# LECTURES
# FROM THE DISCIPLINE: "INFORMATION SYSTEMS AND TECHNOLOGIES IN MANAGEMENT OF FOREIGN-ECONOMIC ACTIVITY"

## Lecture 1
## Theme of lecture: International electronic exchange of commercial and financial data

### 1. The concept of information technology.

**Technology** is a complex of scientific and engineering knowledge, realized in work methods, sets of material, technical, energy, labor factors of production, means of their association to create a product or service that meets certain requirements. Therefore, technology is inextricably linked with the machining of production or non-productive, primarily management process. Management technologies are based on the use of computers and telecommunication equipment.

According to the definition adopted by UNESCO, **information technology** is a complex of interdependent, scientific, technological, engineering disciplines studying the methods of efficient organization of labor of people engaged in the processing and preservation of information; computer technology and methods for organizing and interacting with people and production equipment, practical applications, as well as all social, economic and cultural problems associated with them. Information technology itself requires complex training, high initial costs and high technology.

**Information technologies, IT, information and communication technologies** ( *Information and Communication Technologies, ICT* ) - A set of methods, processes and software integrated into the collection, processing, storage, distribution, display, and use information in the interests of her users .

Over the past decade, information technology has undergone such a global spread that it is now hard to imagine the life of a modern person without them. When the ENIAK computer model 1947 began to work half a century ago, in general Pittsburgh dimmed the light, and the air temperature in the room where it worked was raised to 55 °

"If automotive technology developed like a microprocessor, today's cars would rush at a speed of 20,000 kilometers per hour, and would cost two dollars!"

But when the car facilitated access to objects in space, information technology has made it much more important for the development of mankind - they brought knowledge to everyone. The car helps for the most part distribution of goods. Information technologies contribute to the creation of new knowledge, products, and productions.

In general, information networks are the most ecological invention of mankind. In addition to allowing the Internet to "settle" metropolises and industrial centers with towns and settlements, people can remotely work from anywhere, and, by optimizing production, the state of the workers of non-professional occupations, which still haggle in shops and factories, is reduced. This is a serious relief for

local ecosystems, as it is known that large crowds of people are extremely uneconomical.

One of the things that can reduce the amount of environmental damage is also e-commerce. Today in the world about 100 million Internet users. Most of them prefer to make purchases online. At the same time, much less polluted the environment due to the fact that they do not go by car or bus (which allows you to reduce the number of flights) to the nearest store for the next jar of beer, and order it to the Internet itself. Experts from the Worldwatch Institute estimated that while saving the total cost of fuel for the delivery of products to consumers is 90 (!) Percent.

In addition, in the next seven years, which is projected to massive bloom of e-commerce, is expected to reduce trading areas by 420 million square meters. This will save about 53 billion kilowatt hours of electricity needed for their maintenance. Now 21a power plant works to produce this amount of energy.

Equally stubborn looks are paper usage statistics. Its consumption on a global scale has increased six times since 1950. And its production "eats" four percent of all energy produced by mankind. At the same time, 90 percent of the paper is used once and then destroyed, accounting for 40 percent of all solid waste in urban areas.

At the present stage, it is possible without any difficulty to give examples of the use of information technology in all areas: from education to management.

information technology and virtualization of physical objects and processes do a lot of really useful things.

Boeing 777 became the first plane to create physical models and drawings. In addition, it was created jointly by customers, designers, suppliers, technicians and pilots, while making comments and suggestions that did not need to change a single screw for implementation.

Port Seattle introduced an electronic data exchange to accelerate the port cleaning process of ships. Now, for nothing, do not idle neither cargo nor transport.

The FedEx courier service has created a corporate infostructure, in particular, the new wording of its goals states: "Each shipment is securely controlled by electronic tracking systems in real time", that is, every minute there is information where each package is located. Even the Federal Post Service from time to time has to contact FedEx when urgent delivery is required.

Several dozen countries, particularly in Europe, introduced a virtual tourist guide. Illustrating the fabulous attractiveness of historic sites and resorts, they are quite successful in tempting a significant number of tourists.

Camping ohodni will have success and the company that owns the latest computer technology.

Ukraine according to the level of development of information technologies in the world takes 75th place. Such data was made public by the international public organization World Economic Forum .The only competitive advantage our country possesses in this aspect are traditionally strong IT-personnel, that is, in Ukraine, a very high level of programmer training. Ukraine is one of the world's centers of offshore programming.

Ranked leader in ranking Denmark , Sweden , Singapore , Finland , Switzerland , Netherlands , US , Iceland , Great Britain and Norway . The lowest level of information technology development is observed in African countries.

## 2. Stages of information technology development

By types of information technology tools:

1st stage (until the second half of the XIX century) - "manual" information technology, the tools of which were: pen, ink, book. Communications were carried out manually by mail, letters, packages, dispatches. The main purpose of information technology of this period was to present information in the right form.

The second stage (from the end of the XIX century) is a "mechanical" technology, the tools of which were: typewriter, telephone, voice recorder, equipped with more advanced means of delivery of mail.The main purpose of technology - the presentation of information in the right form more convenient means.

The third stage (40-60-ies of the XX century) - "electric" technology, the toolkit consisting of: large computers and related software, electric typewriters, copiers, portable dictophones. At this stage, there is a change in the purpose of technology. The emphasis in information technology begins to shift from the form of information representation to the formation of its content.

The fourth stage (from the beginning of the 70's) is an "electronic" technology, the main tool of which are large computers and automated control systems (ASCs) and information retrieval systems (IIS) created on their basis, equipped with a wide range of basic and specialized software complexes. The center of gravity of technology even shifts to the formation of the content of information for the managerial environment of various spheres of public life, especially the organization of analytical work. Many objective and subjective factors did not allow to solve the problems set before the new concept of information technology. However, the experience of forming the content of managerial information was gained and the professional, psychological and social base was prepared for the transition to a new stage in the development of technology.

The 5th stage (from the middle of the 80's) is a "computer" ("new") technology, the main tool of which is a personal computer with a wide range of standard software products of various purposes. At this stage, there is a process of personalization of the ASA, which manifests itself in the establishment of decision support systems by certain specialists. Such systems have built-in analytics and intelligence elements for different levels of management, they are implemented on a personal computer and use telecommunications. Due to the transition to the microprocessor base, technical means of domestic, cultural and other purposes are subjected to significant changes. Global and local computer networks are beginning to be widely used in various industries.

For the benefit of computer technology:

The first stage (from the early 1960's) is characterized by a very efficient processing of information when performing routine operations with the centralized centralized use of computing center resources.The main criterion for assessing the effectiveness of the information systems that were created was the difference between spent on development and saved as a result of the introduction of funds. The main problem at this stage was psychological - the bad interaction of users, for which created information systems, and developers because of differences in their views and understanding of the problems to be solved. As a consequence of this problem, systems were created which users were poorly perceived and, despite their rather large opportunities, did not fully exploit their potential.

The second stage (from the mid 70's) is associated with the emergence of personal computers. The approach to creating information systems has changed - the orientation is shifted towards the individual user to support his decisions. The user is interested in the development, develops contact with the developer, there is an understanding between the two groups of specialists. At this stage, both centralized data processing, characteristic for the first stage, and decentralized, based on solving local tasks and working with local databases at the user's workplace, are used.

The third stage (from the beginning of the 90's) is related to the concept of strategic business analysis and is based on the achievements of telecommunication technology for distributed information processing. Information systems have the purpose not only to increase the efficiency of data processing and help the head. Relevant information technologies should help organizations to compete and gain an edge.

Information technology, like any other, must meet the following requirements:

• to ensure a high level of dismemberment of the whole process of processing information for the stages (phases), operations, actions;

• Include the entire set of elements needed to achieve the goal;

• have a regular character. Stages, actions, operations of the technological process can be standardized and unified, which will allow to more effectively carry out the purposeful management of information processes.

The realization of the technological process of material production is carried out with the help of various technical means, which include: equipment, machines, tools, conveyor lines, etc.

By analogy and for information technology there should be something similar. Such technical means of production of information will be the hardware, software and mathematical support of this process.With their help, the primary information is processed into new quality information. Separate from these tools software products and call them tools, and for greater clarity, it can be specified, calling it a software tool for information technology.

Define this concept:

Information technology toolkit - one or more interrelated software products for a specific type of computer, the technology of which allows the user to achieve the goal.

As a toolkit, you can use the following common types of software products for your personal computer: word processor (editor), desktop publishing systems, spreadsheets, database management systems, electronic notebooks, electronic calendars, functional information systems (financial, accounting, for marketing, etc.), expert systems, etc.

## 3. Types of modern information technologies

### 3 .1 Information technology for data processing

Data processing technology is used to solve well-structured tasks, for which there are necessary inputs and known algorithms and other standard procedures for their processing. This technology is applied at the level of operational (executive) activity of the personnel of low qualification in order to automate some routine repeatedly repeated operations of management work. Therefore, the introduction of information technology and systems at this level will significantly increase the productivity of staff, release it from routine operations, may even lead to the need to reduce the number of employees.

At the level of operational activity, the following tasks are solved:

processing of data on operations carried out by the firm;

creation of periodic control reports on the state of affairs in the firm;

receiving answers to all current requests and processing them in the form of paper documents or reports.

An example can be a daily report on the receipt and issue of cash by the bank, which is formed to control the balance of cash; or a request to the database on frames, which will allow obtaining data on the requirements for candidates for a particular post.

There are several peculiarities associated with the processing of data that distinguish this technology from all others:

• fulfillment of the tasks necessary for the processing of data by the company. From each firm, the law requires the availability and conservation of data about their activities, which can be used as a means of ensuring and maintaining control of the firm. Therefore, in any company must be an information system of data processing and developed relevant information technology;

• solving only well structured tasks for which it is possible to develop an algorithm;

• implementation of standard processing procedures. Existing standards define standard processing procedures and regulate their compliance with organizations of all kinds;

• implementation of the basic volume of work in automatic mode with minimal human participation;

• use of detailed data. Records on the company's activities are detailed in nature, allowing for audits. In the process of audit, the firm's activities are checked chronologically from the beginning of the period to its end and from the end to the beginning;

• emphasis on chronology of events;

• the requirement of minimal assistance in solving problems from specialists of other levels.

A lot of operational-level data must be stored for the next use either at the same level or on the other. To save them, databases are created.

Regarding the creation of reports (documents) it should be noted that in the information technology of processing data it is necessary to create documents for management and employees of the firm, as well as for external partners. At the same time, documents can be created on demand in connection with the transaction carried out by the firm, and periodically at the end of each month, quarter or year.

### 3 .2 Information technology management

The purpose of information management technology is to meet the information needs of all, without exception, employees of the firm dealing with decision-making. It can be useful at any level of management.

This technology focuses on work in an information management system environment and is used for poorer structuring of solvable tasks, if they are compared with tasks that are solved with the help of data processing technology.

Information technology management is ideally suited to meet such information needs of employees of various functional subsystems (divisions) or management levels of the firm. The information that comes with it contains information about the past, the true and probable future of the firm. This information has the form of regular or special management reports.

To make decisions at the level of managerial control, information should be presented in aggregated form, so that there are trends in data changes, causes of deviations, and possible solutions to the problem. At this stage, the following data processing tasks are solved:

• assessment of the planned state of the control object;

• estimation of deviations from the planned state;

• Detection of causes of deviations;

• analysis of possible decisions and actions.

Information management technology is aimed at creating various types of reports. Regular reports are created according to the established schedule, which defines the time of their creation, for example, a monthly analysis of company sales.

Special reports are created at the request of managers, or when something unplanned took place in the company. Both those and other types of reports can take the form of summary, comparative, and extraordinary reports.

In the final reports data are grouped into separate groups, sorted and presented in the form of intermediate and final results for individual fields.

Comparative reports contain data from a variety of sources or classified by various attributes and used for comparison.

Extraordinary reports contain extraordinary (extraordinary) data.

The use of reports to support management is particularly effective in implementing so-called management of deviations. Management of deviations assumes that the main content of data received by a data specialist should be the deviation of the state of economic activity of the firm from some established standards (for example, from its planned state). When using the principle of management of deviations to the reports that are being created, the following requirements are put forward:

• the report should be created only when the deviation occurred;

• the information in the report must be sorted by the value of a critical for a given deviation of the indicator;

• It is desirable to show all deviations together so that the specialist could catch the existing connection between them;

• The report should show a quantitative deviation from the norm.

Incoming information comes from operating system systems. Output information is formed in the form of management reports in a convenient decision-making form. The content of the database with the help of the relevant software is converted into periodic and special reports that come to the specialists who take part in decision making in the organization. The database used to obtain the specified information should consist of two components:

1) data accumulated on the basis of evaluation of operations carried out by the firm;

2) plans, standards, budgets and other normative documents, which determine the planned state of the control object (divisions of the firm).

