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# Prezentace předmětu:
# INFORMATION MANAGEMENT


Vyučující:
**Ing. Radim Dolák, Ph.D.**



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# INFORMATION MANAGEMENT

## 3. INFORMATION SUPPORT

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Ing. Radim Dolák, Ph.D.

# Introduction

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Information support is necessary for a number of business strategies and processes. It is particularly important in the areas of management and marketing, management of production and logistics processes, as well as crisis management.

If a high-quality and effective information support system is in place, managers can simply work with the data obtained, perform their own analyzes, and interpret the results of these analyzes to make the right decisions on business and institution management and strategy.

Within any information support, it is very important to use all possible available information services as well as effective communication for obtaining information and feedback linked to possible variants of individual decisions.

# Goals of the chapter

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- ✓ Provide opportunities for information support for management and marketing,
- ✓ Provide information support options for production and logistics processes,
- ✓ Provide information support options for crisis management,
- ✓ Define the concept of information service, information source, information source and information process,
- ✓ Define the concept of communication and specify the communication folder.

# Information support

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Information support is necessary for a number of business strategies and processes. In some cases, the concept of information support is used more freely. This indicates an offer of options and tools to secure or perform a certain activity (for example project processing).

Information support is a set of activities that support information management, decision-making, and cognitive processes.

The following subchapters will include the use of information support for the following areas: support for management and marketing, support for management of production and logistics processes, support for crisis management.

# Information support

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From the point of view of information support of management, the following information systems are the most important:

- Managerial information systems
- Decision support systems
- Information systems to support top management

# Information support - Managerial information systems

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**Managerial information systems are used for work and management decision making, resource utilization, and so on.**

**It consists of subsystems for marketing, production, finance, staff and more. The input is data in databases and the output is a summary.**

**Sodomka and Klčová (2010) report that the Management Information System (MIS) represents IS / ICT support for both topical and operative decision-making, which can either take the form of unified, object-oriented databases designed for this purpose or simple analyzes performed in databases of transaction systems.**

# Information support - Managerial information systems

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**From the above definition, the following are essential:**

- **Modern MIS is not only used to support strategic decision-making, as data analysis results from operational applications are also used in operational activities**
- **Modern MIS requires a different view of its incorporation into enterprise architecture, building, and functional requirements**
- **Modern MIS is a more broadly defined concept than a data warehouse because it covers more complex analytics data processing than a data warehouse that can be an optional part of it if necessary.**

# Information support - Managerial information systems

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**The users of the analytical systems, where we rank MIS, are, as a matter of course, the employees of the Vocational and Medium Management. Managers get information for strategic and operational decisions.**

**Among the users of the transactional system, such as Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), or Supply Chain Management (SCM) systems, we typically include accountants, traders, masters in manufacturing, etc. Transaction systems are systems for managing core business processes. The input to these systems can be, for example, the quantity of the material and the output of the invoice and order.**

# Information support - Managerial information systems

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**From the point of view of the philosophy of data processing within the MIS, the FASMI (Fast Analysis of Shared Multidimensional Information) concept is important, where the unsorted acquired data is processed on the basis of the following characteristics:**

- **fast - fast (allows for good use of management analyzes flexibly and quickly),**
- **analysis - analytical (provides the necessary analyzes),**
- **shared - shared (allows enterprise-wide shared results),**
- **multidimensional-multidimensional (allows multidimensional analysis),**
- **information - information (output of good and correct information).**

# Information support - Managerial information systems

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**According to Sodomka and Klčová (2010), the expected benefits of MIS can be summarized as follows:**

- **economic benefits (return on investment to MIS in the form of a higher level of managerial decision support, and related to more efficient company management, reduced costs, greater competitiveness, etc.)**
- **the benefits of developing IT infrastructure (use of data warehouses, integration of enterprise applications),**
- **Subjective benefits (stemming from the subjective feeling of improving management support through MIS and using eg OLAP analysis, data aggression, etc.).**

# Information support - Decision support systems

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Decision support systems have specific functions that help decision makers. The input includes data from the MIS and output, for example, problem factors and possible solutions.

