

# IS in Organizations

---



## Process families

---

- Support



IT, Human resources, Accounting, Firm infrastructure

- Managerial

- ♦ Business intelligence, strategy, management control

- Primary

- ♦ Produce service or product



## IT area

---

- The organizational entity that supports /offers IT services to an organization
  - ♦ Position in organizational structure
  - ♦ Roles
  - ♦ Processes

## Cost of IT area

---

- Typical figures: 1–3% of turnover
  - ♦ ENI: 800M / year
  - ♦ Intesa: 500M/ year, 10% new projects

## IT area and company size

---

- Only companies above a certain size can sustain an IT area
  - ♦ min possible cost for IT area: ~50K euro / year  
(equivalent to 1 person, medium skilled)
  - ♦ Min turnover to sustain IT area: ~ 5M  
(50K = 1% of 5M)

## Position

---

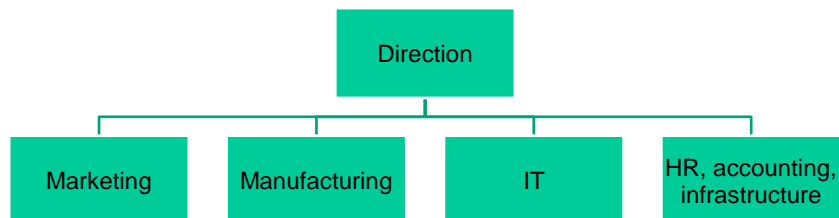
# Position of IT area

---

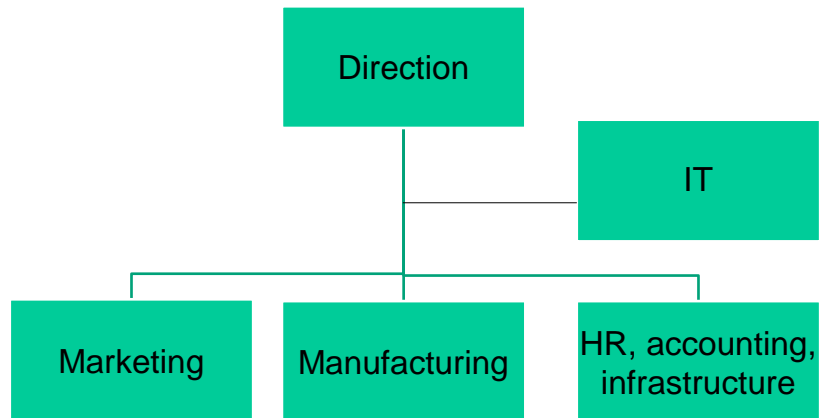
- As line function
  - ♦ primary
- As staff function
  - ♦ Secondary, or service to line functions
- As sub line function
  
