E-Business and Collaboration

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What does this have to do with information systems?

- **Think about how technology has supported the development of Covid-19 vaccines.**
- **Everyday the company invests in € 1 million in research and development.**
- **Research requires a lot of collaboration, sharing of information, innovation and pursuit of quality in order to improve the health of people.**

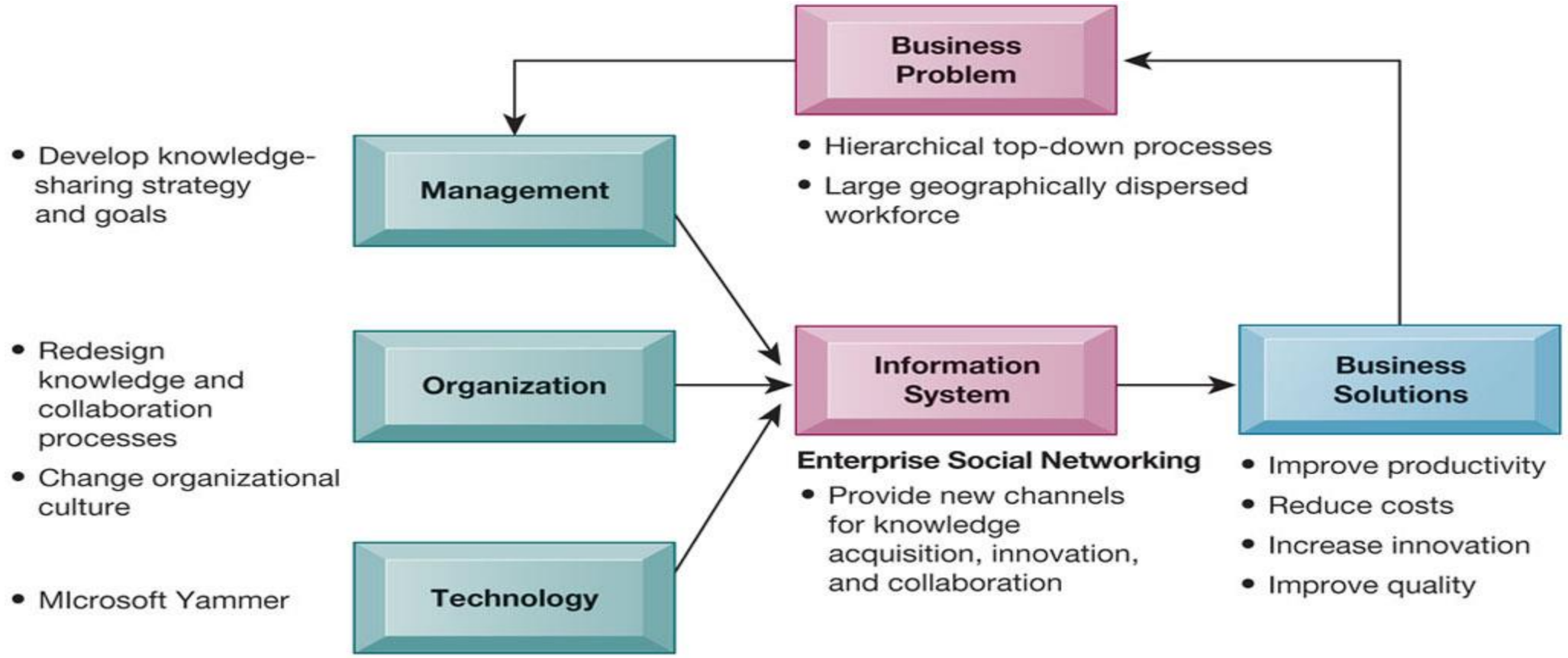
SANOFI PASTEUR

The company lacked the tools to encourage staff collaboration, sharing of ideas and dialogue

SANOFI PASTEUR

- Is a large centralised firm with a traditional hierarchical culture.
- An organisation driven from the top down.
- Company adopted Microsoft Yammer.
- Ideas for change can come from anywhere and shared through Yammer.
- Yammer is an enterprise social network.
- Whilst used for internal business purposes it can also be used to connect to external networks linking to suppliers, customers.
- Employees can collaborate on projects, share documents, as well as news feeds to inform employees.
- A people directory which provides a searchable database of staff contact info, skills and expertise.
- The Sanofi Yammer network is accessible through desktop and mobile devices.