### 3 .3 Information technology support decision-making

The effectiveness and flexibility of information technology in many respects depend on the characteristics of the interface of the decision support system. The interface is defined by: the language of the user; the language of computer messages that organizes the dialog on the display screen; knowledge of the user.

The user's language is those actions that the user does in relation to the system by using the keyboard capabilities; electronic pencils writing on the screen; joystick; "mouse"; voice commands, etc. The simplest form of the user's language is to create forms of input and output documents. Having received the input form (document), the user fills it with the necessary data and inserts into the computer. The decision support system makes the necessary analysis and publishes results in the form of a source document of a given form.

**The language of messages is** that the user sees on the screen (symbols, graphics, color), data printed by the printer, audio output signals, etc. An important indicator of the effectiveness of the interface used is the chosen form of dialogue between the user and the system. Currently, the most common are the following forms of dialogue: the "question-answer" mode, command mode, menu mode, the

mode of filling the passes in the expressions proposed by the computer. Each form, depending on the type of task, the individuality of the user and the decision to be made, can have its advantages and disadvantages. For a long time, the only implementation of the language of the message was printed or displayed on the display report or message. Now there is a new opportunity to present the raw data - machine graphics. It provides the ability to create on-screen and paper color graphic images in three-dimensional form. The use of machine graphics, which greatly increases the visibility and interpretation of output data, is becoming more and more popular in information technology decision support.

User knowledge is what the user needs to know when working with the system. These include not only the action plan that is in the user's head, but also the textbooks, manuals, reference information that the computer issues.

Improving the interface of the decision support system is determined by the success in the development of each of the three components mentioned above.

The interface should have the following features:

• manipulate various forms of dialogue, changing them in the decision-making process at the user's choice;

• transfer data to the system by various means;

• Receive data from various system devices in different formats;

• Flexibly support (provide help on demand, prompt) user knowledge.

### 3 .4 Information technology of expert systems

The greatest progress in computer information technology is observed in the field of development of expert systems. Expert systems allow an expert to receive expert advice on any problems that these systems have accumulated knowledge.

Solving special tasks requires special knowledge. However, not every company can afford to keep experts in its staff for all the problems associated with its work, or even invite them whenever there is a problem. The main idea of using the technology of expert systems is to get from the expert their knowledge and, having loaded them into the memory of the computer, use them whenever necessary. All this provides the opportunity to use the technology of expert systems as systems giving advice.

The similarity of information technologies used in expert systems and decision support systems is manifested in the fact that both of them provide a high level of decision support. However, there are three significant differences between them:

The first is due to the fact that solving the problem within decision support systems reflects the level of its understanding of the user and his ability to get and understand the solution. Technology expert systems, on the contrary, offers the user to make a decision that goes beyond its capabilities.

The second distinction of these technologies manifests itself in the ability of expert systems to explain their reasoning in the process of obtaining a solution. Very often these explanations are more important to the user than the solution itself.

The third difference is connected with the use of a new component of information technology - knowledge.

The main components of information technology used in the expert system are: user interface, knowledge base, interpreter, module for creating the system.

User interface. The specialist uses an interface for entering information and teams into an expert system and obtaining source information from it. The commands contain the parameters that guide the process of knowledge processing. Information is usually given in the form of values assigned by certain variables.

Technology expert systems provides the opportunity to receive as the source information not only solutions, but also the necessary explanations.

There are two types of explanations:

• explanations that are issued on demand. The user may at any time request an expert system to explain their actions;

• explanation of the solution of the problem. After receiving the solution, the user may request an explanation of how it was received. The system should explain every step of their reasoning leading to the task. Although the technology of working with the expert system is not simple, the user interface of these systems is friendly and of course does not cause difficulties in conducting a dialogue.

Knowledge base. It contains facts that describe the problem industry, as well as the logical relationship of these facts. The central place in the knowledge base belongs to the rules. The rule defines what should be done in this particular situation and consists of two parts: a condition that can be fulfilled or not and an action to be performed in the event of the condition being fulfilled.

All the rules used in the expert system form a system of rules, which even for a relatively simple system can contain several thousand rules.

Interpreter This is part of an expert system that performs in a particular order of processing data that is in the knowledge base. The technology of the interpreter's work is reduced to the consistent consideration of the set of rules (rule by rule). If a condition is met in the rule, then a certain action is performed and the user is provided with an option to solve his problem.

In addition, many expert systems introduce additional blocks: a database, a unit of calculation, a block of input and adjustment of data. The calculation unit is required in situations involving management decisions. At the same time, an important role is played by the database, which contains scheduled, physical, settlement, reporting and other permanent or operational indicators. The input and adjustment block of data is used for prompt and timely display of current changes in the database.

System creation module. It serves to create a set (hierarchy) of rules. There are two approaches that can be used as the basis for the module for creating a system: the use of algorithmic programming languages and the use of shells of expert systems.

For the presentation of the knowledge base specially developed languages Lisp and Prolog, although you can use any well-known algorithmic language.

The shell of expert systems is a ready-made software environment that can be adapted to solve a specific problem by creating an appropriate knowledge base. In most cases, the use of shells allows you to create expert systems faster and easier than programming.

## 3. PRINCIPLES OF ELECTRONIC EXCHANGE

The American company IMC (International Marketing Company) conducted researches on studying paper streams of preparation and registration of documents of participants of international trade. As a result of the study, it turned out that, in general, all participants in foreign economic activity within the framework of one supply (consignment of goods) make out 40 original documents and 360 copies.

You can select the following types of interaction of information systems:

• An arbitrary interaction between two separate computers, such as a modem. Mandatory participation of the operator on the receiving and transferring side. Possible exchange in an arbitrary but predefined format;

• Interactive remote interaction of the computer with the information system, for example, protocol http. Operator on the transmitting side. As a rule, a certain form of an HTML document is used.Accepted documents are processed automatically;

• Controlled stream processing, for example, e-mail reception, the file contains an HTML form, the launch of which initiates the process of processing a document or receiving an operator by e-mail of electronic documents in a specified format, and then starting the start of the program of processing. Requires mandatory control of the operator on the accepted side;

• A fully automated process for receiving and processing electronic documents in a specified format. Participation of operators is not required.

The last type of interaction, called Electronic Data Interchange (EDI).

The history of the emergence and expansion of the EOD leads its counting from the beginning of the 80's, when the incompatibility of the individual technology of the processing of commercial data did not allow them to integrate into a single system, which would provide a comprehensive mechanization of international trade operations.

In 1983-1985. UN International Organizations (UN / ECE and ISO) Pochaiv Development of procedures, data formats and international code systems for EDI. An international working group, UN / ECE, was established, which in October 1988 developed the version of the United Nations Elementary Data Interchange for Admistration, Commerce and Transport - UN / EDIFACT. (UN / Electronic Data Exchange for Administration, Trade and Transport).

EDIFACT Selected four main components that are standardized in the preparation of documents for transmission over telecommunication channels. These are data elements, standard data segments, standard messages, and rules for creating syntax rules.

Consequently, a set of syntactic rules and commercial elements was developed, which obtained the short name EDIFACT and was designed in the light of two ISO standards:

ISO 7372 - Trade Data Element Directory (Handbook of Commercial Data Elements);

ISO 9735 - EDIFACT - Appliastion Level Syntax rules (Properties of syntax at the preferential level).

EDIFACT standards were developed for use in global computer networks with a wide range of users: government agencies, manufacturer of goods, manufactures and services, distributor, brokers, freight forwarder, banks, insurance companies, etc.

What is the advantage of EDI systems? Today, most of the data contained in commercial documents is generated from existing computer applications. The typical scheme of registration of commercial transactions involves the following actions:

• A paper document will be generated for trading operations;

• This document is transmitted through the channels of fax communication or DRITU channels of data transmission to the addressee;

• the business partner who received the electronic document electronically reproduces it on paper and uses it for future reference;

• from the accepted paper carrier manually carries out the introduction of the necessary data into the information system of his department;

• Based on accepted information, new paper documents are generated and transferred to other departments.

According to the IMC study, the introduction of EDI-systems can reduce the costs associated with the ordering of documents up to 7-10% of the total transaction value. The world-wide practice of e-commerce based on EDI systems has been in place for more than 30 years and is a standard for trading operations and submission of structured business documents.

The fundamental difference between EDI systems from electronic document management systems is that EDI systems are inter-departmental exchange systems Electronic documents that use strictly standardized rules for compiling electronic documents. And the system of electronic document flow - these systems, as a rule, are developed within the framework of one kroporatsii or enterprise, the exchange of which is carried out by means of distributed databases such as ORACLE or INFORMIX.

There are many different definitions of EDI, but we will see the most suitable for our purposes: "Transmission between information systems by electronic means of structured communications in an agreed standard".

With the help of EDI technology, data from corporate computer systems is translated into understandable to all standards and transmitted through reliable telecommunication channels, usually in the corporate data transmission network.

Currently, about twelve standards are widely used in EDI systems, but two standards have become most popular: UN / EDIFACT and ANSI X-12. For

example, in the US, there are 500,000 EDI exchange users in the UN / EDIFACT format and the same number of ANSI X-12 users.

To organize diverse EDI systems, in 1996, the UN Economic and Social Council issued Recommendation No. 25 on the use of the EDIFACT standard, which recommends that existing EDI systems be upgraded into systems targeting the use of UN / EDIFACT, and build up systems first to build on the basis of use of UN / EDIFACT.

The UN / EDIFACT acronym stands for "United Nations rules for electronic data exchange for the Office of Commerce and Transport" (United Nations Rules for Electronic Data In terchange for Administration, Commerce and Transport).

Currently, due to the lack of legislative regulation of electronic document exchange processes, full-scale development of EDI systems in our country is complicated. But the avalanche-shaped development in the world of e-commerce systems is shaken by the official bodies and the life is forcing them to use parallel with paper documents and their electronic image.

An example is the use of the UN / EDIFACT standard in international SWIFT information exchange systems. The following are examples of using electronic documents in the UN / EDIFACT standard: EDI-system for tracking cargo shipments from the EU countries to the destination terminal in the customs authorities of the Russian Federation.

The State Customs Committee (SCC) implements a project for interaction with the information system of the Ministry of Transport and Communications (Ministry of Railways), where the UN / EDIFACT standard is used for the exchange of electronic documents. The STC is developing a project for the exchange of electronic documents with the information systems of the major ports of the Baltic Sea countries with the customs at the seaport of St. Petersburg and the ports of the Pacific Ocean (Seattle and San Francisco) with the customs at the seaport of Nakhodka and Vladivostok.

The IPC implemented a project to interact EDI-systems of the October Railway and the Finnish State Railways (VR cargo).

**Review of the UN / EDIFACT standard**

When developing standards for electronic document management, work was carried out to study the use of all data "paper" documents used in foreign economic activity. As it turned out, most documents contain duplicate data, as well as entire data groups.

For example, the name and address of the company of the sender is found both in the invoice, transport documents - CMR, and in the customs declaration.

It was proposed to select the most repetitive data groups, and select the appropriate data fields in them. As a result, it turned out that data is so often repeated that more than 200 special coding tables - called data directories - have been developed to fill them.

Some directories (such as three-digit codes of world countries, currency codes) were used prior to the introduction of UN / EDIFACT standards. These guides have been revised and adjusted in terms of using them in new standards.

The following basic ideas are based on the UN / EDIFACT standard:

• Exchange is carried out by messages;
• Standardization based on the type of document used at the message level;
• The message has a hierarchical structure and consists of segments;
• Standardization of data at the level of segments and data elements;
• Segments can be grouped on a specific basis;
• Unfilled (empty) segments may drop;
• Typical fields are written as code;
• The contents and contents of directories are standardized on three levels - international, national and corporative;
• Independence of standards from the language used for communication.

A group of segments other than typical data segments may contain other group segments.

Segments in the message group can be repeated several times. Also, empty (empty) segments may be lowered.

The standard provides for about 200 different types of segments from which a message is made up.

The standard stipulates that each message has a unique 6-digit capitalization code, and each data segment has a 3-digit master-letter code.

