Management Information Systems (MIS)

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https://mycourses.aalto.fi/course/view.php?id=40794

Information systems and the Role of General and Functional Managers
&
Information Systems Defined

Aalto University
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People affected by organizational IS

Top responsabilities: the General Manger

Jeff Bezos

Photo : http://www.time.com/time/specials/packages/article/0,28804,2107952_2107953_2109567,00.html

Knowledge worker in charge of an entire organization or business unit

Team leader : the Functional Manager

Knowledge worker in charge of a **functional** area or **team**

Photo : http://www.onlinedegrees.org/calculator/salary/purchasing-manager

The one you should care: end User

Individuals who have **direct contact** with **software applications** as they use them to carry out **specific tasks**

Photo : http://www.tetras.univ-savoie.fr/france/DT1202894320/page/TGI.html

The one you should listen to: IT professionals

individuals with **technical training** and education

The whole system

General and **Functional Managers**
often are also end-users

OFTEN

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Effective modern managers

Should be able to:

Feel confident with knowledge of IS and understand the role that IT plays in them

Identify opportunities to use IT to their firm’s advantage

Plan for the use of IS resources

Manage the design, development, selection, and implementation of IS

Information Systems Professionals

Represent the group of people that in an organization oversee the design, development, acquisition, implementation, and maintenance of the firm's information systems resources

Common job positions are:

- Chief Information Officer (CIO)
- Technical staff (e.g., architect, developer, administrator)
- Analysts and managerial staff (e.g., analyst, project manager, IS manager)
- IT consulting
- Data science and data scientists

The importance of IS

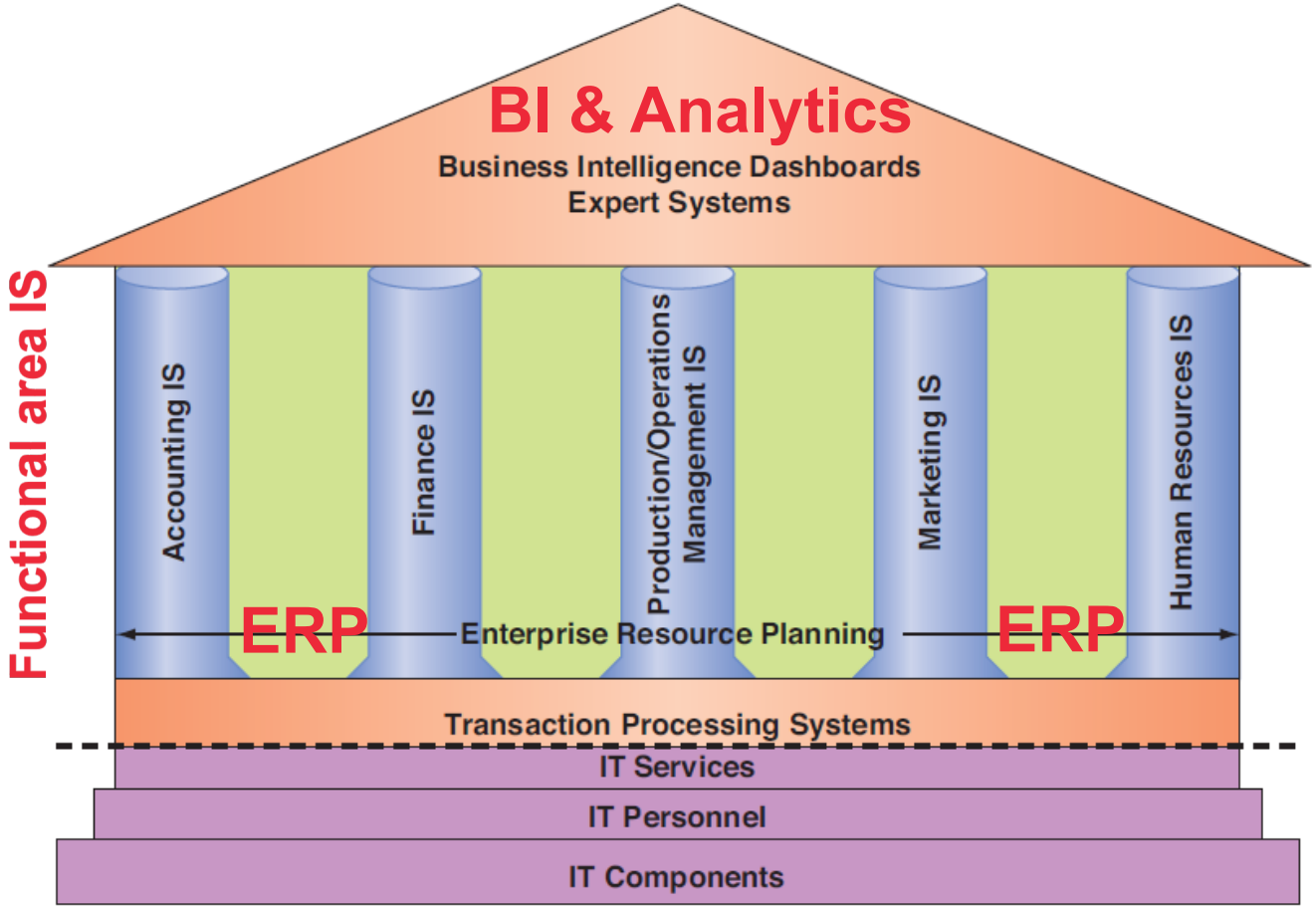
> **All the value** of this company is in its people. If you burned down all our plants, and we just **kept** our **people** and our **information** files, we should **soon** be **as strong as ever**.

