به نام خداوند بخشنده مهربان

# مدیریت استراتژیک فناوری اطلاعات
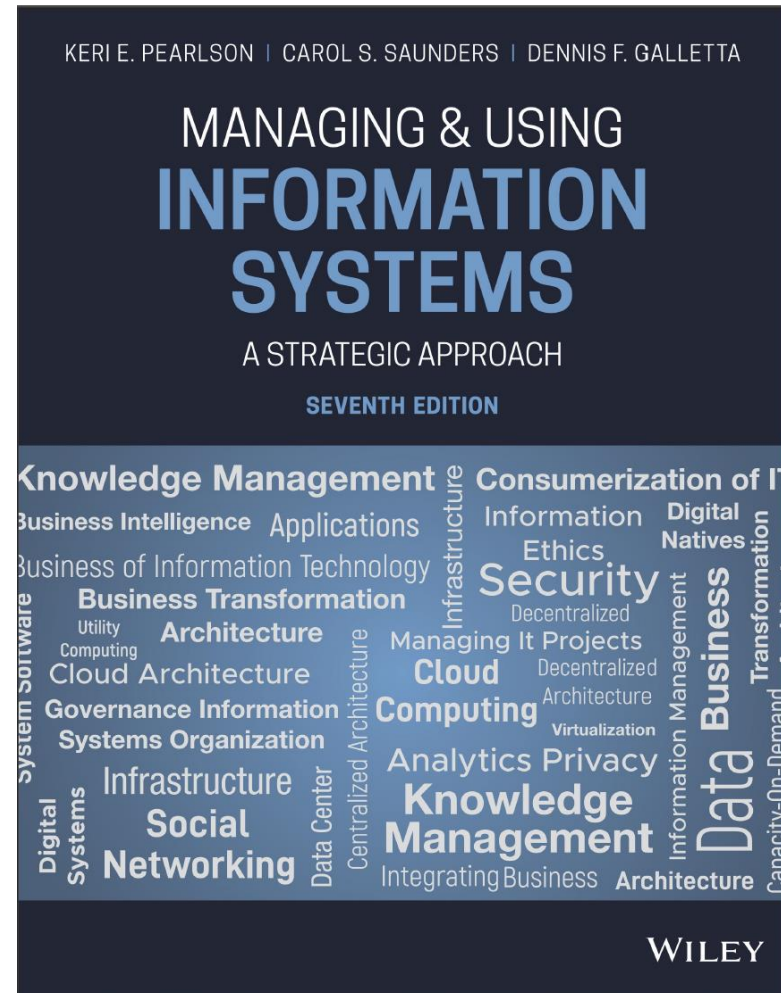
## جلسه دوم

صفایی پور

نیمسال دوم ۱۴۰۲

# Managing and Using Information Systems: A Strategic Approach – Seventh Edition

**Keri Pearlson, Carol Saunders, and Dennis Galletta**

## Introduction

آیا مدیران فا باید بر نیروهای حرفه ای خود برای توسعه واحد فا خود اکتفا کنند ؟

# Why Should a Manager Study Information Systems?

--After all, an entire department is in charge of IT.

- Nearly all decisions in organizations rely on information systems at some level.

- Personal devices are ubiquitous.
  - Pew Research: In 2018, 95% of US adults had a cell phone, 90% used the Internet, and 75% have high speed Internet access.

- Personal experience with technology helps but the corporate setting has many different requirements in the areas of:
  - Security, Privacy, Risks
  - Support
  - Architecture

- Firms use IT to enhance their business models or disrupt entire industries (for example: Uber).

- Managers need to know the basics.

**اسنپ و تپسی تاکسی های خطی و گردشی را بلعیدند!**

کسی های خطی و گردشی یکی از امکاناتی بود که برای تردد در اختیار شهروندان قرار داشت اما تعداد این

کسی ها در اوقات پیک تردد کاهش شدیدی دارد و بجای آن اسنپ و تپسی با همان تاکسی ها در دسترس

ت!