Yammer at Sanofi Pasteur



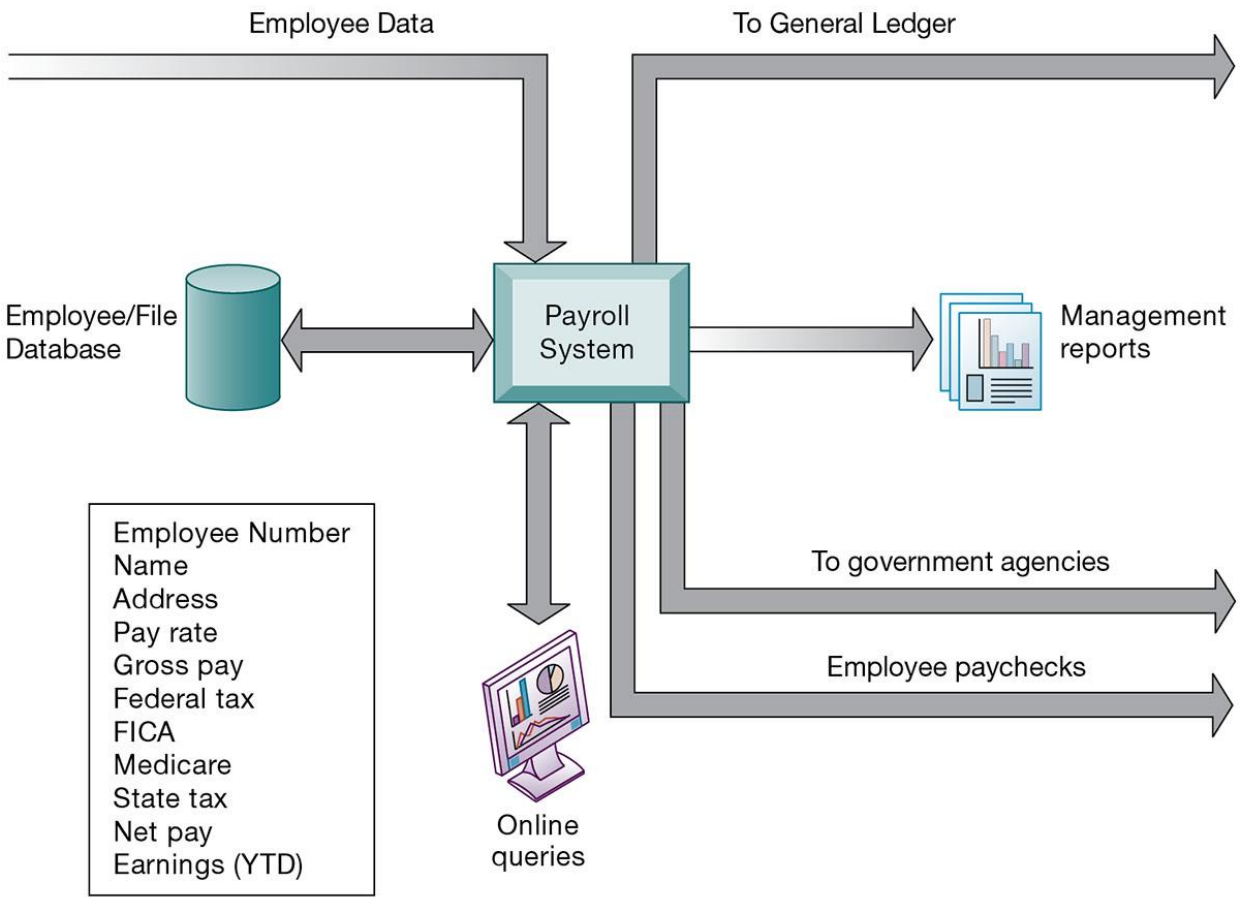
How do systems serve different management groups in a business?

Type of System	Information Inputs	Information Outputs	Users
Transaction Processing Systems (TPS)	Transactions; daily events	Detailed reports; lists; summaries	Operations personnel; first-line supervisors
Management Information Systems (MIS)	Summary transaction data; high-volume data; simple models	Summary and exception reports	Middle managers
Decision Support Systems (DSS)	Optimized for data analysis, analytic models and data analysis tools	Interactive; simulations; analysis	Professionals, staff managers
Executive Support Systems (ESS)	Aggregate data; external, internal	Projections; responses to queries	Senior managers

Transaction Processing Systems

- Serve operational managers and staff
- Perform and record daily routine transactions necessary to conduct business
  - Examples: sales order entry, payroll, shipping
- Allow managers to monitor status of operations and relations with external environment
- Serve predefined, structured goals and decision making

Transaction Processing System: Payroll



Transaction Processing Systems

- A Transaction Processing System is an 'Operational System'
- Operational systems help organisations perform and integrate important tasks, such as paying employees and suppliers, controlling inventory, sending out invoices, and ordering supplies
- A **transaction processing system** (TPS) is an organised collection of people, procedures, software, databases, and devices used to record completed business transactions
- A **transaction** is any business-related exchange such as payments to employees, sales to customers, or payments to suppliers