Thomas Watson Jr.

Photo : www.ivy-style.com/machine-man-thomas-j-watson

Quote of IBM's legendary chairman more than 50 years ago.

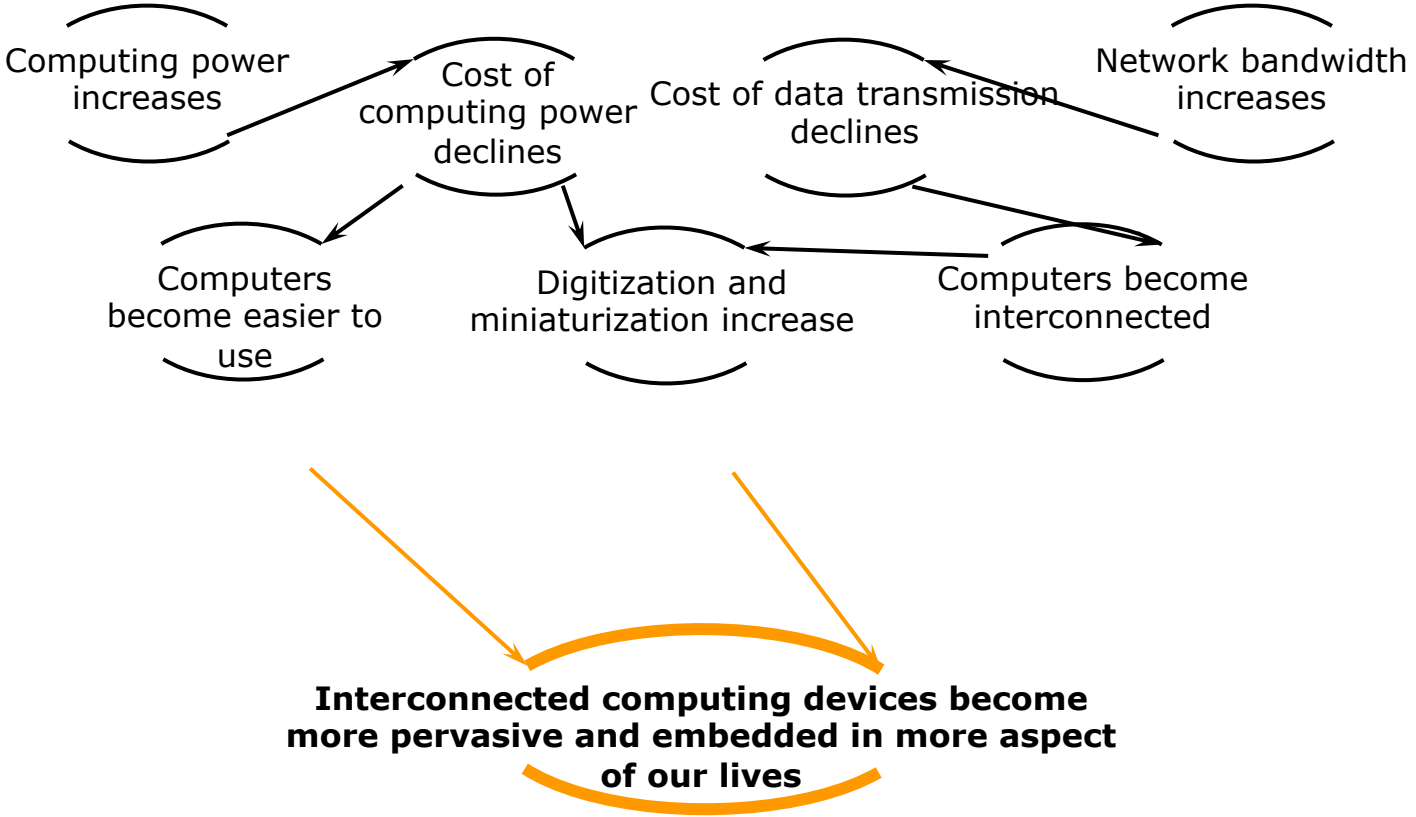
IS within an Organization



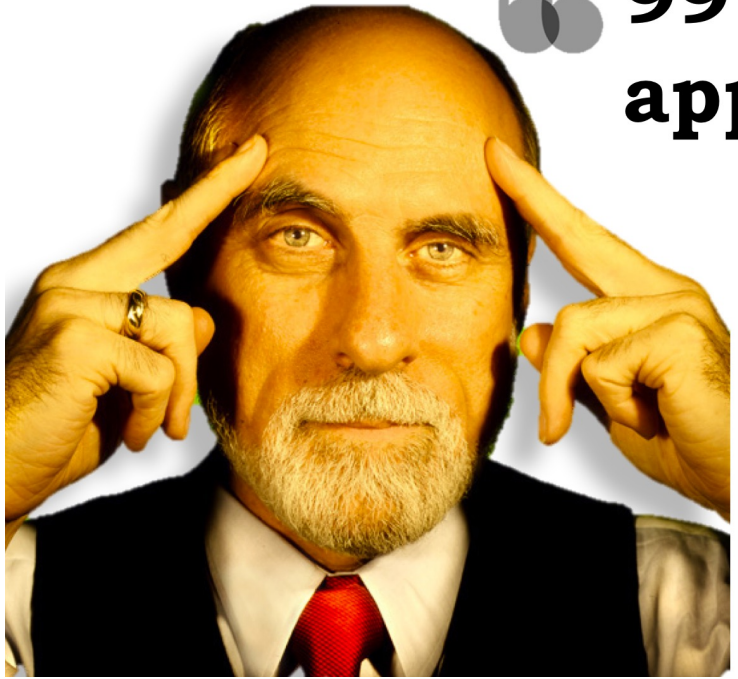
Critical lessons!

- Managers have to make educated decisions about *the use* of IT
- Organizations use new IT to serve growing/changing business needs
- Savvy managers partner with IT pros to ensure information systems success
- Managers may or may not be end-users of the new systems they help introduce

Implications of IT Trends



And it’s just the beginning!



“**99%** of the **application** have **not** been **invented**!”

Vinton Cerf http://www.paganelliphotography.com/

Co-inventor of the TCP/IP protocol

Key takeaways from Chapter 1 (1/2)

General and functional managers, the individuals in organizations who have responsibility to lead a functional area or a business, can no longer abdicate their right, and duty, to be involved in IS and IT decisions. They **should act in partnership with the firm's IS & IT pros**.

The **IS skill set required** of the modern general and functional manager pertains to **decisions about identifying opportunities to use IT to the firm's advantage**; **planning for the use of IS resources; and managing the design, development, selection, and implementation of IS**. While end-user skills (i.e., the ability to use computers proficiently) are an important asset for any knowledge worker, the critical skills for modern managers relate to the organizational, not personal, uses of IT.

Chief information officers (**CIOs**), the leading figures in the IS and IT function, are **increasingly being selected from the functional and managerial ranks rather** than from the technology ranks.