For example, we show broken segments of the ORDERS message in the UN / EDIFACT standard.

| | |
|---|---|
| UNH + 000002 + ORDERS: D: 96A: UN: EAN008 ' | Topic Message |
| BGM + 220 + B00002 + 9 ' | order number |
| DTM + 137: 19940202: 102 ' | date of sending the message |
| NAD + BY ++ + Stadt- und Universitaetsbibliothek | Buyer's name and address |
| : Frankfurt + Bockenheimer Landstr. 134-13 8 + Frankfurt ++ 60325 'RFF + API: DE1141110388' | buyer id |
| NAD + SU +++ DREIER ' | name of the supplier |
| CUX + 2: DEM: 9 ' | Payment currency |
| LIN + 1 ' | Order position 1 |
| PIA + 5 + 3772815359: IB ' | ISBN Order ID |
| IMD + F + 050 + ::: Die "Jahrbuecher fuer wissensc<br>haftl: iche critic "<br>IMD + F + 060 + ::: Hegels Berliner Gegenakademie '<br>IMD + F + 065 + ::: Hrsg. von Christoph Jamme '<br>IMD + F + 110 + ::: Stuttgart-Bad Cannstadt '<br>IMD + F + 1 20 + ::: Frommann-Holzboog '<br>IMD + F + 170 + ::: 1994 '<br>IMD + F + 190 + ::: Spekulation und Erfahrung '<br>IMD + F + 191 + ::: Abt. 2 '<br>IMD + F + 192 + ::: Untersuchungen '<br>IMD + F + 194 + ::: Bd. 27 '<br>IMD + F + 220 + ::: Gewebe ' | Details of product description |
| QTY + 21: 1 ' | number of copies of the order |
| PRI + UAE: 295: CA ' | Price order in To him . stamps |
| UNS + S ' | dividing segment |
| CNT + 2: 1 ' | Total number of positions - 1 |
| UNT + 25 + 000002 ' | Total number of segments = 25 |

Segments , constituent messages , begin with three-letter name , such as UNA , UNH , BGM , DTM , etc. Ends segment symbol end segment - in This example is an apostrophe .

Below are the names some segments :

| | | |
|---|---|---|
| BGM | BEGINNING OF MESSAGE | BEGINNING MESSAGE |
| CUX | CURRENCIES | CURRENCY |
| DTM | DATE / TIME / PERIOD | DATE / TIME / PERIOD |
| IDM | ITEM DESCRIPTION | DESCRIPTION OF THE ITEM |

Each segment consists of elements data . Unlike the name of the segment , the name elements data not specified in message . Elements data separated by dividers which are the symbol " plus". Thus , for example segment NAD + BY + + + + Stadtund Universitaets bibliot hek : Frankfurt + Bockenheimer.Landstr.134 -138 + Frankfurt + + 60325

Consists of the following data elements :

| | |
|---|---|
| The first element | BY |
| The fourth element | Stadt-und Universitätsbibliothek: Frankfurt |
| Fifth element | Bockenheimer.Landstr.134-138 |
| The sixth element | Frankfu rt |
| Eighth element | 60325 |

Each of them elements data takes its place in segment . If any of the data elements are not required , then for him skip repeat separator elements data ( see in the example - between the first and The fourth element is located three dividers) . The purpose of this or that element data determined by reference segments EDSD , which includes in UN / EDIFACT standard set .

Elements data may be simple and folded , consisting of components . For constituent elements data provided another separator - in for this case the " colon". Fourth elements data In the example above ,are components , parts of which are separated by the symbol " :" Consistency elements data in The segment is regulated by a directory elements data and strictly defined . Consequently, Electronic Data Interchange - is mizhkomp'yuternyy exchange di lovymy, commercial and financial electronic documents such as orders, payment instructions, contract proposals, stickers Dr them receipts.

EDI provides interoperability trading partners (customers, suppliers, retailers, freight forwarders and others.) At all stages of trade agreements, contracting and implementation on with tavky.

Commercial Transactions (EOC) at the stage of contract payment and transfer of funds may interact with the electronic exchange of financial documents (EOFD). This interaction creates EOFD EOKD and buyers (clients) effective environment if all commerce and payment op is right:

- online - shopping directory browsing suggestions t o Vary and services in the market;
- choice online right product / Ambassador gi, specification conditions (cost and delivery schedules, trade discounts, warranty and service commitments);
- online ordering of goods / services or request contract prop at positions of, approval and signing of the contract;
- operational control of the delivery of goods;
- receipt by e-mail accompanying documents (bills, invoices, parts information, so at that);
- confirmation of the completion of delivery of goods / services, expose Mr. tion and paying bills;
- execution of bank-credit and payment operations.

The main goals of creating and using EDIFACT are:

- definition of standardized syntax and semantics of messages that meet international standards;
- replacing conventional paper forms and electronic documents dock at cops and appropriate methods of treatment;
- accelerating workflow efficiency and therefore at least robky commercial and financial transactions;
- the creation of small, medium and large companies more spryya t lyvyh and equal conditions of market competition;
- improvement of conditions for the preparation and implementation of trade agreements;
- wider and massive use of modern customers komp'yu Terni networks and their services.

All of these services are provided as Value Services (Value Services) created by electronic data exchange technologies. At the present stage, the main types of applied services are distinguished.

1. On-line databases (OPLs) that are available online from user terminals; on-line database whole appartment open to dialog information retrieval and issuing certificates and various statistical reports; Users can OLBD specialists commercial and financial institutions, economists, dealers, suppliers, agents and financial bargaining at ref organizations.

2. Email (EP - Electronic Post) - the system of exchange guarantee and of the message (a set of electronic mailboxes, software, processing, storage and communication, terminal stations for preparation and administration messages). Users can conduct mizhperso EP onal messaging, send them lists of

addresses to request their messages from mailboxes body zovuvaty problem teleconference and perform other functions messaging (electronic documents).

3 Electronic transfer of funds (EFT - Electronic Funds Transfer). The system of transfer
of financial ( credit , payment ) documents between customers and banks , between banks , between banks andother financial
institutions and commercial organizations . Internatio Rodna network sharing finan cial information SWIFT OJEC e hears many EFT features .

4 The electronic exchange of data (EDI - Electronic Data Inter c hange). Multi-purpose document exchange system with a well-developed data structure. Typically, implemented on the basis standar sotheir software and hardware emails.

5. Control network services (Managed Network Services). In a Conway different production , administrative and service functions management about ' yektamy , technological lines , transport sy stopics and employ ees of enterprises . Realized on based intra-network computers , distributed between pidrozdi Lama company .

6 Telemetry services. Surgical observation system is Zheng tion, distance measurement and monitoring of fixed and moving objects.

At the present stage, the EIA is operational or implemented in virtually all countries.

**Lecture 2**

**Theme of lecture : Electronic systems of international interbank payments and payments.**

**Payment system** - a set of rules, procedures and technical and infrastructure, providing translation of value from one subject of the economy to another.

Current electronic banking processing systems can be divided into **financial messaging systems** and **settlement systems.** With the help of the first one **only operative forwarding and storage of interbank documents is carried out. The functions of others are directly related to the fulfillment of mutual requirements and obligations.** The first group includes SWIFT, BankWire (private banking network of US banks), to the second - CHIPS (USA), CHAPS (England), etc.

## 1. International payment system TARGET

In order to meet the monetary policy needs, the central banks of the European Union (EU) have set up a payment system TARGET - a trans-European telecommunications automated system of international payment transactions in real time mode, which began operations on January 4, 1999, and since then has significantly contributed to the introduction of a single currency policies, the integration of European money markets and the effective implementation of gross settlement within the euro area.

The system is designed to process euro-denominated payments for their unobstructed passage across borders - as if they are internal payments.

The main purpose of the TARGET system is to combine internal systems of member countries into an international payment system for the transfer of large sums.

The TARGET system consists of the following elements:

- internal payment systems for the transfer of large sums (introduced in each country that is a member of this system);
- technological connection procedures (Interlinking);
- functions of the European Central Bank (ECB).

The TARGET payment system processes and executes international payments in real time in a single euro currency with little expense, a high degree of protection and in a short period.

The operation of the TARGET system is aimed at achieving three main goals:

- provision of monetary policy requirements of the European Economic Community;
- increase of efficiency;

Intra-European cross-border settlements;

- introduction of a reliable and safe mechanism for cross-border payments.

2.Fe dwire

Fedwire is a federal backup banking system in the United States.

The Fedwire system is owned and managed by the Federal Reserve System (US Fed). This system is used to transfer funds between 6 thousand banks, united in 12 reserve districts with 12 central regional banks (CRCs).

Fedwire is used not only for client and interbank payments. A total of more than 90 private clearing companies use Fedwire.

From the operational point of view Fedwire shares the following components:

- processing centers, which directly carry out the transfer of money and securities;
- Software ;
- a telecommunications network linking the Federal Reserve Banks and credit organizations.

From a technical point of view, Fedwire has a high degree of reliability, which is supported by the implementation of procedures for backing up information and storing them outside of the regions serviced by specific FRBs. Three computing centers support Fedwire's operation . One of them provides direct operational activities of the system and provides back-up information. The second one is used as a "hot" back-up, and the third as a "warm" back-up. The three VC are at a considerable distance from each other in case of emergencies, disasters, outages of electricity, damage to telecommunication lines, etc . All centers are equipped with serious security systems .

The main and first backup centers are equipped with a complete set of technology and software that allows you to fully carry out operations on Fedwire.

Federal Reserve banks regularly test Fedwire backup systems. To this end, representatives of all financial institutions connected to the system are invited. Moreover, for banks that carry out large amounts of payments through Fedwire, these measures are mandatory. They must take part in them at least once or twice a year, depending on the number of transactions performed.

Until and immediately after the formation of the Federal Reserve in 1913, the exchange rate had a significant effect on the cost of money transfers between different regions of the United States, as they were carried out through the physical transportation of gold, coins and banknotes. Like the exchange rates of the gold standard, the price of payments between different regions of the country varied within the corridor, which depended on the cost of transportation of gold or currency. This cost included transportation costs and interest not received during this time.

In order to solve the above problems, in the seventies, it was decided to develop standard software for each type of payment service provided by Fedwire. By the beginning of the eighties, such programs were created and installed by the Federal Reserve Banks at their CC. Thus, the problem of the most effective development and software support was solved.

But soon the FRB began to make its own changes to standard programs in order to meet the individual requirements of the banks they serviced. As a result, a single technological environment has been broken, and all efforts to standardize software have been nullified. The system has become difficult to update again, and the operational risk has risen again.

To overcome these shortcomings, modern technologies have been applied. A new telecommunication network, consisting of the general core and individual local networks, was put into operation. Each of the twelve Federal Reserve Banks maintains an independent regional system that is connected to the general software that routines messages. Despite the advantages of this model, it has its own drawbacks.For example, the existence of twelve individual independent networks makes it difficult to diagnose and troubleshoot technical problems.

On the way to centralization, the Federal Reserve Fedwire has recently replaced the telecommunications equipment and software of the Federal Reserve Banks and Commercial Banks, thus creating a single network called FEDNET. It is used to process local and interregional operations. The operation of FEDNET is provided by the standard telecommunication equipment and software installed by each Fedwire member, which greatly simplifies the processes of recovery, testing, troubleshooting and troubleshooting.

3. CHIPS

( The Clearing House Interbank Payments System ) is the largest US private electronic money transfer system owned by a number of commercial banks. The CHIPS telecommunication system was set up in 1970 in the United States to replace the paper billing system with checks on the electronic settlement system between New York City banks and foreign customers. The approximate daily amount of payments made through CHIPS is about 277 thousand, and in monetary terms - 1.38 trillion. USD .Nezvazhayuchy the fact that CHIPS is a non-governmental organization, the Federal Reserve has supported and was directly involved in its creation ..

Originally, CHIPS consisted of eight banks. In order to prevent a significant decrease in the number of participants in the system, a ban on membership for banks outside of New York that has been in force since the date of the establishment of CHIPS has been removed.

* (23).

At present, every payment made through the system is irrevocable regardless of the time it is implemented. Moreover, all operations take place in real time. It happens this way.

Banks send to the system payment messages addressed to another member of CHIPS. These messages are stored there in the queue until they are sent to the recipient. And while this has not happened, they can be removed by the sender. immediately after receipt by the bank of payment from CHIPS it is considered completed and irrevocable. It is from this moment that from a legal point of view the message is considered a processed system.

In order to provide day-to-day clearing, each CHIPS member maintains its own account in the system for a certain amount from 9:00 to 12:30. The size of the "insurance deposit"calculated on a weekly basis is determined on the basis of the average volume of transactions carried out by the bank through CHIPS for a certain period of time .

For example, Bank A should transfer $ 50 million to Bank B, and he also expects to receive $ 50 million from Bank B, which in turn should receive the same $ 50 million from Bank B.

Without multilateral netting, such a chain of payments can only be made if one of the participants has free funds of $ 50 million. In our example, when calculating through CHIPS, the need for such free funds is eliminated. Payments will be completed without real money movement, since the position of each bank is zero.