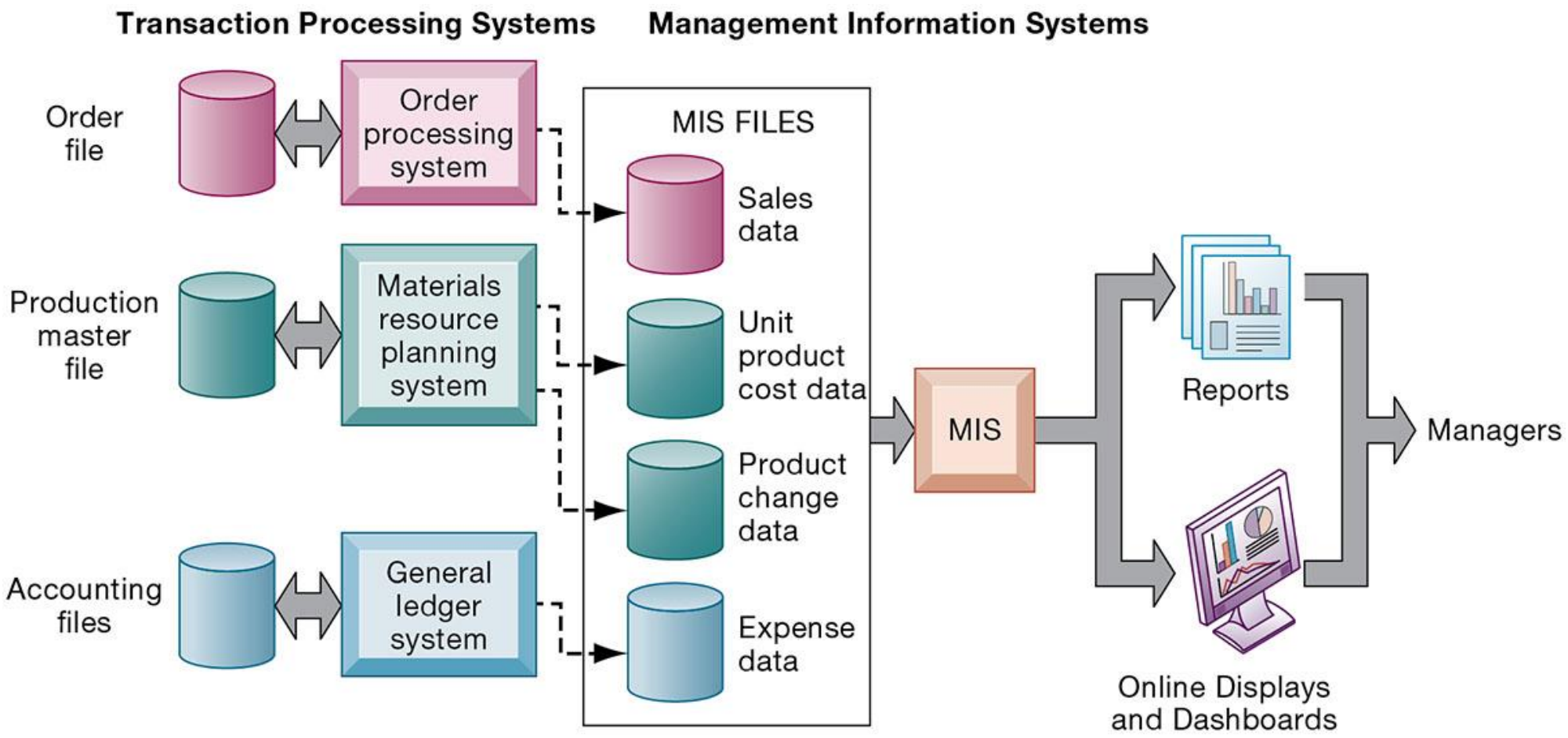
Business Intelligence Systems (BIS)

- Business intelligence
  - Data and software tools for organizing and analyzing data
  - Used to help managers and users make improved decisions
- Business intelligence systems
  - Management information systems
  - Decision support systems
  - Executive support systems

Management Information Systems

- Serve middle management
- Provide reports on firm's current performance, based on data from TPS
- Provide answers to routine questions with predefined procedure for answering them
- Typically have little analytic capability

How Management Information Systems Obtain Their Data from the Organisation's TPS



Management Information Systems

- A **management information system** (**MIS**) is an organised collection of people, procedures, software, databases, and devices that provides routine information to managers and decision makers
- An MIS focuses on operational efficiency
- The output of a TPS is the input to a MIS
- MIS typically provide standard reports generated with data and information from the TPS

Decision Support Systems

Serve middle management

Support non-routine decision making

Example: What is the impact on production schedule if December sales doubled?