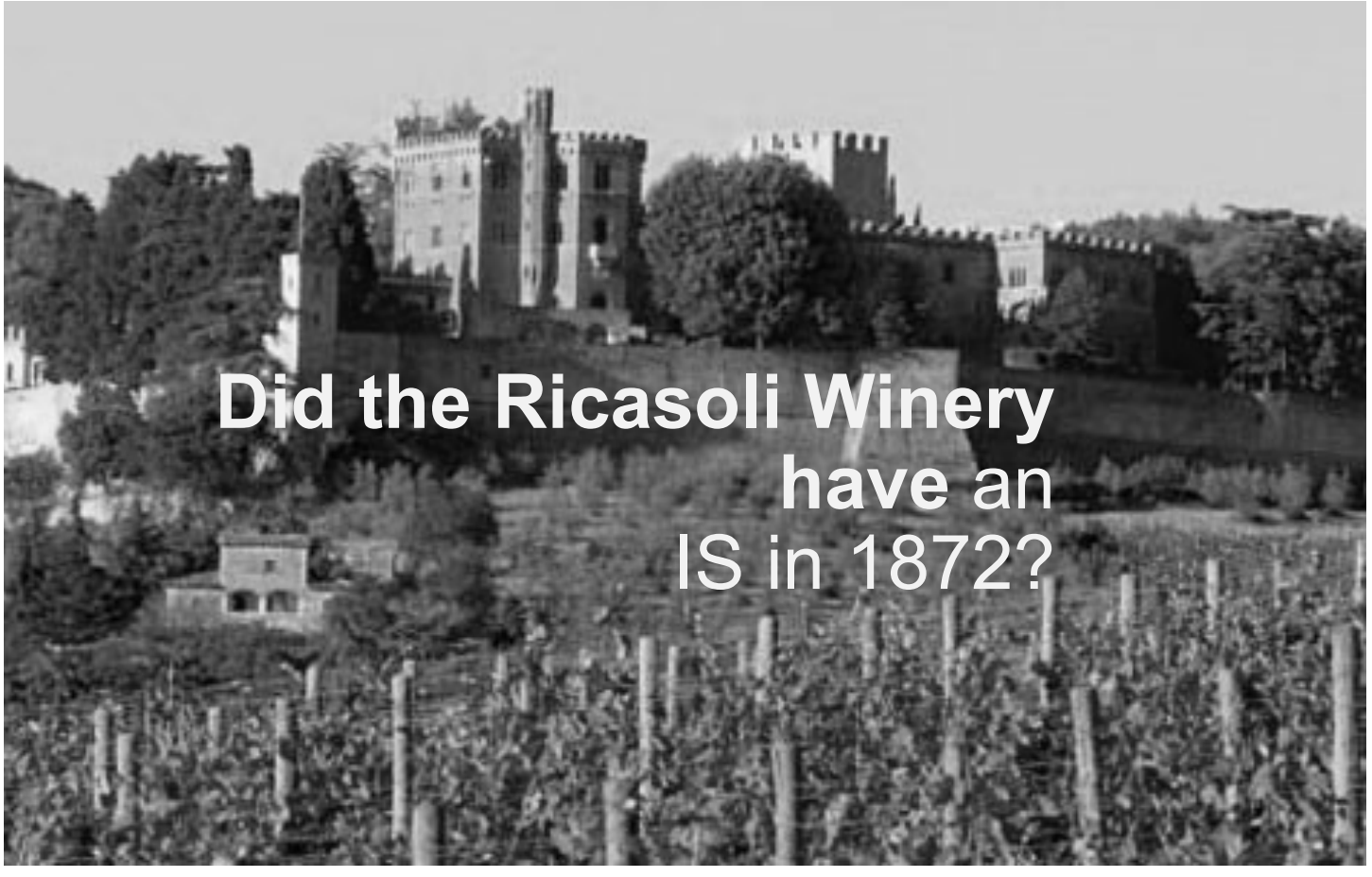
The modern **manager must increasingly partner with IS professionals** to realize the full potential of the emerging IT-enabled value creation opportunities stemming from the digital transformation.

Key takeaways from Chapter 1 (2/2)

Advanced analytics, or data science as many call it, requires a combination of skills. In all but the most trivial of analytics projects a team, rather than a single individual, brings these skills to bear. The team may have the following roles: data scientists, data engineers, business experts, source system experts, and software engineers.

The enduring effects of **Moore's law** have led to increasingly **powerful yet cheaper computing strength**, **declining costs of computer memory**, and a **dramatic improvement** in the **ease and breadth of use** of digital devices. Moreover, **increasingly available network connectivity and storage capacity, improved battery life for portable devices**, and the **proliferation of intelligent devices** have contributed to dramatically change the business and social landscape.

IS is not a technology!

