Understanding

Data, Information, and Information Sytems

Razel Kaye Arenas BS IT-1

WHAT IS DATA?

- The word data comes from the latin word *'datum'* which is **"something given"**.
- Data is a set of **discrete**, **objective facts** about events.
- It refers to records or recordings, often encoded for computer use, including **statistical observations** and **collections of evidence.**
- Used to **record activities** or situations **to capture the true picture of real events.**

DATA CAN TAKE MANY FORMS

Alphanumeric Data

Combination of numbers and letters.

Text Data

Sentences and paragraphs.

Image Data

Graphics, shapes, figures.

Audio Data

Human voice and other sounds.

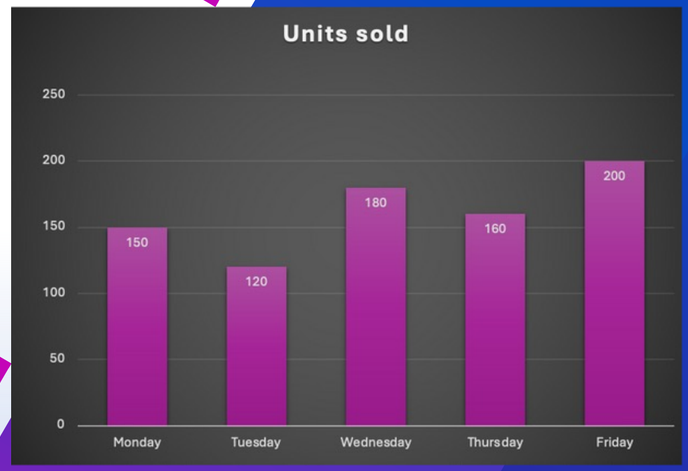
Data and Information

- Information is a processed data that has meaning.
- Data are not information until they have been processed to a point where they are useful and meaningful to the information-system user.
- Data, represented as raw figures and observations, serves as the foundation. When processed and analyzed, this data becomes information.

Data:

	Units sold
Monday	150
Tuesday	120
Wednesday	180
Thursday	160
Friday	200

Information:



Information

Systems

WHAT IS INFORMATION SYSTEM?

- Information System (IS) **collects**, **processes**, **analyzes, and disseminates** information for a specific purpose.
- Information systems are essential computer systems that **support operations, management, and decision-making** in organizations.
- They play a critical role in enabling access to **information, collaboration, and effective performance** in both professional and personal activities, making them **central to the Internet-based economy.**

Components of Information Systems

information systems can be viewed as having five major components: **hardware, software, data, people, and processes.**

HARDWARE

the tangible, physical portion of an information system (e.g. computers, keyboards etc.)

SOFTWARE

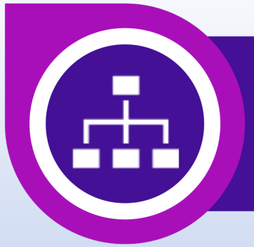
set of instructions that tell the hardware what to do and is not tangible. It has two catergories: Operationg system (e.g. Windows and Linux) and application software (e.g. Facebook and messenger).

DATA

collection of non-disputable raw facts (raw numbers, text, photo, and video).

