérience utilisateur

… Addressed by DIS through 2 main principles



En lien avec

BUSINESS & IS TRANSFORMATION

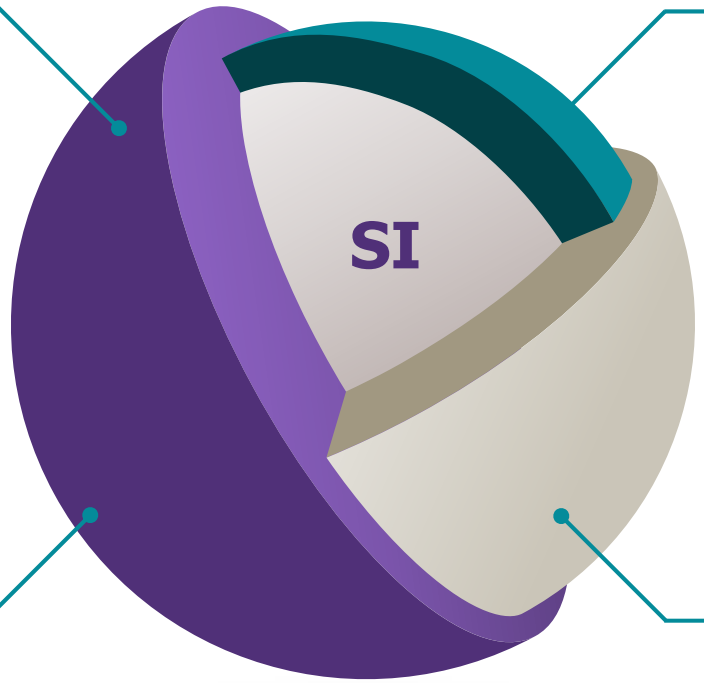
Intervenning in the core of our clients transformation projects by combining our technologic and business practices

DIS

Digital and IT Strategy

CGS **FS** **MFG** **EUT** **FRP** **...**

Busines & Functional practices



IDA

IT & Data architecture

- Opportunity study
- Target definition
- Roadmap definition
- Implementation accompaniment

DIGITAL & IT STRATEGY

IT OPERATING MODEL

Next Gen Orga

Organisation and operational models shaken by Agile and Agile@Scale

Management & RH

HR culture and management methods in transition

Budget & value

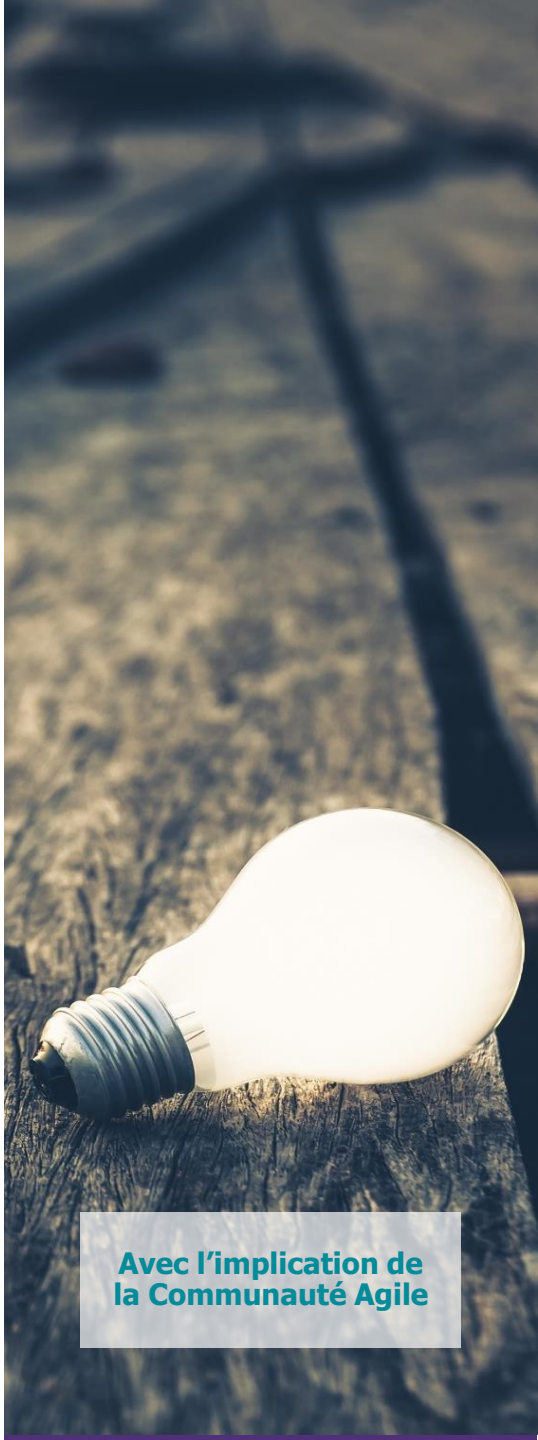
Transformation of the traditional approaches of economic steering inline with the new projects practices

Steering & performance

IT Department performance steering based on the value and pulling new practices

Sourcing

A traditional contracts relation in transformation to more collaboration



2 General concepts

IT definition

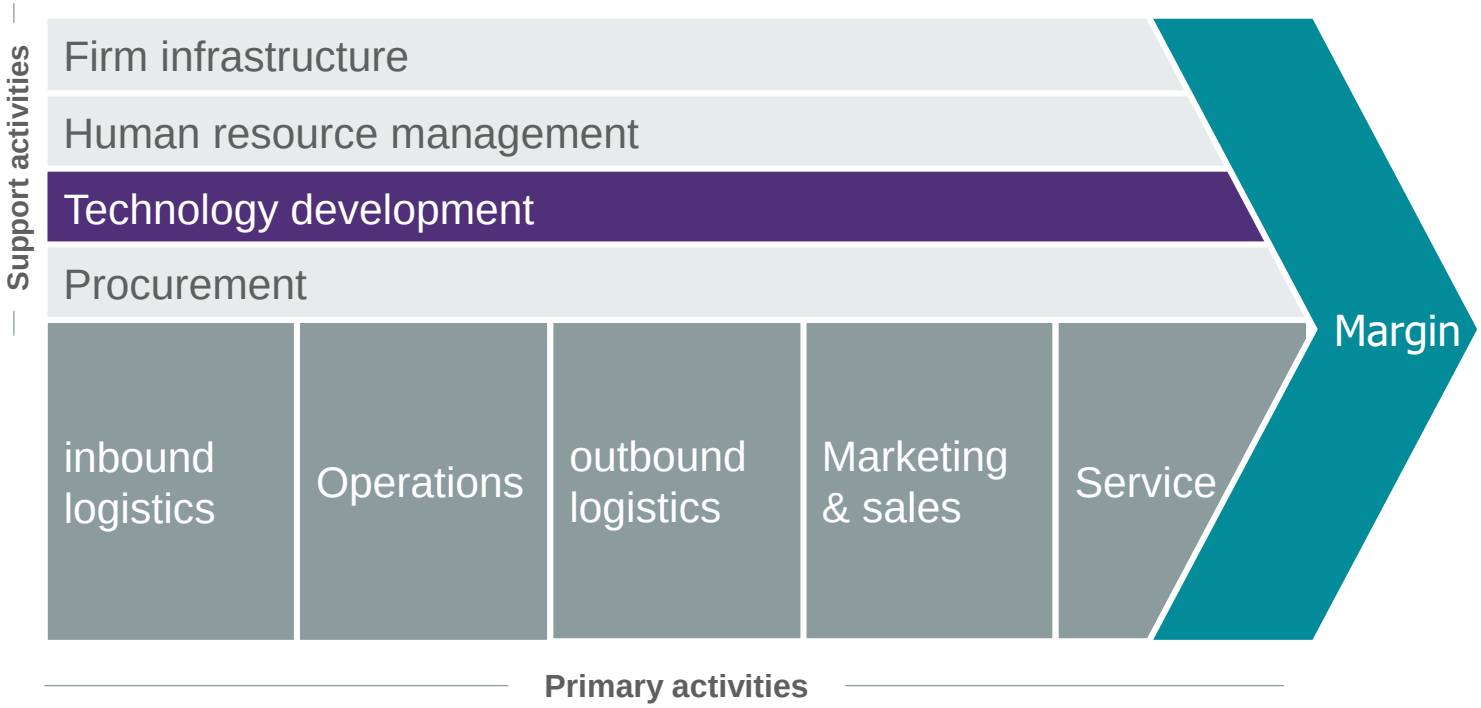
First of all: what does "**IT**" mean ?

Information technology (IT) is **the study, design, development, implementation, support or management** of computer-based information systems, particularly software applications and computer hardware

IT deals with the use of computers and software to **convert, store, protect, process, transmit and securely retrieve information**

Value chain and IT

> "A **value chain** is a chain of activities that a firm operating in a specific industry performs in order to deliver a valuable **product** or **service** for the **market**"
>
> Michael Porter, 1985

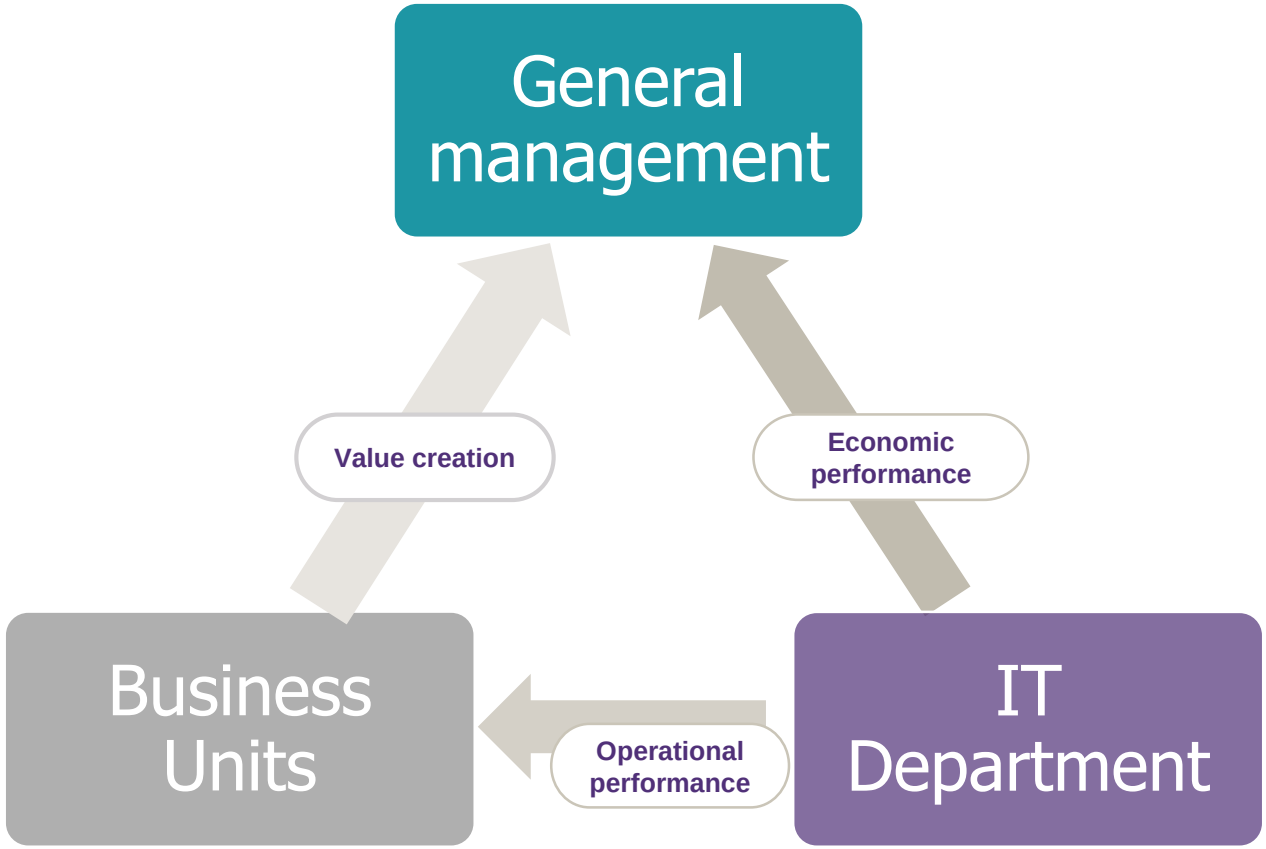


Value reference model

Business functions

Research and Development
Design of Products, Services, or Processes
Production
Marketing & Sales
Distribution
Customer **Service**

Value chain and IT > IT must serve the firm's strategic objectives and ideally create value



Value chain and IT > Find the best equilibrium between **Value** = **Cost** versus **risk**

Business Units ask for:

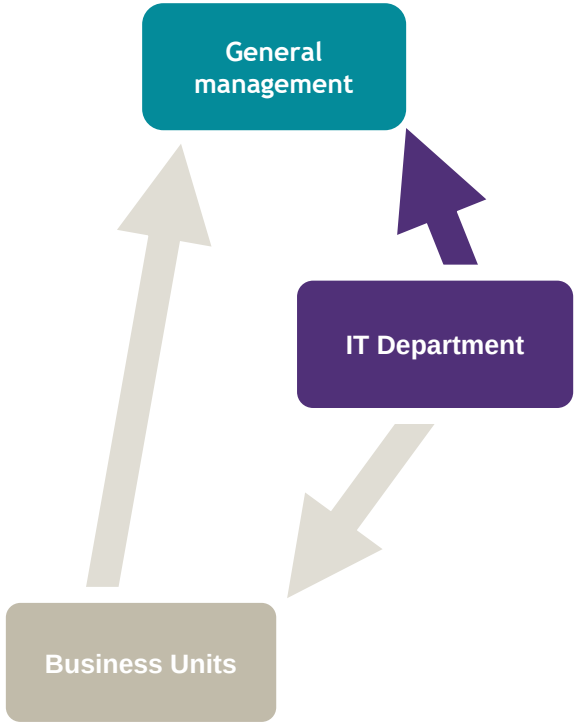
- Information systems that better meet present needs and can nimbly evolve to future needs
- Capacity to invest in the IT if benefits are proven
- Strong contribution to the decisions on the IT and its evolution
- Better communication between IT department and business units

IT Department must:

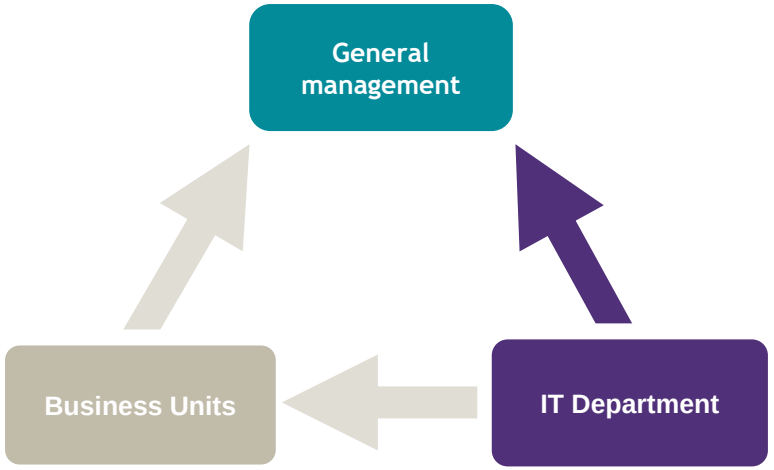
- Assure a better control on risks and costs
- Set up a more constructive dialogue with business units
- Assist Business units accountability on their IT
- Guarantee stronger efficiency from the IT department and the IT
- Provide increased agility of the systems and the organization
- Be a driving force for innovation

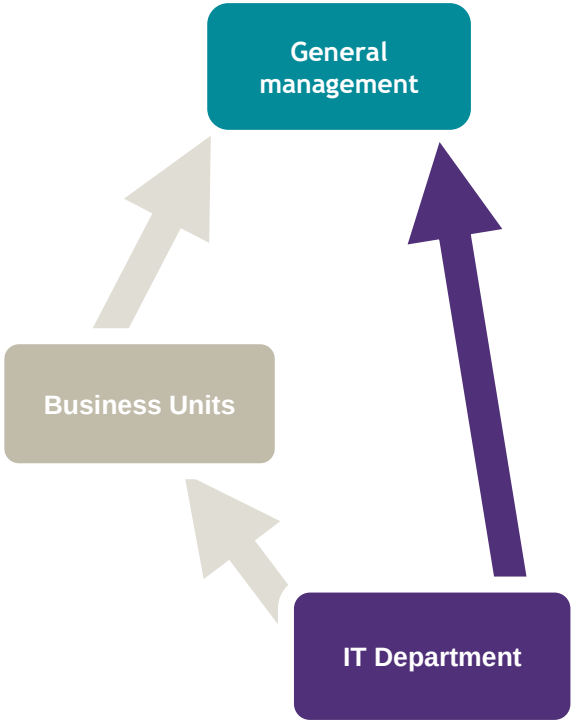
Value chain and IT > IT must serve the firm's strategic objectives

What is the primary challenge: Cost killing or innovation and business value?



IT is considered as a support function





IT is close to the core business

IT value versus IT department cost > Operational & Economic Performance

IT department used to be a cost centre

- Paralyzing **functioning costs**
- **Evolution costs** poorly controlled
- Variable **quality of service**

IT department becomes a strategic tool

- A more and more shared **challenge** with the general management
- Keystone of the firm's **value chain**
- Carries high standards
  - of services delivery
  - of inherent qualities
  - of facilitated evolution

STURDINESS

IT department assures the daily regular service…

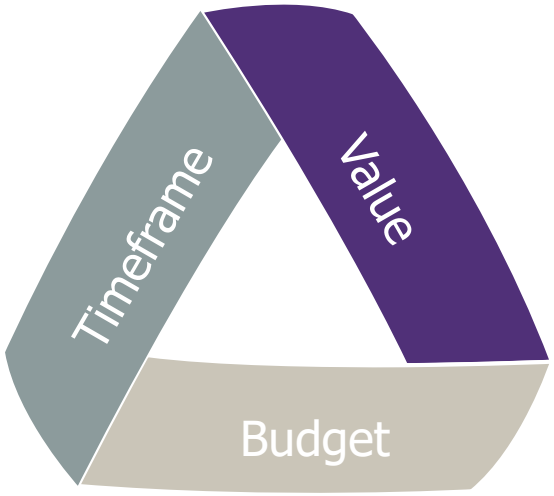
…and brings innovation to the business

AGILITY

Value chain and IT > IT sector is still "young" and lacks maturity

3 constraints tied together

An action on one of the constraints has necessarily an impact on the two others



Lack of Maturity

- The IT sector is relatively new compared to other professions (Building trade or car industry for instance).
- 70% of information systems are maintained in "operational state" which is an obstacle for innovation.
- Methods are still rudimentary and home-made.
- The "prototype" mind is still predominant in the domain of IT transformation projects.
- Numerous great projects do not end as scheduled.

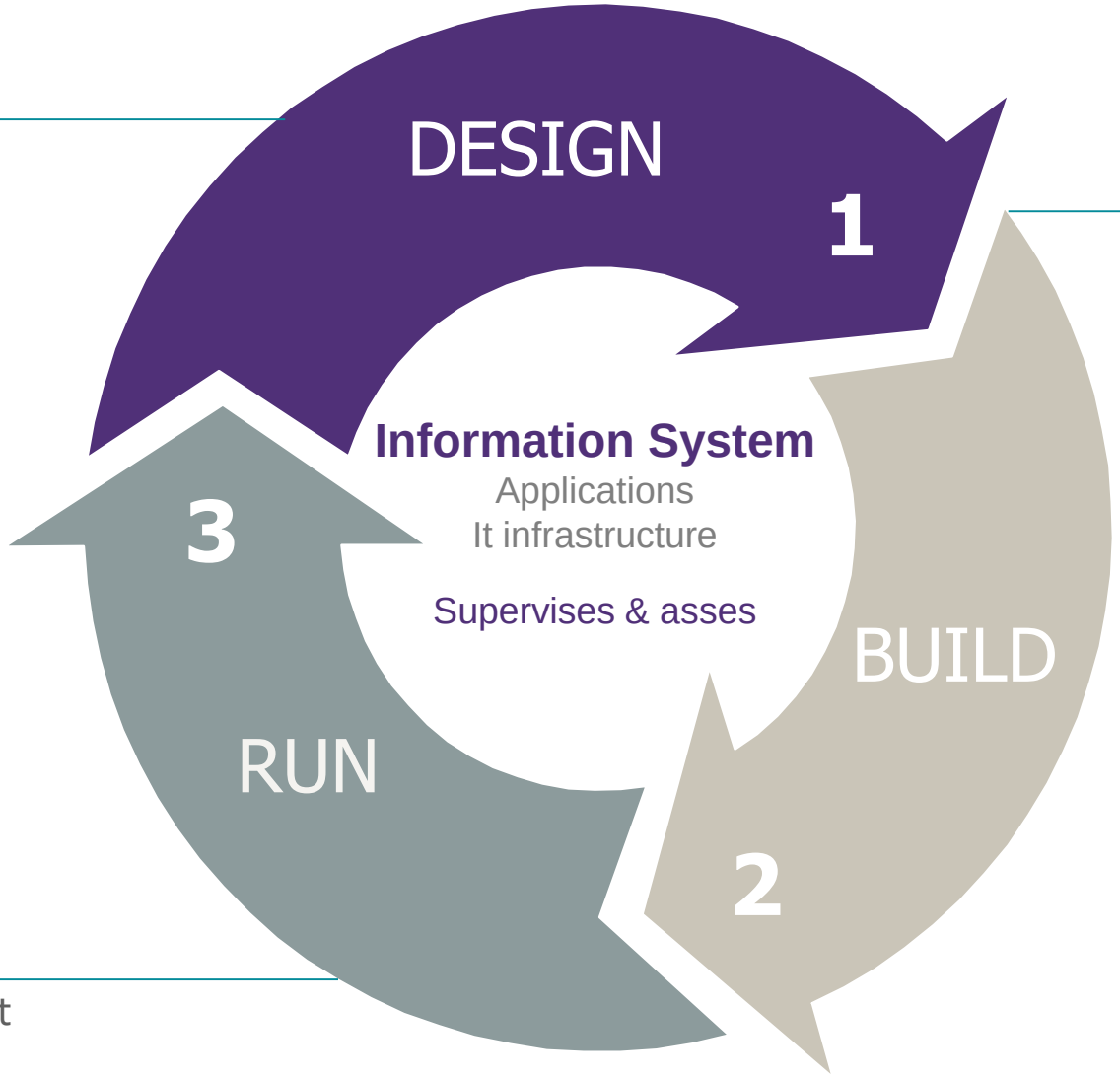
Rapid changing technologies

- Technologies still evolve very fast.
- Renovation cycles tend to shorten.
- Their complexity increase greatly.

IT life cycle > Design – Build – Run - Design –Build... Like a "normal" product

Orientate

Planify/organise



Transform

Acquire/Implement

Optimize

Deliver/Support

3 IT Governance definition

Concept and definitions > 5 trends

Definition of the IT Governance Institute

IT Governance spans the **culture, organization, policy and practices** that provide for IT management and control across five key areas :

Business alignment

Provide for **strategic direction** of IT and the **alignment of IT** and the business with respect of services and projects

Value delivery

Confirm that the **IT/Business organization** is designed to drive maximum business value from IT. Oversee the delivery of value by IT to the business, and **assess ROI**

Risk management

Ascertain that processes are in place to ensure that **risks have been adequately managed**. Include assessment of the risk aspects of IT

Resource management

Provide high-level direction for **sourcing** and use of IT resources. Oversee the aggregate funding of IT at enterprise level. Ensure there is an adequate **IT capability and infrastructure to support current and expected future business requirements**

Performance Enhancement

Verify strategic compliance, i.e. achievement of strategic IT objectives. Review the measurement of **IT performance and the contribution of IT to the business** (i.e. delivery of promised business value)

Concept and definitions > performance leverage *(focus of this course)*

The 5 key domains of IT Governance

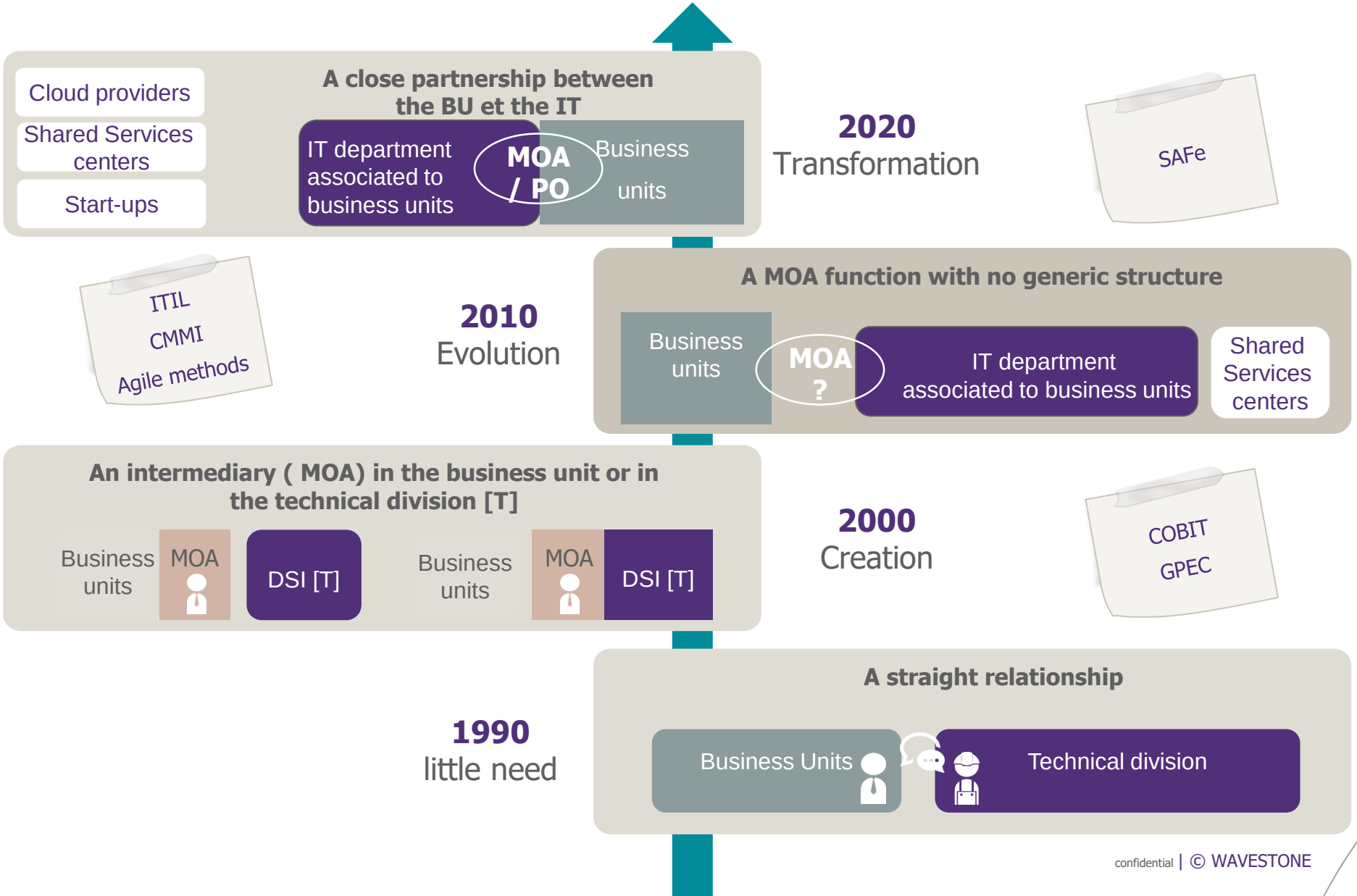
- **Align IT to the business Challenges**
- **Bring value to business units**
- **Manage IT risks**
- **Manage resource**
- **Steer operational and economic performance**