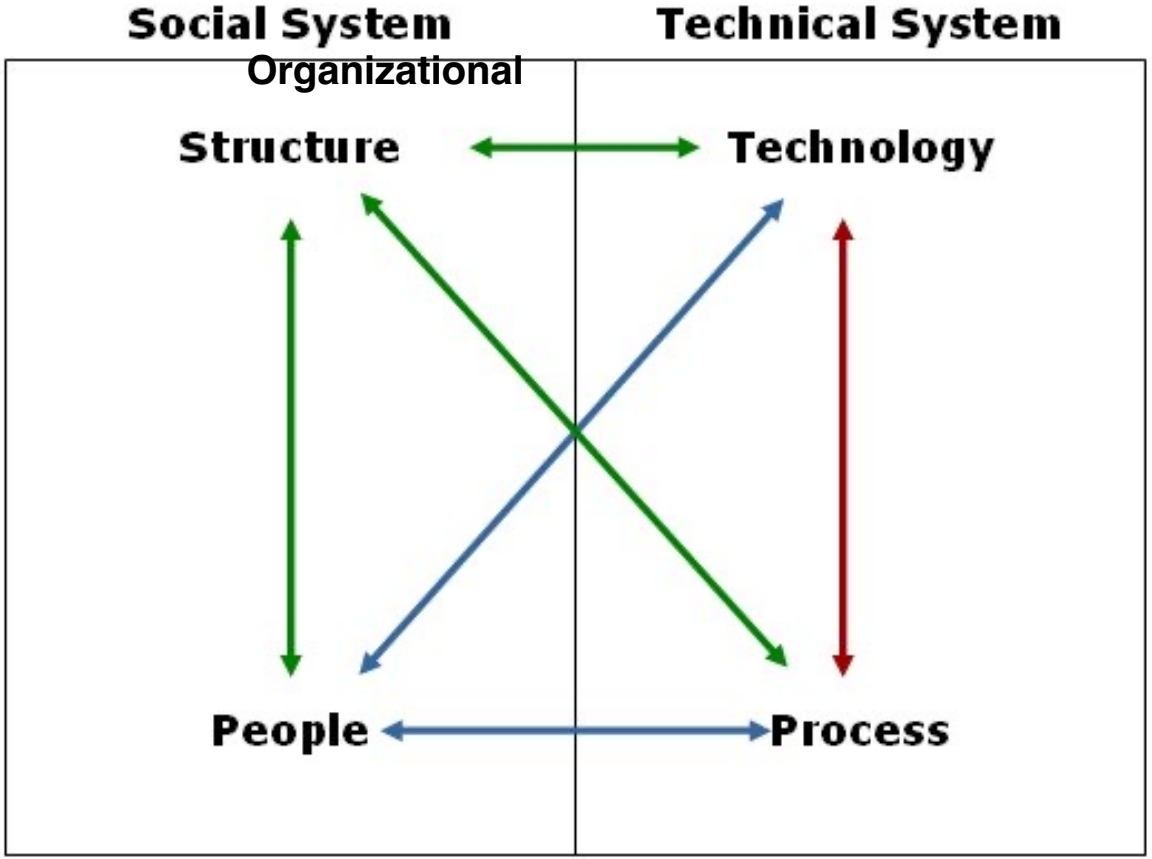


IS defined

> Information Systems are formal, sociotechnical, organizational systems designed to collect, process, store, and distribute information.

Gabriele Piccoli

Four Components of an Organizational IS



Component #1: Information Technology (IT)