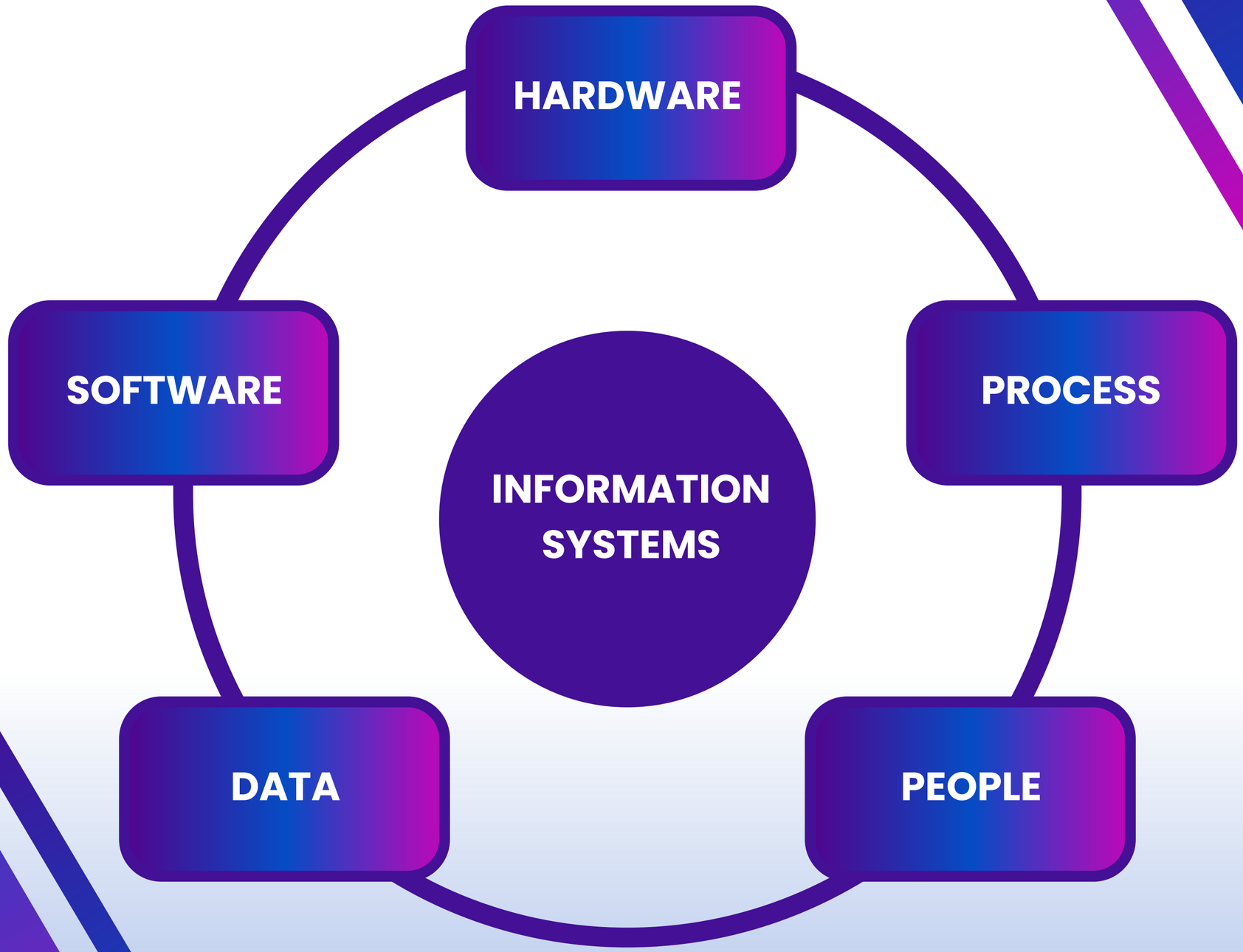
PEOPLE

People built computers for people to use (users and developers).



PROCESS

•a series of steps undertaken to achieve a desired outcome or goal. Information systems are becoming more integrated with organizational processes, bringing greater productivity and better control to those processes.


