IT strategy in the energy sector

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IT is an important asset for energy companies – main reason to invest in IT is boosting efficiency of crucial operations

IT spending patterns in the energy sector

Oil companies

- They generate high revenue per employee and support extensive field operations

- Characterized by moderately high spending on IT on a per-user basis and relatively low IT spending as a percentage of revenue, but very high investments in IT in absolute figures

- They invest in mobile communications and technology to a higher degree than most other organizations

- In upstream the efforts are focussed on creating the "digital oilfield" and reducing exploration cost through enhanced analytics (big data), downstream IT invest-ments are targeting increased operations efficiency

Utilities

- Utilities are capital- and IT-intensive and have a high level of IT spending on a per-user basis

- Especially high spending on applications for physical plant and CRM functions

- Energy utilities are undergoing a significant amount of modernization (state mandates for smart meters, smart networks, smart grids)

- Other efficiencies geared toward significantly reducing energy use, especially during times of peak demand

- Increased support of new technology initiatives that enable them to improve service delivery, increase efficiency, reduce overall power demand

Digitalization is here, CIOs have to flip from old to new in terms of information and technology in order to deliver the digital promise

Gartner's 2015 Hype cycle for emerging tech

Implications for IT

- Flip information and technology leadership from **"legacy first"** to **"digital first"** – forget the legacy and simplify business processes, business models and ecosystems

- Flip from **passive repo**rting to an **active search for insight**, from backward reporting to forward looking analytics

- Flip from the **nexus** (cloud, mobile, social and information) to the **next disruption horizon** through experimentation with technologies and business models

- Expose **three types** of **investments**, based on what motivates them - **fear** (keep the business running), **fact** (extend the business within its business model, markets and tools) or **faith** (transform the business beyond the known)

- Flip **from IT efficiency** to **value creation** and from business case to benefit value life cycle (plan, create, harvest), from "hit and hope" investments to "real option valuation"

- **Plan** and **adjust faster** – flip from 2-year planning windows and quarterly reviews to quarterly rolling planning and monthly CEO reviews