تغییرات  از جهات پیش بینی نشده وارد می شوند

# ◼ تعداد مشترکان تلفن همراه از ۱۴۸ میلیون نفر عبور کرد

ایرنا: طبق آماری که در داشبورد برخط سازمان تنظیم مقررات و ارتباطات رادیویی منتشر شده، تعداد مشترکین تلفن همراه در کشور اکنون به ۱۴۸ میلیون و ۲۴۲ هزار و ۳۰۸ نفر رسیده است. آخرین آمار سازمان تنظیم مقررات و ارتباطات رادیویی کشور (پایان ۱۴۰۱) در حوزه تلفن همراه نشان می‌دهد اکنون بیش از ۱۴۸میلیون نفر، مشترک تلفن همراه هستند و ضریب نفوذ استفاده از تلفن همراه در کشور را به ۱۷۶ درصد رسانده‌اند. با توجه به اینکه در سال ۱۴۰۰ تعداد ۱۴۰ میلیون مشترک تلفن همراه داشتیم، هشت میلیون به تعداد کاربران افزوده شده است. بخش دیگری از این گزارش سهم بازار اپراتورهای کشور در حوزه ارائه خدمات است. در این بخش ۵۲/ ۸۸درصد مربوط به شرکت مخابرات ایران (همراه اول)، ۴۳/ ۳۳ درصد شرکت خدماتی ارتباطی ایرانسل و ۳ /۷۸ درصد مربوط به شرکت خدمات ارتباطی رایتل است. بنابر آمار منتشر شده که مربوط به پایان ۱۴۰۱ است، اکنون پوشش جاده‌های اصلی فرعی و ریلی کشور اکنون به ۹۵ درصد رسیده است.
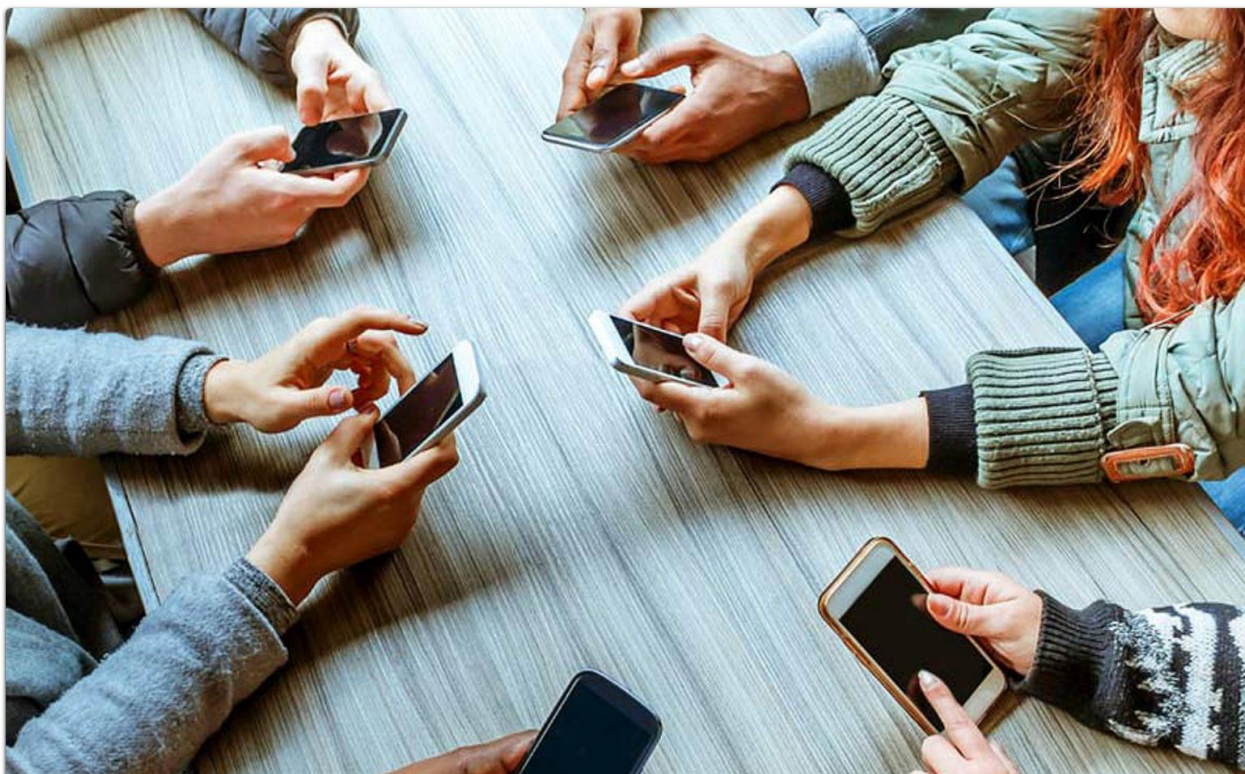
# ECOMCREW
# amazon TIMELINE

