THE ROLE OF IS IN DIGITAL FIRMS

Malak Medhat,   **Hager Hisham,**

Mariam Sayed,   **Mai Abdallah,**

Mariam Naeem   **Huda Abdelgwad**

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INTRODUCTION:

In the dynamic landscape of modern business, the emergence of digital firms has become a defining feature of success. These entities, characterized by the pervasive integration of digital technologies, have redefined traditional business models. This paper explores the fundamental attributes of digital firms, examining how they harness digital tools to propel economic growth. From Transaction Processing Systems to Enterprise Application Software, the technological infrastructure of these firms is dissected. As we navigate this digital frontier, it becomes evident that the synergy between technology and business processes is not just a convenience but a strategic necessity. The transformative impact of digital firms goes beyond operational efficiency, reshaping customer relationships and fostering innovation.

DIGITAL FIRMS

What is digital firm and how it is used for the economy?

A digital firm is a company in which almost all significant business relationships with customers, suppliers, and employees are digitally enabled and automated. it focuses on digital technologies and services in order to drive economic growth. Business processes are completed through digital networks that span the entire corporation. In addition to fulfill business activities.

A digital corporation may work more effectively, efficiently, and flexibly than a traditional one and can create new goods and services that are tailored to certain markets or clients.

Characteristics of Digital firms:

1. Core business processes are accomplished through digital networks and span the entire organization or link multiple organizations.
2. Significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.
3. Digital management of important company resources, including financial, human, knowledge, and intellectual property
   Internal and external environments are quickly recognized and dealt with.

Digital firm requirements:
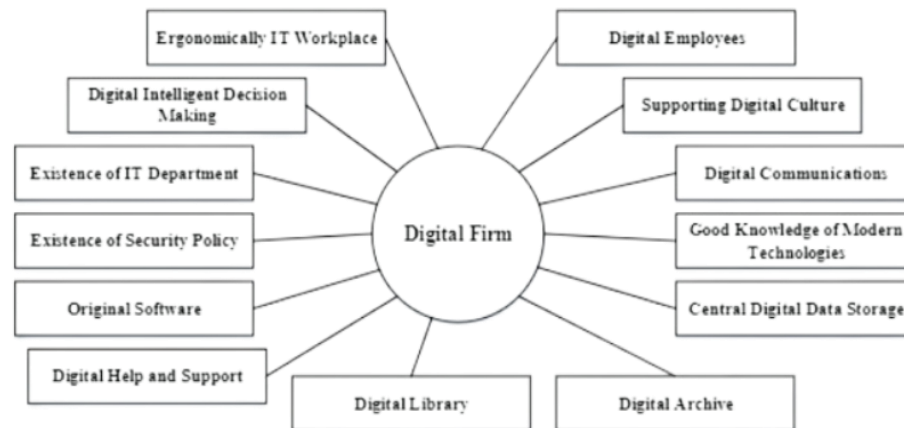
Numerous services are offered by digital firms, including internet marketing, cloud computing, software development, data analytics, and site design. Additionally, digital businesses may offer insightful information and data that can help with company decision-making and the development of cutting-edge goods and services.

Digital businesses may leverage their strengths to obtain economic competitiveness. They may use data, for instance, to develop customized goods and services and get a deeper understanding of client wants.

Digital firms' tools:
1. Customer Relationship Management (CRM) Software that helps digital firms streamline their sales and marketing processes, improve customer service, and develop a better understanding of their customers.
2. Project Management Software helps digital firms keep track of progress and deadlines on multiple projects at once.
3. Data Analytics Software helps digital firms identify patterns in customer behavior and website usage so that they can make better marketing and product decisions.
4. Collaboration Software helps digital firms work together on projects without having to be in the same physical space.
5. Social Media Management Software helps digital firms manage their presence on social networks, track the success of their campaigns, and identify influences who could help spread the word about their products or services.
6. Content Management System (CMS) helps digital firms create and manage content, such as blog posts, videos, and images, that can help them attract and retain customers.