- Technological innovation in energy sector is slow, as opposed to e.g. process innovation – decades from lab board to field operations
- Cautiousness in adapting new technologies – failure rates as in other industries (e.g. IT) cannot be tolerated
- Energy sector operates at scale, and with scale comes complexity – adopt innovation from other sectors, value-chain collaboration
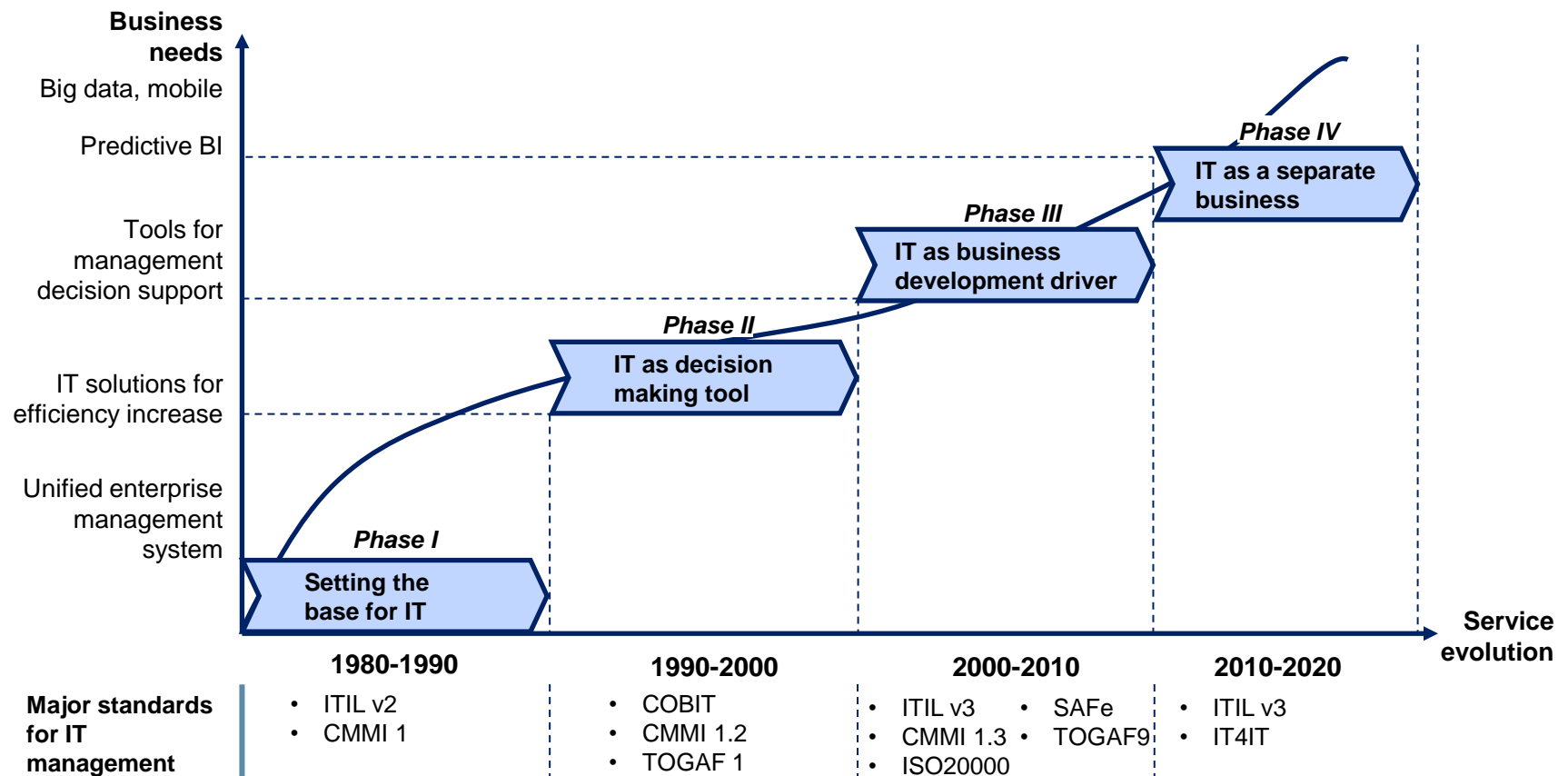
IT organizations evolved from being "order-taker" into becoming a partner of the business – running IT as "business" is key

The new role of IT as partner of the business

	"Order taker"	Business Enabler	Strategic Partner	IT-Business partnership model
Mission	• Service the business • IT as a cost center	• Supply the business • IT as a service provider and business enabler	• Collaborate with the business	• Hybrid business and technology roles • Technology innovation and value driver
Relationship to business	• Transactional • Order taker • IT delivered to business	• Transactional • Partly consultative • IT delivered with business	• Consultative • IT delivered through business	• Shared/joint ownership and accountability
Alignment with business	• IT functional or technical alignment	• Combination of IT process and business unit process alignment	• IT aligned to business unit/business processes	• IT–business matrix around differentiated strategic capabilities or processes
Resource Management Priorities	• Technical expertise • Back-office expertise	• Process expertise	• Solution/relationship expertise	• Domain, business, front-office, information expertise
Budgeting and Funding	• Fixed, annual IT budget	• Fixed, annual IT budget and chargeback	• Fixed, market-based funding	• Fixed, market-based funding

1990s → *2000s* → *2010s* →

The increasing complexity of IT management requires a framework and standardization – IT is more and more run as a business

Evolution of IT management frameworks

Major standards for IT management	1980-1990	1990-2000	2000-2010		2010-2020
	• ITIL v2	• COBIT	• ITIL v3	• SAFe	• ITIL v3
	• CMMI 1	• CMMI 1.2	• CMMI 1.3	• TOGAF9	• IT4IT
		• TOGAF 1	• ISO20000		

IT Service Management was introduced to service customers more efficiently and channel the communication towards the business