Leverage

- Organization
- Processes
- Tools

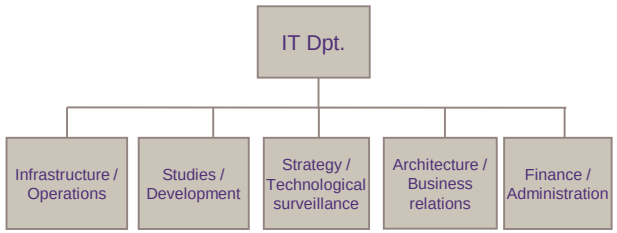
4 IT Organizations

Multiple "delivery" models



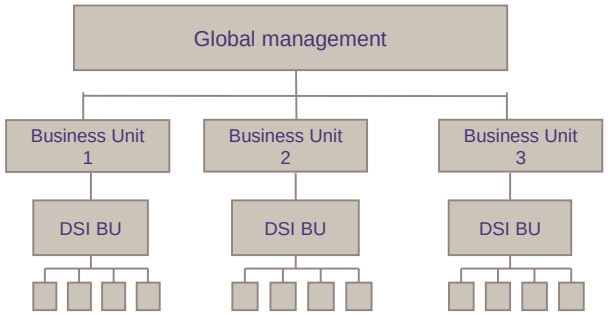
Multiple "delivery" models

Problematic and stakes IT Departments can be basically organized trough 3 different models



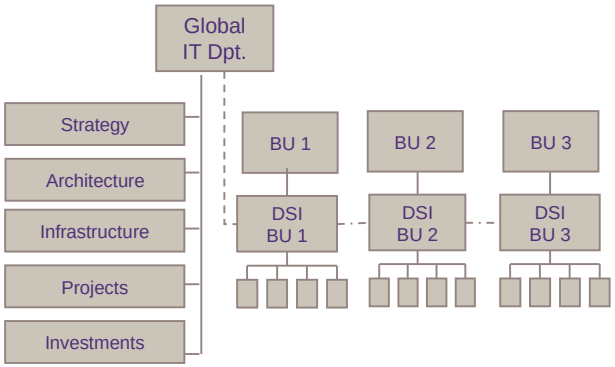
Centralized organization

- The general IT Department decides for the entire company
- A logic built on economy-saving and simplicity for the management
  - Costs rationalization
  - Development and sharing of good practices
- Globalized IT but poorly adapted to the business needs



Decentralized organization

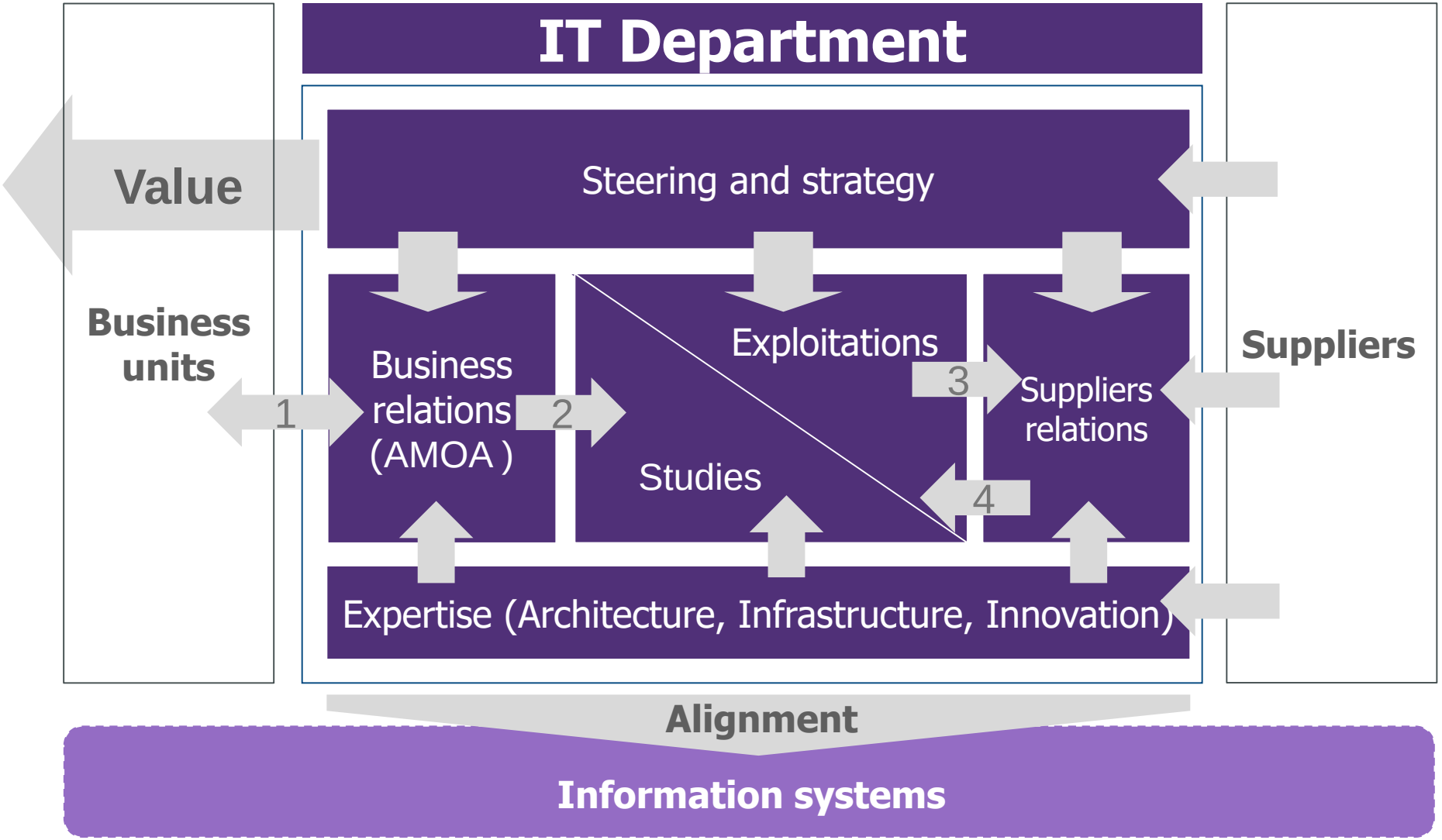
- A local IT department for each Business Unit
- The business units are autonomous in there management (which is, as a consequence, adapted to their needs)
- Tends to be redundant and lacks technical cohesion



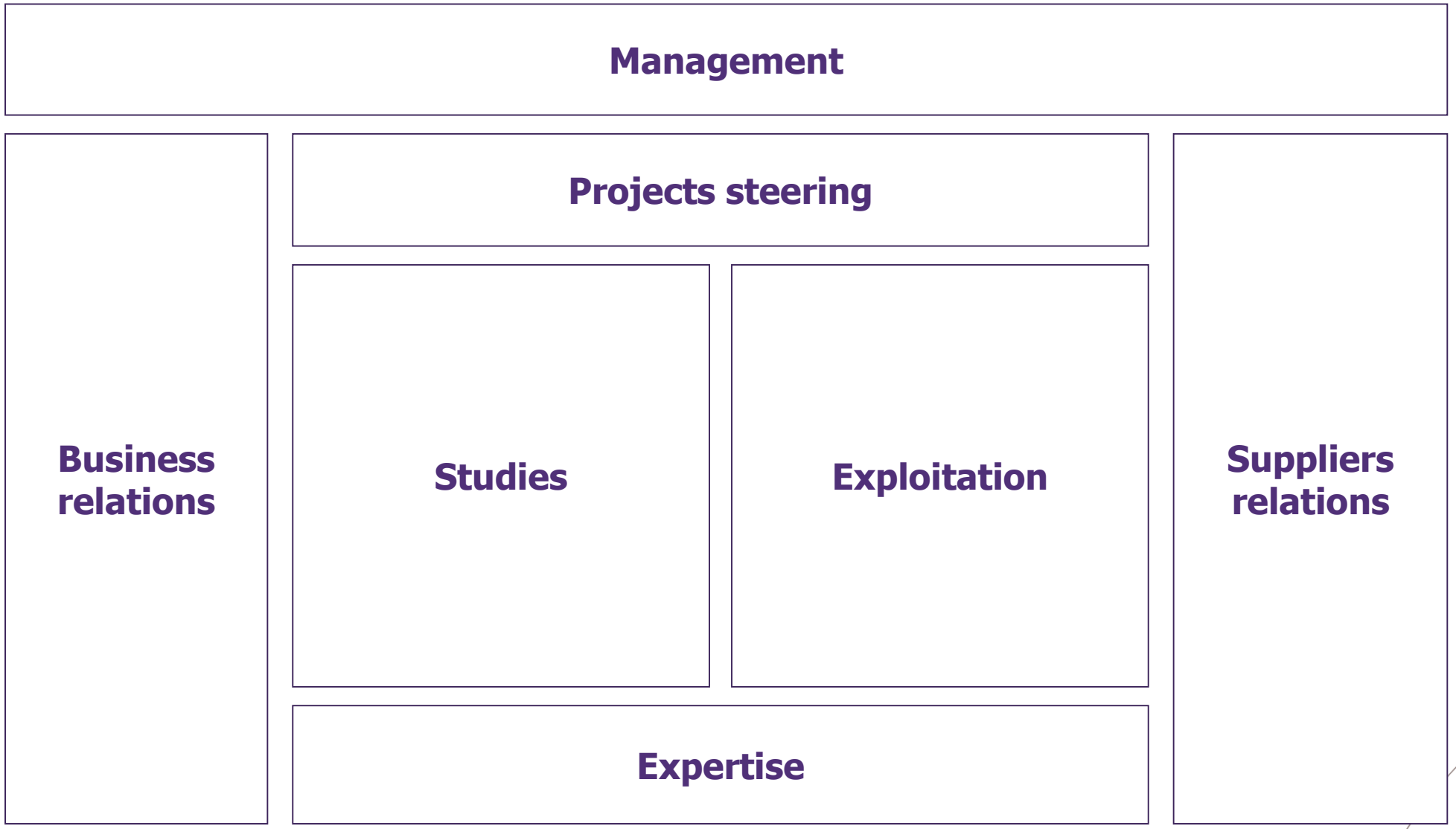
Federal organization

- Global Infrastructures and application centralization
- Autonomy for local IT department concerning local issues
- Compromise between local and standardized conformity need

An IT Department at the business service in order to align with the strategy



Macro activities of the IT Department



Micro activities of the IT Department

Management

- IT finance
- Operational performance
- HR Management
- Quality/methodology/ processes
- Strategy/governance/ sourcing

Business relations

- Business relationship management
- Delivered services management
- Service desk

Projects steering

- Project management
- Project portfolio management

Studies

- Scoping business needs
- Functional requirements
- Development
- Integration
- Test & verification

Exploitation

- N0 / N1 Supervision / Service Desk
- N2 Operations / Administration
- N3 Engineering
- App management
- Change management