HARDWARE
SOFTWARE
PROCESS
INFORMATION SYSTEMS
DATA
PEOPLE

Types of Support Systems in

Information System

TYPES OF INFORMATION SYSTEM

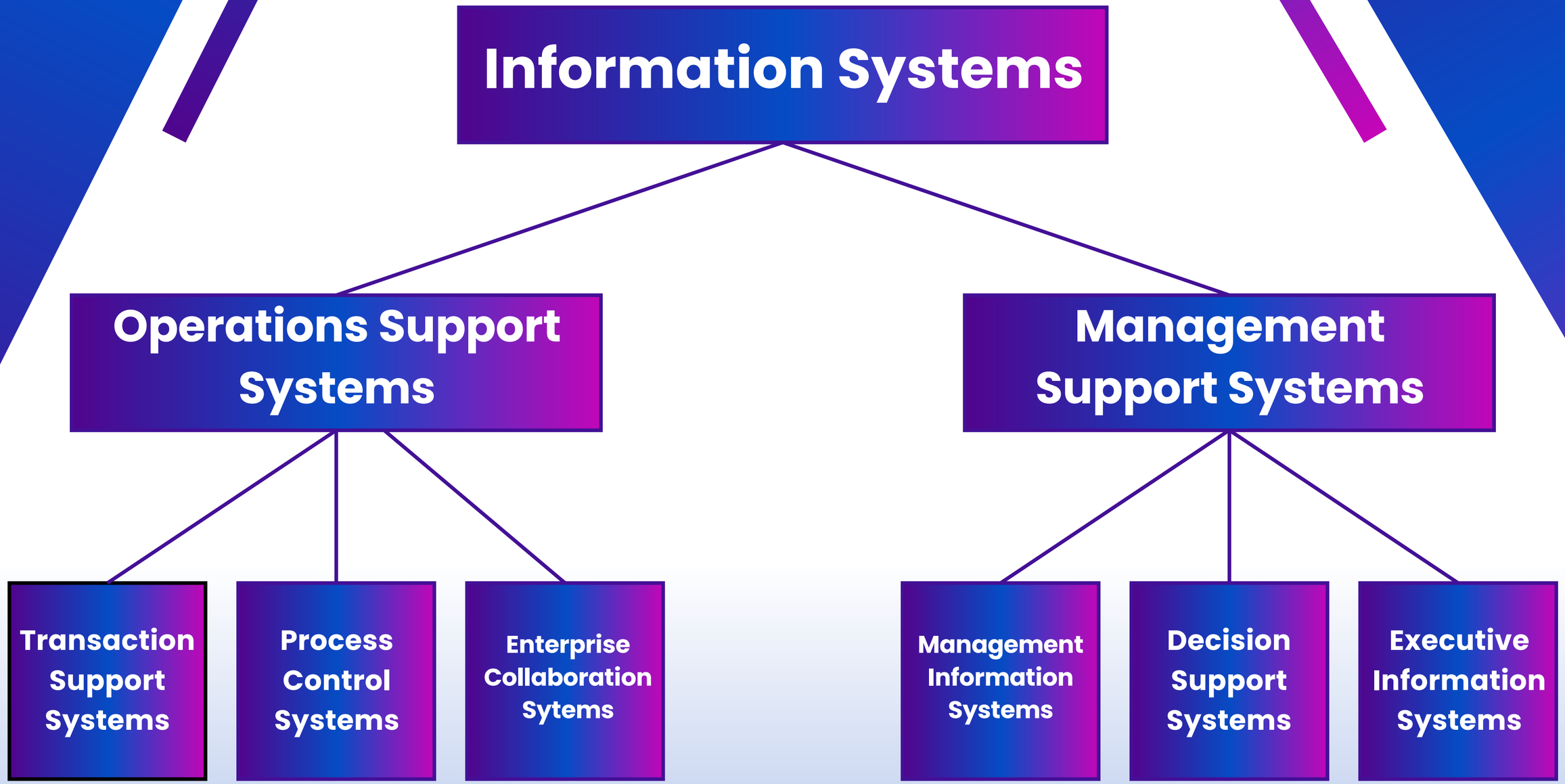
Several types of information systems can be classified as either operations **(Support of business operation)** or **(Support of managerial decision making).**

Support of business operation

such as transaction processing systems , process control systems and Enterprise collaboration systems (office automation system).

Support of managerial decision making

such as management information system, decision support system and executive information systems.


Information Systems
Operations Support Systems
Management Support Systems
Transaction Support Systems
Process Control Systems
Enterprise Collaboration Sytems
Management Information Systems
Decision Support Systems
Executive Information Systems

TRANSACTION PROCESSING SYSTEMS

- the basic business systems that serve the **operational level** of the organization.
- A transaction processing system is a computerized system that performs and r**ecords the daily routine transactions** necessary to the conduct of the business
- Information generated from TPS can be input for other types of IS such as management information system and decision support system.
- At the **lowest level** of the organizational hierarchy there is TPS that **support the daily operation of the firm**

PROCESS CONTROL SYSTEMS

- It m**onitors and controls industrial or physical processes.** For instances: petroleum refining, power generation, and steel production systems.

- For example, a petroleum refinery uses electronic sensors linked to computers to monitor chemical processes continually and make instant (real-time) adjustments that control the refinery process.

- A process control system comprises the whole range of: **equipment, computer programs, and operating procedures.**

ENTERPRISE COLLABORATION SYSTEM

- Enterprise Collaboration System or also known as Office automation systems are one of the **most widely used types of information systems** that will help managers c**ontrol the flow of information** in organization

- It **enhances employee collaboration and communication.** For instance voice mail, multimedia system, electronic mail, video conferencing, data transfer, and group decisions

- Example: Microsoft Office Suite, where tools like Word, Excel, and Outlook help employees automate tasks

MANAGEMENT INFORMATION SYSTEMS

- a type of computer information systems that could collect and process information from **different sources in organization decision-making in managerial levels**
- This level consists of computer systems that are intended to assist ready organization in monitor and scheming the deal dispensation behavior that occur at secretarial level.
- Management information systems (MIS) **use the data collected and produced by the TPS to provide supervisors** with the necessary control reports
- Example: An HR management system that generates reports on employee attendance, performance, and payroll, helping managers make informed decisions about workforce management

DECISION SUPPORT SYSTEMS (DSSS)

- A Decision Support System is a computer based system future for use by a manager or usually a group of managers at any managerial level in making a choice in the procedure of **solve a semi prearranged decision**

- Decision Support Systems are a Kind of organizational information computerize systems that **help manager in decision making that needs modeling, formulation, calculating, comparing, selecting the best option** or predict the scenarios .