The clearing procedure for each payment takes no more than a few seconds . This allows you to significantly accelerate the implementation of money transfers. Moreover, about 93% of payments are processed by banks automatically without the participation of operators

CHIPS enables its members to significantly reduce the risks associated with the procedure for making money transfers:

Operating risk. To maintain uninterrupted operation of the system, similar to Fedwire, several computing centers are used.

Criminal risk. CHIPS has an efficient electronic validation system.

Each CHIPS member bank has a four-digit CHIPS Routing Number. For example, the Bank of New York - 0001, JP Morgan Chase - 0002, Union Bank of California - 050 5. Inaccordance with the internal rules of CHIPS, each member of the system registers its clients and correspondents in it by notifying their account numbers, names and addresses. They are assigned special six-digit codes - universal identifiers ( CHIPS UID ). As an example, the CHIPS UID of The Boeing Co. -141637 , Mobil Petroleum International Corp. - 235713, Sberbank of Russia - 321 233. This information is provided to all interested persons. It can be found in publicly accessible directories and on the Internet site www.chi ps.org. The data on the clients and correspondents of CHIPS members help to accurately specify the payment documents of the beneficiaries of funds, their banks and intermediary banks. And this, in turn, creates the ability for banks to largely automate the processing of payment orders.

In addition to CHIPS UID, banks are requested to use UPIC (Universal Payment Identification Code) when preparing their payment messages. It represents 8-17-digit numeric codes. When one bank receives a message from another that has specified UPIC correct payment instructions, the system automatically reproduces from the database information about its owner that is necessary for the transaction. Such information includes: name and address, BIC (SWIFT code), account number, and other data for the transfer.

Like many other telecommunication systems used for making money payments, CHIPS uses its own messaging formats. They are similar to Fedwire and SWIFT formats, which allows you to automatically convert messages from one format to another format, allowing for a high level of automation of STP-based operations. In CHIPS, for example, the following types of messages are used:

In order to consider the example of a payment order in the CHIPS system, assume that the company ASDF Marketing Inc. orders its bank - HSBC Bank USA (CHIPS Routing Number -0108) to transfer from its account 100 thousand dollars

as payment of the account N 1234 / SDR from 12.12.2004 by REWQ Consulting BV from Amsterdam holding an account at ING Bank NV ( CHIPS UID - 005373), which in turn is a correspondent for the American JP Morgan Chase (CHIPS Routing Number - 0108). To execute a payment, HSBC Bank USA will send a JP Morgan Chase bank order to CHIPS using the following content:

The CHIPS communication network is single-node, all of its members are directly connected to a single switching center of messages. In CHIPS is a primary and backup data center.System participants are directly connected to both the main and the backup centers. In the case of a freelance situation, all connections are duplicated by dial-up lines.

Billing messages may involve enrollment on the same day or next.

Currently, Fedwire and CHIPS serve up to 90% of the US domestic interbank settlement.

4. Bankwire - a network for servicing the private commercial sector.

5. The Bankwire system was organized in 1952 by ten US banks. After a number of reorganizations, the Bankwire-II system, the MasterCard credit card system, was created.

6. This system carries out the accumulation and further sending of messages. When sending messages, they are transmitted to specialized, powerful computer centers on high-speed dedicated channels, and then fall into the recipients.

5. CHAPS (Clearing House Automated Payment System (CHAPS)) - Clearing system in the United Kingdom. The system is supported by CHAPS Clearing Company Limited, established in London in 1984.

The system connects 14 banks (members of the CHAPS Clearing Company Ltd [1] Steering Committee), the Bank of England and more than 400 other participants in the settlements.

Banks receiving a transfer notification via this system must provide funds to the lender at the day they receive the message.

The system allows to significantly accelerate the process of mutual settlements, but the cost of transactions (about 25GBP per translation) is relatively large, especially compared to almost free BACS calculations.

The CHAPS system is a distributed network in which electronic payment messages are transmitted directly from the payment system member, the sender of the payment to the payment system member of the payment system, without passing through the central processing unit or the clearing house.

During the day, system participants exchange messages using the British Telecom PSS network . Each bank has a standard Gateway (Gateway) software that acts as an interface between the bank payment system of each member of the CHAPS system and the CHAPS network as a whole.

6. BACS (The Bankers Automated Clearing Services (BACS)) is a UK payment system that provides electronic crediting and debit entries in accordance with the order of the system participants by directing amounts to accounts or debiting them from accounts without the use of checks or other paper media. . At present, more than 90% of working British people use Bacs Direct Credit Salary Service .

Technology of work

The most widespread operation in this system is the direct transfer of wages to the bank accounts of the recipient. In the United Kingdom, about 2/3 of all monthly salary payments to employees of private firms and government employees pass through BACS. Information in the system comes in the form of records on magnetic tapes, cassettes and or transmitted through terminals that are directly related to the computer center.

BACS also performs a significant amount of payments in the form of "standing orders"), which are instructions to customers on the regular translation of their accounts for the payment of various types of contributions, insurance premiums, regular payments on loans, mortgages, etc. When performing this type of service, banks participating systems execute a "master file" every day, where customer instructions are written down. Information processing and payment in the BACS system are carried out within 3 days:

♣ Day 1: Receive incoming information for direct credit and debit postings. On this day, payments are due, which expire on the specified date. Magnetic tape with the record of credit postings (or other media), banks conducting accounts of recipients, are transferred to BACS. At the same time, the information comes to the central accountancy of the bank for debit deduction from the account of the client.

♣ Day 2: on the basis of information from the central accounting department of the head office, the current accounts of the payers are debited. On the basis of this information, new bands are produced and sent to the beneficiary banks, that is, banks participating from BACS receive magnetic tapes and process information.

♣ Day 3: Recipient banks process the received information and credit money to the client's account.

In Switzerland, the Swiss Interbank Clearing System operates around the clock. It carries out final and unpaid payments in Swiss francs using funds, while retaining in the Swiss National Bank (SHNB).

SHMKS is the only system that produces electronic payments between Swiss banks. Payments for all payments are found on the individual accounts of the participants (by debiting the bank account, indicating the payment, and lending the account of the beneficiary bank). SHMKS is a system of both large and small retail payments; the size of the payments are not limited.

The purpose of CMMS operation is to reduce credit risk, accelerate settlements and facilitate banks' cash management tasks.

The members of the CMMS must be located in Switzerland and are subject to banks in the sense defined by the Swiss banking law. In addition, they must have giro accounts in the SNB.

Giro (Italian giro - circle, turnover) is a kind of cashless payments made with the help of settlement checks. Such calculations are carried out in the form of a system of calculations of mutual requirements and obligations. The unit of account in fiscal accounts is a person, that is, a document on withdrawal of money from an account in the national system of greasy accounts.

Girosistema - is a system of payments through grease accounts, also through accounts in post offices, operating in many European countries and in Japan. Any person can open an account and transfer money from him to other holders of such postal accounts. The system usually has a central link, which allows you to accelerate calculations.

Through SHMKS can be carried out only credit transfers in the seamstress ¬ royal francs, that is, payments are always initiated by the bank-payer. SHMKS can be used for crediting payments of bank clients to any bank account, execution of payment orders in favor of third parties, provision of coverage and implementation of interbank payments. In addition, through SHMKS, payments to the payment system of mail, telegrams and communications (PTS) may receive a transfer of funds to postal accounts or money transfers (the amount of the transfer is delivered by the postman to the home beneficiary).Conversely, payments initiated through PTS offices in favor of bank account holders are transferred from the payment system of the PTS to the UMC.

Japan operates a system of financial network of the Bank of Japan (SPS-BJ). It was established in 1988 to implement electronic money transfers between financial institutions, including the Bank of Japan (BIA), which manages it. SPS-BS operates on-line.

Financial institutions must have accounts with the Bank of Japan to access SPS-BIA money transfer services.

The SPS-BS system is used to implement:

money transfers between financial institutions connected with the interbank money market and engaged in securities transactions;

money transfers within the same financial institution (intra-corporate money transfers);

settlements on the positions resulting from the functioning of the clearance of clearing systems, which are in private management;

money transfers between financial institutions and the Bank of Japan (including treasury transfers).

System participants make money transfers from one account to another BIA by sending payment instructions from SPS-BS terminals installed in the premises of individual participants. Calculations on money transfers are made by the participant's choice or on a gross basis in real time (from 9:00 am to 5:00 pm at Tokyo time), or at the set time. There are four established calculation periods: 9 am 00 min, 13 am 00 min, 15 h 00 m and 17 h 00 m. Payment instructions may also be sent on the eve of the calculation, with such calculations stopped at 17 h 20 min.

The Bank of Japan does not provide loans within the working day. If any SPS-BSA participant does not have the funds sufficient for real-time money transfer, the payment will be automatically deviated.

## Lecture 3
## Theme of lecture : International interbank SWIFT network .

### 1. The history of SWIFT (Society for Worldwide Interbank Financial Telecommunication - World Interbank Financial Telecommunication Society).

The initiative to create an international project aimed at providing all its participants with the possibility of a 24-hour high-speed exchange of banking information with a high degree of control and protection against unauthorized access, began in 1968. A little later (in 1972), this initiative was formalized in a project called MSP (Message Switching Project - Message Switching Project). In the same year provided by Logis, the report contained calculations and recommendations for creating a profitable system for exchanging banking information that would meet all of the following requirements:

1. The system should be based

· To create an international network and network service service;

· Standardization of processes, as well as standardization of messages;

· Standardization of facilities and equipment for connecting banks to the network;

2 To ensure profitability, with the cost of transmitting one message of $ 0.15, the system should process at least 100 thousand messages per day with the participation of approximately 70 banks.

3 The system should contain two independent and interconnected distribution centers and hubs in each of the participating countries.

Based on these recommendations, 239 banks from 15 countries of Europe and North America in May 1973 created SWIFT according to Belgian law. It was determined that the purpose of the Company is to conduct research, creation and operation of the means necessary for providing remote communication, transmission and the processing of confidential financial communications and financial communications that are private property for the general benefit of its members.

After introducing the system into a research operation in early 1976. and the solution to a number of start-up problems , on May 9, 1977, the official opening of the SWIFT financial communications network took place. At the beginning of the network, it used 513 banks from 15 countries, providing daily traffic of about 500 thousand messages. Today, SWIFT already has over 6700 users from 189 countries (including more than 2200 banks), which has more than 35 thousand terminals). All of them, regardless of their geographical location, have the opportunity to interact with each other around the clock 365 days a year (availability of the SWIFT network in 1999 was 99.96%).

### 2. Basic and directions of activity.

The main areas of activity are providing prompt, reliable, efficient, confidential and protected from unauthorized access to telecommunication services for banks and work on standardization of forms and methods of exchange of financial information.

**Automation of banking processes at the international level enables :**

- to carry out paperless payment transactions with minimal involvement of people and reduction of operating expenses;
- to speed up the exchange of information between the banks of the states with the help of telecommunication lines;
- Minimize typical types of bank risk (loss of documents, false addressing, falsification of payment documents, etc.).

SWIFT uses artificial satellites of the Earth for Communications network banks again ¬ these countries, each of which is vlasneterminalne mouth ¬ roystvo based on personalcomputer, connectedthrough a data hub using telephone lines with a computer. Payment orders, transferred by the SWIFT network, are accounted for in the form of a transfer to the corresponding Nostro and Loro accounts, as well as with the use of traditional payment documents.

In each country where the SWIFT system is introduced, the company creates its regional administration. In Ukraine, its functions are performed by a telecommunications company, which, however, is**not limited to managerial issues, but also advises on the purchase of equipment, organizes training courses for personnel, etc.**

**3. Advantages.**

Working on the SWIFT network gives users some benefits:

- the system guarantees the absolute security of payments by a multilevel combination of physical, technical and organizational methods of protection, complete security and secrecy of information;
- reduction of operating expenses in comparison with telex and telegraph;
- reliability of message transmission;
- Fast delivery of messages to any point of the world, delivery time from 1 to 20 minutes, that is, in real time;
- increase of efficiency of the bank as a result of high automation and unification of messages;
- Allows control and audit of all payments and orders passing through the network, providing accurate reports through international accounting and documentation practices;
- increase competitiveness of banks - participants of SWIFT;
- Guaranteeing to its members financial protection in case of network interruptions. SWIFT assumes the payment of all direct and subsequent expenses incurred by the client due to late payment.

The disadvantage of the SWIFT system is the extremely high amount of network entry costs , which creates problems for medium and small banks.

SWIFT members may be countries and their banking institutions that are authorized to conduct international banking operations and are in a country with a regional SWIFT processing center.

All payment instructions and other messages in SWIFT are made in a standardized format that simplifies the automated processing of documents and avoids mistakes and differences in the traditions of design in different countries.

4. Principles of constructing standardized forms.

All financial messages should use standardized forms. Messages of all types are based on the general principle . They consist of an initial part that includes the Start of Message , Header andStart of Text , Text of Message, and the end of a message that includes the end of the text label ( End of Text), parameters (Trailer) and the end of message (End of Message).