**1994**
Amazon was founded by Jeff Bezos in Bellevue, Washington. Initially, it was an online bookstore.

**1995**
Amazon.com went live, offering a wide variety of books.

**1997**
Amazon went public with an initial public offering (IPO).

**1998**
Amazon expanded beyond books, offering music and videos

**1999**
Jeff Bezos was named Time Magazine's Person of the Year.

**2000**
Amazon introduced its marketplace for third-party sellers.

**2002**
Amazon Web Services (AWS) was launched, providing cloud computing services.

**2005**
Amazon Prime, a subscription service offering free two-day delivery, was introduced.

**2007**
The first Kindle e-reader was released.

**2012**
Amazon Studios, a film and television production division, was launched.

**2015**
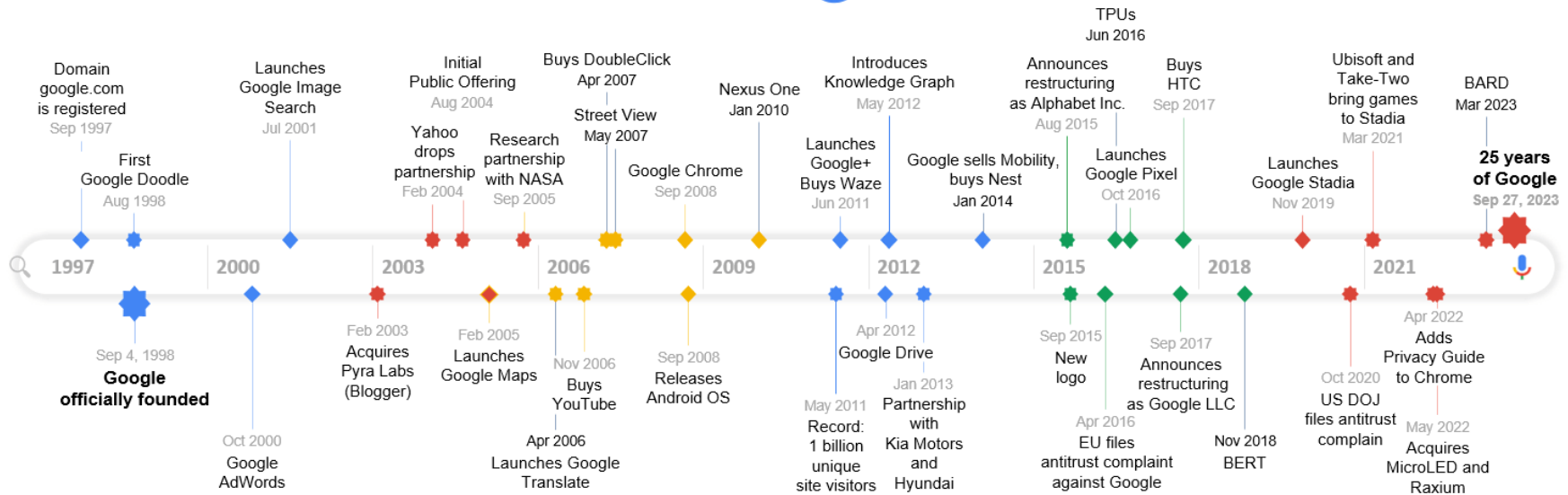Amazon surpassed Walmart as the most valuable retailer in the United States.

