INFORAND AND KNOWLAGE IN BIG DATA

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Annotatsiya. *Ushbu maqolada ma'lumotlar, axborot va bilim o'rtasidagi farqlar, ularning o'zaro aloqasi va tashkilotlarda qanday boshqarilishini ko'rib chiqamiz. Ma'lumotlar xom faktlar va raqamlardan iborat bo'lib, o'z-o'zidan barcha ma’lumotlarni birdaniga anglash biroz qiyindir. Axborot esa ma'lumotlarni qayta ishlash orqali kontekstga ega bo'ladi va qaror qabul qilishda yordam beradi. Bilim esa axborotdan va tajribadan olingan chuqur tushuncha bo'lib, insonlarga oqilona qarorlar qabul qilish imkoniyatini beradi.*

Kalit so‘zlar: *ma’lumotlar, axborot, bilim, kashf qilish, bilimni boshqarish, ma’lumotlarni boshqarish, malumotlarni tahlil qilish*

Annotation. *In this article, we will examine the differences between data, information, and knowledge, their interrelationships, and how they are managed within organizations. Data consists of raw facts and figures, and by itself, it is meaningless. Information, on the other hand, gains context through the processing of data and helps in decision-making. Knowledge is a deeper understanding derived from information and experience, enabling individuals to make informed decisions.*

Key words: *data, information, knowledge, discover, knowledge management,data management, data analysis.*

Аннотация. *В этой статье мы рассмотрим различия между данными, информацией и знаниями, их взаимосвязь и то, как они управляются в организациях. Данные состоят из сырых фактов и цифр и сами по себе не имеют смысла. Информация, в свою очередь, приобретает контекст благодаря обработке данных и помогает в принятии решений. Знания представляют собой более глубокое понимание, полученное из информации и опыта, позволяющее людям принимать обоснованные решения.*

Ключевые слова: *данные, информация, знания, открывать, управление знаниями, управление данными, анализ данных .*

Data

Data refers to raw facts and figures collected from various sources. It can be numbers, text, images, etc., but by itself, data doesn't mean much until it's organized. For example, a spreadsheet with sales numbers is data. Data, information, knowledge, and wisdom are closely related concepts, but each has its role concerning the other, and each term has its meaning. According to a common view, data is collected and analyzed; data only becomes information suitable for making decisions once it has been analyzed in some fashion. One can say that the extent to which a set of data is informative to someone depends on the extent to which it is unexpected by that person. The amount of information contained in a data stream may be characterized by its Shannon entropy.

Knowledge is the awareness of its environment that some entity possesses, whereas data merely communicates that knowledge. For example, the entry in a database specifying the height of Mount Everest is a datum that communicates a precisely-measured value. This measurement may be included in a book along with other data on Mount Everest to describe the mountain in a manner useful for those who wish to decide on the best method to climb it. Awareness of the characteristics represented by this data is knowledge.

Data are often assumed to be the least abstract concept, information the next least, and knowledge the most abstract. In this view, data becomes information by interpretation; e.g., the height of Mount Everest is generally considered "data", a book on Mount Everest geological characteristics may be considered "information", and a climber's guidebook containing practical information on the best way to reach Mount Everest's peak may be considered "knowledge". "Information" bears a diversity of meanings that range from everyday usage to technical use. This view, however, has also been argued to reverse how data emerges from information, and information from knowledge. Generally speaking, the concept of information is closely related to notions of constraint, communication, control, data, form, instruction, knowledge, meaning, mental stimulus, pattern, perception, and representation. Beynon-Davies uses the concept of a sign to differentiate between data and information; data is a series of symbols, while information occurs when the symbols are used to refer to something.

Data (computer science)

In computer science, **data** (treated as singular, plural, or as a mass noun) is any sequence of one or more symbols; **datum** is a single symbol of data. Data requires interpretation to become information. *Digital data* is data that is represented using the binary number system of ones (1) and zeros (0), instead of analog representation. In modern (post-1960) computer systems, all data is digital.