Expertise

- Architecture
- Security
- Innovation

Suppliers relations

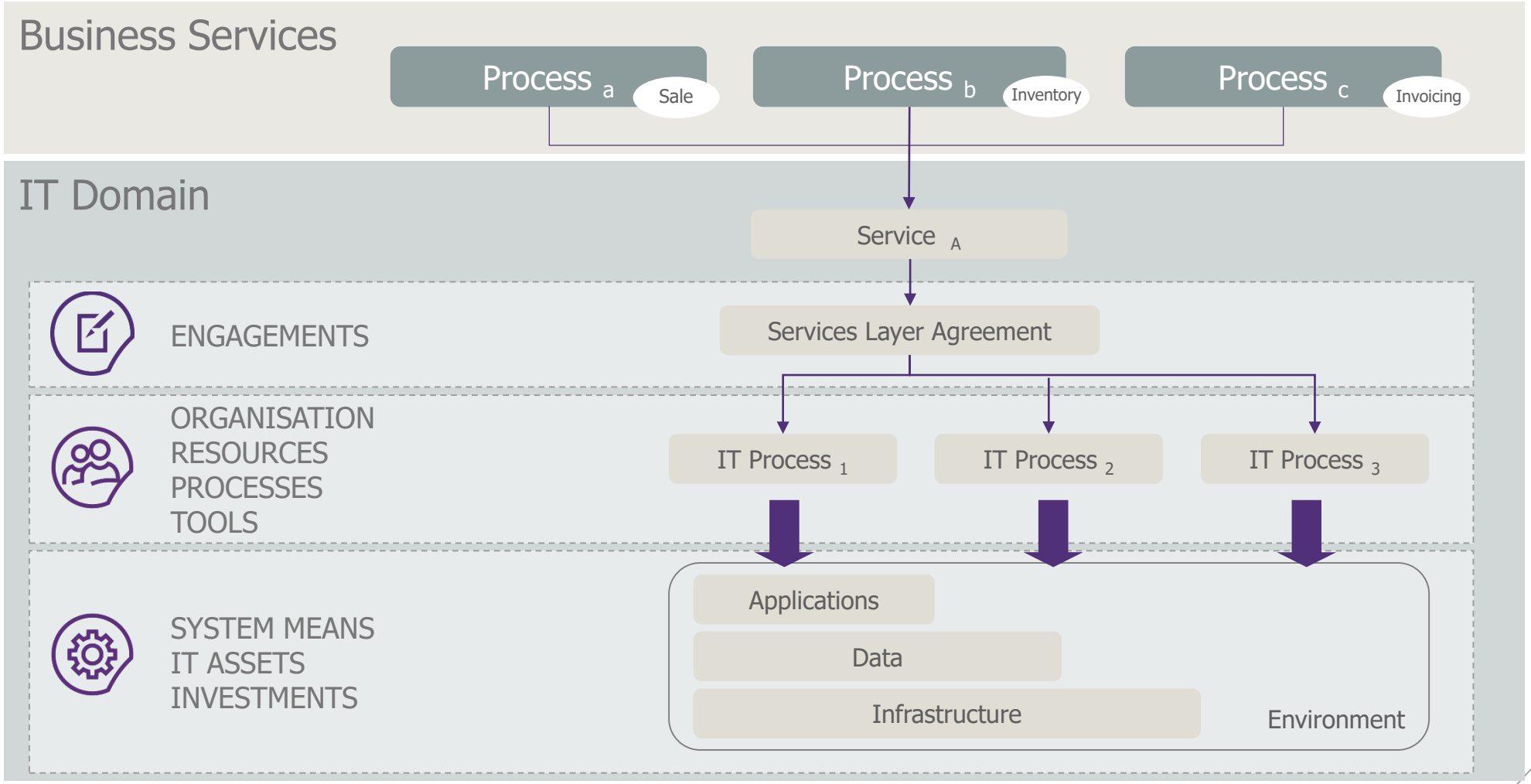
- Vendor management
- Outsourced services management

IT Department > Evolution trends to adapt to a new context

Reinforce Business relationship	**1**	Set-up teams in charge of Business Relationship management
Be « Service oriented »	**2**	Draw inspiration from cloud providers
Implement an Agile approach	**3**	Favor short cycles, collaborative approaches and projects floors

5 IT Management frameworks and processes

Value chain goal > Bring value to a "business" service through IT services

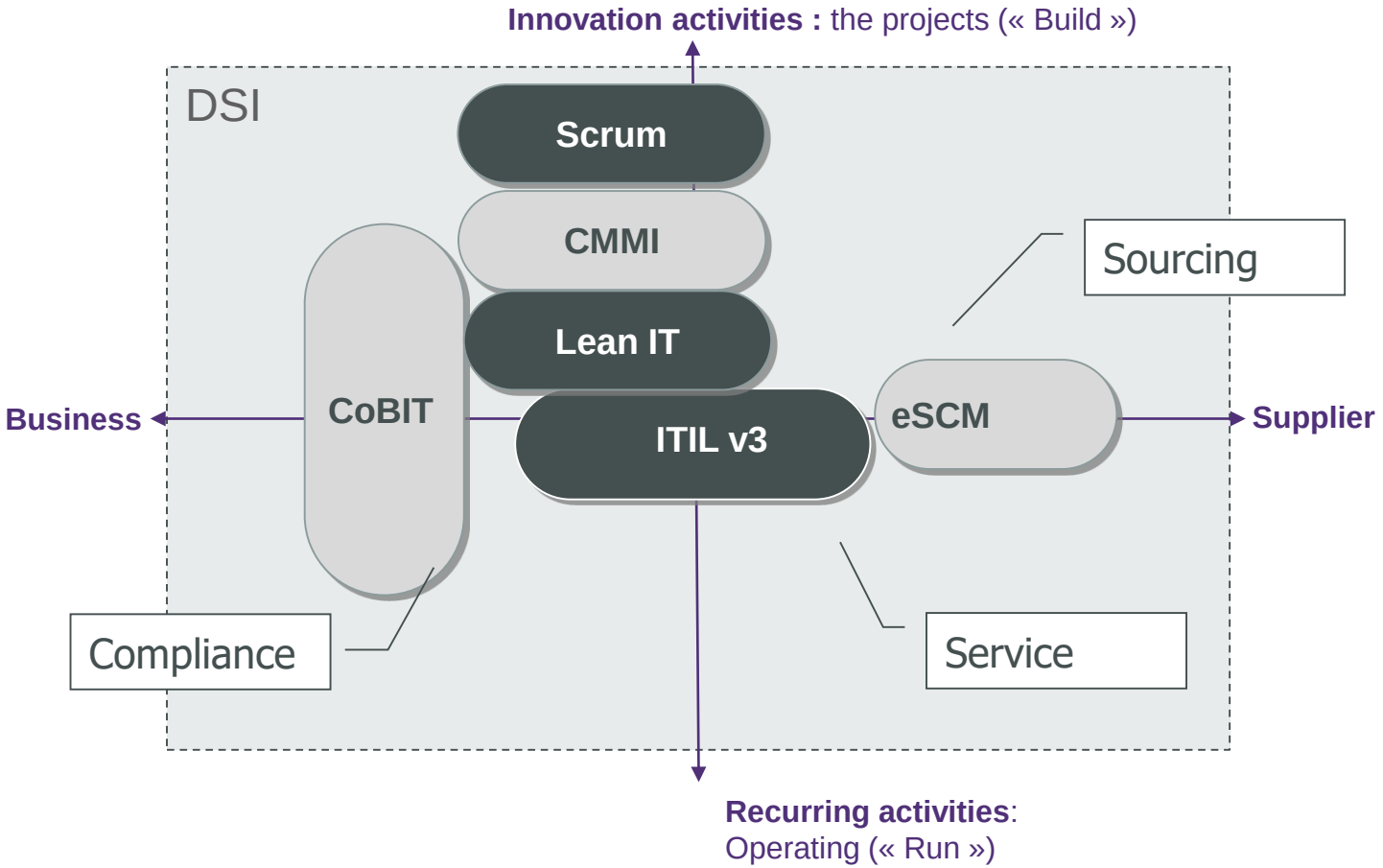


Concepts & frameworks > transparency, compliance, performance

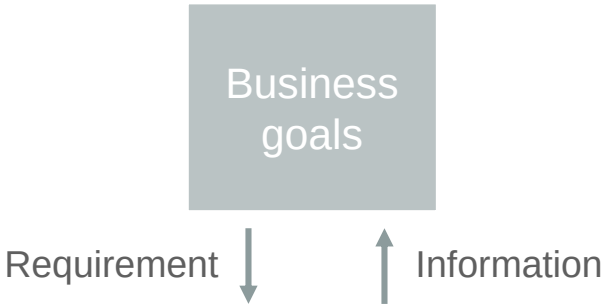
Possible orientations and their complementarity:

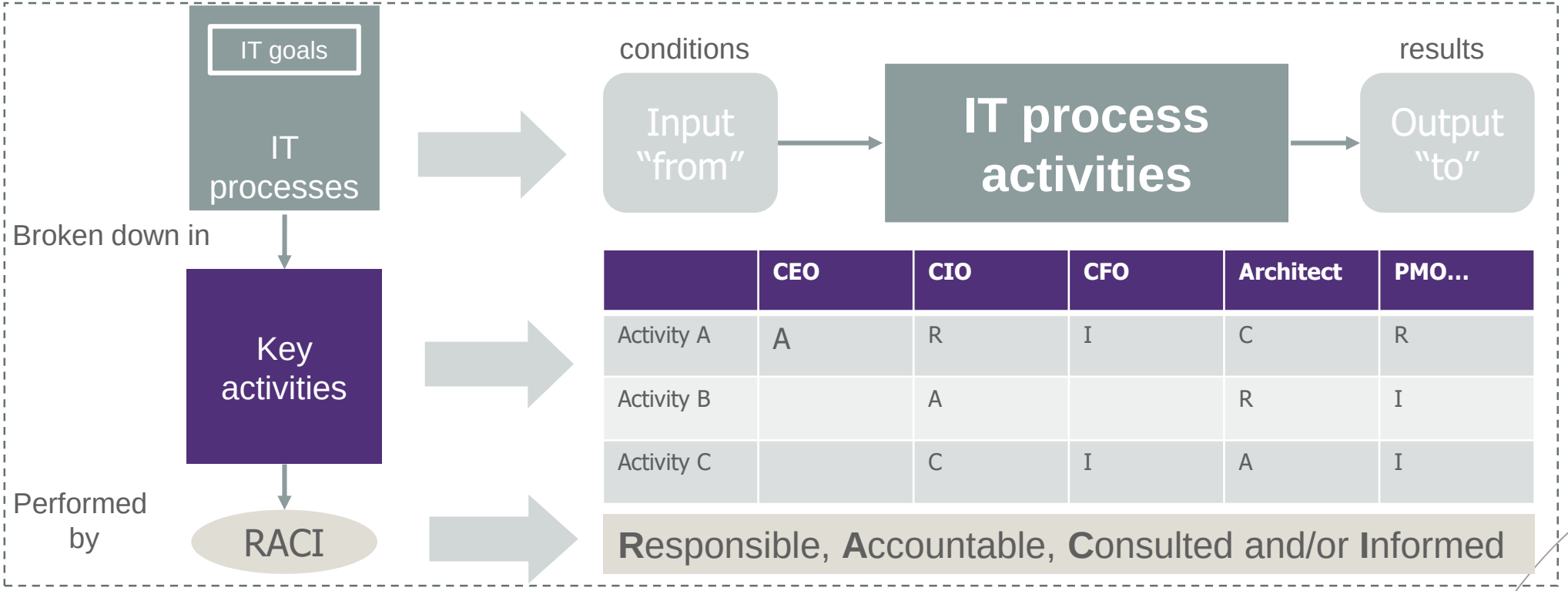
Quality	Risk	Service	Conformity	
Reference	Objective	Approach	Sector	Trend
ISO 9000	Quality	Standardization	All	↗
ISO 15504	IT Processes	Standardization	IT	↗
ISO 20000	Service	Standardization	All	↗
ISO 27000	Security	Standardization	All	↗
SOX	Traceability	Obligation	US stock-exchange	↗
BÂLE II	Risk	Obligation	Bank/ Assurance	↗
Lean IT	**Value-optimization**	**Recommendation**	**IT**	↗
ITIL	**Service**	**Recommendation**	**IT**	↗
Agile - Scrum	**Project**	**Recommendation**	IT	↗
eSCM	Sourcing	Recommendation	IT (principal. SSII)	↗
CMMI	Quality	Recommendation	IT	↗
CoBIT	Conformity	Recommendation	IT	↗
VAL iT	Value-creation	Recommendation	IT	?