**2017**
Amazon acquired Whole Foods Market.

**2021**
Jeff Bezos stepped down as CEO and was succeeded by Andy Jassy.

**Google**

Timeline of Google

- Domain google.com is registered — Sep 1997
- First Google Doodle — Aug 1998
- Google officially founded — Sep 4, 1998
- Launches Google Image Search — Jul 2001
- Oct 2000 — Google AdWords
- Feb 2003 — Acquires Pyra Labs (Blogger)
- Yahoo drops partnership — Feb 2004
- Research partnership with NASA — Sep 2005
- Feb 2005 — Launches Google Maps
- Initial Public Offering — Aug 2004
- Buys DoubleClick — Apr 2007
- Street View — May 2007
- Nov 2006 — Buys YouTube
- Apr 2006 — Launches Google Translate
- Google Chrome — Sep 2008
- Sep 2008 — Releases Android OS
- Nexus One — Jan 2010
- Launches Google+ Buys Waze — Jun 2011
- May 2011 — Record: 1 billion unique site visitors
- Apr 2012 — Google Drive
- Introduces Knowledge Graph — May 2012
- Google sells Mobility, buys Nest — Jan 2014
- Jan 2013 — Partnership with Kia Motors and Hyundai
- TPUs — Jun 2016
- Announces restructuring as Alphabet Inc. — Aug 2015
- Sep 2015 — New logo
- Apr 2016 — EU files antitrust complaint
- Launches Google Pixel — Oct 2016
- Buys HTC — Sep 2017
- Sep 2017 — Announces restructuring as Google LLC
- Launches Google Stadia — Nov 2019
- Nov 2018 — BERT
- Ubisoft and Take-Two bring games to Stadia — Mar 2021
- Oct 2020 — US DOJ files antitrust complain
- Apr 2022 — Adds Privacy Guide to Chrome
- May 2022 — Acquires MicroLED and Raxium
- BARD — Mar 2023
- **25 years of Google** — Sep 27, 2023

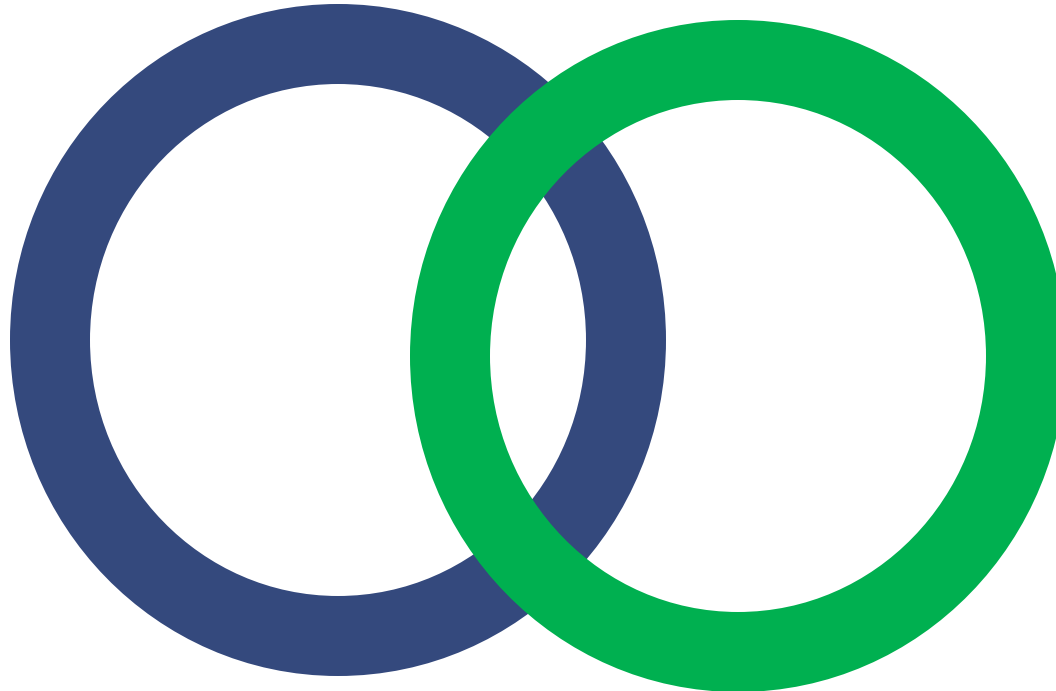1997 | 2000 | 2003 | 2006 | 2009 | 2012 | 2015 | 2018 | 2021

Made with Office Timeline

Google Search | I'm Feeling Lucky

Information Technology



Business Process

همیدن اهمیت و قدرت اطلاعات

# Why Should you Participate in IT Decisions in your Firms?

- IT permeates almost every aspect of business
- IT enables change in how people work
- IT is at the heart of Internet-based solutions
- IT enables or inhibits opportunities/strategies
- IT combats competitors' business challenges
- IT provides customers with a voice
- IT supports data-driven decision-making
- IT can help secure key assets

# A Business View of Critical Resources

- Spending is quite high: Worldwide $3.9 trillion in 2019
- Expenditures span 5 categories
  - Devices (e.g., PCs, tablets, mobile phones)
  - Data centers (e.g., servers, storage equipment)
  - Enterprise (companywide) software
  - IT Services (e.g., support and consulting services)
  - Communications (e.g., voice and data services)
- If these expenditures do not return value, they will dwindle over time