The main idea behind ITSM

Traditional IT organization

Company

IT-Organization

- Application Management
- IT Operations

Customer (Business side)
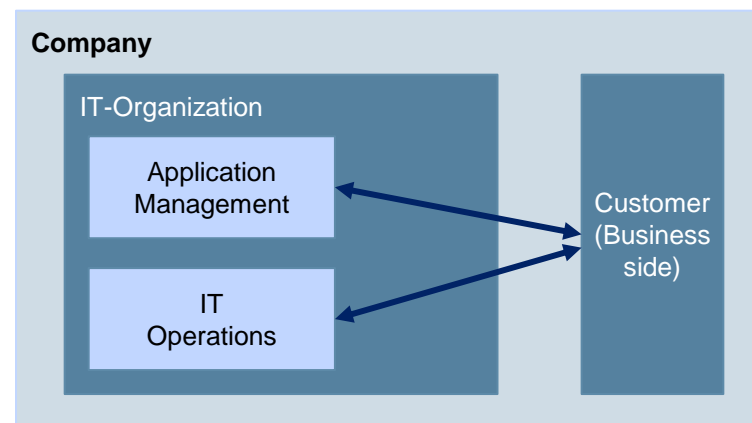
- Two separate communication channels between the business and IT department
- Operational requirements are insufficiently considered during the development of application
- IT Operations is not able to control application release into the productive environment

Modern IT organization

Company

IT-Organization

- Application Management
- ICT Infrastructure Management

IT Service Mgmt

Customer (Business side)
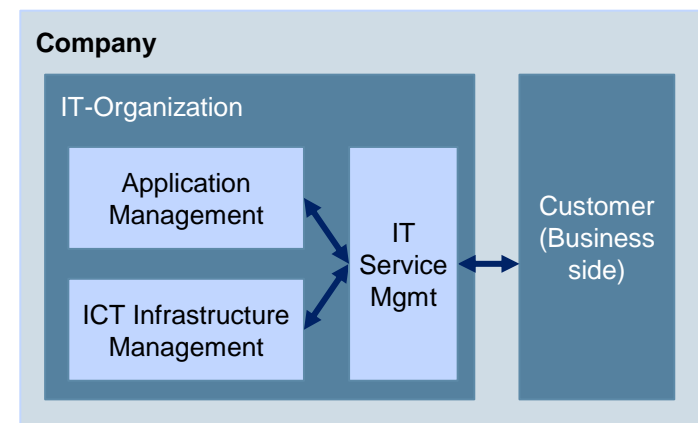
- IT Service Management mediates between development and production on the side of the IT and the client on the business-side
- The activities in Application Development and IT Operations are now coordinated and all the communication with the clients is directed via one channel (SPOC)[1]

1) Single Point Of Contact

The primary objective of IT Service Management is to ensure the delivery of value to customers through IT services

What is a service and how does it create value?

Service is…	… a means of **delivering value** to customers by facilitating outcomes customers want to achieve without the ownership of specific **Costs** and **Risks**
Service value is…	… defined in terms of the customer's **perceived business outcomes**, and described in terms of the combination of two components: service **utility** and **warranty**
Service utility is…	… what the **customer gets** in terms of outcomes supported and/or constraints removed … it is the **functionality** offered by a service to meet a particular need
Service warranty is…	… **how** the **service** is **delivered** and its **fitness for use**, in terms of availability, capacity, continuity and security … the assurance, that the service will meet its agreed requirements

Currently the most widely adopted approach for IT Service Management in the world is ITIL

What is ITIL?