The initial part and its end form an "envelope" in which the messages are forwarded and which contains information that is important for controlling the message traffic on the network.

The header contains the 11-digit ID-code of the message recipient, the sender's terminal code , the current five-digit number that performs control and protection functions, and a three-digit message code with a two-digit priority code. The parameters indicate the authentication code and other messages, for example, the warning of the recipient bank about the delay of the message transmission, the warning about the possibility of double payment and so on.

With the goal of ensuring the correct delivery of messages, all SWIFT users receive Bank Identifier Codes (BICs) that are network addresses (not only users of the SWIFT network can receive BICs).

Identity codes have the following structure:

· World four-letter code of a financial institution;

· Two-letter country code in accordance with ISO standards;

· Two-letter code of the location of a financial institution (possible geographical distribution within the country, ie city, region or time zone);

· The three-letter auxiliary code (for a non-SWIFT financial organization, the BIC is provided; for the SWIFT user the three-letter code can be used to identify its specific location in the country).

The text of the message consists of fields marked with two-digit numeric code. For example, code 57 means the bank where the account is kept, 69 - the beneficiary, field 71 indicates whichaccount is paid and the amount of commission, and in field 32 - the amount of payment. The text of the message information is entered in strict sequence. At the same time filling a part of the fields is mandatory, and some fields may not be filled or filled in any way.

Required fields contain the information necessary for the correct processing of messages.

**Categories, groups and types of financial messages**

Currently, there are 11 categories (see tab.) Covering more than 130 types of messages, constructed in such a way as to ensure the execution of financial transactions with great accuracy.

Messages are usually transmitted from one user to another SWIFT, but there is also a category of system messages that allow the user to interact with the network. System messages are used to request specific actions and to receive custom reports, to search for database messages for educational and training purposes. A user can receive requests from the network or shecan inform him about his current status, updates, new services, and so on. System messages have the highest priority since they contain information related to the operation of the network.

All other types of messages are provided with three-digit numeric codes, with the first digit corresponding to the category of operation.

Each message from a general group can be used in any of the following categories of messages. The general group message codes have the form n9M , where n is replaced by the number of the category that best matches the message's purpose, 9 - indicates the special nature of the message in each category, and M specifies a particular type of message (for example, 0 - message , 2 - requirements about cancellation , 5 and 6 - respectively, requests and answers).

Message category 1 related to payments or information about them when the customer or beneficiary or both are not financial institutions.

By category 2 classified messages that are exchanged between financial institutions in their own interests. These include transfers that contain requirements for cash flows received by financial institutions, as well as notifications of future orders that notify financial organizations of funds that must be credited to the accounts of senders.

**Category 3** messages confirm information already known to both parties (details of the contracts, which are usually already agreed upon) by notifying the details of the confirmation and settlement of the agreements. **These include information on currency exchange contracts,** cash deposits in connection with *loan / deposit* transactions and early interest rate agreements.

Messages of **category 4** do not imply strict adherence to the single rules **established for collection payments,** but should be processed taking into account that no collection of cash payments based on different types of currency is foreseen in any message. *An engagement transaction is called the form of settlement under a foreign trade agreement, which consists in the fact that the exporter instructs his bank to receive from the importer a certain amount of currency when transferring the latest relevant commodity documents.*

**Category 5** Communications **contain sales and payment instructions** and related evidence, joint actions, capital and profit statements, reporting and information related to portfolio management and securities lending.

**Category 6** messages may contain information directly related to **operations with precious metals (** tradeoffs, notices / transaction instructions, reporting information), as well as various messages exchanged between financial institutions operating in a precious metal syndicate ( notice of termination / renewal of services, setting interest rates, payment of capital or interest thereon, and paying for the benefit of the syndicate).

Posts Category 7 contain information on loan issuance, instructions and reports related to credit operations and warranties. Notice of this category is not subject to strict restrictions in the form of requirements for the direct use of the English language.

By communications category 8 includes a message about the sale and payment of checks , refinancing and inventory management, as well as messages exchanged between issuers of checks and remittance senders (payee), sales agents and agents refinancing operations involved in traveler's checks.

By category 9 include messages carrying statements (information on the regulation of financial transactions, balance and details of operations), inquiries about clients and organizations.

Development and standardization of other services

The SWIFT system was originally conceived as a system for automating the execution of financial transactions by exchanging structured communications of limited length, which now provides financial services (FIN). In essence, these services include the transmission of messages from one user to another, including verification of the message format, confirmation of its acceptance by the network in the case of format matching, storing a copy of the message for possible audits and for the next guaranteed delivery.

However, the exchange of structured messages of limited length is not all that is required for a communication exchange. There is a large number of less relevant data that is not critical, but nonetheless necessary for the exchange and effective action of financial institutions. Therefore, SWIFT developed a service, especially convenient for large-scale data transfer - Interbank File Transfer (IFT). This data may include administrative and current reporting information between the head offices of the banks and their affiliates , buyer information, data for managing loans, general economic and statistical information.

IFT can also handle transactions with business reports and general correspondence, risk management and exchange checks, as well as other documents that are traditionally sent by fax. As in the provision of financial services, secrecy is guaranteed. IFT services are fully integrated into the architecture of the SWIFT network and have the same privileges.

In addition to IFT, SWIFT pays attention to state-of-the-art technologies such as Electronic Data Interchange (EDI) . EDI, in essence, is not new to the SWIFT concept, since it provides tools for electronic exchange of information for closed user groups, such as banks. The main thing in EDI is the provision of electronic banking telecommunications with trade data. Providing SWIFT with these features will help network users exchange financial and commercial data related to their corporate clients. EDI success can only be achieved with international approval of the relevant standards and secrecy. Therefore, S .WIFT took an active part in the MD4 OOH committee, which focused on developing new standards for financial and commercial communications, and played an important role in developing new standards for EDIFAST commercial paperless payments .

As already noted, the volume of messages transmitted through the system SWIFT is constantly increasing. Also, the number of members of the system is

constantly increasing. In addition to the members, connected members and the so-called "participants" (brokerage offices, investment offices, clearing organizations, etc.). Daily messages amount to $ 5 trillion.

SWIFT assumes financial responsibility for accurate, complete and timely delivery of messages. No other organization providing the network for data transmission can guarantee this

· The combination of physical and logical security measures, as well as the application of various types of encryption prevents the possibility of changing the message during its transmission over the SWIFT network. No one except the sender and the recipient of the message can consider its contents.

· Delivery of messages is made in a few seconds, and their verification and authentication is carried out completely automatically.

## Lecture 5
## Theme of lecture : Information systems for multinational corporations.

### 1. Features of information systems for MNCs

The last two decades have been marked by the rapid development of international economic ties. There were free economic zones and the role of multinational corporations (MNCs) became stronger. It should be noted that MNCs are now becoming more and more real economic power. Thus, the share of their intra corporations accounts for about 1/3 of international capitalist exports.

Multinational corporations are defined as "corporations that are national in terms of capital but international in scope, which is carried out abroad in accordance with local laws and peculiarities.

The information system as an integral part of the management system contains the data required by the MNEs to plan, control, evaluate and coordinate their production activities, including operations abroad. The main task of management of higher Linsky managers of MNCs is to ensure its economic prosperity at the international level, which is a steady increase in profits.

It is much more difficult to solve this task than to formulate it. Different countries have different approaches to this. In Japan, management personnel are developing a long-term profitability strategy. In Germany, more often, they build a strategy based on actual costs, in Switzerland, they are mostly oriented to the market situation - any costs that may be paid off in the future are possible, in Italy, they develop their long-term plans through lengthy negotiations, approvals and reciprocal concessions with their foreign counterparts . Scandinavian countries are quite strictly controlled by multinational corporations located on their territory; in Holland, on the contrary, this control is more liberal. Thus, the need for accounting information differs significantly not only in different countries, but even between the headquarters of the MNC and its foreign subsidiaries.

Information intended for external users regarding MNCs (shareholders, lenders, employees, clients) is largely provided in the form of annual reports of the firm.

Therefore, in future, the subject matter of our attention will be the information needs of internal users - the management personnel of the MNC.

The management team uses internal information for planning, monitoring and analysis in both short and long term goals. For example, short-term (current) estimates are scheduled for the following year and are subsequently used to control and evaluate the management effectiveness of a production unit (a subsidiary of a company located abroad). Long-term planning typically covers a five-year period, while the process for drawing up the next annual plan is part of the strategic course of MNC and its subsidiaries.

Detailed formalized information is required to search and make managerial decisions for management at all levels. Regardless of how the information system is organized in the MNEs, all economic and political changes, legislative restrictions, cultural differences and sociological characteristics of the country in

which the corporation carries out its activities must be taken into account and reflected. This information comes from the heads of foreign affiliates and provides an overview of possible changes in the exchange rate in the near future, the political situation and even changes in the purchasing sympathies and opportunities of various youth groups. Such external factors may not be taken into account when designing an information system for a company that does not conduct operations on the foreign market, but for MNEs they are extremely important when making managerial decisions.

The data processed in the MNC information system comes from different internal and external sources and is used by decision-makers at all levels, which can affect the efficiency of operations both on the domestic and on the foreign market. This information is useful not only for the management, which is located at the headquarters of the MNC. It enables MNEs to influence the economic environment in which its overseas branch operates, helping the latter to increase the efficiency of its activities.

Analytical capabilities of the MNC information system are very large, since it receives data from all subsidiaries and in different types. In addition, the system must be constantly adapted to the user's requests, in a timely manner to respond to possible changes in the economic situation in which the MNC operates. The scope and quality of the information provided to the managerial unit should maximally contribute to the achievement of the short-and long-term goals of the MNC and its subsidiaries. In fig. 1 shows the data that is received and circulated in the MNC information system.

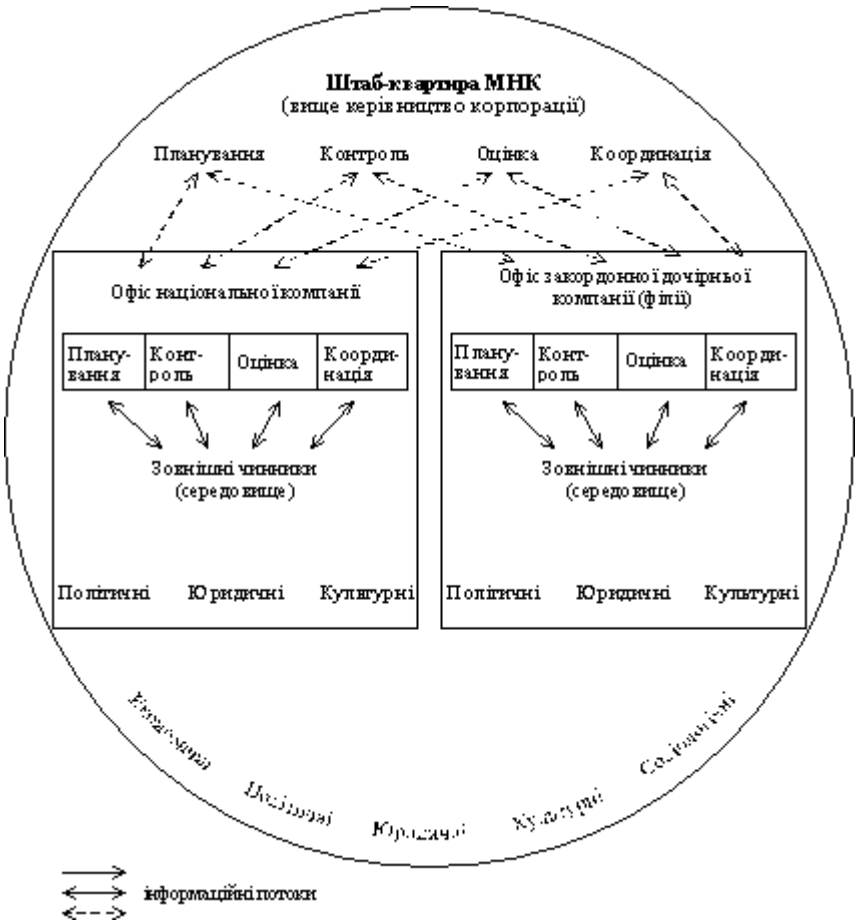
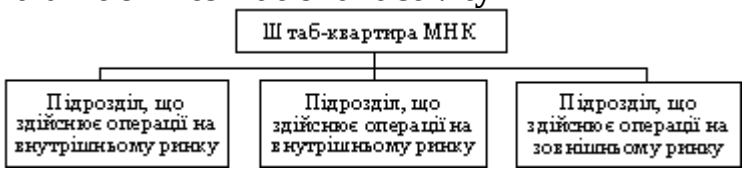


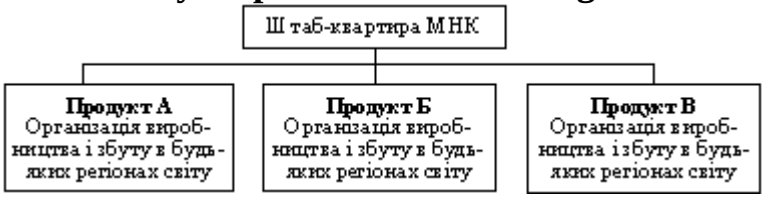

Fig. 1 Circulation of data in the information system

Each MNE has several levels of governance that has different authorities and responsibilities. The distribution of these powers is fixed in the organizational structure of governance. This determines the amount of information required by each level to plan and control their activities. Proceeding from the requests, methods for collecting, processing and submitting data in the information system are also projected. Consequently, the composition of the data to be collected, the methods for their processing and provision should comply and to the maximum extent meet the requirements of the organizational structure of the management of the MNC (Figure 2).