- Varying degrees of importance, power, and independence

# As line function

---

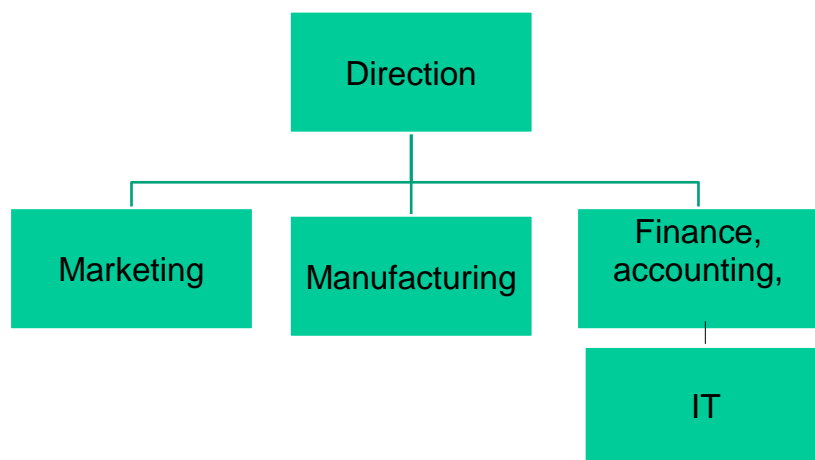


## As staff function



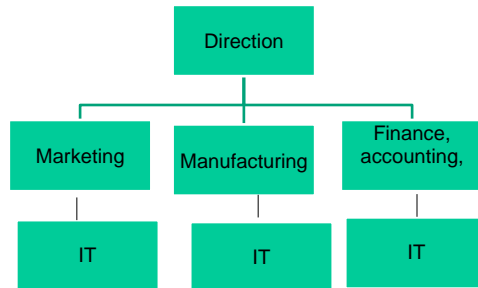
SoftEng  
<http://softeng.polito.it>

## As sub-line function



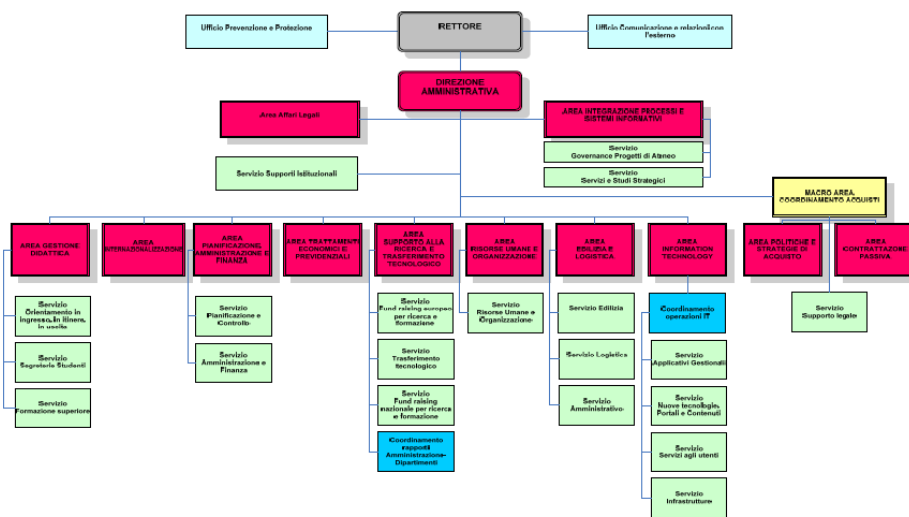
SoftEng  
<http://softeng.polito.it>

# As sub-line functions



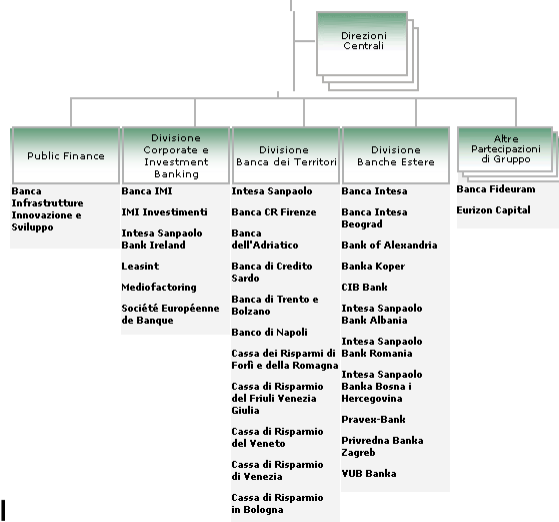
**SoftEng**  
http://softeng.polito.it

# Polito – IT as line function



# Intesa – IT as staff function

INTESA  SANPAOLO



SoftI  
<http://softeng.com>

## Direzioni centrali

### Direzioni Centrali(\*)



SC  
<http://softeng.ponito.it>

# ENEL – IT as corp function

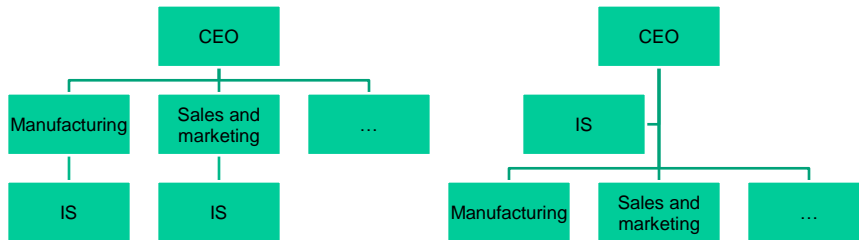


## What position?

- Centralized IT vs. Decentralized IT



## Decentralized / centralized



**SoftEng**  
<http://softeng.polito.it>

## Centralized

- Advantages
  - ♦ Economy of scale
    - In acquisition (hw, sw)
    - In skills
    - No duplications of assets
  - ♦ Standardization
    - Of career paths (in IT)
    - Of architectural choices
    - Of tools (DB, OS, ..)
  - ♦ Data sharing (see ERP model)