In conclusion, digital firms are well-positioned to benefit from the digital economy. They obtain a competitive edge and stimulate economic growth by utilizing digital technology for the creation and delivery of goods and services.

TRANSACTION PROCESSING SYSTEM (TPS):

What is The Transaction Processing System (TPS):

TPS is a business transaction information processing system that handles the gathering, modifying, and retrieval of all transaction data. It gathers and analyzes data that is necessary for continually updating an organization's data and deliver the best possible service.

Features of TPS:

1. Rapid response (performance): Produce timely outcomes for transactions in an efficient manner.
2. Continuous availability: the system must be incredibly dependable and stable and not prone to crashes.
3. Data integrity: use the same technique to each and every transaction that is handled
4. Usability (user-friendliness): user-friendly to promote usage and reduce data entry mistakes
5. Modularity: parts of the system should be able to be upgraded separately, without needing to be completely redesigned, for both software and hardware.
6. Controlled processing: The system should only be accessible at one time by authorized staff members or workers.

Types of TPS:
It is classified on the basis of its processing architecture that can be either:

On-line transaction processing, real-time or stream
A real-time TPS is a system that begins processing data as soon as it is supplied. It also guarantees immediate data processing in order to offer a prompt transaction verification. The steps of data entry and processing happen quickly or at all. It is incredibly flexible since it can function as a multi-user interface and be viewed from any location with an internet connection. Point of sale terminals (POS) and reservation systems are two examples.

Batch processing
A batch processing TPS is a system that processes data either periodically or at certain predetermined levels of data accumulatio. It requires gathering data and batch organizing. The gathered data are kept in batches and can be processed at any time. In the days before information technology, this time-tested method was extensively employed.

Components of TPS:

1) Inputs: These are source documents obtained through transactions that are entered into the computer's accounting system. Invoices and customer orders are two examples.
2) Processing: This requires the breaking down of information provided by the inputs.
3) Storage: This is information that has been stored in TPS memory
4) Output: Any generated record.
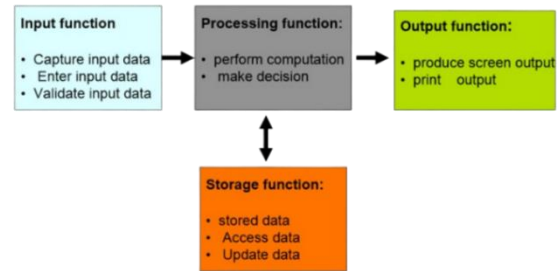
In conclusion a Transaction Processing System (TPS) is an infotech used to accumulate, store, modify and retrieve data transactions. Transaction processing systems offer a distinctive solution to user needs, but the amount of data and the nature of the business play a major role in the process of selecting the most appropriate strategy.

MANAGEMENT INFORMATION SYSTEMS (MIS)

What is a management information system?

A management information system (MIS) gives managers the data they need to decide how to run their businesses. The MIS compiles information from multiple sources and analyses it to meet the needs of managers and their employees.

Although businesses employ a variety of systems, they all aim to give managers the data they need to make wiser decisions. Success in the fast-paced corporate world of today depends on having prompt access to reliable information. Managers may monitor key performance metrics, spot patterns, and decide how best to deploy resources with the help of MIS.

Importance of MIS for businesses

MISs give companies access to reliable data and strong analytical capabilities so they identify opportunities and problems quickly and take appropriate action. A management information system should do the following:

1. Provide you with information you need to make decisions
2. Can give you a competitive edge by providing timely, accurate
3. Information
4. Can help you improve operational efficiency and productivity.

5. Allows you to keep track of customer activity and preferences
6. Enables you to develop targeted marketing campaigns and improve customer service

Types of MIS:

The following are types of information systems used to create reports, extract data, and assist in the decision-making processes of middle and operational level managers:

Decision support systems (DSSs): are computer program applications used by middle and higher management to compile information from a wide range of sources to support problem solving and decision making. A DSS is used mostly for semi-structured and unstructured decision problems.