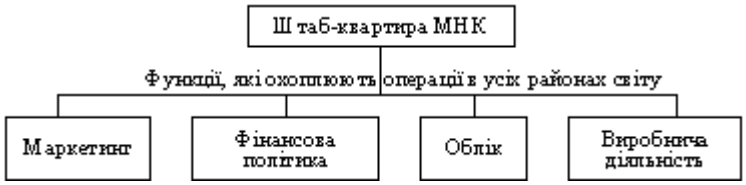
**1. Selection of a unit of international activity**



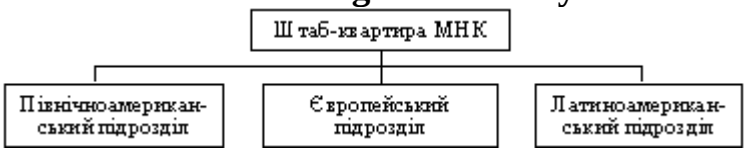

**2. Distribution of activity on production-technological results**




**3. Distribution of activities on a functional basis**




**4. Distribution of activities in the regional activity**




**5. Matrix organizational structure**


Fig. 2. Forms of organization of activity of MNC

The MNC management system can organize its activities, including overseas, using one of the following methods:

- creation of an independent division (branch) from foreign operations;
- division of activity by function;
- division of activity in production-technological directions;
- division of activity on a regional basis;
- use of matrix organizational management structure.

**Creation of an independent division (branch) for foreign operations.** Its competence includes operations management exclusively on the foreign market. As a rule, this unit carries out its activities independently, and, on the basis of results, can be compared with other units of the MNC, which carry out operations only on the domestic market. An example of corporations that use this form of organization of foreign economic activity may be "Hercules-Ynkorporeyted", "Quo supervisor Oates", "P Company", "Allayd kэmykal Interneshnl".

**Distribution of activities by function.** In this case, the corporation provides separate functional areas: production, sales, accounting, etc. It is through these functions that centralized control is carried out. Thus, the vice president of the sales corporation, headquartered in the United States, will be responsible for all marketing activities, including outside the United States. The vice president of production is responsible for its organization in all corporations' branches without exception. This form of organization of production has not become widespread; it is characteristic of industries with a narrow range of products. These include, first of all, mining industries: oil-extracting, coal-mining and others. Methods of extraction and sale of oil or coal is not very different in different countries, so management can be implemented centralized ed from headquarters.

**Distribution of activity in production-technological directions.** This form of organization is the result of the integration of internal and external operations. The corporation allocates several main production and technological lines, each of which is engaged in the production and marketing of a particular product. Products can be sold on any market. The efficiency of each technology line is estimated by the overall result, regardless of which part of the product was sold on the foreign market. This way of organizing production inherent in corporations, which have a wide and diverse range of con trol. An example is DuPont Corporation.

**Distribution of activities on a regional basis.** Here, operations performed corporation, separated by regions (north to America, Europe, etc.). The company applies to this form of organization when its operations on the foreign market are not limited to one region or country, but rather evenly distributed throughout the world. US MNCs are largely confined to the internal market and therefore do not use such an organization of their activities. On the contrary, it is often inherent in European and Japanese corporations. An example is the Swiss company Nestle, which is engaged in the production and sale of chocolate and cocoa beans.

**Use of matrix organizational management structure.** This form of organization of welfare is a kind of combination of several of these forms (for example, the general manager of the French branch of the corporation reports on its activities both before the vice president of the production corporation and before the vice president of the European region). In the "Union-Karbaid" corporation operations on the foreign market are organized on a regional basis, while accounting and reporting are carried out on a functional basis. In this case, the activities of regional offices are considered not as an integral part of the corporation's activities on the domestic market, but as activities of separate structural units, which bear complete responsibility for the final financial results. In fig. 2 describes the forms of organization of production activities of MNCs.

How does the form of organization of production affect the information system used in the corporation? Obviously, the data on operations on the foreign market are invariant, and only information flows change. At the same time, in the end, the information is distributed among all interested in its services of the corporation. So, if the management of the MNC is organized on a regional basis, the credentials are accumulated in a separate regional office and then transferred to the headquarters.

In a matrix organizational structure, data can be transmitted through several information streams: for example, regional managerial staff and directly to the headquarters of the corporation vice-president of production.

The organizational structure, control system and principles of the functional services of the corporation are largely determined by the position of its top management in relation to the organization of business abroad. Today, approaches that exist in foreign practice can be classified:

- ethnocentric, which involves the replication of all the affiliated companies of the principles of organization and conduct of business taken in their country;

- polycentric - gives a foreign subsidiary a certain degree of autonomy in the choice of forms and organization of business;

- geocentric - focused on the maximum unification of the principles of organization and conduct of business, adopted in each country.

A multinational corporation that uses a ethnocentric approach believes that the standards and principles of business organization adopted at headquarters are the best, and therefore extend to all subsidiaries that operate abroad. Management of polycentric MNC not only recognizes the existence of certain national features in the organization of business, but also seeks to use them to increase profits.Therefore, its foreign affiliated companies operate quite autonomously, including the organization of the system of management and control.

The geocentric approach is oriented towards the achievement of global goals. In this case, MNCs and their overseas subsidiaries are treated as a whole. When organizing a management and control system, the MNE's management tries to apply standards and principles that are universal in any country. The organizational structure of the management of such a corporation should maximize the coordination of decisions taken on a global scale. The implementation of the geocentric approach is the goal of any MNC, but only a few of them have achieved it.

Typical representatives of the ethnocentric approach are car-building corporations. Among them, "General Motors" and "Chrysler" (USA), "Fiat" (Italy), "Citroen" and "Reno" (Fran tion), "Mercedes Benz" and "BMW" (Germany), "Toyota "And" Nissan "(Japan)," Saab "(Sweden). Pharmaceutical companies are followers of the polycentric approach. Yes, Bayer (Germany)

organizes the production of medicines in its foreign affiliates as in rather autonomous formations. Dutch-English firms, such as "N.V. Philips Electric" and "Univiller", are largely geocentric. Representatives of many countries are members of the board of directors of these firms and occupy senior management positions

posts

The position of the management of the company's headquarters also affects the delegation of authority for the adoption of key management decisions. If the management of the MNC allows its overseas affiliates to make important management decisions on their own, then such a corporation may be considered as decentralized. This approach is now the most widespread. Foreign affiliates provided considerable autonomy, but because their leadership is constantly necessary information for planning, prevention Liu and evaluation of their activities. In each subsidiary, such information is generated within the framework of a separate accounting information system. At the same time, the headquarters of the corporation also needs information about its overseas divisions for planning, monitoring, evaluating and coordinating activities globally. Consequently, the accounting information system should be designed taking into account the satisfaction of requests of managerial staff of the first and second levels of management.

If the decision is taken at the headquarters of the MNC, it is a centralized corporation.

As a rule, multinational corporations do not centralize all management decisions, but try to find a reasonable mix of decision-making rights at the level of the headquarters of MNC and its subsidiaries.So, decisions on the most important issues of the management strategy of the MNC can be taken in a centralized manner; On the contrary, decisions that are not vitally important can be taken at lower levels of management, including the management of subsidiaries. At IBM and Nestle, research and research work is conducted on a centralized basis, since, according to the corporation's management, they are vital in strategic terms, and should therefore be controlled directly at the headquarters of the MNC. At the same time, many issues relating to the production and commercial activities of subsidiaries are resolved in a decentralized way, since financial success or failure of any of them can not significantly affect the position of the corporation as a whole.

**2. Requirements for the design and implementation of MNC information systems.**

Over the years, data on operations in both the domestic and foreign markets in US companies have been reflected within a single accounting information system. There were several reasons for this.First, the export of a ready-made accounting information system for its use in a foreign branch of the corporation is much cheaper than designing a new system. Secondly, based on the control objectives, the accounts of the headquarters of the MNC reports from domestic and foreign companies are more convenient to receive the same forms. Thirdly, the top management of MNCs is generally familiar with the principles of the structure of the internal accounting system, so its use abroad is preferred.

At the same time, the use of a monotonous system to control the activities of foreign affiliated companies is often ineffective. The point is that the accounting system should be designed and functioning under the influence of a number of external factors (political, economic, social, cultural and legal) that have national characteristics. Simple export of the accounting system does not allow these factors to be fully taken into account and often leads to negative consequences.

The four main functions of financial control - measurement, communication, evaluation and motivation - must take into account the peculiarities of the surrounding socio-economic media for any country.In fig. 3 shows the interaction of functions of financial control and factors of the environment. These same authorities also have other control systems that are used in the MNC, including production and marketing control systems.

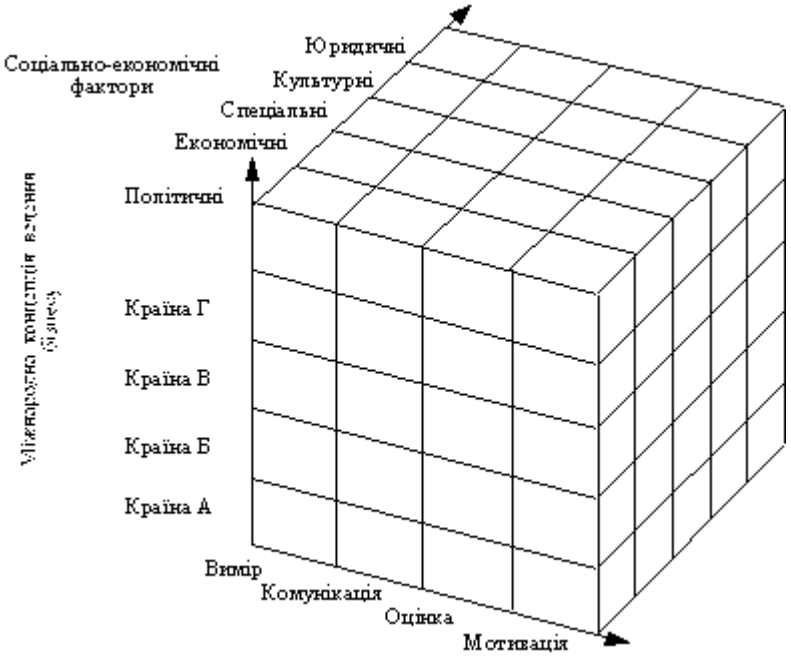



Fig. 3. Conceptual model of the financial control system in the MNC

Example: MNCs with headquarters in the US have several foreign affiliates. All of its units in the United States act as autonomous production units whose purpose is to maximize net profit in US dollars.Its foreign companies do not have full autonomy in making managerial decisions. Their main task is to supply American units of semi-finished products. Effective planning and control of its foreign operations headquarters of MNCs to permanently was needed about exchange rates, requirements for export and import of goods, tax policies in different countries. This information is not compulsory for the domestic market, that is, when dealing with departments operating in the United States.

Other criteria are needed to evaluate the activities of foreign affiliates of such MNCs, since maximizing net earnings in US dollars is not their goal. Foreign units should be valued primarily as reliable and efficient suppliers. In order to make such an assessment, the headquarters of the corporation need fundamentally different information about their foreign companies than those operating in the United States.

Again, the main purpose of the accounting information system is to provide the information that is necessary for the planning, control and evaluation of the firm's activities. Multinational corporations can have different organizational structure of management, composition and way of interaction of production units. The information required for such a production unit is determined by the target function.Therefore, the developer of the accounting information system for a specific MNC must clearly understand the nature of its activities, especially its organizational structure, the degree of centralization (decentralization), the level of authority of managers of different rank, information needs of each of them to make sound management decisions.