Hardware

- Laptops, desktops, mobiles…

Software

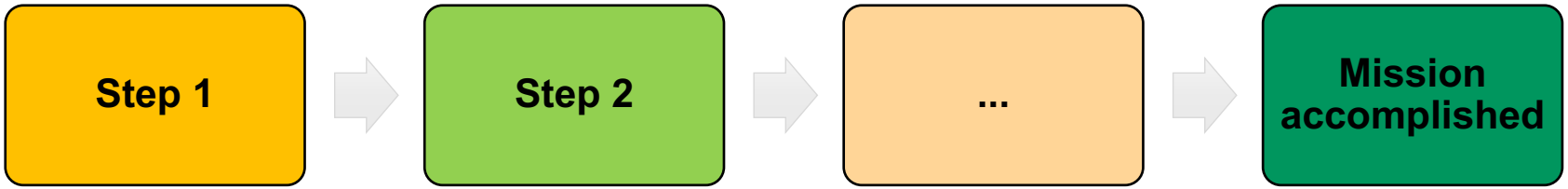
- Microsoft Office, Operating Systems…

Telecommunication equipment

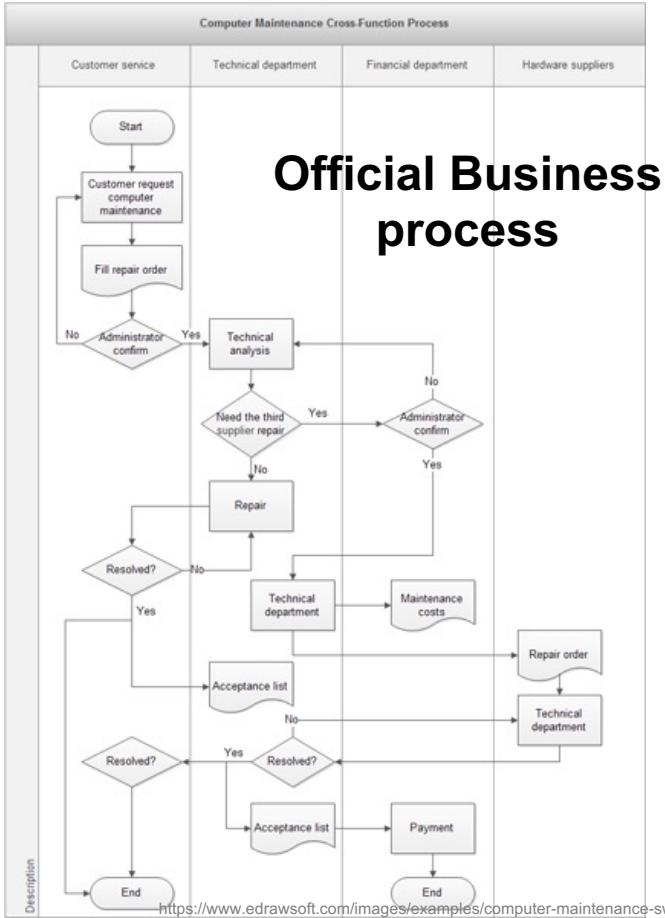
- Internet, telephone networks…

Component #1: Process

- The series of steps necessary to complete a business activity
- There are multiple ways to perform an activity: Every process is designed to be efficient & effective



Official vs Informal business process



Official Business process

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Informal Process

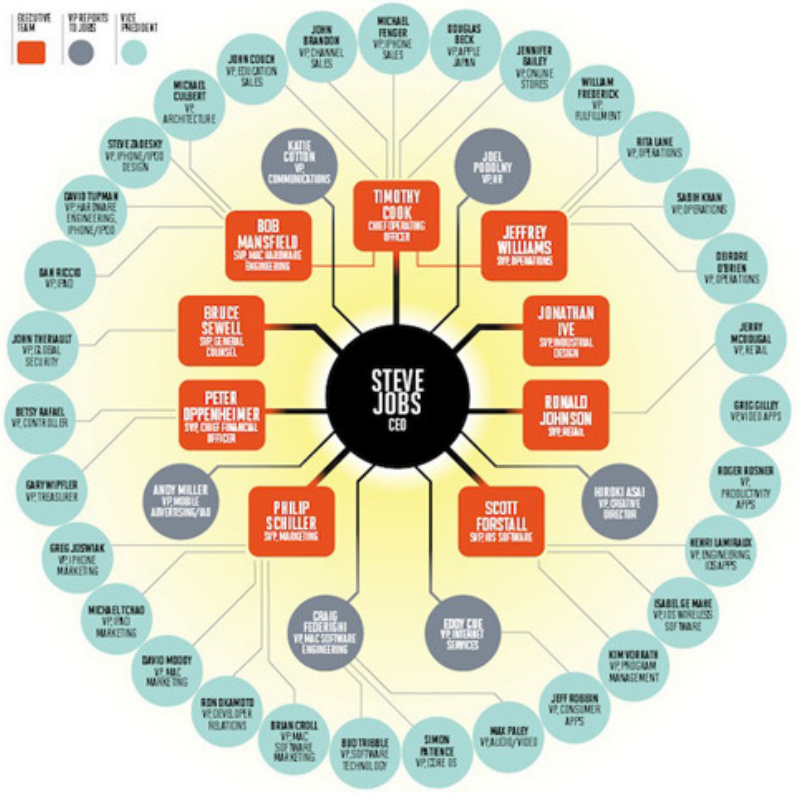
https://www.edrawsoft.com/images/examples/computer-maintenance-swimlanes.png

https://s3.amazonaws.com/thumbnails.illustrationsource.com/huge.16.80983.JPG

Component #3: People

Component #4: Organizational structure

- The structure component encompasses:
  - The **organizational design**
    - Hierarchy, decentralized, loose coupling
  - The **reporting configuration**
    - Functional, divisional, matrix
  - The **organizational relationships**
    - Communication and reward mechanisms
    - Culture
      - The role of organizational culture is extremely important in the adoption of new technologies
      - Although technologies might be superb, they might not be utilized due to lack of managerial support or resistance of users.