**SoftEng**  
<http://softeng.polito.it>

# Centralized

---

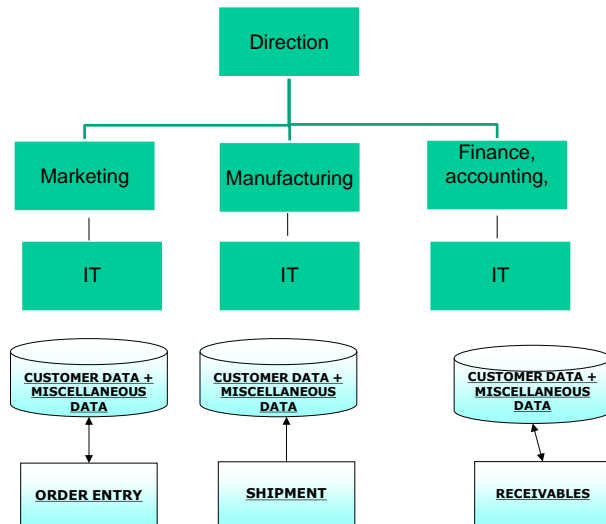
- Advantages
  - ♦ Enforcement of common policies (risks, recovery, backup, security)
  - ♦ Enforcement of IT strategy
  - ♦ Control of IT budget and cost
- Disadvantage
  - ♦ Less reactivity to requests from other business functions / units
  - ♦ Less specialization

# Conway's 'Law'

---

- The structure of an IT system mirrors the communication structure of the organization that produces it
  - ♦ Ex: if you have 4 groups working on a compiler, you will have a 4 pass compiler
  - ♦ Ex: if a company has 3 IT offices, it will have 3 IT islands (DATA REPLICATION problems)

## Decentralized → data replication



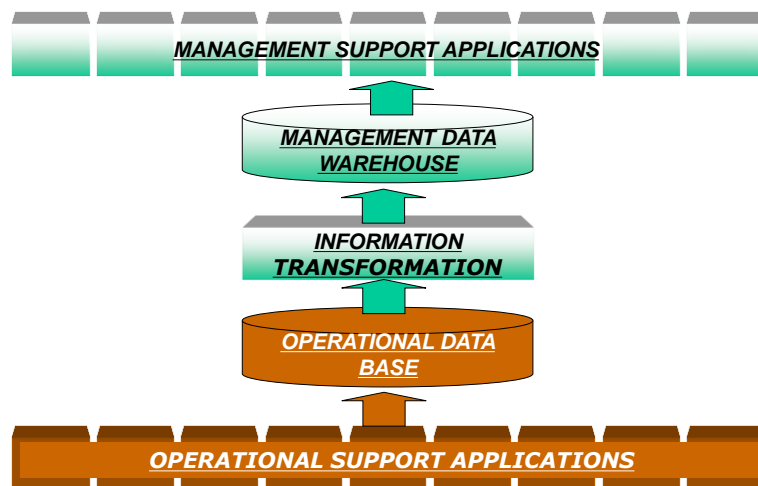
## Data replication

- Same data in several (legacy) systems
- Dedicated interfaces to synchronize (point to point)
  - ♦ Cost
  - ♦ Delays
  - ♦ Unfeasibility (of overnight synchronization)
  - ♦ Company must become system integrator

# Data replication

- IT systems are concentrated on business functions
- Processes are inter-function
- Hard to support interfunction processes if IT systems are function oriented
  - ♦ Issues in data exchange
  - ♦ Issues in coordination