The size of the company, the scale of its business is another factor determining the need for information. To manufacture ruvannya large company

that has a complex organizational structure, necessary information is more diverse than for a small volume and scope of the company.

The scale of the company's activities is directly related to the number of levels at which management decisions are made. Depending on the company's organization and management philosophy, each level has its own measure of responsibility and competence in dealing with managerial issues. Therefore, the information system should provide all levels of information management, which varies by degree of detail, periodicity of provision, orientation on certain aspects of the activity.

For example, large MNCs are often more centralized - in this case, the senior management at the headquarters of the MNC prefers more rigorous control of the operations management unit of the firm.On the contrary, small companies can provide greater freedom of action to their overseas affiliates; consequently, the information necessary for a managerial decision is accumulated at a lower level.

The size and organizational structure of the company can also influence the technology of passing information from a foreign subsidiary to the headquarters of the MNC. For example, if a large MNC has an independent foreign operations unit, information from companies operating in Europe is initially provided to the management of the European office, and then to the management of the unit.

Consequently, each of these factors should be taken into account when developing an information system that would guarantee in future high-quality information provision of strategic planning, monitoring and analysis of the MNC's activities.

The development of information systems is associated with the improvement of their mathematical and technical support. Methods such as statistical analysis, linear programming, regression analysis greatly increase the efficiency of the use of information.

When a corporation operates in different regions of the world, the territorial remoteness of sources of information tends to affect its timeliness, quality and credibility. Therefore, the use of computers and electronic communications allows us to have a better information system that will ensure the functioning of decision-making systems of a significantly higher level.

## Lecture 6
## Theme of lecture : International information systems of technical analysis of markets.

Currently, four international information systems are widely used in the CIS market. First of all, it is an information organization Reuters, which has become widespread thanks to a high quality information base and the presence of a ticketing system that enables real-time transactions in commodity and financial markets.

Among others, less common in the territory of the CIS countries, we should mention the information systems Dow Jones Tallerite, Bloomberg and Tenfor.

**1. Reuters is a global leader in news, financial information and technical analysis. Its customers can use recent advances in electronics to obtain and disseminate information, analyze it, and use it in commerce.**

The technology and rather significant resources of Reuters are fully used by banks, brokerage offices and other consumers in the financial and business markets. At any time, you can get news and quotes on almost 300,000 Terminal Reuters (Reuter Terminals), united through a global satellite communications network. The other side of Reuters's activities is to provide news to the media around the world.Reuters gets information from around the world with 128 offices in 86 countries with over 1,600 reporters, photographers and operators. Representative offices of Reuters have been opened in Moscow, St. Petersburg, Kiev and other cities of CIS countries.

The use of computer technology and new information technology has radically changed the work of Reuters and its information products. When in 1971 the major industrialized countries of the West agreed on more flexible foreign exchange regulation, moving away from the Bretonwoods agreement, Reuters created an information network for servicing the money markets - Reuter Monitor (Reuters Monitor). With this system, subscribers received the opportunity to receive on-line terminals quotes of bank currency trades at intervals of several seconds. Later, there were additional opportunities for news and quotations from other financial markets.

Now, Reuters continues to pursue promising directions on non-traditional technologies, retaining leadership in virtually all areas of activity. The range of products and services is constantly expanding along with the active use of multimedia capabilities. To provide its services, Reuters has developed fairly widespread private satellite and cable networks in the world.

The agency collects news and prices and sends it to its customers. Agency services can be divided into four groups:

a) Finance and business.

Clients (banks, brokers, investors, managers of different industries - all those who need information on exchange rates, quotations of securities and other financial instruments) receive and analyze news reports and the movement of prices on world markets.

b) Concluding agreements.

Clients (those listed above) carry out foreign exchange transactions and enter into futures, options and securities agreements directly from Reuters terminals.

c) News.

The media (newspapers, magazines, radio and television) are preparing notes, reports and news releases, using information on events in the world - texts, photographs, videos and graphics provided by Reuters.

d) Television.Television Reuters is the world's largest provider of television news; It serves more than 200 television channels and their affiliates in 84 countries.

Reuters round-the-clock collects data and financial information in real time from 180 exchanges, securities markets and 4,000 organizations in 80 countries. The data provided by Reuters cover all the major markets in the world - from New York, London and Tokyo to Moscow and other CIS financial centers.

In fig. 1 shows the block structure of some Reuters information services.

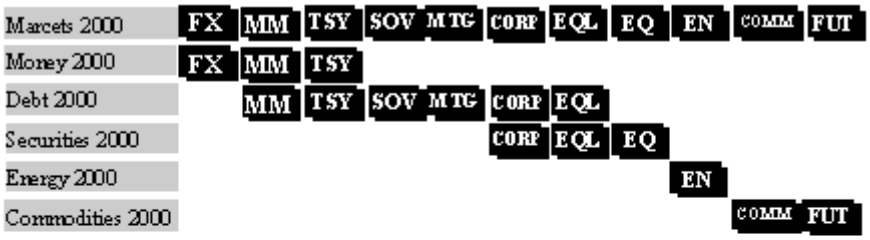



Рис. 11.1. Блочна структура інформаційних служб Рейтер

Ці дані розподіляються в рамках таких розділів:

**FX** Foreign Exchange — валюти та дорогоцінні метали;

**MM** Money Market — короткотермінові (до одного року) інструменти, окрім казначейських зобов'язань;

**TSY** Treasury Debt — казначейські (федеральні) державні борги в національних валютах у розрізі термінів погашення;

**SOV** Sovereign Debt — внутрішній борг і борг, гарантований державою; борг місцевих адміністрацій, муніципальний та державний;

**MTG** Mortgage/Asset-Backed Debt — борг, взятий під заставу майна або забезпечений дивідендами;

**CORP** Corporate Debt — корпоративні облігації з фіксованим прибутком/дивідендом;

**EQL** Equity Linked Securities — варіанти, привілейовані акції, конвертовані облігації та акції інвестиційних фондів;

**EQ** Equity — прості акції;

**EN** Energy — енергоносії та похідні інструменти;

**COMM** Commodities — сировинні товари та похідні інструменти, дорогоцінні метали;

**FUT** Futures— ф'ючерси та опціони, що котируються на біржах.

### 11.1.2. Системи відображення інформації

Reuter Terminal (RT) is a standard terminal based on a high-speed personal computer using Microsoft Windows. Multifunctional mode allows you to analyze information in real time with one or more applications, such as Reuter Graphics or Microsoft Excel.

Reuter Terminal can store in memory the layout of information on the screen, which greatly enhances the efficiency of the work on it by several users. The hint system makes it easy to find the right team.

Reuter Terminal can be supplied to the user in a network version - as a software package for installation on the user's computer, or in the form of a finished workstation. The option "twin screen" (dual screen) directly extends the scope of information.

Triarch is a digital information distribution system for dealing rooms. Opens real-time access to Reuters and other sources for dealers. The standard software interface allows users and third parties to develop their own applications for Triarch.

Triarch is an open system and runs on major computer platforms. The system integrates workstations, personal computers and common terminals with operating systems UNIX / X Windows, Microsoft Windows and OS / 2 in one network.

Prism is a video information communication system that allows the dealer to control several (up to four) screens using one keyboard and mouse.

The availability of individual context and password systems provides protection against unauthorized access and work from any dealer location.

The high flexibility of the Prism system is demonstrated by the communication of up to 64 different video sources, including Reuters, own and other systems, serving more than 64 dealerships when combining multiple Prism systems, and the ability to work together with Triarch.

Dealing 2000 provides direct access to 20,000 dealers from more than 5,000 banks and other organizations in 82 countries of the world for the purpose of receiving and transferring quotes, concluding transactions and exchanging information. Dealing 2000 supports conversion deals, loan attraction and placement, as well as FRA, SWAP and other deals.

The connection can be set in 2-3 seconds, regardless of where you are. Users can simultaneously conduct up to four negotiation sessions on the same screen and freely exchange information within the dealer lounge.

Built-in negotiation session analysis tools provide automated training for dealer dealerships, as well as give tips that greatly increase the efficiency of using the Dealing 2000 system and prevent the occurrence of errors.

Reuter Domestic Dealing offers a more cost-effective solution for domestic market participants, which enables dealers to contact 500 banks located in the CIS.

## 2. Technical analysis in the Reuters system

The Reuter Graphics (RG) subsystem is an add-on to the Windows operating system with the DDE function file (Dynamic Data Exchange), which provides the transfer of Reuters data - both historical and current - to Excel spreadsheets. After this step, information from external and other sources is added to the received data, and then they are re-sent to Reuter Graphics for the next analysis cycle.

RG is part of the standard package Reuter Terminal. RG provides:

1) the construction of charts of three types: linear, histograms, "Japanese candles";

2) consideration of graphs on a scale:

- daily (daily);
- weekly (weekly);
- monthly (monthly).

3) all main technical indicators - Moving Averages, Momentum, On Balance Volume, RSI, MACD, ROC, etc .;

4) the possibility of building trend lines;

5) the possibility of drawing schedules with the help of inscriptions and auxiliary lines.

For those who need more in-depth analysis, Reuters offers Reuter Technical Analysis (RTA). RTA is a high-quality graphical system of technical analysis of currency, futures and commodity markets. It provides users with the ability to receive data in real time, as well as a wide range of analytical capabilities, through which you can make effective management decisions.

The dedicated Reuter Technical Analysis terminal has the following benefits: a) high-quality graphic capabilities; b) computing power of Intel class processors; c) the accuracy and speed of the IDN Network (Integrated Data Network); d) the simplicity of the menu-based interface.

The user can simultaneously display 16 charts, which are based on data that is updated in real time. For each graph, the user can apply several (from a set of 50 algorithms) analysis methods. In addition, any user can ask and display their own analysis methods, which also work in real time.

Compared to Reuter Technical, the RTA has the following additional features:

1) along with linear graphs and graphs like "Japanese candles", the possibility of constructing "crosses - nicks" classes of two types and histograms of three types, as well as some other types of charts;

2) for eight types of time intervals (from tick to month);

3) about 40 types of mechanical methods of forecasting - from elementary to rather complex;

4) the ability to display six different types of trend lines, including Anna and Fibonacci lines;

5) quite powerful opportunities for editing the received graphs.

In the RTA system, you can track all types of market timelines: price, volume, and open interest. Along with this, the RTA system allows you to simulate signals for purchase or sale by the user. To do this, you only need to set limits for the movement of price, volume, open interest or any other technical indicator. As part of the RTA, you can simultaneously display news on the technical analysis so that an expert technical expert creates an optimal mode of operation and there is no need to constantly refer to the Reuter Terminal - the main source of all types of information. RTA graphics capabilities are complemented by color printing, a full range of real-time quotes, Reuters info pages, headlines and news stories, and updated and real-time commentary comments.

The RTA tool buffer contains historical and current information about 200 tools at a selected time. When you replace or add tools to the RTA buffer, it automatically generates a request for historical data from an international database of the Reuters agency for 15 years. Data filters that are set by the user or determined by the exchange, as well as the periods of absence of trades, which are specified by users, provide continuous display of data.

With the Reuter Technical Analysis and Reuter Graphics applications, you can build graphics and explore any financial and commodity markets, that is, conduct a thorough technical analysis.

## 3 Dow Jones Telether information system (dow jones telerate)

Dow Jones Telerate is one of the largest agencies in the field of real-time market intelligence analysis. The company is an important part of the American information concern Dow Jones and Company, which has more than a century of history. The concern was founded in 1882 and it became the world's first structure created directly for the collection, processing and analysis of financial and economic information. In virtually all products currently offered by the company, the user is able to graphically provide quotation information and prices in real time, as well as apply the technical analysis methods to these charts.

At the beginning of the century, traders had enough newspaper information in order to determine, with the help of technical analysis, the situation in one or another market. Now the situation on financial and futures markets is changing so quickly that success can only be achieved if information is received and processed in real time. Among the products of Dow Jones Telerate, the most famous is Teletrac.

## 4 Teletrac system

The Teletrac user has access to current quotation information from more than 1,500 financial, commodity, and stock market instruments. According to its requests, the user creates marketing plans, the last version of which is 32. Under one plan, the user is able to build up to eight graphs of one or more market instruments, each of which can be supplemented by technical indicators (Support and Resistance Levels, Moving Averages, Trend Lines, etc.) that are built in one window. In separate windows, graphs of change of most of the known indicators used during technical analysis (RSI, MACD, CCI, etc.) can be constructed. Teletrac has access to virtually all charting tools, such as Line Charts, Bar Charts, Point and Figure Charts, etc.

An important feature of the Teletrac system is its flexibility, which makes it easy to combine all available methods in any combination (for example, you can build trend lines and moving averages on the RSI graph, easily switching from one form of data submission to another).