ITIL is…

- … a **practical**, no-nonsense **framework** and **terminology** for identifying, planning, delivering and supporting **IT services** to the business
- … **enabling organizations** to **deliver** appropriate **services** and continually ensure they are meeting business goals and delivering benefits
- … **providing guidance** to organizations on **how to use IT** as a basis to facilitate **business change**, **transformation** and **growth**
- … used to **transform IT** organizations in **different industries** by using a proven set of **best-practice processes**

ITIL is NOT…

- … a **tool**, which will solve organizational or process problems, regardless, of what some software vendors are saying
- … a **quality or compliance certificate**, but a collection of good practices that are applied to ensure that business outcomes are delivered through technology in high quality
- … a **standard**, but rather a guidance how to implement the best practices into IT, which means it provides enough flexibility to different businesses and organizations
- … not a **new concept**, as ITIL was developed in the 1980s, though experienced constant improvement and evolution

ITIL covers the whole lifecycle of an IT service – from evaluating customer needs up to the service retirement

Key links, inputs & outputs of the service lifecycle stages

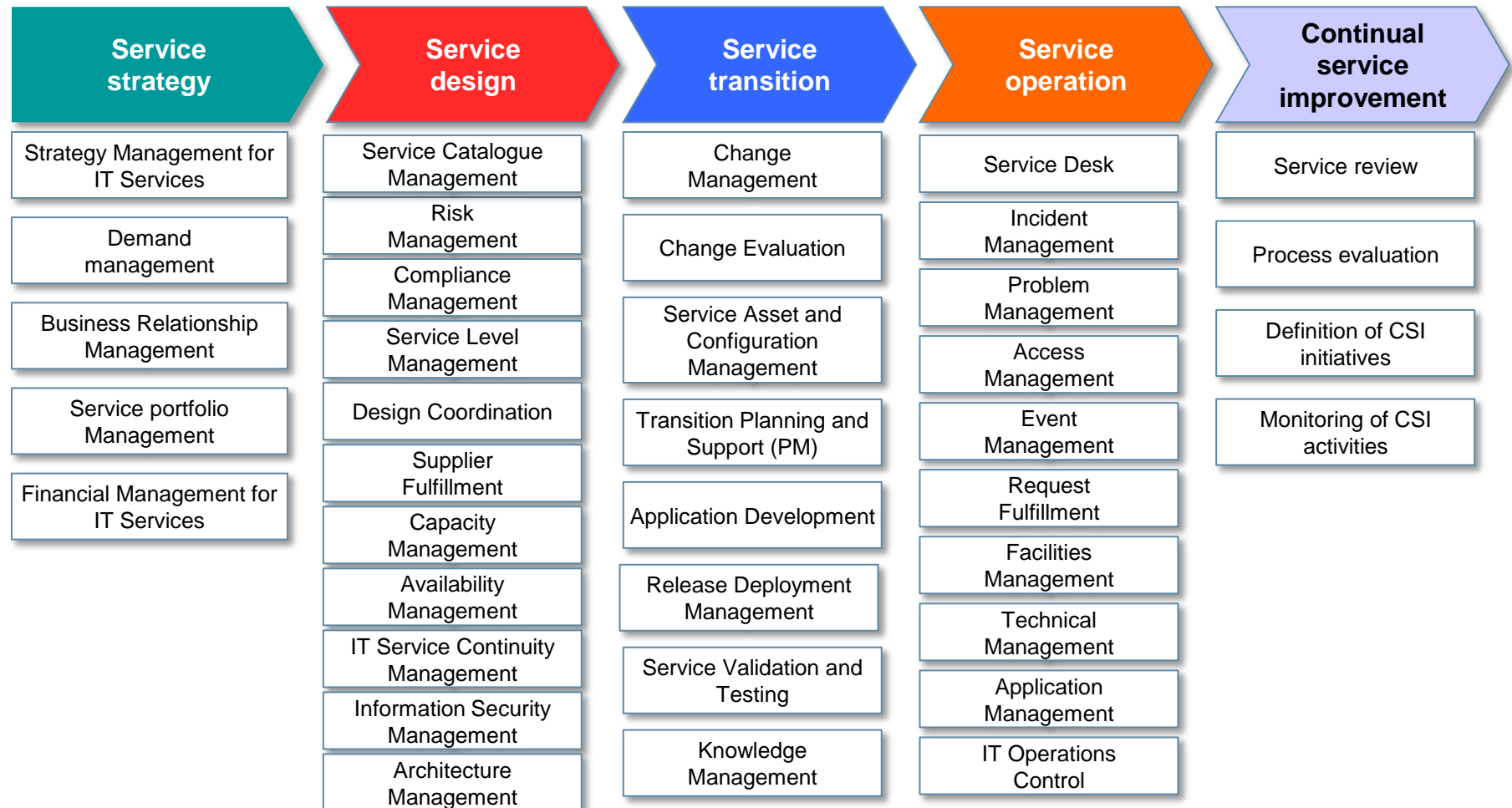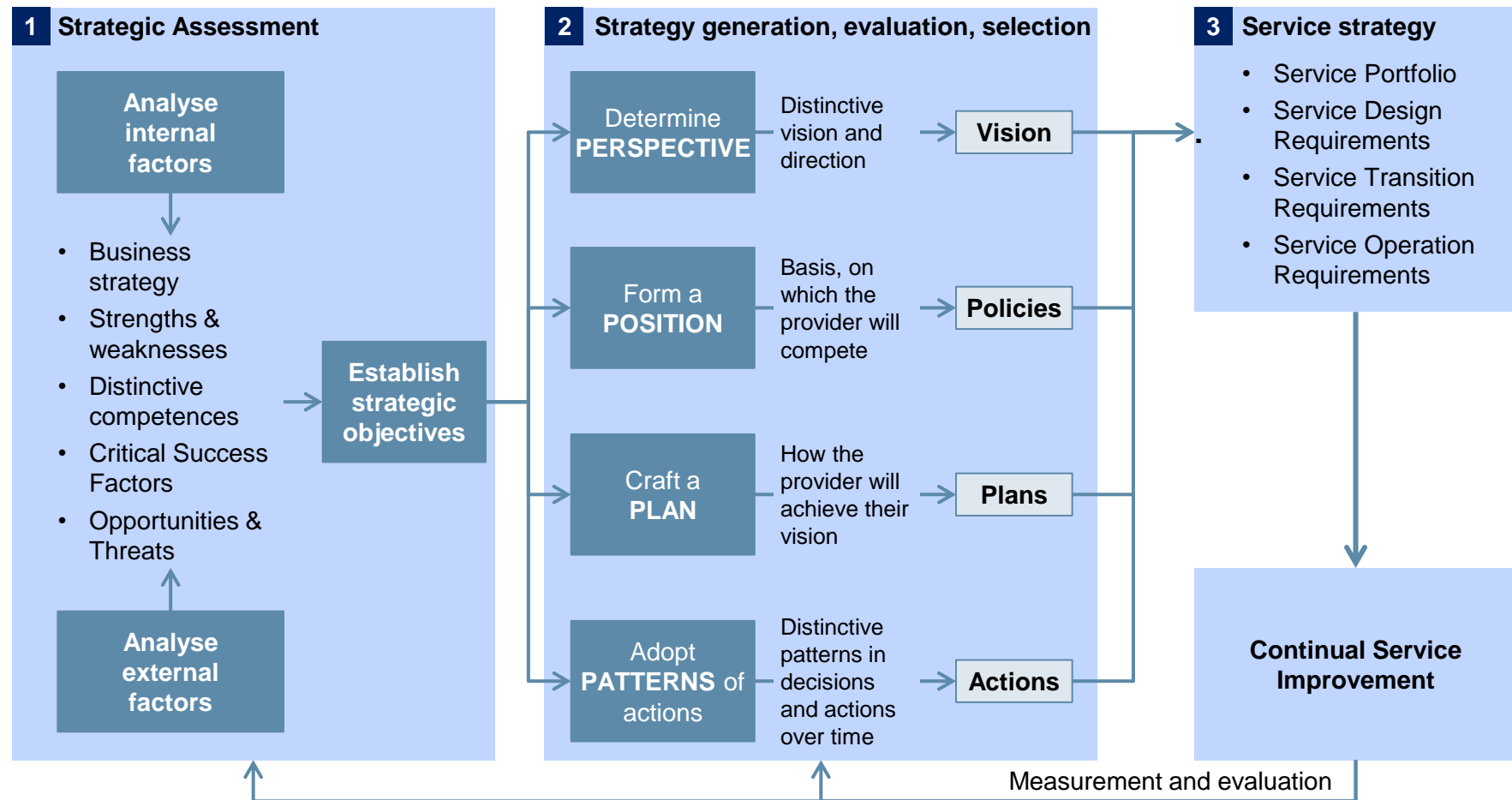# ITIL builds upon a very comprehensive process model, covering the full lifecycle of an IT service