Executive information system (EIS): is a reporting tool that provides quick access to summarized reports coming from all company levels and departments such as accounting, human resources and operations.

Marketing information systems: are management Information Systems designed specifically for managing the marketing aspects of the business.

Accounting information systems: are focused accounting functions.

Human resource management systems: are used for personnel aspects.

Expert systems: An expert system provides managers with insights and advice based on artificial intelligence (AI), In an expert system, the AI is trained to simulate the knowledge of a human expert in a particular field.

Office automation systems (OAS): support communication and productivity in the enterprise by automating workflow and eliminating bottlenecks. OAS may be implemented at any and all levels of management.

School Information Management Systems (SIMS): cover school administration, often including teaching and learning materials.

Enterprise resource planning (ERP): software facilitates the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders.

Customer Relationship Management (CRM): managing and analyzing customer interactions and data to improve customer relationships and enhance satisfaction.

Local databases, can be small, simplified tools for managers and are considered to be a primal or base level version of a MIS.

Advantages and disadvantages of MIS:

The following are some of the benefits that can be attained using MIS:

Improve an organization's operational efficiency, add value to existing products, engender innovation and new product development, and help managers make better decisions.

Companies are able to identify their strengths and weaknesses due to the presence of revenue reports, employee performance records etc. Identifying these aspects can help a company improve its business processes and operations.

The availability of customer data and feedback can help the company to align its business processes according to the needs of its customers. The effective management of customer data can help the company to perform direct marketing and promotion activities.

MIS can help a company gain a competitive advantage.

MIS reports can help with decision-making as well as reduce downtime for actionable items.

Some of the disadvantages of MIS systems:

Retrieval and dissemination are dependent on technology hardware and software.

Potential for inaccurate information.
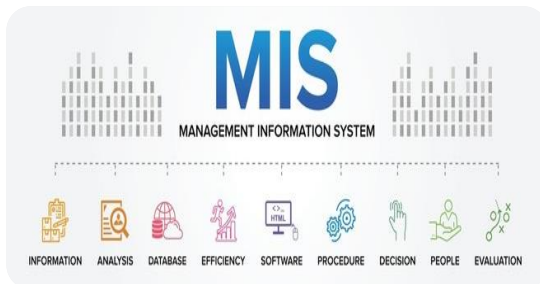
DECISION SUPPORT SYSTEM (DSS)

Definition of DSS

A decision support system (DSS) is a computer program application used to improve a company's decision-making capabilities. It analyzes large amounts of data and presents an organization with the best possible options available.

Decision support systems bring together data and knowledge from different areas and sources to provide users with information beyond the usual reports and summaries. This is intended to help people make informed decisions.
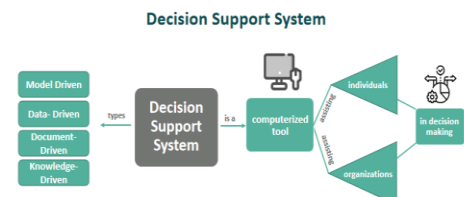
Typical information a decision support application might gather and present include the following:

    a. comparative sales figures between one week and the next.
    b. projected revenue figures based on new product sales assumptions; and
    c. the consequences of different decisions.

Types of decision support systems Data-driven DSS

A data-driven decision support system is a software that utilizes data to aid in decision-making by analyzing patterns and making predictions.

Model-driven DSS

Model-driven decision support systems are designed using a decision model and are customized to meet the specific needs of users.

Communication-driven and group DSS

This system enables multiple people to collaborate on a task by utilizing different communication tools.

Knowledge-driven DSS

This decision support system relies on a knowledge base that is constantly updated and managed by a knowledge management system.
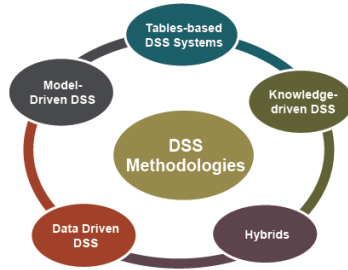
Document-driven DSS

A document-driven DSS is a system that uses documents to gather data, allowing users to search for specific information in webpages or databases.