Concepts & frameworks > different standards & best practices co-exist : *"To choose is to renounce…*



Concepts & frameworks > from Business goals to IT "RACI" (assigned activities)

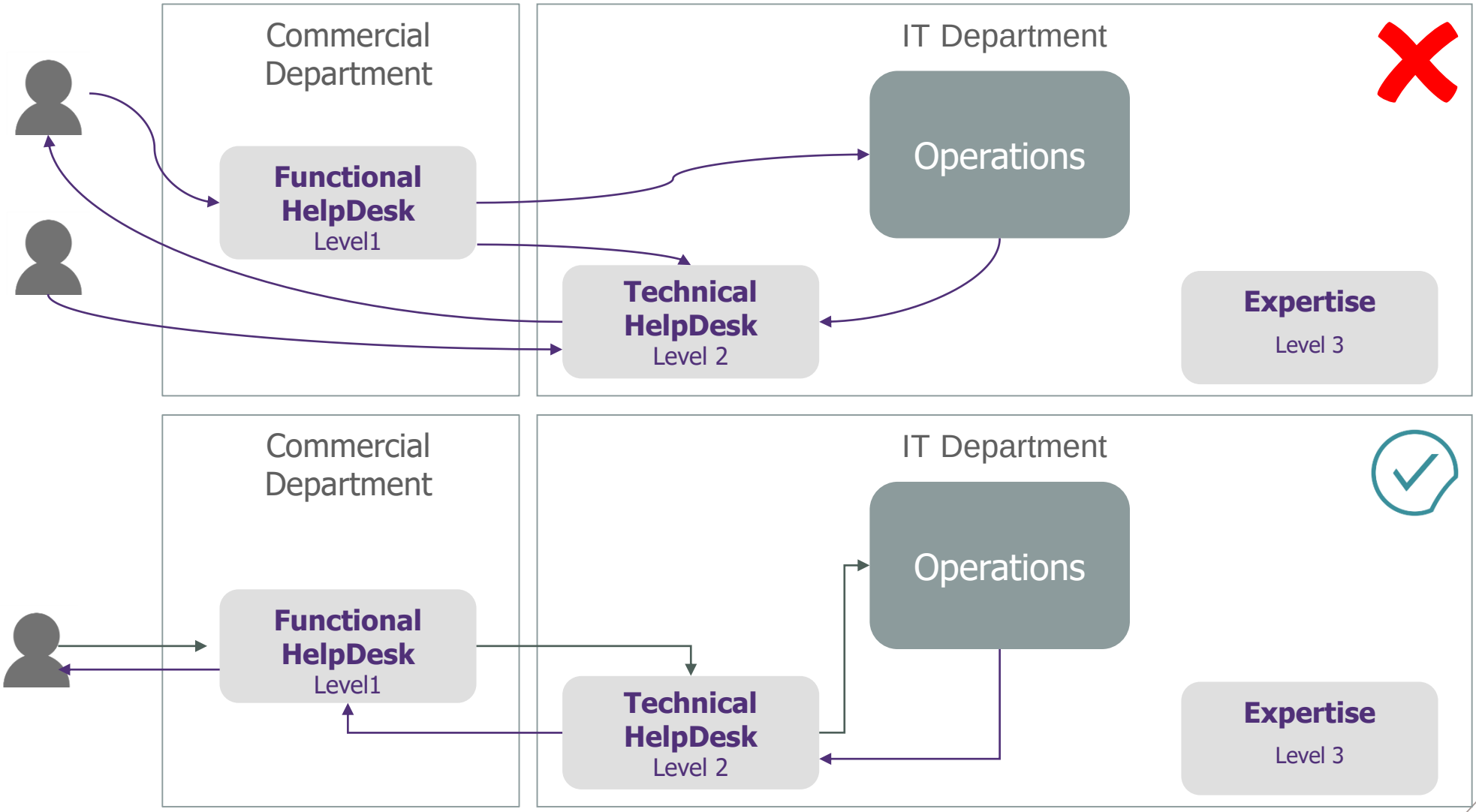




	CEO	CIO	CFO	Architect	PMO…
Activity A	A	R	I	C	R
Activity B		A		R	I
Activity C		C	I	A	I

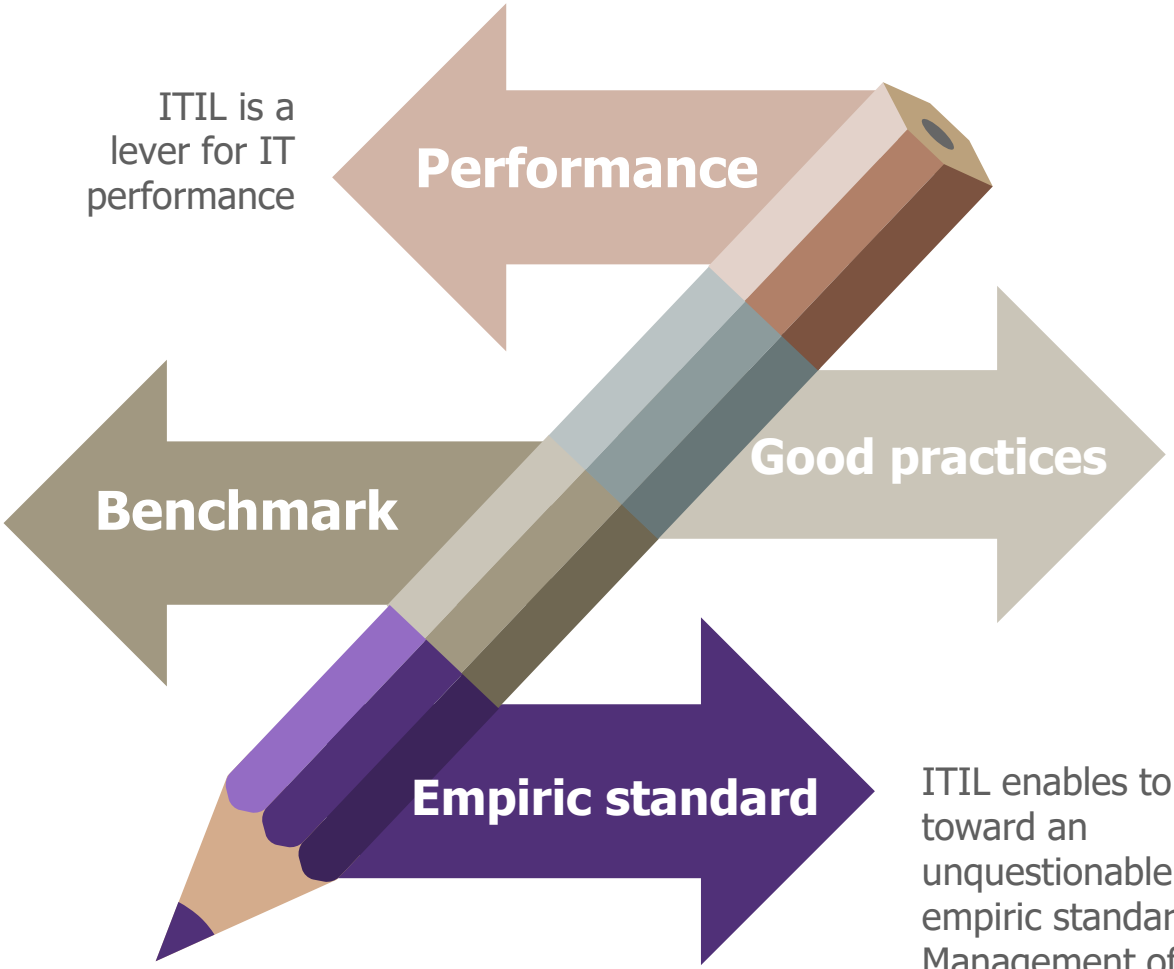
Responsible, **A**ccountable, **C**onsulted and/or **I**nformed

Failed process vs successful process



Why adopt ITIL ?

ITIL is a lever for IT performance



Implementation of good practices

In the short term, through the resolution of operational dysfunctions

In the middle term, through a pragmatic approach of the quality

ITIL gives oneself the means to do a benchmark with comparable societies (state of the art)

ITIL enables to move toward an unquestionable empiric standard in Management of IT Production Services

What is ITIL ? > an international empiric standard

ITIL: Information Technology Infrastructure Library

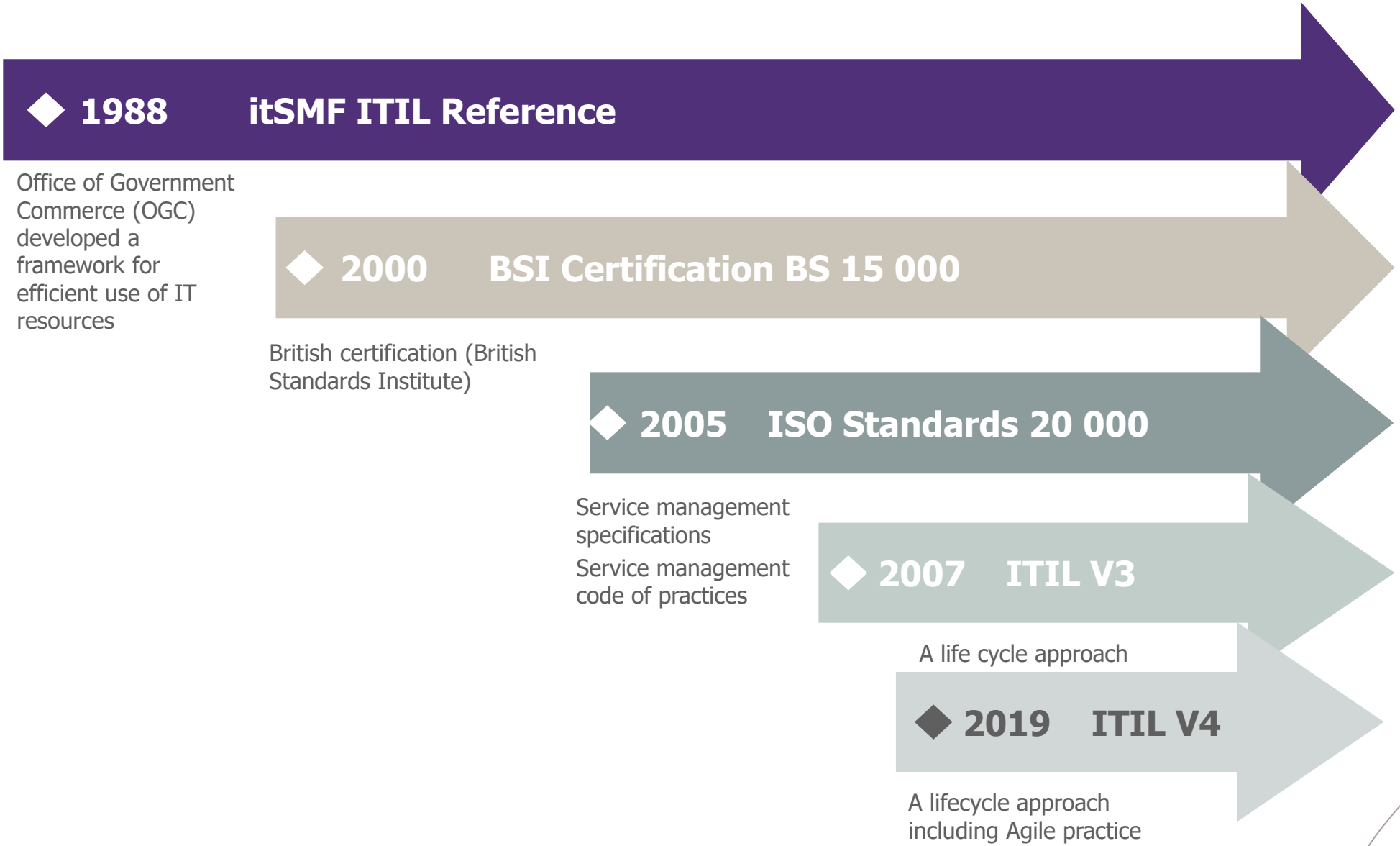
The origins

- Initiative of the British government
- More than 20 years of existence and experience
- The organizations running the repository
- An owner : OGC (British Government)
- Two examination institutes
  - ISEB : British
  - EXIN : Dutch
- A user forum : itSMF