# People and Technology Work Together



**HOW TO MESH TECHNOLOGY AND PEOPLE TO CREATE EFFECTIVE WORK PROCESSS**

# People and Technology Work Together

- Some of the most-used sites focus on Web 2.0
  - In Web 2.0, significant content comes from users
    - Information Sharing
    - User-centered design
    - Interoperability
    - Collaboration
  - Skilled business managers must balance:
    - The benefits of introducing new technology
    - The costs associated with changing the existing behaviors of people in the workplace
  - Does not require deep technical knowledge
    - Requires understanding the consequences of the choices made

# CTO of @Walmart Labs

- What did Jeremy King say in his blog (pg. 4)?
  - "Every global company is a tech company"
- Do you believe this is true for most firms, or is Wal-Mart somehow different? Why?
- Can you name firms that do not receive key impacts or benefits from technology?

# Opportunities and New Strategies from IT

- New business opportunities spring up with little warning

- Managers must:
  - **Frame** the opportunities in an understandable way for business leaders
  - **Evaluate** them against business needs and choices
  - **Pursue** those that fit into an articulated business strategy.

- The **quality** of available information will impact the quality of their decisions and their implementation

- Managers will therefore lead the changes driven by information systems

# Competitive Challenges

- Competitors spring up—sometimes unexpectedly
- **General managers** are in the best position to
  - **Anticipate** those threats
  - Attempt to **combat** them, using technology as a tool
- They need an understanding of
  - The **capabilities** of the organization
  - How those **capabilities**, together with IS, can
    - Create competitive advantage
    - Change the competitive landscape for an entire industry

# Managers Need to be Aware of the importance of:

- Customer pull
  - Customers now have power using social media
  - Entire business models sometimes need to be redesigned
- Data-driven decision making
  - Now available: more data than ever before
    - From social media
    - From large data stores in firms
  - Predictive analytics tools can help with analysis of that data
- Securing key assets
  - A balance is needed
    - Too little security endangers assets of the firm and its customers
    - Too much reduces operational convenience

# What Happens if Management Doesn't Participate?

- Lost opportunities

- Breakdown in servicing customers

- Sales decline

- Damaged reputation

- Poor spending:
  - Overspending and excess capacity, or
  - Underspending and restricted opportunity

- Inefficient business processes

# Failing to Consider IS Strategy

- Leads to:
  - IS that fail to support **business goals** (e.g., Victoria's Secret site overload)
  - IS that fail to support **organizational systems** (e.g., workers buying mobile devices but the IT department only supports desktop PCs)
  - Misalignment between business goals and organizational systems

# Skills Managers Need for Their IT Decisions

- Visionary role
  - Creativity
  - Curiosity
  - Confidence
  - Focus on business solutions
  - Flexibility
- Informational and Interpersonal
  - Communication
  - Listening
  - Information gathering
  - Interpersonal skills

- Structural
  - Project management
  - Analytical
  - Organizational
  - Planning
  - Leading
  - Controlling