May use external information as well TPS / MIS data

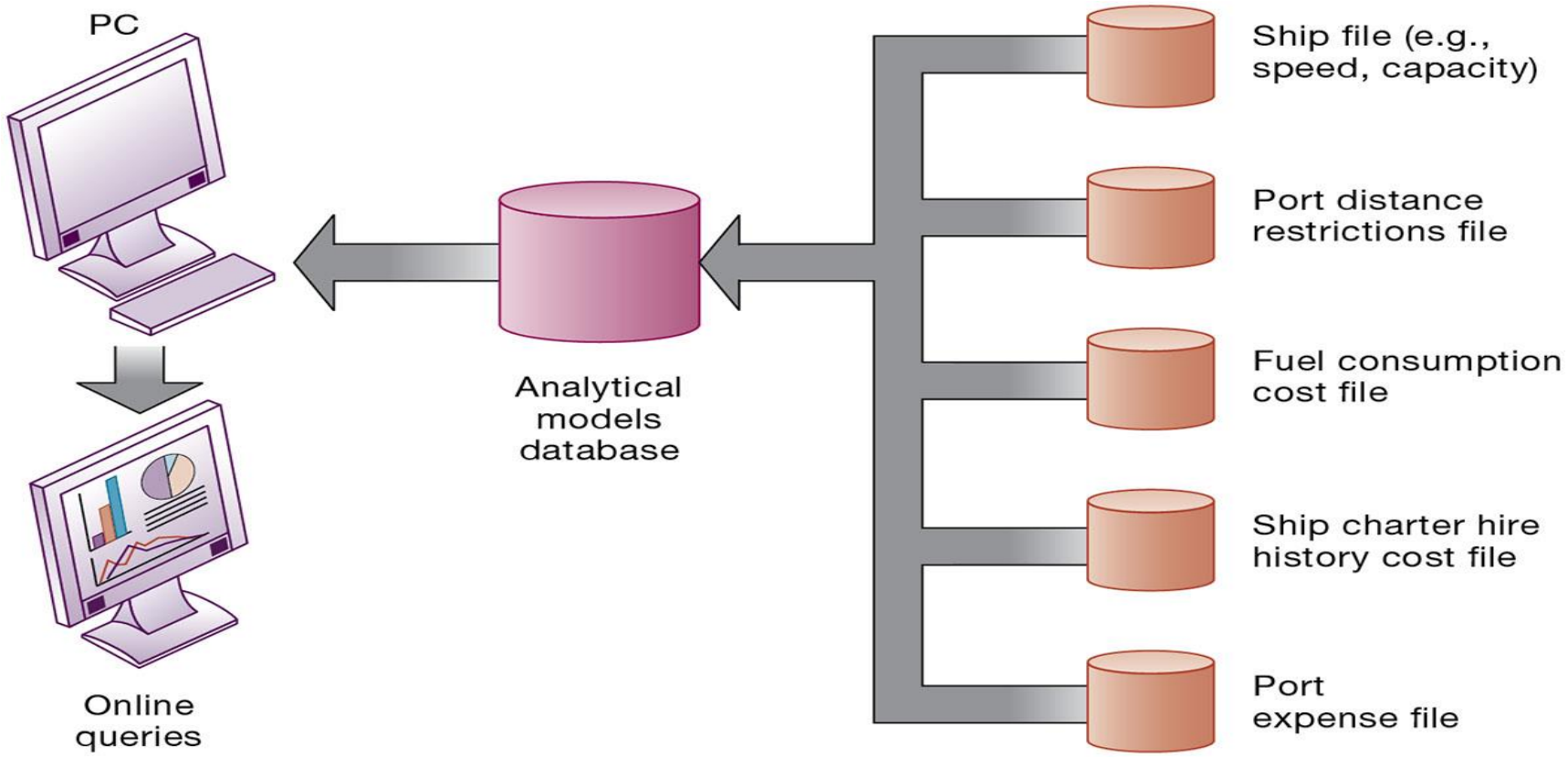
Model driven DSS

Voyage-estimating systems

Data driven DSS

Intrawest's marketing analysis systems

Voyage-Estimating Decision-Support System

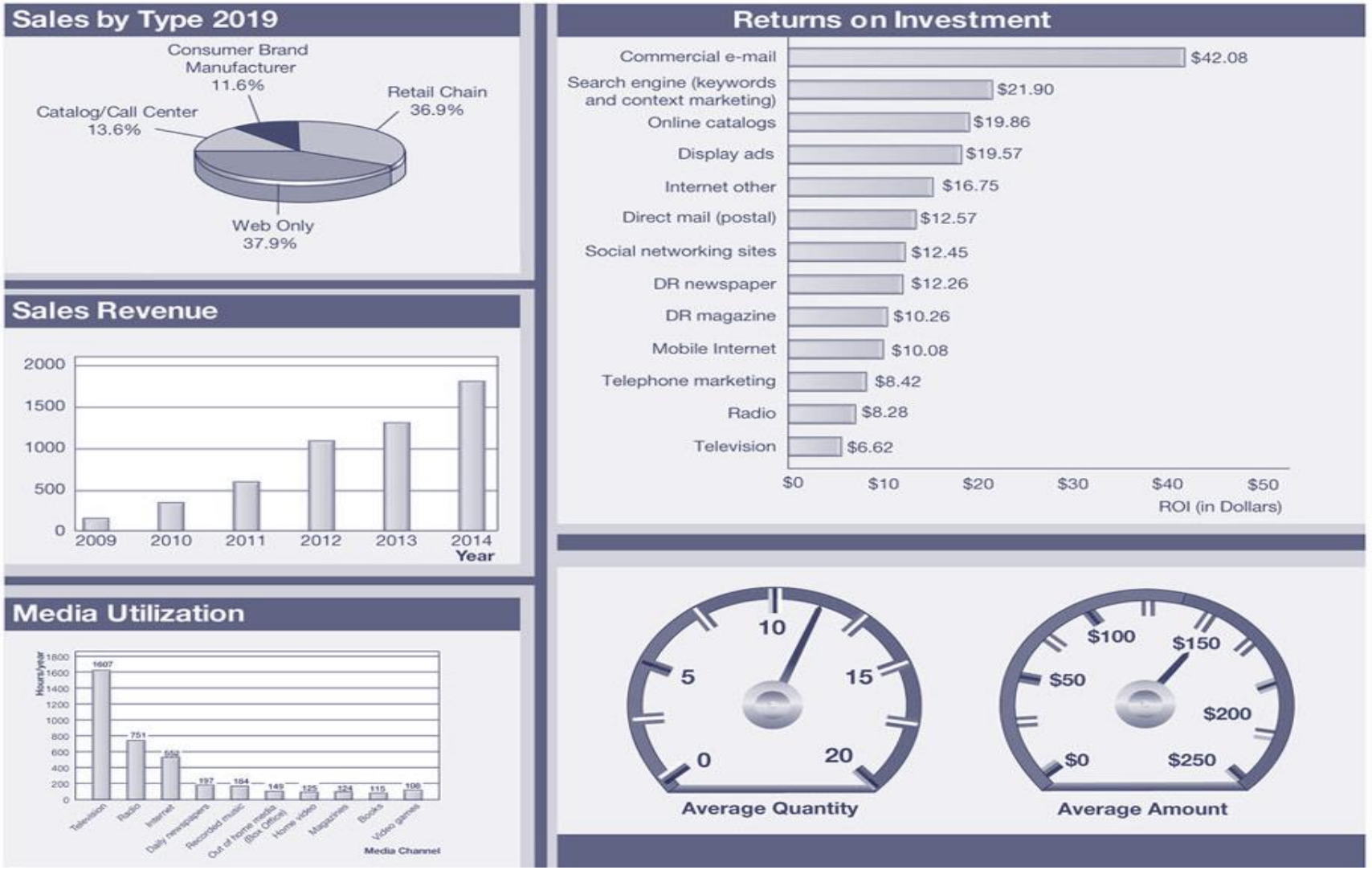


Decision Support System

- A **decision support system** (**DSS**) is an organised collection of people, procedures, software, databases, and devices that support problem-specific decision-making
- A human being is still in charge of making the decision, unlike in a system with Artificial Intelligence