Decision Support Systems (DSS) are designed to help managers implement management and decision-making activities in business. These systems make it possible to compare the partial results of the solution with the ideas and thus to influence the further course of the solution. What is important is that these systems provide the user with solutions and, if appropriate, ask questions to guide the process.

However, it is necessary to accept the fact that the decision support systems do not replace the decision-maker (manager) itself, so their result is not the final decision, but only give the executives a set of variants, speed up and refine calculations and quantify potential risks.

# Information support - IS to support top management

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Information systems to support top management are top management systems. The input is information about the company's surroundings and the output is a summary of the information.

Executive Information Systems (EIS) are a specific type of DSS that is designed specifically for senior management. These systems provide managers with easy access to relevant information (both internal and external) needed to succeed in ad hoc analyzes and also enable effective monitoring of key business information.

These systems, as reported by Tvrdíková (2008), create from the basic data of operative character strictly structured and highly aggregated data with high information value. Multidimensionality is also used to quickly and easily generate new data lookups, search for trends (trending characteristics), an indication of deviations of key indicators from planned values and also a prediction of further developments.

# Information support for marketing

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**In terms of information support for marketing, the following information systems are the most important:**

- **Marketing information system**
- **Customer relationship management system**

# Information support for marketing – Marketing IS

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**The Marketing Information System (MIS) includes people, facilities and procedures to collect, sort, analyze, evaluate and timely distribute the necessary and accurate information to marketers. (Kotler and Keller, 2013)**

**According to Vaněk (2013), the marketing information system represents several segments:**

- **An internal information system that contains all of the organization's internal information. It is about the sources of information that the organization itself has, or is able to provide and obtain this information itself.**

# Information support for marketing – Marketing IS

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- A marketing intelligence system that collects a set of practices and information resources that managers use to get information on daily and expected developments in the organization's marketing environment. The sources of information are very diverse: statistical surveys, daily and professional press, bulletins and other business publications, training sessions, seminars, conferences, personal information, suppliers, interviews with customers, and a very important source is also the Internet.
- A marketing research system that involves systematically identifying, collecting, analyzing, and evaluating information and conclusions relevant to a particular marketing situation. For this purpose, research studies focusing on key business challenges and opportunities are being developed.

# Information support for marketing – CRM

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Getting new customers is sometimes as important as keeping the existing ones. In terms of information support, we are dealing with customer relationship management systems.

Customer Relationship Management (CRM) means creating and maintaining long-term customer relationships. Customer communication is secured by appropriate technologies that provide value-added processes for both stock and company employees. (Wessling, 2003)

In essence, according to Dohnal (2002) CRM, the idea of setting the whole business together with business processes designed to reach out to customers and provide them with quality service. In general, CRM includes all processes that have direct customer contact in marketing, business, and service activities.

# Information support for marketing – CRM

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**According to Dohnal (2002), customer relationship management includes three components:**

- **business processes,**
- **staff (human resources),**
- **technology.**

# Information support – manufacturing and logistics processes

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**Information support for the management of production and logistics processes is standardized within complex enterprise information systems such as ERP.**

**Enterprise Resource Planning (ERP) is a system whereby an enterprise (or other organization) uses ICT to manage and integrate all or most of its business areas such as planning, stock, purchasing, sales, marketing, finance, human resources, etc.**

**ERP systems have evolved from older software for manufacturing companies, where they have been developed in the various stages as follows: MRP (1970s) -> MRP II (1980s) -> ERP (1990s).**

# Information support – manufacturing and logistics processes

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**The ERP system typically covers four main areas, namely:**

- **finance (sometimes referred to as the economy),**
- **human resources,**
- **production and logistics (in the case of non-production enterprises only logistics),**
- **marketing and sales.**

# Information support – manufacturing and logistics processes

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**Within the framework of complex ERP systems, the following modules are available as standard for information support for control of production and logistics processes:**