Decision support system components

A typical DSS consists of three different parts: knowledge database, software and user interface.

1. **Knowledge base:** A knowledge base is an integral part of a decision upport system database, containing information from both internal and external sources. It is a library of information related to particular subjects and is the part of a DSS that stores information used by the system's reasoning engine to determine a course of action.

2. **Software system:** The software system is composed of model management systems. A model is a simulation of a real-world system with the goal of understanding how the system works and how it can be improved. Organizations use models to predict how outcomes will change with different adjustments to the system.

3. **User interface:** The user interface enables easy system navigation. The primary goal of the decision support system's user interface is to make it easy for the user to manipulate the data that is stored on it. Businesses can use the interface to evaluate the effectiveness of

DSS transactions for the end users. DSS interfaces include simple windows, complex menu-driven interfaces and command-line interfaces.

EXECUTIVE INFORMATION SYSTEM(ESS)

What is ESS:

An **executive information system** (**EIS**), also known as an **executive support system** (**ESS**), is a type of management support system that facilitates and supports senior executive information and decision-making needs. It provides easy access to internal and external information relevant to organizational goals. It is commonly considered a specialized form of decision support system (DSS).
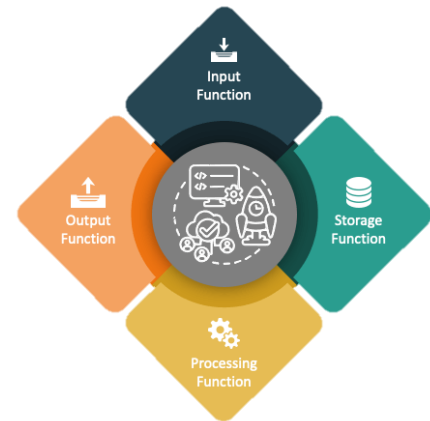
ESS Components

EIS components can typically be classified as:

> Hardware
> Software
> User interface
> Telecommunication

ESS Applications

Manufacturing

Manufacturing involves transforming raw materials into finished goods for sale, a significant industry branch, with operational control focusing on effectiveness in day-to-day operations

Marketing

Marketing executives manage resources to create an effective future, making decisions about risk and uncertainty. EIS assists in making effective marketing decisions by providing sales forecasting and product price analysis. EIS software allows executives to manipulate data, identify trends, audit sales data, and calculate totals, averages, changes, variances, or ratios.

Financial analysis

Financial analysis is crucial for companies, enabling executives to make capital investment decisions. An EIS integrates planning and performance reporting, focusing on financial performance accountability, cost standards, and flexible budgeting.

Advantages of ESS

1. Easy for upper-level executives to use, extensive computer experience is not required in operations
2. Provides strong drill-down capabilities to better analyze the given information.
3. Information that is provided is better understood
4. EIS provides timely delivery of information. Management can make decisions promptly.
5. Improves tracking information
6. Offers efficiency to decision makers

Disadvantages of ESS

1. System dependent
2. Limited functionality, by design
3. Information overload for some managers
4. Benefits hard to quantify
5. High implementation costs
6. System may become slow, large, and hard to manage
7. Need good internal processes for data management
8. May lead to less reliable and less secure data
9. Excessive cost for small company

ENTERPRICE SOFTWARE APPLICATION (EAS)

What are enterprise software applications?

Enterprise software applications aims to meet the needs of existing organizations and appropriate systems (perhaps manual systems). Enterprise software applications are based on the environment within the organization in which the software will be   used and goals will be achieved in it. In addition to setting the tone and providing solutions, enterprise software applications also aim to improve efficiency, productivity, and business functions.

Types of Enterprise Application Software:

1. ERP software (Enterprise Resource Planning).
2. CRM (Customer Relationship Management) systems.
3. CMS (Content Management System).
4. BI enterprise software tools.
5. SCM (Supply Chain Management enterprise software).
6. HR Management software systems.