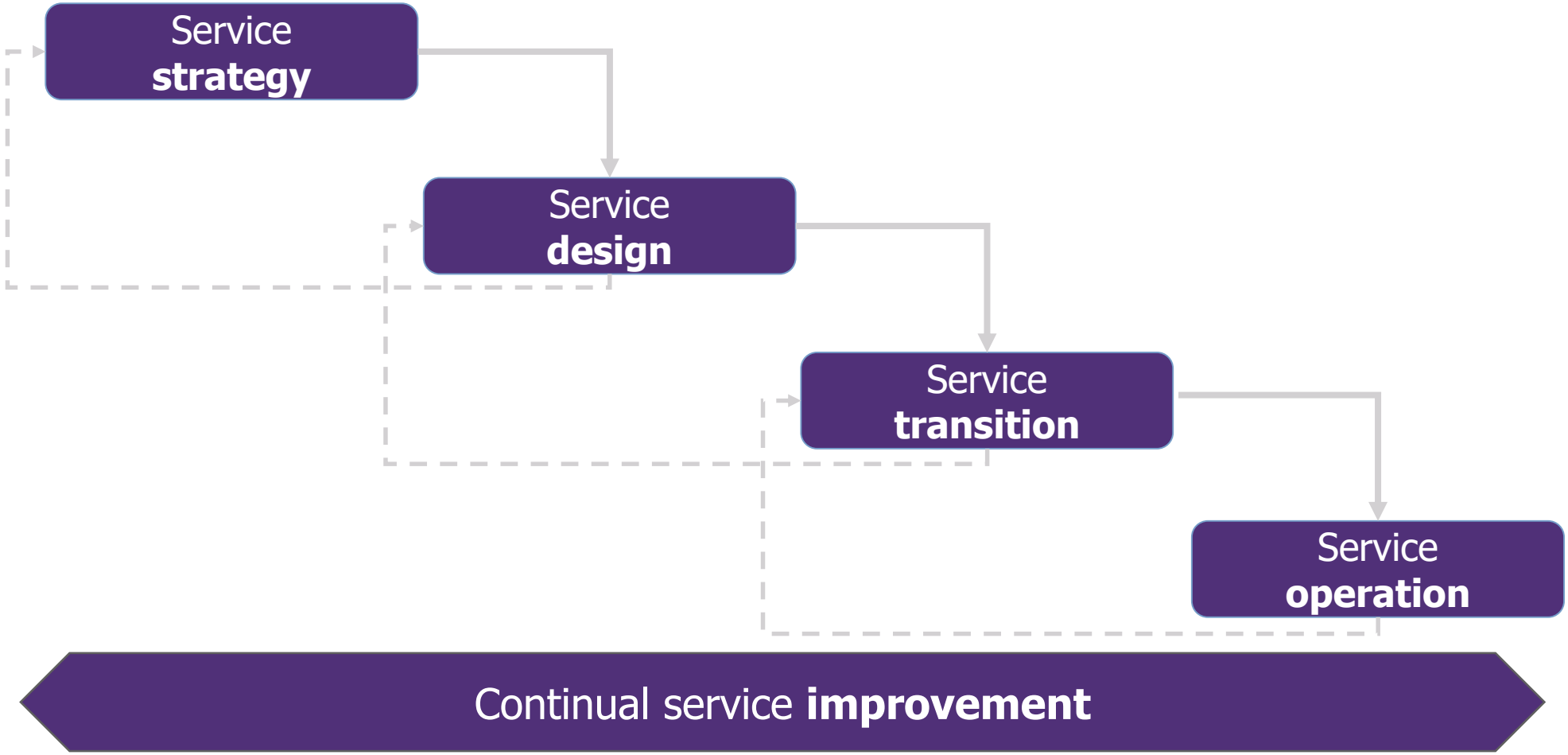
The principles

- The customer is in the heart of the repository
- Notion of « Service » provided to the customer
- Process approach (policies, roles, goals)
- Common vocabulary for everybody (users, customers, suppliers)
- Generic, non prescriptive and applicable to every type of context
  - Governments
  - Multinational company
  - Small and middle companies

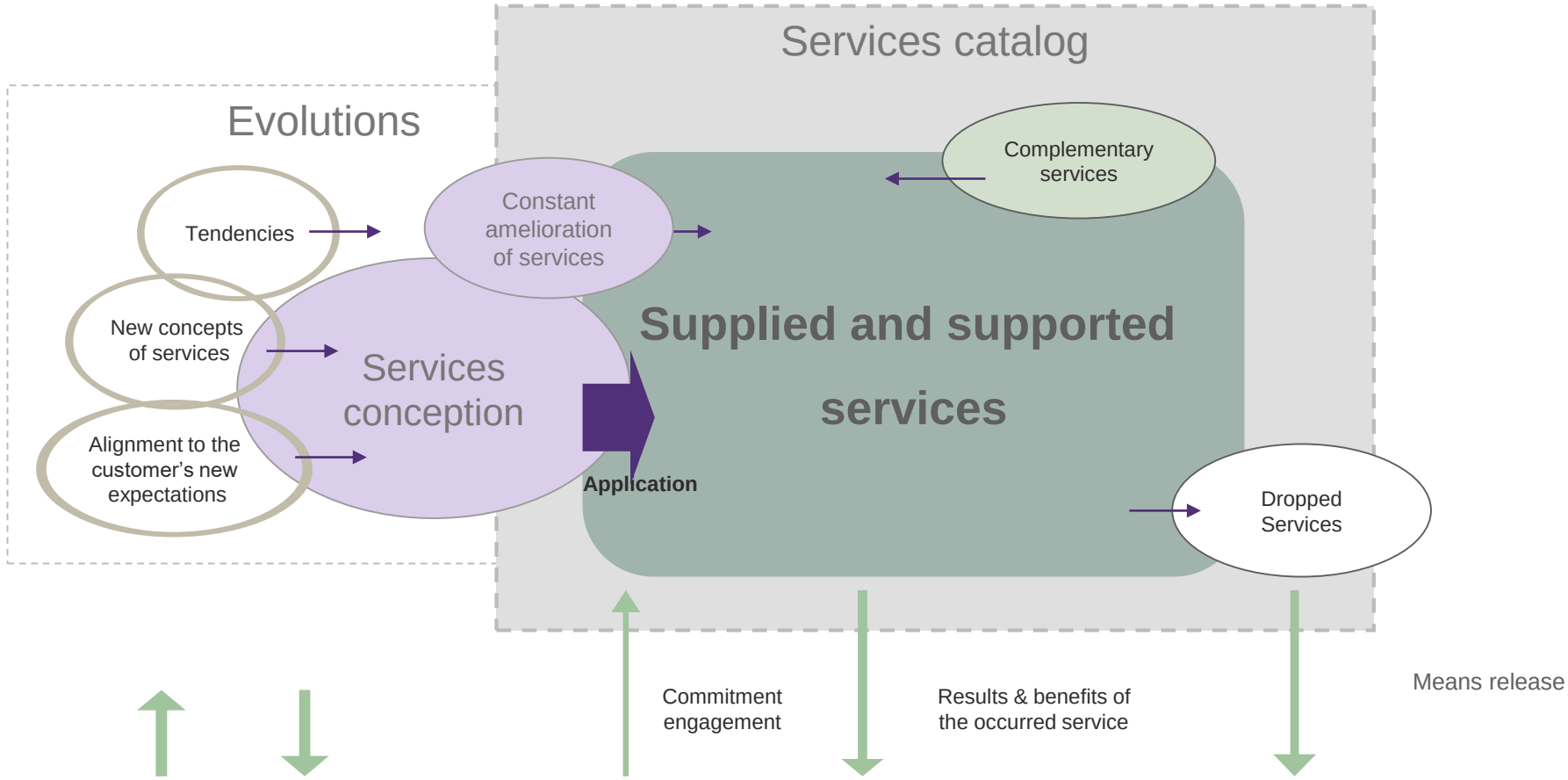
ITIL facing standardization



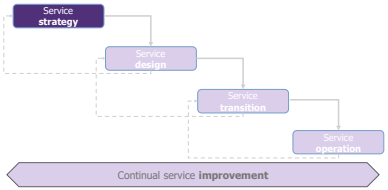
ITIL v3 : a Best-practice framework based on an IT service life cycle approach



Towards a service life cycle



Service strategy : zoom on the most implemented processes



Business, Customer, User

Needs and objectives

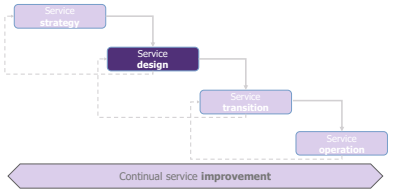
Financial management for IT

- Identify the services costs and evaluate them
- Budget and count up, or even invoice

Demand management

- Forecast, collect, analyse an assess business demands for new IT services or evolutions
- Follow-up demands portfolio and its progress

Service design : zoom on the most implemented processes



Business, Customer, User

Needs and objectives

Service level management

- Implement and continuously steer the Service levels agreement (SLA)
- Be the interface between the Client (≠ user) and the service management

Capacity management

- Optimize the existent capacity and anticipate the Business future needs
- Manage and moderate the Business requests

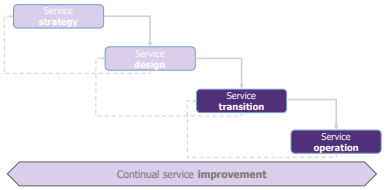
Service continuity management

- Guarantee that critical Services can be restarted in match with business needs
- Prepare and test the emergency sites in case of major disaster on production

Availability management

- Ensure that the services stay available to answer the business needs (Service chain from end to end)
- Secure the points of the infrastructure non-reliability

Service Transition and Operations : zoom on the most implemented processes



Incident

Incident management

Business, Customer, Users

Changes

Problem management

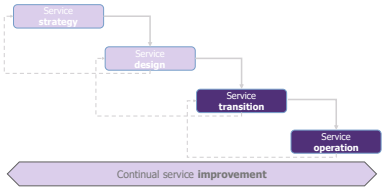
Implementation

Change management

Release and deployment management

Configuration management

Service Transition and Operations : zoom on the most implemented processes



Incident

Re-establish the service to the business as fast as possible

Incident management

Business, Customer, Users

Changes

Problem management

Implementation

Change management

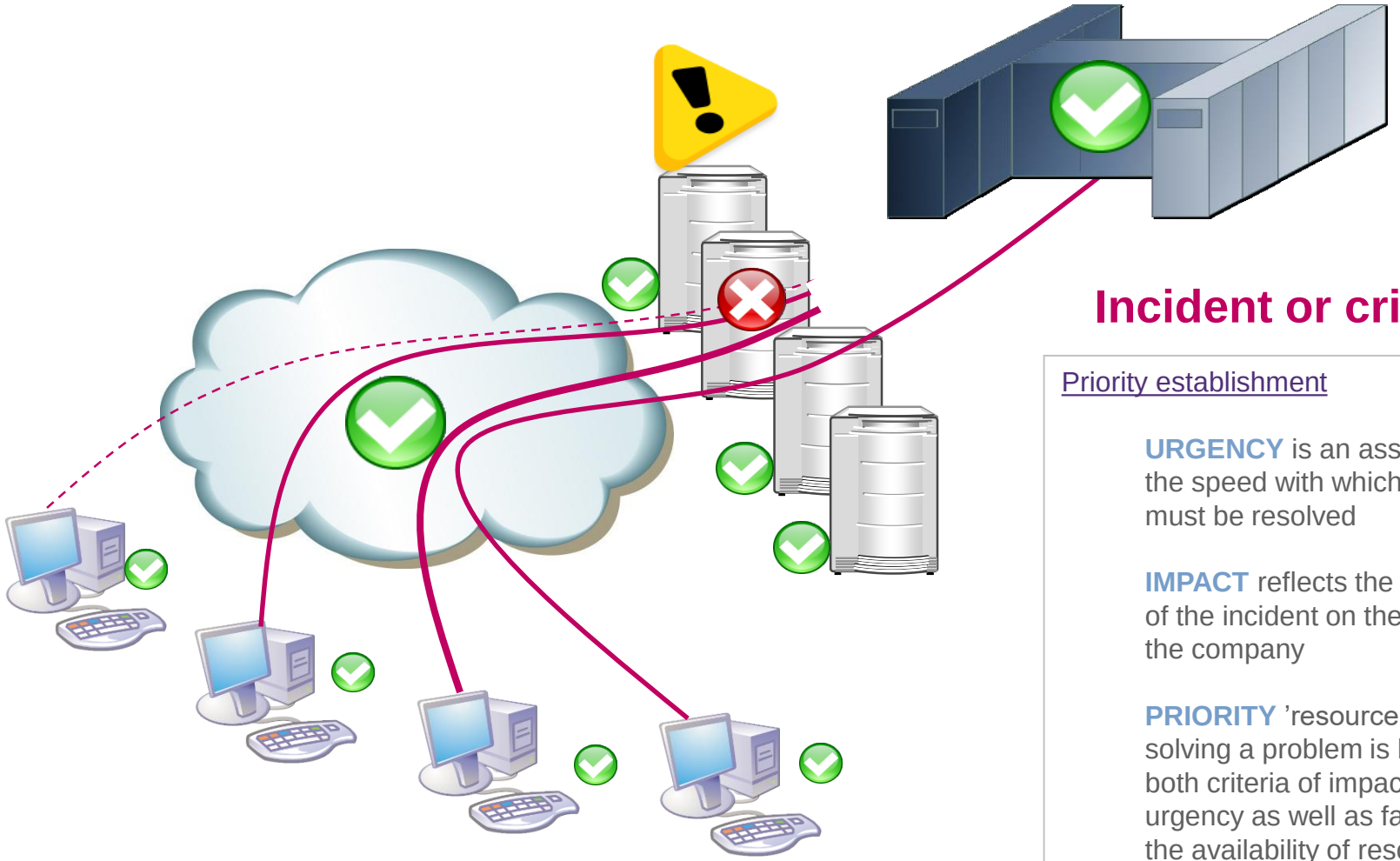
Release and deployment management

Configuration management

Example

Breakdown, Incident management, crisis management…

Partial incident : urgency, impact, priority



Incident or crisis ?