# Assumptions
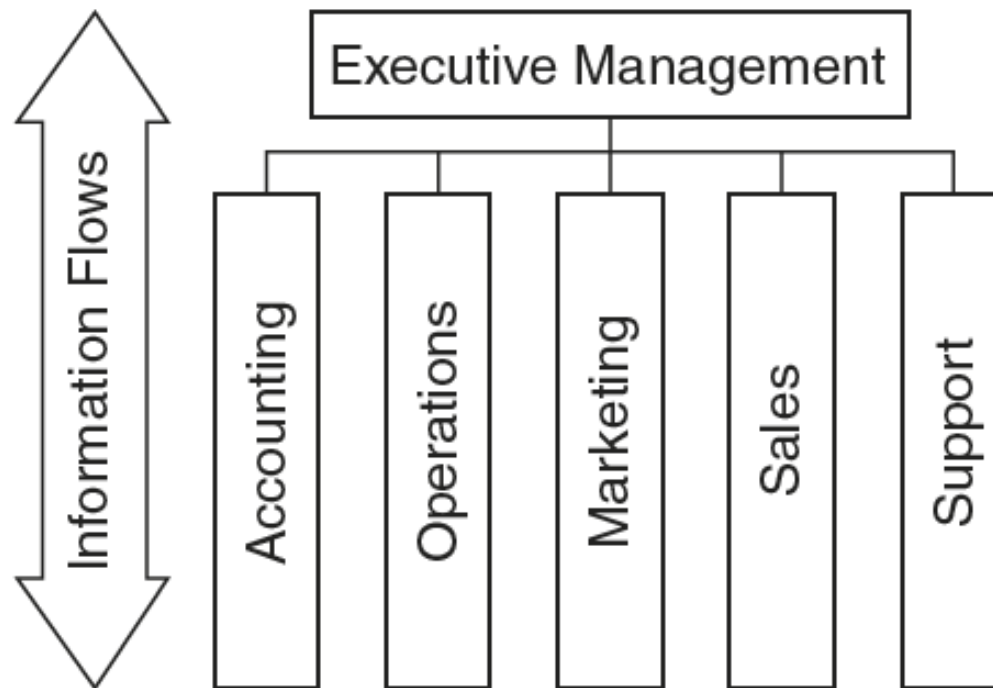
# Assumptions About Business – Functional/Hierarchical View



**FIGURE I-4**  Hierarchical view of the firm.
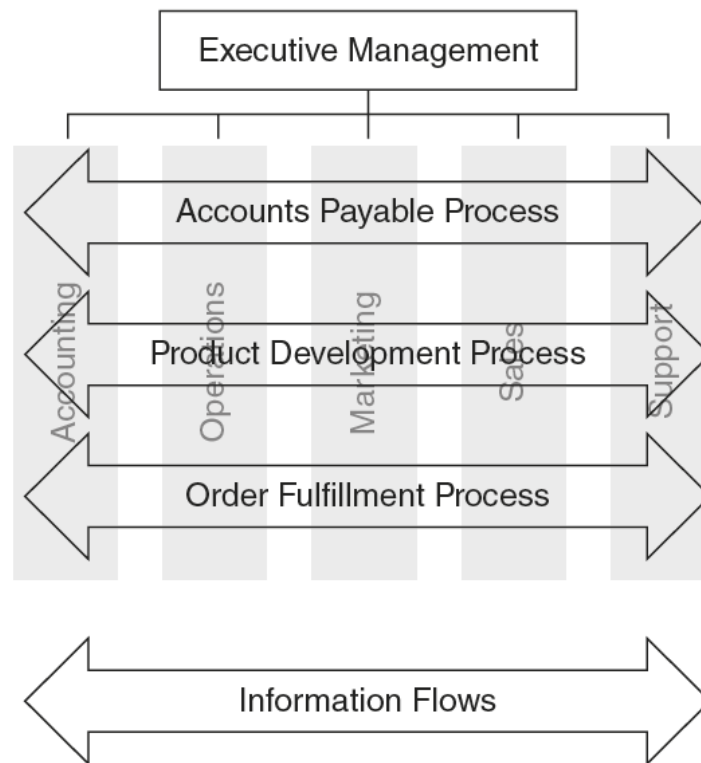
# Cross-Functional/Process View



**FIGURE I-5** Process view of the firm: cross-functional processes.

# Assumptions about the Nature of Information

- Data – simple observations

- Information – data + relevance + purpose

- Knowledge – information + context + synthesis + reflection

# Data, Information, and Knowledge

|  | **Data** | **Information** | **Knowledge** |
|---|---|---|---|
| **Definition** | Simple observations of the state of the world | Data endowed with relevance and purpose | Information from the human mind (includes reflection, synthesis, context) |
| **Characteristics** | • Easily structured<br>• Easily captured on machines<br>• Often quantified<br>• Easily transferred<br>• Mere facts | • Requires unit of analysis<br>• Data that have been processed<br>• Human mediation necessary | • Hard to structure<br>• Difficult to capture on machines<br>• Often tacit<br>• Hard to transfer |
| **Example** | Daily inventory report of all items | Daily inventory report of items with low levels of stock | Report of which items need to be reordered after considering inventory levels, anticipated labor strikes, and a flood affecting a supplier |

# Characteristics of Information Across Levels

| | Top Management | Middle Management | Supervisory and Lower-Level Management |
|---|---|---|---|
| **Time Horizon** | Long: years | Medium: weeks, months, years | Short: day to day |
| **Level of Detail** | Highly aggregated Less accurate More predictive | Summarized Integrated Often financial | Very detailed Very accurate Often nonfinancial |
| **Source** | Primarily external | Primarily internal with limited external | Internal |
| **Decision** | Extremely judgmental Uses creativity and analytical skills | Relatively judgmental | Heavy reliance on rules |