Service strategy	Service design	Service transition	Service operation	Continual service improvement
Strategy Management for IT Services	Service Catalogue Management	Change Management	Service Desk	Service review
Demand management	Risk Management	Change Evaluation	Incident Management	Process evaluation
Business Relationship Management	Compliance Management	Service Asset and Configuration Management	Problem Management	Definition of CSI initiatives
Service portfolio Management	Service Level Management	Transition Planning and Support (PM)	Access Management	Monitoring of CSI activities
Financial Management for IT Services	Design Coordination	Application Development	Event Management	
	Supplier Fulfillment	Release Deployment Management	Request Fulfillment	
	Capacity Management	Service Validation and Testing	Facilities Management	
	Availability Management	Knowledge Management	Technical Management	
	IT Service Continuity Management		Application Management	
	Information Security Management		IT Operations Control	
	Architecture Management			

The IT strategy can use the 4P's model of Mintzberg, a backward loop and regular review should ensures service improvement

1 **Strategic Assessment**

Analyse internal factors

- Business strategy
- Strengths & weaknesses
- Distinctive competences
- Critical Success Factors
- Opportunities & Threats

Analyse external factors

Establish strategic objectives

2 **Strategy generation, evaluation, selection**

Determine **PERSPECTIVE** — Distinctive vision and direction → **Vision**

Form a **POSITION** — Basis, on which the provider will compete → **Policies**

Craft a **PLAN** — How the provider will achieve their vision → **Plans**

Adopt **PATTERNS** of actions — Distinctive patterns in decisions and actions over time → **Actions**

3 **Service strategy**

- Service Portfolio
- Service Design Requirements
- Service Transition Requirements
- Service Operation Requirements

Continual Service Improvement

Measurement and evaluation

The IT strategy needs to support the corporate strategy and deliver value to the business units by fulfilling their requirements

Corporate strategic planning (Phase 1)

Top-down targets
- Vision
- Overall budget restrictions
- Top-down inputs and data
- Impact of technology on business
- Strategic business initiatives

Corporate strategic planning (Phase 2)

Strategic IT planning

Business unit planning (Phase 1)

Bottom-up requirements
- Service requirements
- BU inputs and data
- Service portfolio
- Service levels
- Business initiatives

Business unit planning (Phase 2)

Main elements of the IT strategy

- Functional and temporal scope of the IT strategy
- Role and positioning of IT in the company
- Organizational framework
- Technological framework
- Implementation guidelines

Questions to answer with the IT strategy

- What are we going to provide?
- Can we afford it?
- Can we provide enough of it?
- How do we gain competitive advantage?
- What are our 4P's (perspective, position, plan, paterns)

IT alignment with business

- IT needs to clearly understand the business and the value chain
- The organizational culture needs to be taken into account, how do changes impact the organization
- Balance, adjust to different speeds, review