- Decision support systems are used when the problem is complex and the information needed to make the best decision is difficult to obtain and use

Executive Support Systems

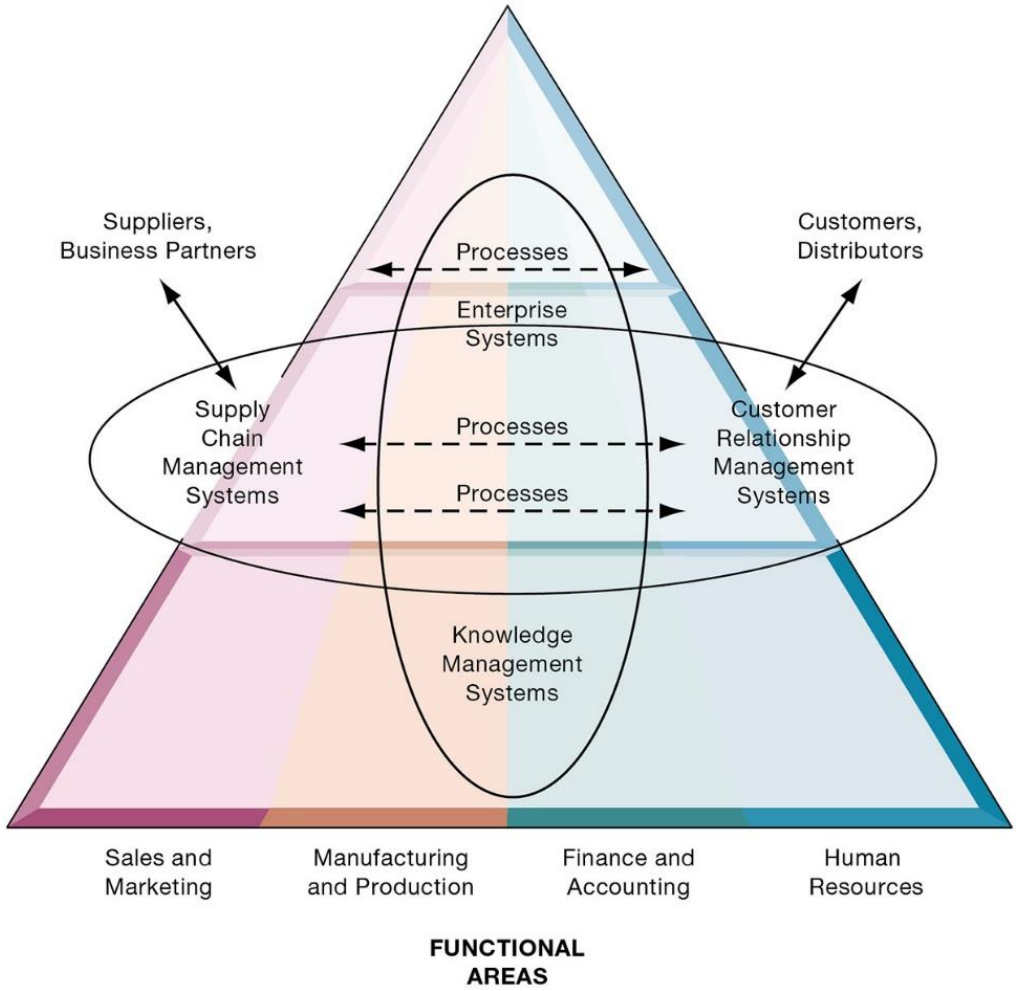
- Support senior management
- Address non-routine decisions
  - Requiring judgment, evaluation, and insight
- Incorporate data about external events (e.g., new tax laws or competitors) as well as summarised information from internal MIS and DSS
- Example: Digital dashboard with real-time view of firm's financial performance, cash flow, inventory