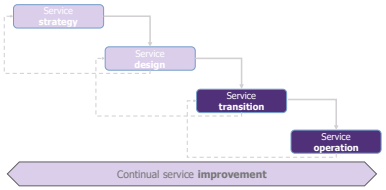
Priority establishment

URGENCY is an assessment of the speed with which an incident must be resolved

IMPACT reflects the likely effects of the incident on the service of the company

PRIORITY 'resource allocation for solving a problem is based on both criteria of impact and urgency as well as factors such as the availability of resources

Service Transition and Operations : zoom on the most implemented processes



Incident

Incident management

Business, Customer, Users

Changes

Problem management

Implementation

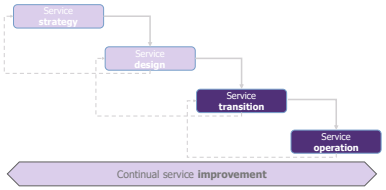
- Identify the fundamental cause of recurring or important incidents so as to definitively resolve them
- Be proactive : Prevent the incidents

Change management

Release and deployment management

Configuration management

Service Transition and Operations : zoom on the most implemented processes



Incident

Incident management

Business, Customer, Users

Changes

Problem management

Implementation

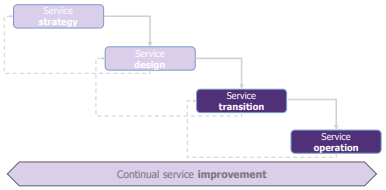
Change management

- Minimize the risk of incidents resulting of changes
- Authorize or refuse changes demands.

Release and deployment management

Configuration management

Service Transition and Operations : zoom on the most implemented processes



Incident

Incident management

Business, Customer, Users

Changes

Problem management

Implementation

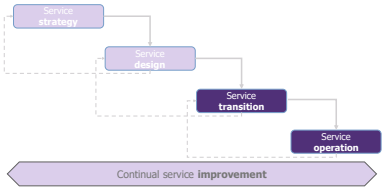
Change management

Release and deployment management

Configuration management

- Guarantee the implementation quality by considering technical specifications
- Manage the difficulties between different versions and handle them

Service Transition and Operations : zoom on the most implemented processes



Incident

Incident management

Business, Customer, Users

Changes

Problem management

Implementation

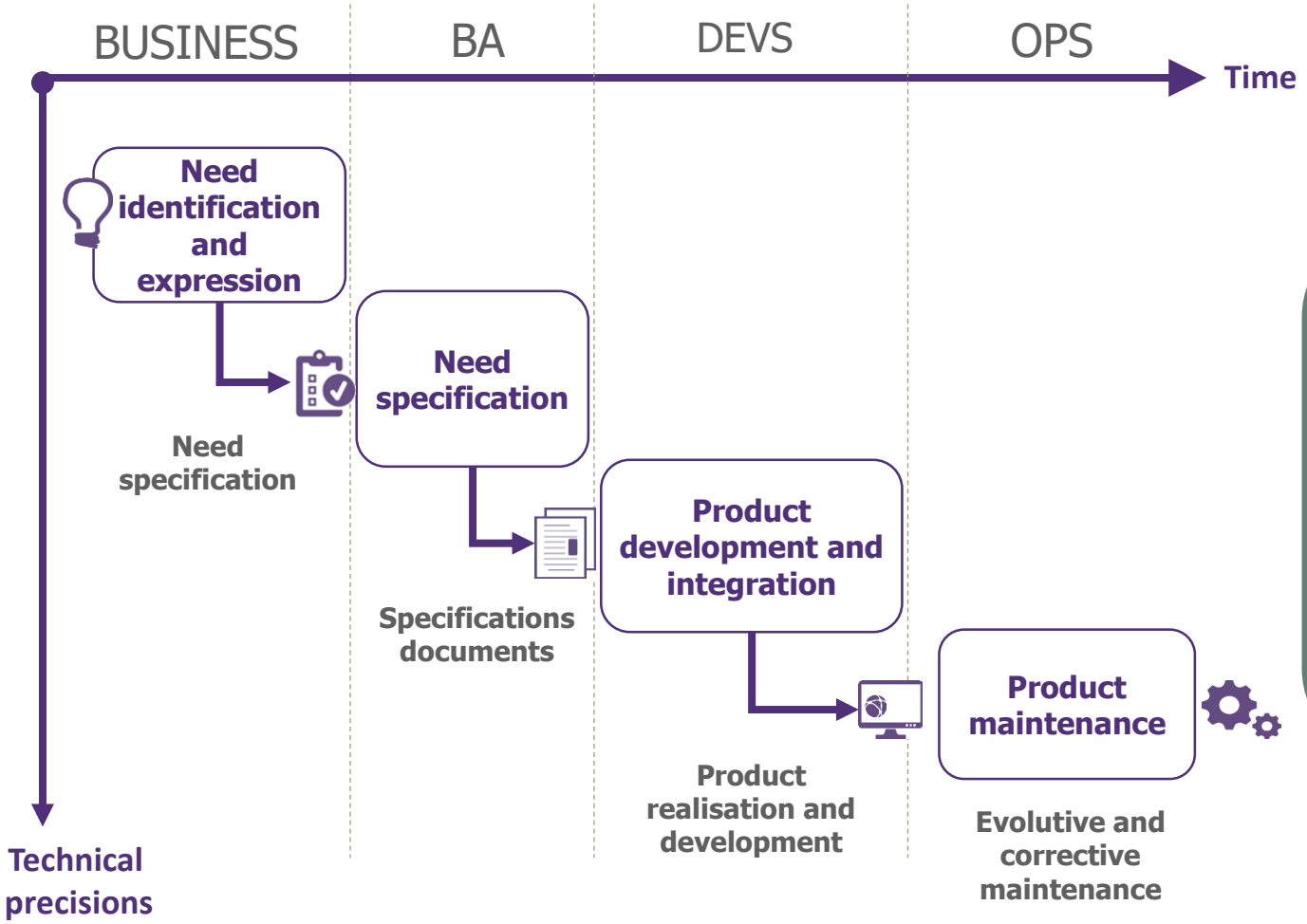
Change management

Release and deployment management

- Organize the information related to all the configuration elements in a unique reference (CMDB)
- Manage all relations between the elements (equipment, software, network, document)

Configuration management

Traditional approach lead by predictibility



Intermediary deliverables without users orientation and built within successive steps in a cloisoned organization

✓ **Sturdiness and performance**

✗ **Heavyness and inertia**

Agile approach principles

Set of practices used within IT projects development

They are based on the Agile Manifesto, published on 2001 by applications development experts

These practices claim to be more pragmatic than traditional methods (V-Cycle)

They aims at satisfying the final client in priority at the end of a development cycle

They are based on 4 fundamental pillars from which the whole method components (roles, rituals, tools) have been defined

AGILE MANIFESTO *

Individuals and interactions…
over processes and tools

Customer collaboration…
over contract negotiation

Working software…
over comprehensive documentation

Responding to change…
over following a plan

** Source : https://www.agilealliance.org/agile101/the-agile-manifesto/*

Présentation du cadre méthodologique SCRUM

Deliver the largest value to the customer in the shortest time

Roles

Product Owner

Scrum Master

Scrum Team

Process

1 activity:

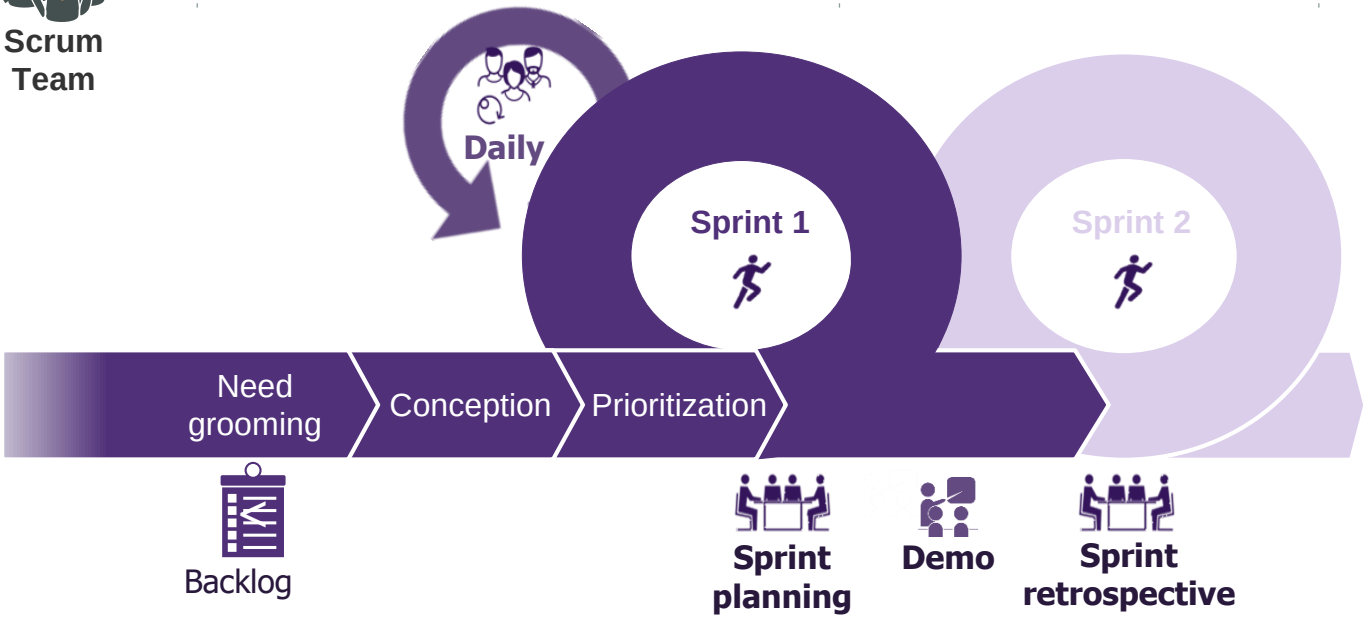
- Paces in a fixed time cycles (sprints)
- Managed on the basis of a list (backlog) of prioritized elements (user stories representing the customers needs)

Ceremony

- Sprint planning
- Daily meeting
- Sprint demo
- Sprint retrospective

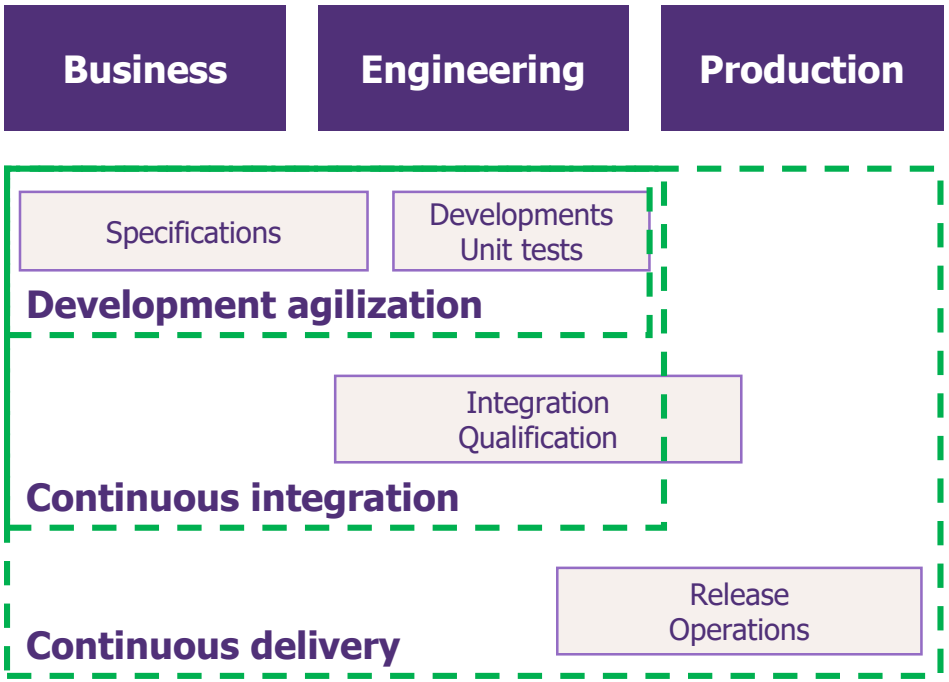
Tools and deliverables

- « less is more » approach
- Deliverables built within a collaborative approach (in particular the user stories, which reinvent the specifications)