Delivering value to the business through technology is in the core of the IT strategy of many leading oil companies
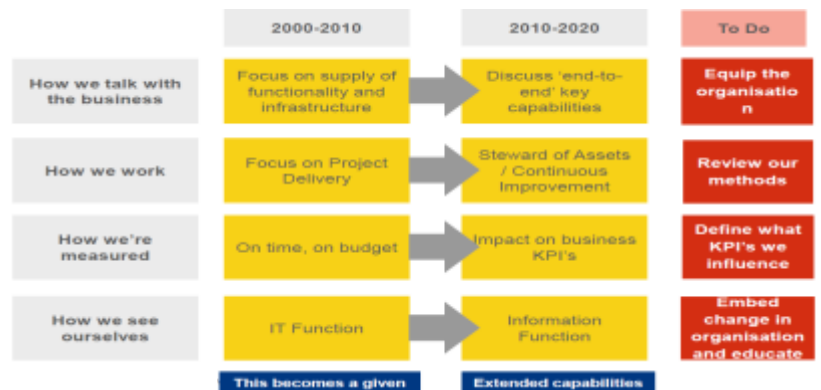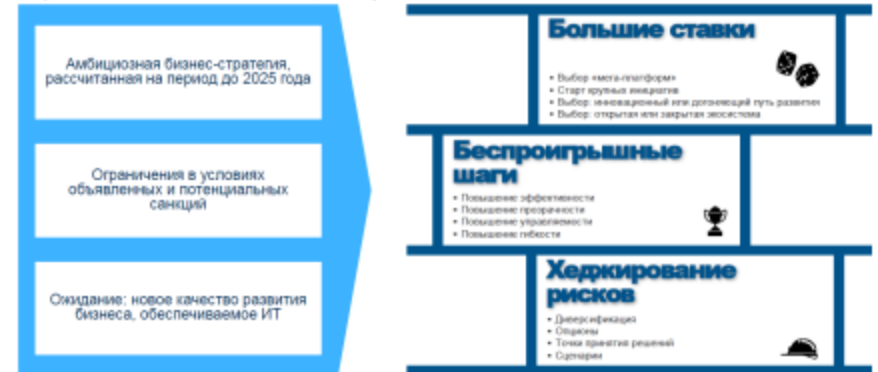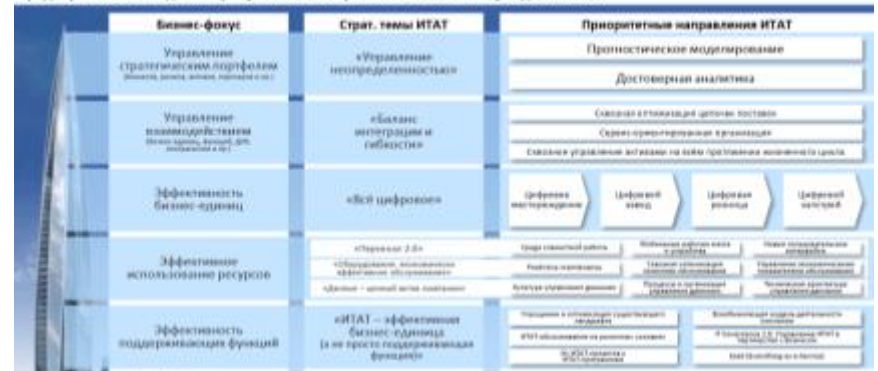
IT strategy of Shell, 2011
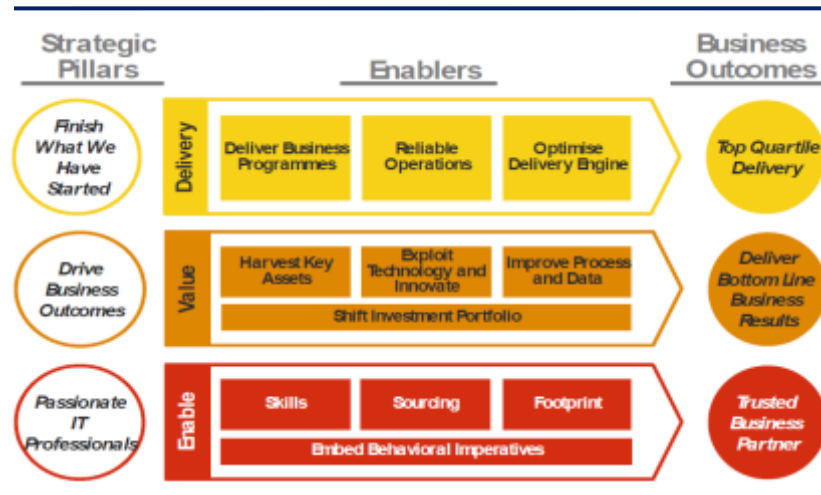
IT strategy of Gazpromneft, 2015

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