- **warehouses and inventory management,**
- **production planning,**
- **costing,**
- **purchase and receipt of goods,**
- **maintenance,**
- **quality management,**
- **project management,**
- **supplier ratings,**
- **transport.**

# Information support for crisis management

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**Information support for crisis management is based primarily on a crisis management information system and a uniform alert and alert system.**

**Information support for Crisis Management by Skála (2014) is a process (a set of information activities) supporting information management, decision making, and cognitive processes.**

**The objective of crisis management support is to meet the need through the information tools necessary for the performance of crisis management activities.**

# Information support for crisis management

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**According to Skála (2014), the Crisis Management Information System provides the following processes and capabilities:**

- **monitoring process - gathering information from the environment,**
- **the ability to alert and inform the population - about the imminent threat or the emergence of a crisis situation (radio, television, teletext, public information boards, the Internet, news service, etc.)**
- **the ability to notify responsible staff to arrive at a designated location or crisis area,**
- **the ability to store and maintain information - about the territory and the risks that occur on it and can be a source of crisis situations,**
- **a system of decision-support support with the necessary information to provide information on the crisis, its characteristics, solutions options, supporting processes, security of rescue and liquidation work,**

# Information support for crisis management

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- support for training and training programs - background for modeling, planning, teaching, research, development, exercises,
- source of optimization of institutions' activities and executive elements integrated into crisis management.

# Information support for crisis management

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## Unified alert and alert system

**Warning and notification are very important moments when dealing with almost every extraordinary event. A unified alert and alert system serves to alert the population in the event of emergencies and crisis situations. These events may include, in particular, fires, floods, accidents.**

**The technical means of the alert and notification system include:**

- **electric rotary sirens, electronic sirens, municipal radio,**
- **telecommunication networks (radio, television, internet),**
- **mobile phones (alert SMS).**

# Information services

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We can look at information services according to Vaněk (2003) from different angles:

- institutional view, institutions that deal with information throughout their lifecycle,
- a process view in which information represents management support,
- marketing view, the information acts as a product on the market or as an ancillary service.

# Information services

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**Information services according to Vaněk (2013) purposefully and organisationally make information and information sources accessible to users in order to effectively satisfy their information needs. The input is the user's information request, resulting in required information in the specified structure and form. Part of the process is also very often to refine the requirement and to obtain or find information in appropriate sources and to process them.**

# Information services

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**Information activities include:**

- **the emergence of information,**
- **acquisition - obtaining information for preservation in funds,**
- **input processing - the obtained document is analyzed and an appropriate description (the characteristics of the content),**
- **depositing into a fund,**
- **search for funds,**
- **output processing - may include copying a document, printing a document, or another form of presentation,**
- **evaluation - analysis of found information,**
- **use of information,**
- **discard information.**

# Information services

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According to Vaněk (2013), the information source is a system that is a real or potential bearer, an intermediary or an information disseminator, such as libraries, database centers, information centers, television, radio.

There are a number of aspects that can be used to divide information sources. There will be mentioned but the basic of them.

According to the originality of the content:

- primary - original messages, original documents, information obtained eg by marketing research methods, etc.,
- secondary information is based on primary sources, other secondary ones, such as information created for other purposes, but can be used for that purpose,
- tertiary - summary papers, overviews of the issue, synthesis of information.

# Information services

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**Based on reliability and added value of information:**

- unverified, unauthorized information,
- verified information, trustworthy, serious information,
- commented information,
- evaluated information.

**Based by availability:**

- public,
- commercial,
- classified.