- Decision-support systems are specifically designed to **help management make decisions in situations where there is uncertainty about the possible outcomes of those decisions.**

- Example: A financial forecasting system that uses data analysis and modeling to assist company executives in making investment decisions by predicting future market trends.

EXECUTIVE INFORMATION SYSTEMS (EIS)

- EISs **provide critical information** from a wide variety of i**nternal and external source**s such as MIS, DSS, and other sources customized to the information **needs of chief executives and higher level managers** in easy-to-use displays to executives and managers

- It is oriented at **strategic management** of the company.

- designed to **gain information from the other application of the company system** such as transaction processing and Management information system.

ANALYSIS/REACTION

Through my research on data and information systems, I realized how these concepts are already part of my daily life as a student. At first, data seemed like just raw numbers or facts, but now I understand that it becomes meaningful when processed into information that helps with decisions, whether it's for school, work, or personal life.

What really stood out to me was how information systems, like the ones used by companies, help organize and simplify tasks. As a student, I use information systems daily without even realizing it—whether it's using Google Drive to collaborate on group projects or a learning management system like Canvas to track assignments and grades. These tools show how data is processed and organized to make my student life more manageable.

The part about different types of systems, such as Transaction Processing Systems (TPS) or Management Information Systems (MIS), made me think about how even simple transactions like buying things online or checking class schedules are backed by these systems. It's interesting to see how businesses rely on these systems to run smoothly, much like I rely on my personal tools to keep my tasks in order. Learning about decision support systems (DSS) was also eye-opening. As a student, I'm often faced with decisions about managing my time or choosing courses, and while I don't use a formal DSS, I can see how having better information helps me make smarter choices. This is something I'll keep in mind, especially as I learn to balance my workload and personal life.

Overall, researching information systems made me realize how much technology supports me, even as a student. It's not just something big companies use—it's also a part of my everyday routine. This research has given me a deeper appreciation for how important it is to understand these systems, especially as I continue my journey through college and beyond.

REFERENCES

Rainer, R. K., Prince, B., Sanchez-Rodriguez, C., Splettstoesser-Hogeterp, I., & Ebrahimi, S. (2020). Introduction to information systems. John Wiley & Sons.

Yu, E.S. (2004). Information Systems. The Practical Handbook of Internet Computing.

Belle, J-P.V & Eccles, M.G., & Nash, J.M. (2001) Discovering Information Systems
Laudon, K. C., & Laudon, J. P. (2011). Management information systems. Upper Saddle River, NJ: Prentice-Hall.

Bourgeois, D. (2019). Chapter 1: What Is an Information System? Opentextbook.site. https://opentextbook.site/informationsystems2019/chapter/chapter-1-what-is-an-information-system-information-systems-introduction/#footnote-5-3

Simplilearn. (2021, November 15). The 6 Types of Information Systems and their Applications | Simplilearn. Simplilearn.com. https://www.simplilearn.com/types-of-information-systems-and-applications-article

Chuma, L. L. (2020). The role of information systems in business firms competitiveness: Integrated review paper from business perspective. International Research Journal of Nature Science and Technology, 2(4), 29-42.

Heidarkhani, A., Khomami, A. A., Jahanbazi, Q., & Alipoor, H. (2013). The role of management information systems (MIS) in decision-making and problems of its implementation. Universal Journal of Management and Social Sciences, 3(3), 78-89.

Gray, R. (2003). A brief historical review of the development of the distinction between data and information in the information systems literature

Zins, C. (2007). Conceptual approaches for defining data, information, and knowledge. Journal of the American Society for Information Science and Technology, 58(4), 479–493. doi:10.1002/asi.20508

Prusak, L., & Davenport, T. (1998). Working knowledge: how organizations manage what they know.

Jain, S. (2021, June 15). Data vs Information: What's the Difference? Bloomfire. https://bloomfire.com/blog/data-vs-information/

Tuomi, I. (1999). Data Is More than Knowledge: Implications of the Reversed Knowledge Hierarchy for Knowledge Management and Organizational Memory. Journal of Management Information Systems, 16(3), 103–117. doi:10.1080/07421222.1999.11518

Liew, A. (2007). Understanding Data, Information, Knowledge And Their Inter-Relationships. Journal of Knowledge Management Practice. Vol. 7

Al-Mamary, Y. H., Shamsuddin, A., & Aziati, N. (2014). The role of different types of information systems in business organizations: A review. International Journal of Research, 1(7), 333-339..

End of presentation

Thank You

For Your Attention