Benefits of Enterprise Systems:

1. Improved data sharing and management.
2. Enhanced productivity and Flexibility.
3. Better planning and execution.
4. Proper compliance and auditing.
5. Stronger supply chain management.

Characteristics of Enterprise Applications:

Scalability: They can handle growing amounts of data, users, or transactions without compromising performance.

Reliability: Enterprise applications are built to ensure high availability and minimal downtime.

Security: They implement stringent security measures to protect sensitive business data and transactions.

Integration: They often integrate with other systems and applications within an organization, creating a cohesive IT environment.

Customizability: These applications are often configurable to meet specific business needs without extensive custom development.

Centralized Data Management: They provide a centralized repository for critical business data, ensuring consistency and accuracy. Support for Complex Business Processes: They help manage intricate workflows and processes across various departments.

Significance of EAS:

EAS significantly impacts organizations by:

Streamlining Operations: By automating and integrating processes, EAS enhances operational efficiency, reduces manual errors, and accelerates decision-making.

Data Centralization and Insights: EAS centralizes data, providing real-time insights for better decision-making. Advanced analytics tools within EAS enable predictive analysis and actionable insights.

Facilitating Collaboration: EAS fosters collaboration among departments and stakeholders by providing a unified platform for communication and data sharing.

Impact of EAS on Organizational Strategies:

EAS has become a cornerstone of digital transformation strategies. Companies leveraging EAS effectively gain a competitive edge by adapting quickly to market changes, meeting customer demands, and innovating efficiently.

Examples of enterprise system vendors:
1. SAP
2. Oracle
3. Microsoft
4. Salesforce
5. QAD

ENTERPRICE RESOURCE PLANING (ERP)

What is an ERP System?

ERP is an integrated software system that helps you run your entire business supporting automation and processes in finance, human resources, manufacturing, supply chain, services, procurement, including human resources, purchasing, and finance.

ERP features:
1. **Higher productivity:** Streamline and automate your core business processes to help everyone in your organization do more with fewer resources.
2. **Deeper insights:** Eliminate information silos, gain a single source of truth, and get fast answers to mission-critical business questions.
3. **Accelerated reporting:** Fast-track business and financial reporting and easily share results. Act on insights and improve performance in real time.
4. **Lower risk:** Maximize business visibility and control, ensure compliance with regulatory requirements, and predict and prevent risk.
5. **Simpler IT:** By using integrated ERP applications that share a database, you can simplify IT and give everyone an easier way to work.
6. **Improved agility:** With efficient operations and ready access to real-time data, you can quickly identify and react to new opportunities.

What is Open-Source ERP?

An open-source ERP system is an enterprise resource planning system with publicly available source code. Companies can access the open-source code for free and customize the software themselves, rather than relying on the vendor.

Advantages of Open-Source Software:

Cost: Open-source software is generally free, which means organizations can use it without any licensing fees.

Customization: Since the source code is available, developers can modify and customize the software to meet specific requirements.

Community Support: Open-source software has a large community of users who contribute to documentation, bug fixes, and improvements.
Security: With open-source software, security vulnerabilities can be detected and fixed quickly by the community.

The top vendors of Open-Source ERP:
1. **Odoo:** is a comprehensive open-source ERP system, The open-source software is available in two versions: Odoo Community and Odoo Enterprise.
2. **Dolibarr:** helps organizations manage their business functions.
3. **Tuple:** is a scalable, open-source ERP software targeting small and medium-sized businesses.

What is close-Source ERP?

Closed source software refers to the computer software which source code is closes means public is not given access to the source code, The only individual or organization who has created the software can only change it. **examples of closed source software** are Skype, Google earth, Java, Adobe Flash Virtual Box, Adobe Reader, Microsoft office.

Advantages of Closed Source Software:
1. **Technical Support:** Closed source software usually comes with professional technical support, which can be helpful for organizations that need assistance with setup, configuration, or troubleshooting.
2. **Features:** Closed source software typically has more features than open-source software, including advanced analytics, reporting, and data visualization tools.
3. **Security:** Closed source software often has built-in security features and can provide better protection against cyber threats.