Production models transformation become necessary within the 100% Agile era

Agile transformation focused on development and integration activities



Limits in the global value chain

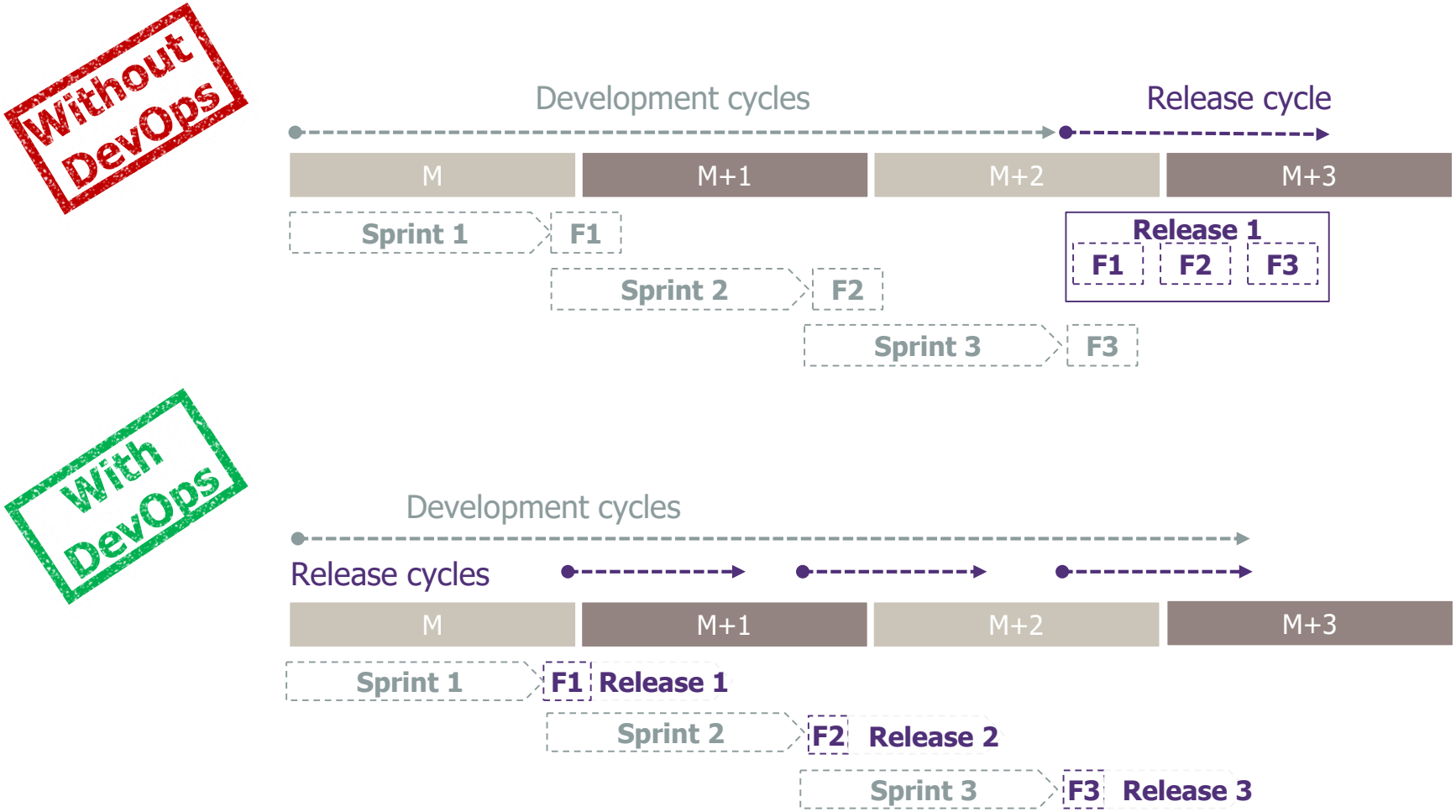
Product sturdiness: Limited reliability with a late taking into account of operations constraints

Productivity : Long release time due to a separation between Developments and Operations (maintenance trains, CAB, etc.)

Velocity: limited reactivity to correct defects and take into account new changes

Agility must be implemented until the Operations, inducing structuring changes in terms of technology, organization and culture

IT agility = Development Agility + DevOps
Deployment number increase enhances qualitiy



DevOps : un ensemble de bonnes pratiques plus qu'un cadre normé

DevOps est **un ensemble de pratiques** qui visent à trouver des **leviers d'amélioration** autour :

- De l'**organisation** avec la mise en place d'**équipes multidisciplinaires** qui prennent en charge un produit du développement aux opérations
- Des **processus** et **méthodologies** pour fluidifier les échanges du **développement à la production**
- De l'**architecture** pour permettre de **décorréler les cycles de déploiement**
- De l'**outillage** afin d'**industrialiser l'infrastructure et les déploiements** d'applications

Infrastructure as Code

Set of automation tools to **accelerate environments provisionning and delivery**

Continuous Delivery

Automated Software build chain **to decrease releases frequency and velocity**

Application

Set of concepts and practices to **facilitate adaptability and deployment frequencies** (modular architecture, microservices, test driven developments, etc.)

Collaboration Culture

Necessaray evolution of the collaboration between the stakeholdes to translate through **processes**, **communication** and **governance**

Lean fundamentals

A history

- 1950 : The Toyota Production System
- 1987 : The MIT

Inputs

- Principles and toolbox
- Implication technics

A goal

- Fluidness through waste elimination

- Eliminates wastes
- Accelerate processes
- Focus on added value

Waste? Here is Tim Woods!

T
I
M
W
O
O
D
S

Waste? Here is Tim Woods!

Transport

Inventory

Motion

Waiting

Over production

Over processing

Defects

Skills

Waste? Here is Tim Woods!

T – Transport – Moving items or information
I – Inventory – Items of information that customer has not received
M – Motion – Excessive movement within workspace

W – Waiting – Waiting for information or item to arrive
O – Over production – Doing more work than necessary
O – Over processing – Doing work before it is needed
D – Defects – Mistakes and errors that need to be reworked
S – Skills – Not using workers to fullest of abilities, …

And what about the IT ?

T – Transportation – Information exchange increase between services
I – Inventory – Important backlog of no processed demands / projects / defects
M – Motion – Moving between several sites, using not much ergonomic application

W – Waiting – Stand-by between 2 interdependent activities
O – Over processing – Functional specification too detailed, redundancy between documents
O – Over quality – Executing test cases that cannot occur
D – Defects – Production defects not identified during test phases
S – Skills & talents – Expert intervention without knowledge transfer to the other team members

Approach

Survey

/ Establish as is mode of operations by surveying all the employees

Interviews

/ Interview targeted employees and collect their testimony on the exiting organization

Gemba

/ The place where the added value is : The project floor in IT. Important step to know what is done on the field

Data analysis

/ Collect facts data on the activities, the performance and the problems in order to have an objective analysis

Think about final customer by eliminating the unnecessary and maximizing the added value

6 IT Governance tools

IT governance tools

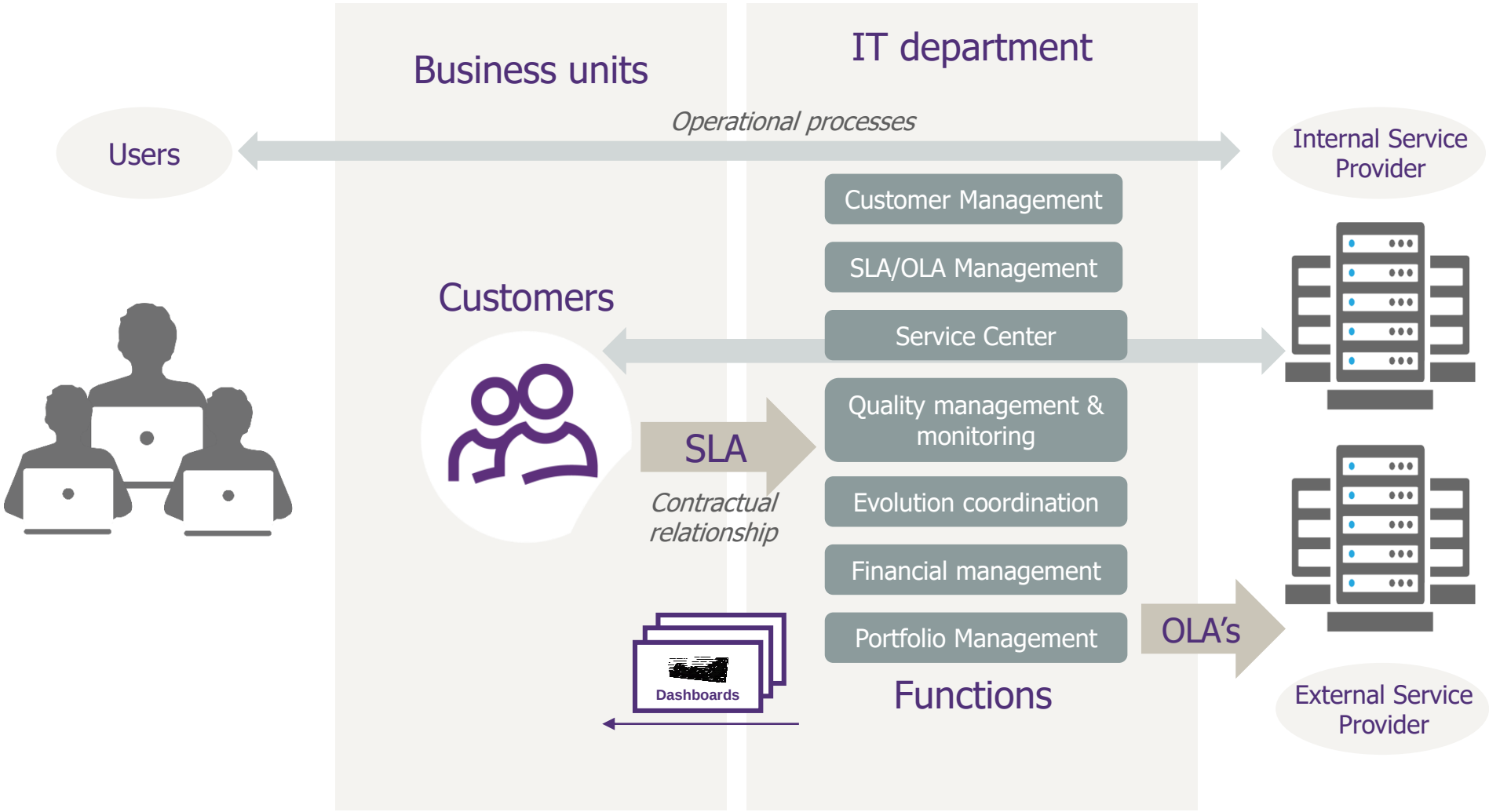
"THIS IS NOT BECAUSE WE BOUGHT A HAMMER ALL PROBLEMS BECOME NAILS"

Data references are a structuring element

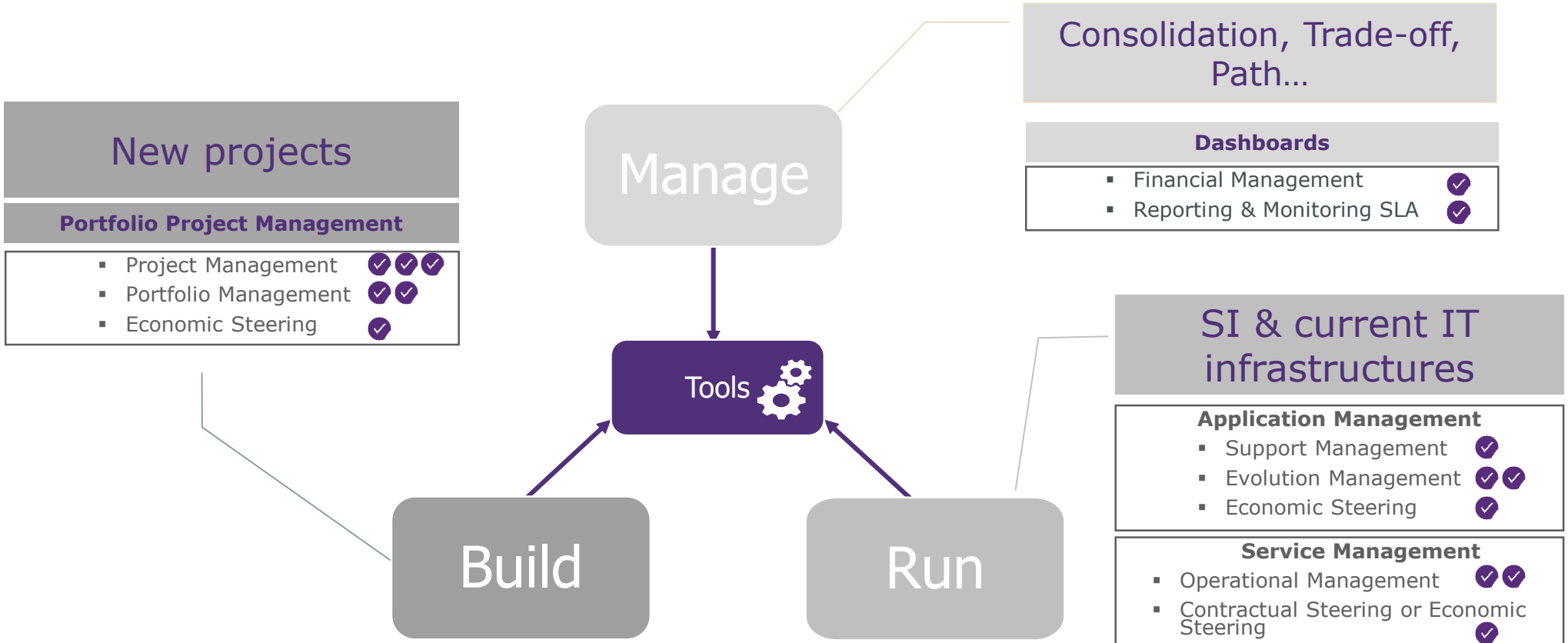
A tool value mainly depends of the **data relevance and reliability** and of their impact for the quality of service

The data relevance lies in the ability to **update** data, in the knowledge of collect and consolidation methods

Implementation > alignment, value, risk, resources & performance: framework



Implementation > alignment, value, risk, resources & performance: which maturity level?



Level of maturity noticed in the market

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