# Economics of Information vs Things

**EVERY BUSINESS IS IN THE INFORMATION BUSINESS**

| Things | Information |
|---|---|
| Wear out | Doesn't wear out but can become obsolete or untrue |
| Are replicated at the expense of the manufacturer | Is replicated at almost zero cost without limit |
| Exist in a tangible location | Does not physically exist |
| When sold, possession changes hands | When sold, seller may still possess and sell again |
| Price based on production costs | Price based on value to consumer |
| Are based on a physical infrastructure | Is based on a digital infrastructure |
| Are fixed units, each needing physical handling | Can be repackaged/customized/generated on demand |
| Usually cannot be combined to operate with other physical units | Requires only translation software to be combined with, or augmented by, other data |

- the first threat was posed in 1989 by **Comptons**, an entire 26-volume, 32,000 article multimedia encyclopedia on a single CD-ROM

- The second and more potent blow to Britannica was **Wikipedia**, which is freely available to all and updated on a nearly real-time basis continuously by thousands of volunteers.

# Internet of Things (IoT)

- Combine information and things = IoT
- From the 1970s: Coke machine at Carnegie Mellon University
- From the 1980s: Elevators that call for service without people knowing there is a problem
- Today:
  - Digital assistants (using voice)
  - Self-driving cars
  - Internet-connected (and controllable) lightbulbs, thermostats, stoves, alarm systems
  - Pets that are trackable online
  - Heart monitors that alert doctors or hospitals of a problem
  - Digital video recorders that can be controlled around the world
  - Quad-copters (drones) that can
    - Record video marked with location data
    - Return to the point of origin if it goes out of range of the "pilot"
    - Notify regarding its location and avoid objects in a database

# IT Consumerization

- **IT consumerization** means that technologies such as social tools, smartphones, and web applications

- targeted at individual, personal users are creating pressures for companies in new and unexpected ways.

- At the same time, technologies initially intended for the corporation, such as cloud computing, are being retooled and "consumerized" to appeal to indiiduals outside the corporation.

- In this text, we use the term **social business** to refer to an enterprise using social IT for business applications, activities, and processes. We sometimes say that social business has infused social capabilities intobusiness processes.

# The Term "Information Systems"
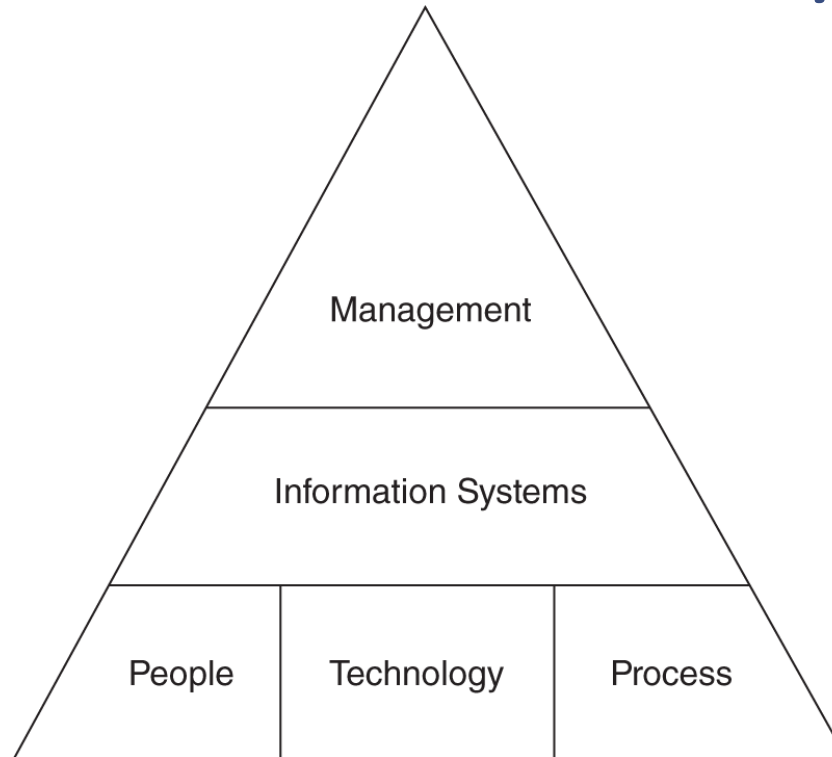


Information Technology vs Information Systems

- The term "IT" tends to be more fashionable
- But IT actually refers to just the technology
- Many people interchange the terms

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