The most widely used ERP modules include

1. **Human resources management:** The majority of ERP systems come with an HR module that offers basic capabilities like payroll and time and attendance.
2. **Finance:** is the core of the majority of ERP systems. Apart from overseeing the overall ledger and mechanizing essential accounting duties.
3. **Service:** aids businesses in providing the dependable, customized service that consumers have come to expect.
4. **Sales**: maintains a record of correspondence with clients and prospects and assists sales representatives in utilizing data-driven insights to boost revenue and match leads with appropriate promotions and upsell opportunities.
5. **Sourcing and procurement:** assists companies in obtaining the supplies and services necessary to produce their products, or the goods they intend to resell.

SUPPLY CHAIN MANAGEMENT (SCM)

What is Supply chain management?

Nowadays, businesses have become increasingly specialized in their respective fields. They efficiently work on their main activities and outsource secondary activities rather than insource them to save time and resources. Therefore, a need for a system that effectively manages the relationship between the organization and its supplier exists. For example, if a production component is unavailable due to some mishap in the supplier chain, production will not go as planned resulting in a loss in capital and time. This is where Supply Chain Management comes in. Supply Chain Management is the second of the core information systems. The Council of Supply Chain Management Professionals (CSCMP) defines Supply Chain Management as management that encompasses planning and managing all activities involved in sourcing and procuring materials and activities, conversion, manufacturing operation, and logistics management activities. Supply Chain Management integrates supply and demand management within an organization. All this assists the organization to compete in the dynamic international market. Unsurprisingly, Supply Chain Management is a natural extension of Enterprise Resource Planning (First of the core information systems).

SCM and ERP:

Supply chain management and enterprise resource planning are intertwined. This is because of two things: Firstly, many results provided by ERP are needed as input for the SCM system and vice versa. Secondly, there is an overlap between ERP and SCM functionality. In closely coupled solutions (like SAP SCM and SAP ERP), the SCM system may even invoke functions of the ERP system. It is also worth noting that many methodological and technical shortcomings of Enterprise Resource Planning have been removed or mitigated in Supply Chain Management. These improvements are called Advanced Planning and Scheduling (APS).

Advantages of IT-enabled SCM

The introduction of Supply Chain Management systems, especially Information Technology SCM, in organizations has increased efficiency by:

1. Improving operations

Done by providing better collaboration between organization members, knowledge sharing , accurate demand forecasting and many more, consequently saving the organization time and resources and helping them gain a competitive advantage.

2. Improving communication between business partners

By helping organizations develop online procurement, share information in real-time to optimize work efficiency, provide an effective environment for strong collaboration with partners, and facilitate global interconnectivity.

3. Better inventory management

By only retaining the necessary amount of stock, It means that they can save costs in terms of storage, thefts, transporting goods etc.

4. Increasing globalization

Globalization and Supply Chain Management (SCM) are interconnected. Globalization gives access to new customers, suppliers and sources of procurement. SCM allows the effective integration of these new sources, suppliers etc.

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CUSTOMER RELATIONSHIP MANAGEMENT (CRM):

What is CRM?

Good customer relations are the most valuable asset of a business organization. The need to focus on customer relationships arose when marketing, sales and service departments developed new channels beyond traditional ones such as online stores, email marketing, call centers etc. Therefore, the sources of customer information grew making it increasingly difficult to find, maintain and update customer information efficiently and consistently to generate more value for the organization. Customer Relationship Management is an information system

used to plan, schedule and control pre-sales and post-sales activities in an organization to integrate, identify and retain customers

How does CRM operate?

In the CRM, all customer information that is collected from different points of interaction is stored in a centralized database so that different departments have access to it. The CRM system typically acts as an interface with the customer (therefore it is called the front office) while also being connected to the company's ERP system (back office).