Sales by Type 2019
Consumer Brand Manufacturer 11.6%
Retail Chain 36.9%
Catalog/Call Center 13.6%
Web Only 37.9%
Sales Revenue
2000
1500
1000
500
0
2009
2010
2011
2012
2013
2014
Year
Media Utilization
Hours/year
1800
1600
1400
1200
1000
800
600
400
200
0
1607
751
Television
Radio
Internet
Daily newspapers
Recorded music
Out of home media (Box Office)
Home video
Magazines
Books
Video games
Media Channel
Returns on Investment
Commercial e-mail $42.08
Search engine (keywords and context marketing) $21.90
Online catalogs $19.86
Display ads $19.57
Internet other $16.75
Direct mail (postal) $12.57
Social networking sites $12.45
DR newspaper $12.26
DR magazine $10.26
Mobile Internet $10.08
Telephone marketing $8.42
Radio $8.28
Television $6.62
$0
$10
$20
$30
$40
$50
ROI (in Dollars)
0
5
10
15
20
Average Quantity
$0
$50
$100
$150
$200
$250
Average Amount

Enterprise Applications

- Systems for linking the enterprise
- Span functional areas
- Execute business processes across the firm
- Include all levels of management
- Four major applications
  - Enterprise systems
  - Supply chain management systems
  - Customer relationship management systems
  - Knowledge management systems

Enterprise Application Architecture



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Enterprise Systems

- Also called enterprise resource planning (ERP) systems
- Integrate data from key business processes into single system.
- Speed communication of information throughout firm.
- Enable greater flexibility in responding to customer requests, greater accuracy in order fulfillment.
- Enable managers to assemble overall view of operations.

- Collects data from different firm functions and stores data in single central data repository
- Resolves problem of fragmented data
- Enable:
  - Coordination of daily activities
  - Efficient response to customer orders (production, inventory)
  - Help managers make decisions about daily operations and longer-term planning

Supply Chain Management (SCM) Systems

- Manage relationships with suppliers, purchasing firms, distributors, and logistics companies.
- Manage shared information about orders, production, inventory levels, and so on.
- Goal is to move correct amount of product from source to point of consumption as quickly as possible and at lowest cost
- Type of interorganisational system: Automating flow of information across organisational boundaries

- Manage firm's relationships with suppliers
- Share information about:
  - Orders, production, inventory levels, delivery of products and services
- Goal:
  - Right amount of products to destination with least amount of time and lowest cost

Customer Relationship Management (CRM) Systems

- Help manage relationship with customers.
- Coordinate business processes that deal with customers in sales, marketing, and customer service
- Goals:
  - Optimize revenue
  - Improve customer satisfaction
  - Increase customer retention
  - Identify and retain most profitable customers
  - Increase sales

Knowledge Management Systems (KMS)

- Manage processes for capturing and applying knowledge and expertise
- Collect relevant knowledge and make it available wherever needed in the enterprise to improve business processes and management decisions.
- Link firm to external sources of knowledge

Intranets and Extranets

- Technology platforms that increase integration and expedite the flow of information
- Intranets:
  - Internal networks based on Internet standards
  - Often are private access area in company's Web site
- Extranets:
  - Company Web sites accessible only to authorized vendors and suppliers
  - Facilitate collaboration

E-Business, E-Commerce, and E-Government

- E-business
  - Use of digital technology and Internet to drive major business processes
- E-commerce
  - Subset of e-business
  - Buying and selling goods and services through Internet
- E-government
  - Using Internet technology to deliver information and services to citizens, employees, and businesses