Data exists in three states: data at rest, data in transit and data in use. Data within a computer, in most cases, moves as parallel data. Data moving to or from a computer, in

most cases, moves as serial data. Data sourced from an analog device, such as a temperature sensor, may be converted to digital using an analog-to-digital converter. Data representing quantities, characters, or symbols on which operations are performed by a computer are stored and recorded on magnetic, optical, electronic, or mechanical recording media, and transmitted in the form of digital electrical or optical signals.[1] Data pass in and out of computers via peripheral devices.

Physical computer memory elements consist of an address and a byte/word of data storage. Digital data are often stored in relational databases, like tables or SQL databases, and can generally be represented as abstract key/value pairs. Data can be organized in many different types of data structures, including arrays, graphs, and objects. Data structures can store data of many different types, including numbers, strings and even other data structures.

Information

When data is processed and given context, it becomes information. Information is organized and meaningful, allowing it to answer questions or aid in decision-making. For instance, a sales report showing the top-selling products is information derived from sales data.

Knowledge vs Data vs Information

Knowledge goes beyond information in that it involves understanding and expertise. It is the result of gaining insights, experience, and being able to apply information in a meaningful way.

Knowledge is the culmination of information and personal understanding, allowing individuals to make informed judgments and take effective action.

Examples of knowledge include:

- A doctor diagnosing and treating a patient based on their symptoms
- A chef creating a new recipe by combining different ingredients and cooking techniques
- A lawyer using legal precedents to argue a case in court
- Customer support utilizing the company processes and procedures to answer a client question

Knowledge management frameworks empowers individuals to apply information in unique and innovative ways, fostering growth and discovery.

Knowledge management frameworks include:

- **Recognizing Knowledge Needs:** thinking about knowledge assets at your organization, and the ways they are actually used for your operation.
- **Identifying Knowledge Resources:** finding where your knowledge comes from, for instance individual skill and experience, project-driven information, procedural knowledge, internal processes, market research findings, customer feedback, and community knowledge.

- **Gathering Disparate Knowledge:** deciding on the best KM tools to collect scattered or siloed information, which includes actively asking employees about their routine processes and including everyone in the knowledge management process.
- **Storing and Refining Knowledge:** how knowledge is held, but also assessing what knowledge is actually worth keeping. Examples are centralized knowledge management tools, company wiki, learning management system (LMS), customer relationship management (CRM) system, and community forum.
- **Retrieval and Distribution of Knowledge**: how employees or customers can get the knowledge you've gathered. Examples are training programs, messaging apps (Slack), content management systems (CMS), webinars, intranets, and supporting software.

Whether we are analyzing data, seeking information, or applying knowledge, having a clear understanding of what these are helps us to extract value and meaning from the overwhelming abundance of information in the digital age.

Data vs. Information

1. Context: Data lacks context; information has it.
2. Value: Data has limited value alone; information is valuable for decision-making.
3. Purpose: Data serves as raw material, while information is used for insights and knowledge.
4. Representation: Data can be raw symbols or numbers; information is structured (like a report or chart).
5. Dependency: Data is independent; information depends on data.

Example: Numbers like "100, 150, 200" are just data. When presented as "sales over three months," it becomes meaningful information.

Knowledge

Knowledge is a deeper understanding that comes from information and experience. It allows people to make informed decisions. Examples include a doctor diagnosing a patient or a chef creating a new recipe.

Knowledge Management

Knowledge management involves tools and practices to collect, store, and share data, information, and knowledge in an organization. It includes:

- Data Management : Storing, securing, and retrieving raw data.
- Information Management : Creating, organizing, and sharing information, like through a knowledge base.
- Knowledge Sharing : Enabling employees to collaborate, discover new insights, and connect with experts.

Benefits of Combining Big Data and Knowledge Management

When organizations combine data analysis (big data) with knowledge management, they gain valuable insights that can improve decision-making, customer experience, efficiency, and innovation. Knowledge management tools help keep insights accessible, secure, and useful across the company.

Conclusion

Knowledge management is a collection of practices and tools aimed at effectively collecting, storing, and sharing data and information. Combining big data analysis with knowledge management enables organizations to gain valuable insights and use them to make more effective decisions. In summary, the process of transforming data into information and knowledge is crucial for improving business outcomes.

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