# Information services

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**According to the information change interval:**

- **relatively constant (eg information from history, architecture, etc.)**
- **variables with a long period of change (e.g. information on the structure of the industry, agriculture, the composition of the state population, political system, etc.)**
- **variables with medium change period (e.g. dates of long-term events, price lists, operating hours, the range of services, etc.)**
- **variables with a short change period (e.g., dates of performances, events, exhibitions and fairs, weather forecasts, etc.)**
- **constantly changing (e.g., the current status of reservations, the course of events, current weather in a given location, the location of objects, etc.).**

# Information services

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**According to Vaněk (2013), the information source is a means of communication consisting of a carrier (or a bearer) of information, a set of fixed information such as a document (a book, a magazine), an expert in any field, etc. The boundaries between the information source and the source are not unambiguous.**

**According to Vaněk (2013), the information process involves the process of acquiring, processing, preserving, mediating and using information. It is a set of interrelated or non-interacting activities that convert certain inputs into outputs. It defines and creates relationships and structures between information sources and users and aims to overcome the barriers between the emergence and use of information.**

# Information services

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A very important part of the information process is the transfer of information, which is going on according to Vaněk (2013):

- direct communication between the creator (source) and user (target) information (only a small part of the information),
- through an information system such as an expert library, a database center, a state archive, a business management system.

Of course, the flow of information is also in the opposite direction. User information generates new information, and for example, the user uses the original information creator.

# Communication

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Communication and communication skills are among the most important human abilities, as it is a tool for mutual transfer of information and shared meanings among people. In addition to speech, other forms of communication, such as online communications, mobile communications, videophones, etc., have emerged in connection with the development of technology.

The scientific discipline of exploring communication phenomena, processes and systems is called communication science. Communication science defines the concept of an information string, which consists in the source encoding a particular message in characters and sending a message to a particular transmission channel. On the other hand, the communication is the recipient who decodes this message (message) and gains new insight.

# Communication

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There may be situations where the recipient does not receive the same data that was sent by the source. Then I can make mistakes and misunderstandings on the basis that the message (message) has been changed. This may be due to a number of factors, such as information noise, malfunctions or barriers.

The medium to which the information is transmitted is referred to as a channel. The technology channel can be, for example, a mobile phone, the radio is an acoustic channel.

The system of characters, understood by the source and the addressee, is the code. This can be, for example, the alphabet system, emoticons, lights on transitions, etc.

# Communication

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**The actual components of the communication are divided into:**

- **hearing,**
- **visual - text and nonverbal communication,**
- **haptic (touch or tactile),**
- **olfactory (olfactory).**

**The communication system according to Kučerová (2007):**

- **connection, transmission,**
- **the process of passing information from source to recipient,**
- **the exchange of meanings (meaningful messages) between individuals through a common symbols system.**

# Communication

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According to Vaněk (2013), the individual components are:

- message (message) - transmitted or received, information,
- source (resource) - the sender of information,
- encoder - the translator of the information into the code in which it will be transmitted,
- decoder - the translator of the information into the code in which it will be received,
- recipient (receiver): recipient of information,
- channel or channel - way of transmitting communicated content,
- noise: the occurrence of disturbances in the communication system causing loss or distortion of the information transmitted,
- feedback - information about the communication result that the recipient sends back to the source.

# Communication

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Most commonly, the term communication is understood as the transmission of information.

Communication takes place in a particular language or code.

Language is generally a necessary foundation for understanding the world and our thinking.

A common language is necessary to pass on information to other people or objects we communicate with.

Communication can be direct (face to face) or indirect, mediated by communication or information technology, verbal or nonverbal.

# Communication

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Communication is also referred to as a synonym for communication. In addition to classical spoken speech and fonts, other communication systems are used (musical notation, chemical, and mathematical marks, traffic signs, flag and finger alphabet, Morse alphabet, etc.).

One major obstacle may be in the context of global communication, namely the fact that there are about 5,000 different languages, which are solved in practice by means of world languages, translations, interpreting, artificial international languages or machine translation.

# Communication

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**According to Vaněk (2013), an important information channel for indirect communication is, in particular, institutionalized information systems (IS) based on system theory and cybernetics.**

**IS have input (receipt of information), internal processing (information is stored and provided with a key for its later retrieval) and output (information is made available to the user).**

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