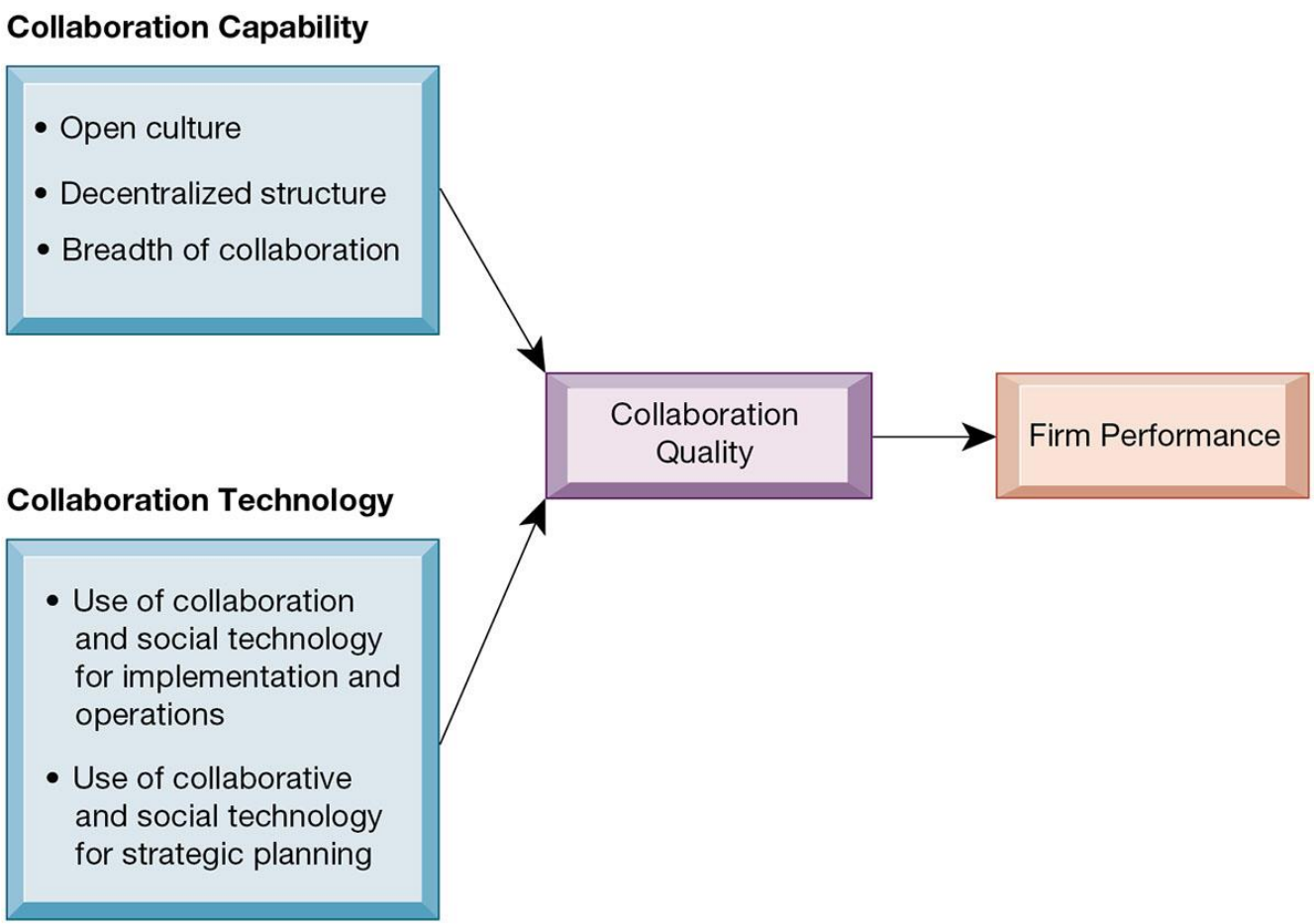
Collaboration

- Collaboration
  - Short lived or long term
  - Informal or formal (teams)
- Growing importance of collaboration
  - Changing nature of work
  - Growth of professional work—"interaction jobs"
  - Changing organization of the firm
  - Changing scope of the firm
  - Emphasis on innovation
  - Changing culture of work