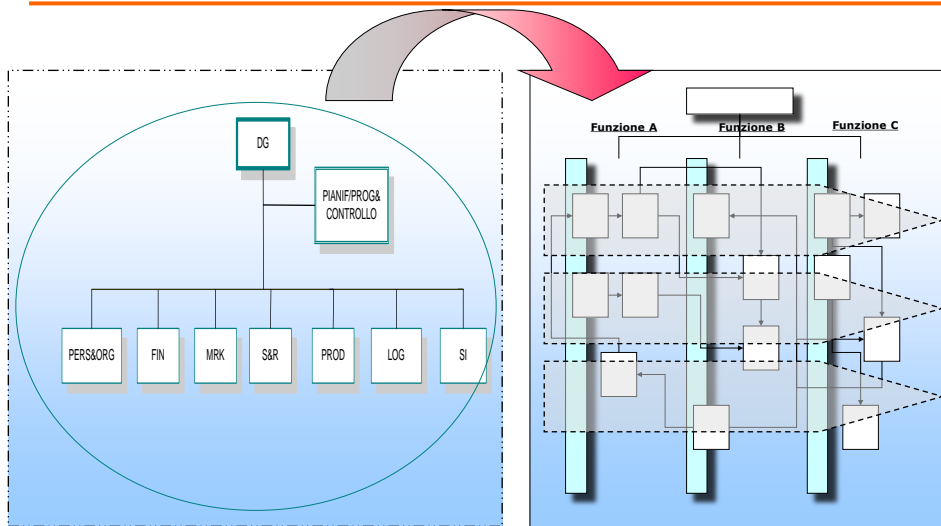
# Data sharing



## ES: data sharing

- ♦ One DB or replicas with automatic synchronization
- ♦ One data model
- Horizontal integrity of data
  - ♦ All applications/modules share same data, with same data model
- Vertical integrity
  - ♦ From operation level to management level (aggregates of data)

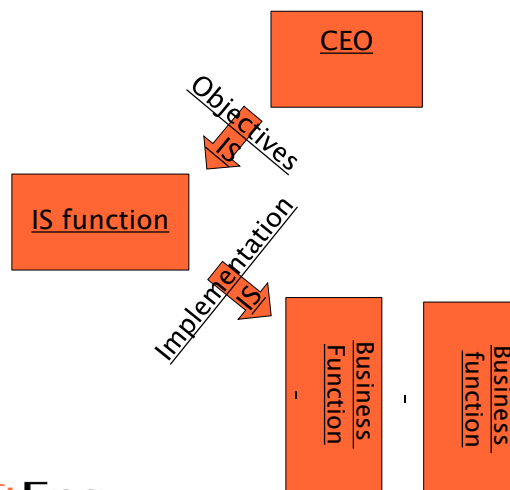
## From functions to processes



# Which interaction model?

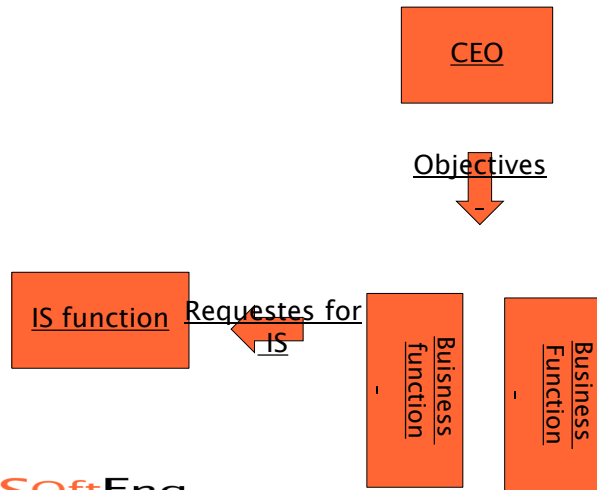
- If the IS area is centralized, which is the interaction between it and other functions?
- Push: IS services 'imposed' from IS area
- Pull: IS services 'requested' from business function

## Push



# Pull

---



# Roles in IT area

---

# Roles

- CIO
- CTO
- Analyst
- Sw architect / (IT) Enterprise architect
- Programmer
- Tester
- DB administrator
- System administrator
- Web administrator

31

# CIO

---

- Chief Information Officer (CIO)
- Top level manager responsible of IT area
- Usually reports to top management (CEO)

32



# CTO

---

- Chief Technology Officer (CTO)
  - Responsible of technology scouting and technology choices
  - Reports to CIO or CEO
- 
- ♦ CEO Chief Executive Officer
  - ♦ COO Chief Operation Officer

# Processes

---

- 
- See Cobit 5
  - See Itil v3

## In summary

---

- IT is a support (horizontal) process in organizations
- IT area is the group of people in charge of IT in an organizations
- IT area can be a staff function, a line function (department), a sub line function
- (medium large) organizations typically define IT as a line function

- 
- COBIT reference model defines processes, resources, goals and measures within the IT group