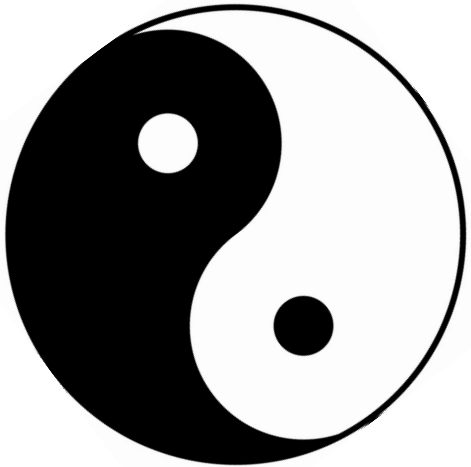
Systemic Effects: Components Working Together

The four components of an IS are **Interdependent**

Changes in one component may affect all others

Success is based on the proper interaction of IT with the other components!

Do not optimize the tech part but the IS as a whole!



Components

Many companies rush out, buy software solutions, install them quickly, and then can't understand why the system failed.

> We look at what **business issues** exist, what **people** and **processes** pertain to that business issue, what those people do. **Technology** won't solve by itself – other components have to be part of the solution.

Mark Hedley

Photo : http://hotel-online.com/News/PR2005_1st/Jan05_WyndhamHedley.html

Information systems success

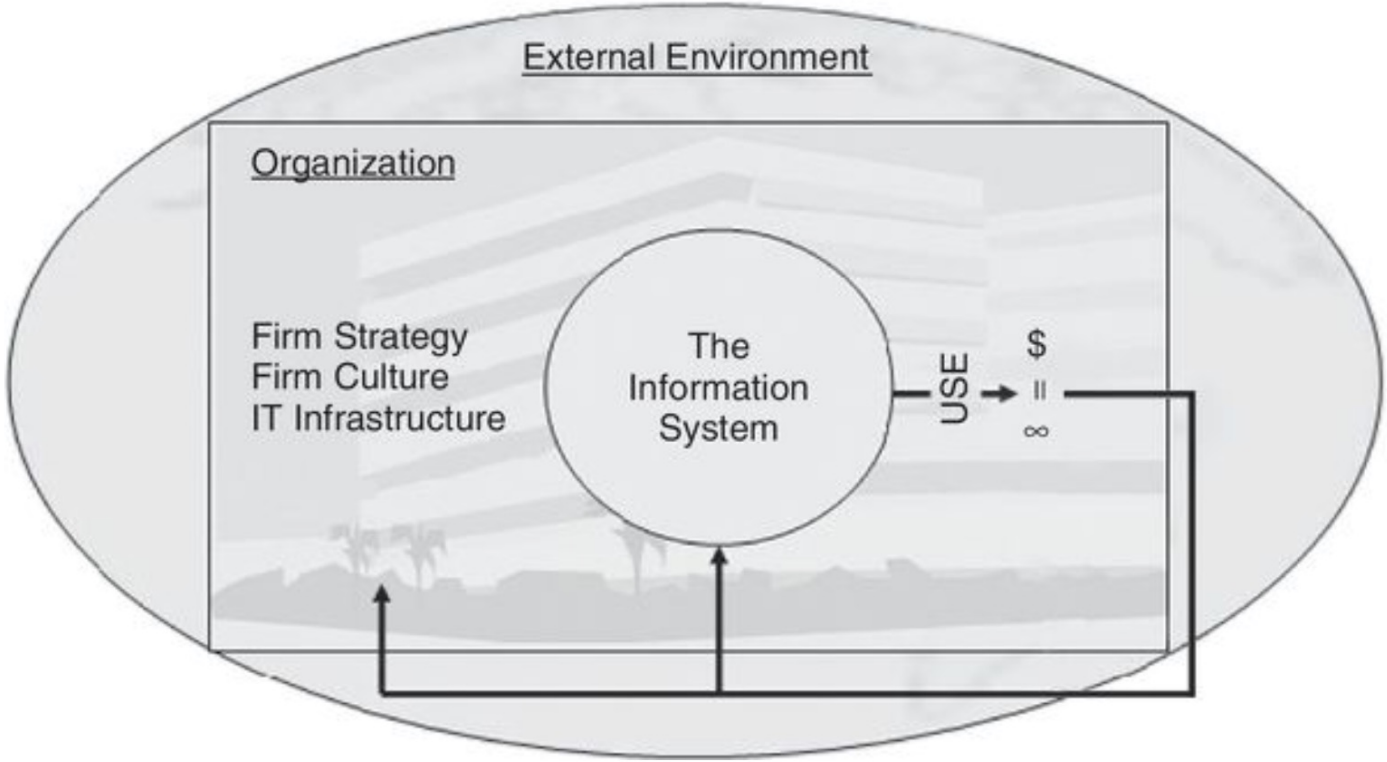
An IS is deemed a failure if it is **abandoned** (i.e. the implementation phase is never concluded) or **not used** (i.e. the IS is completed but rejected by its intended users).