Social Business

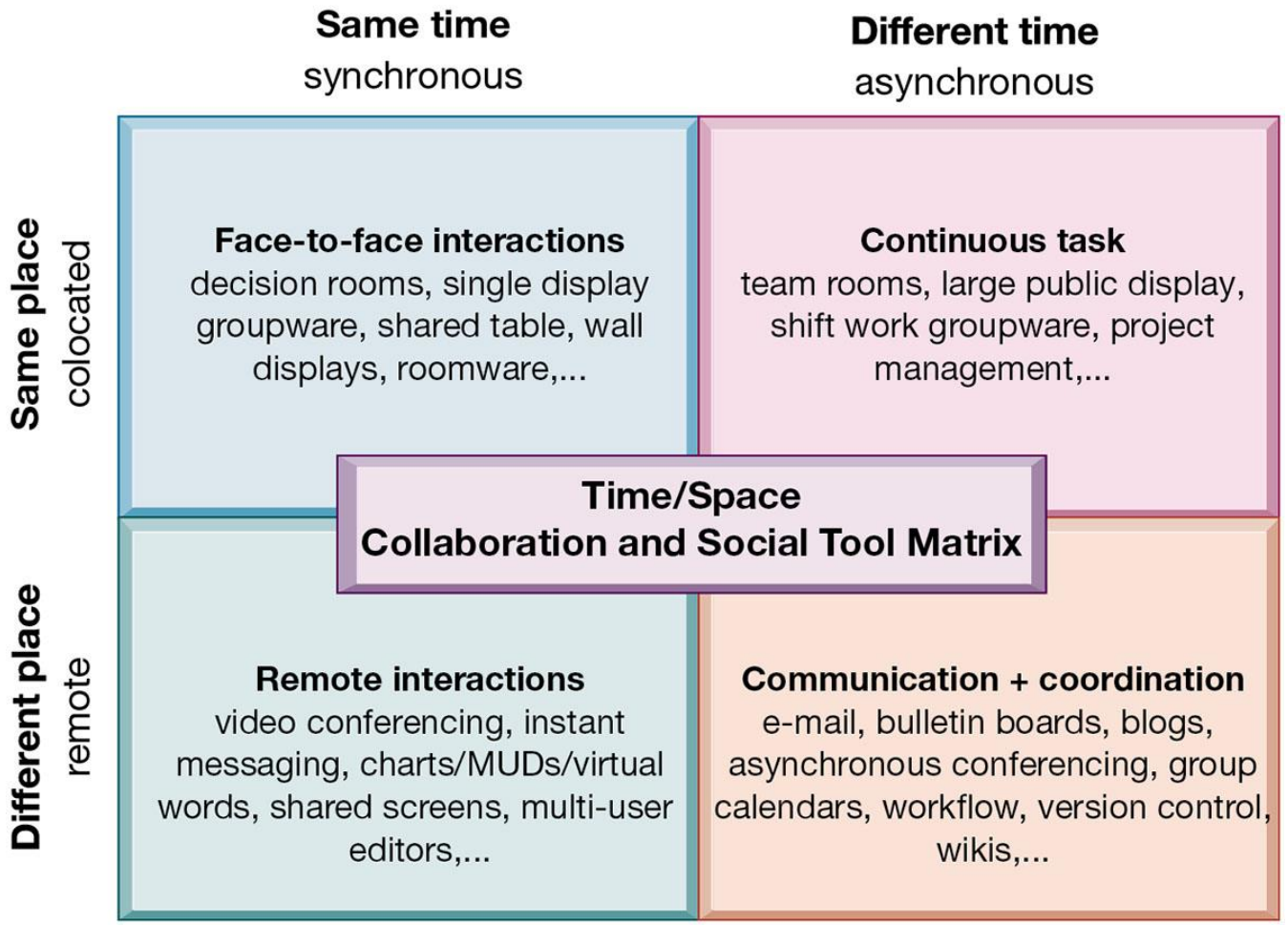
- Social business
  - Use of social networking platforms (internal and external) to engage employees, customers, and suppliers
- Aims to deepen interactions and expedite information sharing
- “Conversations” to strengthen bonds with customers
- Requires information transparency
- Seen as way to drive operational efficiency, spur innovation, accelerate decision making

- Business benefits of collaboration and teamwork
  - Investments in collaboration technology can bring organization improvements, returning high ROI
  - Benefits:
    - Productivity
    - Quality
    - Innovation
    - Customer service
    - Financial performance
      - Profitability, sales, sales growth


Collaboration Capability
• Open culture
• Decentralized structure
• Breadth of collaboration
Collaboration Technology
• Use of collaboration and social technology for implementation and operations
• Use of collaborative and social technology for strategic planning
Collaboration Quality
Firm Performance

- E-mail and instant messaging (IM)
- Wikis
- Virtual worlds
- Collaboration and social business platforms
  - Virtual meeting systems (telepresence)
  - Cloud collaboration services (Google Drive, Google Docs, etc.)
  - ZOOM
  - MS Teams
  - Enterprise social networking tools

The Time/Space Collaboration and Social Tool Matrix



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IS Department

- Often headed by chief information officer (CIO)
  - Other senior positions include chief security officer (CSO), chief knowledge officer (CKO), chief privacy officer (CPO), chief data officer (CDO)
- Programmers
- Systems analysts
- Information systems managers
- End users

End users

- Representatives of other departments for whom applications are developed
- Increasing role in system design, development

IT Governance:

- Strategies and policies for using IT in the organization
- Decision rights
- Accountability
- Organisation of information systems function
  - Centralised, decentralised, and so on

Post-class Activity

Identify the steps that are performed in the process of selecting and checking out a book from the WIT library and the information flows among these activities. Are there ways this process could be changed or improved? You are free to diagram or sketch a drawing of the process.