CRM is divided into two functional parts:

A. **Operational** (like sales force automation, enterprise marketing automation, enterprise marketing automation)
B. **Analytical:** uses business intelligence and data mining to identify shopping patterns, recurrent behaviors, preferences etc. All this information will again aid in providing tailored responses to the customer.

Gaining a competitive advantage through CRM

Companies can achieve competitive advantage through creating unique customer value, delivering what customers want and need, providing more value than competitors, and raising customer expectations about the level of value. Therefore, it is important to understand what target customers value most. This is where the CRM system comes in. With all the collected data about the customer, the system can appropriately tailor personalized solutions to customer needs and provide them with the maximum value.

Successful implementation of CRM

The following factors all lead to the success of implementing a Chain Relationship Management:

CRM readiness assessment: A CRM readiness assessment is an overview audit which helps managers assess the overall position in terms of readiness to progress with CRM implementations and to identify how well-developed their organization is relative to other companies.

CRM change management: CRM change management involves strategic organizational change and cultural change to accept and fully integrate the implemented CRM.

CRM project management: CRM project management requires forming cross-functional teams of specialists who manage the enterprise's CRM implementation programmed.

Employee engagement: employee engagement comprises the support and commitment of the employees to CRM projects. This is not only critical to the implementation but also the operation of the CRM system or any other system.

KNOWLEDGE MANAGEMENT SYSTEM (KMS)

A knowledge management system is any kind of IT system that stores and retrieves knowledge to improve understanding, collaboration, and process alignment. Knowledge management systems can exist within organizations or teams, but they can also be used to center your knowledge base for your users or customers.

Types of KMS:

When we are dealing with knowledge within an organization there are three different types that we need to be aware of:

1. **Explicit**

Explicit knowledge is information that can be codified and communicated. It's easy to share this type of knowledge and it can be quickly understood by others. Some types of explicit knowledge are standard operating procedures, employee handbooks, and HR policies.

2. **Tacit**

Tacit knowledge is much harder to capture than explicit knowledge. It typically comprises the skills and experience of your employee that is difficult to explain or share with others. Tacit knowledge includes customer support know-how, design skills, and so on.

3. **Implicit**

Implicit knowledge is very similar to tacit knowledge except that it can more easily be codified. It's information that is embedded in the organization's processes and is currently unarticulated. It's tribal knowledge that can be learned and communicated but hasn't yet been formally captured.

Some companies with KMS that execute particularly well:

Optimizely, whose knowledge base offers an array feature: an academy, community forum, certifications, developer documentation, and more

SurveyMonkey, whose knowledge base allows users to search by keyword or by topic

Microsoft, whose knowledge base is organized into helpful videos, trainings, and even talks with product managers

Canva, whose knowledge base is incredibly easy to navigate and search

Evernote, whose knowledge base includes not only helpful resources but also clear-cut directions on how to contact the company

Google Analytics, whose knowledge base offers its own predictive search engine

Components of KMS:
A. People.
B. Process.
C. content/IT.
D. Strategy.

The benefits of KMS:

1. Faster decision-making.
2. Efficient access to knowledge and information.
3. Increased collaboration and idea generation.
4. Enhanced communication throughout your organization.
5. Improved quality of information and data.
6. More security for intellectual property.
7. Optimized training.

CONCLUSION:

In conclusion, the digital revolution has given rise to transformative entities known as digital firms, leveraging cutting-edge technologies to enhance operations, engage customers, and navigate a dynamic environment. The integration of digital technologies with business processes streamlines operations, fostering unprecedented growth and innovation.

As we explore Transaction Processing Systems, Management Information Systems, and Decision Support Systems, it becomes clear that the digital firm is not merely a convenience but a strategic imperative. The seamless flow of information, data-driven insights, and informed decision-making are foundational to their success.

Enterprise Application Software emerges as a linchpin, fostering collaboration and centralized data management, serving as a catalyst for organizational transformation. In essence, the journey through the realms of digital firms, their systems, and tools underscores the dynamic nature of modern business. Embracing the digital frontier requires adaptability, innovation, and a strategic embrace of technology, keys to thriving in an era where change is the only constant.

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