- due to non-use, the IS will not yield the promised benefits

The success of an IS that is in use is evaluated based on whether, and to what extent, the IS has delivered its expected benefits.

- The benefits can be intended and unintended, direct and indirect

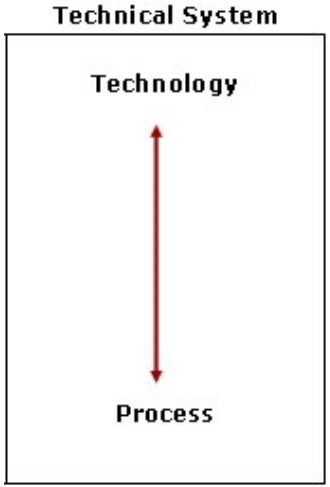
Information systems in an organizational context – they do not exist in a vacuum



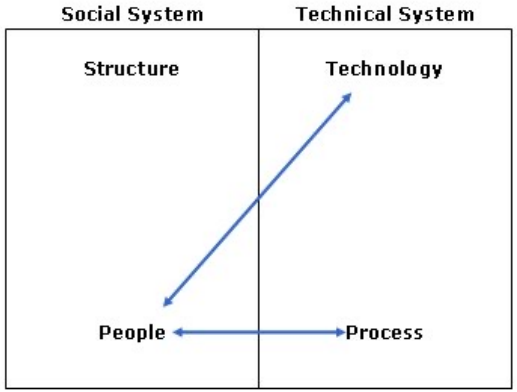
Information Systems and Organizational Change

Understanding that IS are socio-technical systems can help in better managing organizational change!

1st order change: Automate

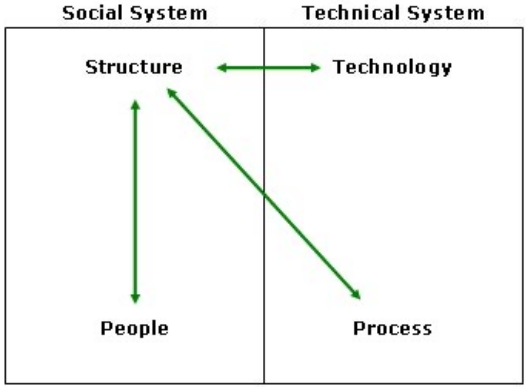


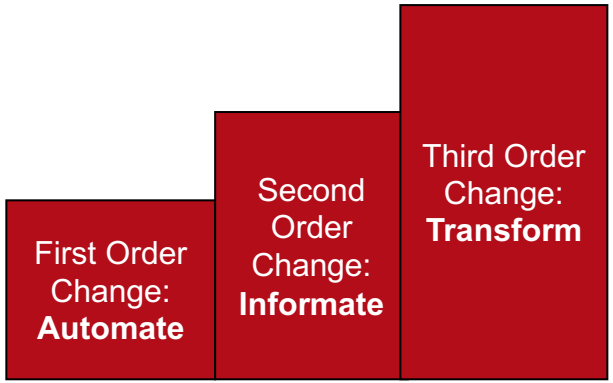
2nd order change: Informate



Informate = dispense information

3rd order change: Transform





Key takeaways from Chapter 2

IS are designed and built with the **objective of improving the firm's efficiency and effectiveness** by fulfilling its information processing needs. **Successful IS are those that are used and that achieve their intended goals**.

IS exist in an organizational context, characterized by the firm's strategy, culture, and IT infrastructure. The organization itself is subject to the influences of its external environment, including regulatory requirements, social and business trends, and competitive pressures.

IS are subject to systemic effects, defined as the notion that the different components of a system are interdependent and that changes in one component affect all other components of the system. Thus, when designing a new IS, or troubleshooting an underperforming one, you can devise multiple ways to achieve the system's goal.

Increasingly in modern firms, **organizational change stems from the introduction of new IT**. Depending on the objectives and reach of the new system, we identify three levels of change—**first-, second-, and third-order change—each requiring different levels of commitment and sponsorship to be successfully managed**.