Along with this, Teletrac has the ability to develop its own trading strategy: conditions for opening and closing positions, trailing stops, etc. Each rule of such a strategy, in turn, may contain all technical indicators that were previously introduced into the trading plan. This system will independently track the situation and send signals for purchase or sale. In addition, you can check the potential profit of your strategy on the material of the historical database, which combines the information that applies to most of the available market tools for 10 years or more. The Teletrac user can print graphic and tabular information, save graphics on floppy disks in graphic format, and export data to Excel spreadsheets or Lotus 1-2-3.

One of the most important properties of the Teletrac system is that access to this product can be accomplished through satellite channels.

## 5. Telerate Charting System

The Telerate Charting system, which is quite popular in Europe, but still less common in the CIS, has the same technical analysis capabilities as Teletrac, but operates in the Microsoft Windows environment. The name of the product shows that its main purpose is to conduct a technical analysis. However, Telerate Charting is essentially an integrated information and analytical system. The user is able to view all standard Dow Jones Telerate pages in a separate window, which reaches 60,000. If this is possible, Microsoft Windows makes it possible to significantly simplify the search for the required pages than Teletrac. In separate windows you can arrange a news view; the user can also create quotation windows and independently edit their content. The Telerate Charting subscriber has access to quotes for a much larger number of market instruments than Teletrac. The total number of available quotes exceeds 200,000.

The technical analysis tools provided to the subscriber through the Telerate Charting system cover almost the whole arsenal of standard technical analysis techniques, and the number of built-in indicators is well above the Teletrac system's equivalent. The user is also able to define their own formulas, and therefore, to build their own indicators. It is possible to build a market strategy based on the technical indicators used and programming the issuance of a system of signals for purchase or sale.

An essential advantage of using Microsoft Windows is the ability to work concurrently on the same computer and with other applications in Windows (they can be dynamically linked to Telerate Charting). In particular, Microsoft Excel can export information and spreadsheets of greatest interest. In this case, the tables are dynamically linked to the Telerate Charting windows, that is, they change in real-time.

## 6 Telerate Workstation System

The most advanced today is the Telerate Workstation product. From the point of view of the user directly working at the terminal, the possibilities of all its

versions are almost identical. In addition, subscribers of some versions are able to receive Reuters information from their workstations and process it using the same tools as the information from Dow Jones Telerate.

The Telerate Workstation product differs favorably from the rest of the information products, first of all with an extremely user friendly, user-friendly interface. Compared to its predecessor, Telerate Charting, the Telerate Workstation greatly simplifies access to most of the service functions.

It is also very important to convert the information provided on standard pages into a data form organized in the record. This transformation allows the user to build graphs for changing the currency quotations of a particular bank.

At the same time, it should be noted that the arsenal of technical analysis methods to which the user has access within the Telerate Workstation is slightly smaller than Teletrac and Telerate Charting.

## 7. Teletrac Tradestation System

For analysts-professionals, Dow Jones Telerate offers a new specialized technical analysis product - Teletrac Tradestation (TTS). It is aimed at using in the Windows environment.

The Teletrac Tradestation system predominates (with regard to its functionality and user-friendliness) all the previously created technical analysis tools not only thanks to the extremely convenient interface provided by the Microsoft Windows operating system, but above all with new unique features, namely:

1) the possibility of building the so-called Tick Bar Charts. This allows, in particular, not to register on the charts periods of lack of activity in the markets;

2) the use of Paint Bar Charts, that is, the ability to paint certain elements of the charts according to the requirements. This allows you to highlight the most interesting graphics from the user's point of view, as well as use them as warning alerts;

3) The "Show me" option allows the user to save valuable time finding the most characteristic areas of the charts. For example, you can request a search for intersections, moving averages, breaks, etc.

Most of the features that are formally present also in other information products, Teletrac Tradestation acquires new features that can significantly improve the quality of analytical research. For example, as in Teretrac, the Teletrac Tradestation system can build a market strategy and check its profitability. However, Teletrac Tradestation, in addition to the actual purchase and sale signals, can generate detailed reports on the use of such a strategy. As with Teletrac, you can add new technical indicators and research methods to Teletrac Tradestation. In this regard, the last system has considerably more possibilities.First of all, it is the built-in language Easy Language, which allows you to implement convenient means of constructing a dialogue. For the inexperienced user, it is suggested to work with the built-in Quick Editor application, which allows you to build rather complicated logical

constructions. For those with high-level programming experience, a special Power Editor application is available that allows you to develop a program of virtually any level of complexity to identify new indicators and strategies. The Teletrac Tradestation system has a very diverse historical database, which can be used in dialog mode. The unique feature of TTS is that it is capable of working with a variety of information streams, including Reuters information.

## 8 Bloomberg Information System

The Bloomberg Information Agency (Bloomberg) was established in 1982. The agency emphasizes the quality and speed of the flow of business information from all over the world. The headquarters of the Bloomberg agency are located in New York, with regional offices in London and Tokyo. It employs 250 employees, which transmits up to 1800 records per day. These summaries contain a variety of information - from the forecast of government securities to unexpected changes in the price of shares of various companies. Subscribers also receive a special magazine of the Bloomberg Information Network.The agency provides information on the large number of different elements of the market, in addition, the volume of this information is constantly increasing.

The Bloomberg computer system has several thousand Bloomberg News information windows and special sections. At the same time, customers can choose any information regarding quotations of currencies, stocks, commodities, futures and options. All quotations come in real time mode.

The main information screens should include:

1. Securities Information Sheet.

On this screen, you can see all securities issued by the US Treasury and other government agencies. Changes in the prices of each security are displayed approximately 400 times a day. There is a similar screen for other countries.

2. The deposit rates screen (MMR).

With this screen you can get current market information on deposit rates in the world and in each country separately. For example, the MMR3 monitor displays information about the short-term deposit market.

3. Monitor the yield curve of US treasury bonds.

4. Forward course.

The screen reflects the growth of yield on US government securities.

5. FOREX screen.

The screen contains information on the rates of buying and selling currencies that are set by different participants in the foreign exchange market (primarily, banks). In this mode, you can view the latest news on foreign exchange markets, as well as compare current rates with the past.

Almost all information regarding incoming prices can be presented in the form of charts. You can build graphs of prices as linear, as well as histograms and candles. There are also schedules of trade volumes and open interest.

As a toolkit for technical analysis in the system Bloomberg combined, in particular, the following methods: Moving Averages; Stochastics; RSI; Monentum; MACD

The total number of built-in methods of technical analysis reaches ten.

## 9 Information system tenfore

By its very nature, Tenfore is a system of financial and economic information in real time, it provides:

- quotes from leading world banks;
- international stock prices;
- news agency news.

Founded in the late 70's in Switzerland, today's Tenfore system has offices and subscribers in almost 40 countries in Europe, Asia, America and Africa.

Among the advantages of Tenfore, the following should be noted:

a) use of satellite communication channels;

b) operating in the Windows operating system;

c) the ability to implement add-ons according to the needs of a particular user;

d) targeting a wide range of consumers: from large bankers to private individuals.

The transmission of information in the system Tenfore is carried out through satellite channels. Information from international exchanges, banks and news agencies arrives at the Broadcasting Center in Copenhagen, where it is encoded, and then broadcast on the Eutelsat satellite. From the satellite, the information signal is transmitted to the parabolic antennas installed by users. The satellite communication channel provides higher speed, quality and reliability compared to conventional terrestrial telecommunication channels.

Since the Tenfore system works in the Windows environment, it makes it easy to master and use. Most operations are performed using the mouse. The standard data interface allows you to use it simultaneously with other programs:

1) technical and computer analysis;

2) support the adoption of dealing decisions;

3) analysis of investment activity, etc.

Tenfore Workstation (TW) is a set of software and hardware tools. TW consists of the following interconnected subsystems:

1) Montage Manager - subsystem of quotations and prices;

2) Chart Manager - subsystem of chart construction;

3) News Manager - News News subsystem.

Montage Manager allows you to receive data in the following sections:

a) currency (FOREX);

b) forward courses;

c) interest rates;

d) shares and bonds;

e) futures and options;

e) stock options;

is) the prices of stock markets.

Each quotation entering the system has more than 10 information fields, among which are the following: denomination of currency or commodity position, full or shorter name of the bank or exchange, purchase price, sales price, minimum price per day, maximum price per day , time refreshing quotes, etc.

In the process of work, the user forms an on-screen table (installation) in which it is necessary to enter only the necessary data. At the disposal of the user a large set of service functions that allow you to change the color, font, location of received data, and make the installation of visual and easy to read. There are ready-made installations for various categories of users (currency dealers, stock traders, etc.).All assemblies are easy to store, modify, and can be displayed simultaneously in any configuration.

The Chart Manager subsystem serves to more clearly perceive information and identify trends in the market being investigated. This is achieved by transforming the primary data into graphs (linear or histograms). The time interval for the formation of data is determined by the user: from the time-to-minute, hourly or monthly. The system allows you to output data for the last 999 time periods (minutes, hours).

Within the subsystem, there is the possibility of technical analysis of graphs by drawing lines of trends. For a detailed study of the trends in quotations, computer analysis tools are used: Moving Averages, Rate of Change, RSI, etc.

An advanced technical analysis is possible with the help of the special program Danalyzer. This program perfectly complements the Tenfore system. Data in Danalyzer can be presented in the form of linear charts and histograms, as well as "Japanese candles" and cross-pixels. Time intervals can be defined by the user based on the following series: current, minute, hour, day, week, month. The program allows you to accumulate up to 10,000 values for each time interval. It is possible to install filters that will record the data at certain intervals, for example during trading sessions. Trend lines can be used to analyze trends in market changes on the charts. The Danalyzer program provides a wide range of service lines, in particular, such as horizontal, at maximum or minimum, at closing, at the Fibonacci level, behind the corners of Anna. The program has implemented over 40 tools for computer analysis.

Among them, it is necessary to highlight, first of all, the following:

a) Commodity Channel Index (CCI);

b) Moving Averages;

c) Moving Averages Convergence - Divergence (MACD);

d) Rate of Change;

e) Relative Strength Index;

e) On Balance Volume.

Data from the Tenfore system can be sent in the Dynamic Data Interchange (DDE) mode to any other package that runs in the Windows environment. For example, transferring data to an Excel spreadsheet can track open currency positions, conduct a profound financial analysis, formulate an individual investment portfolio, and so on.

The News Manager subsystem provides real-time news access from the following news agencies in the world:

a) Knignt - Ridder Financeal;

b) Vereinigte Wirtschaftsdienste;

c) Market Comments;

d) Agence France Presse.

Messages come around the clock and cover all major areas of life in the modern world and political events, economic news, analytical reviews, forecasts of leading experts, recommendations to dealers, etc. News are displayed on the screen in the form of headers; if necessary, you can view them completely or print the text of the message. There is a possibility of filtering or selecting news in the context of the keywords.

## Lecture 7
## Theme of the lecture : QDPro as an instrument for conducting effective foreign economic activity

### 1. QD Professional is:

• a perfect instrument for conducting effective foreign economic activity;

• convenient, prompt and competent filling of the cargo customs declaration;

• A powerful information and reference system on customs legislation;

• Unmatched speed and high quality work.

If you carry out export-import operations, you are a customs broker or owner of a customs licensed warehouse, you are engaged in international cargo transportation or other activities related to foreign economic activity, then the QD Professional program is for you.

The QD Professional program is executed on a highly professional level and does not accidentally enjoy a well-deserved authority among our users. With its help you will be able to quickly and professionally fill in any type of cargo customs declaration, automatically create an electronic copy, as well as auxiliary documents for customs clearance: the certificate - the calculation of the customs value, the packing letter, the act of carrying out the customs inspection, the register of documents and InGuy construction of algorithms allows you to use reference and information databases when completing the declaration, to control the correctness of entering information, to conduct automatic calculation of customs payments, withdrawal of neo for customs clearance of documents, and the use of format-logical control - to eliminate possible mistakes made when filling it.

The information block of the QD Professional program contains about 10 000 laws and regulations, conventions and international agreements on the implementation of FEA. Integrated customs tariff, built on the principle of the relationship code of goods for UKT Foreign Economic Cooperation with administrative and economic methods of regulation of foreign economic activity, allows to receive detailed information for customs clearance of any product, taking into account the purpose of its transfer through the customs border of Ukraine. This is a practically ready solution that includes data on rates of duty, excise duty, legally established privileges for customs clearance, necessary permit documents, and the withdrawal of various warnings to minimize risks in the implementation of various operations with goods.

The prompt updating of the information databases, the ability to quickly search for the information sought and the reliability of our product as a whole have led QD Professional to become the main reference information system for our users. The wide use of the QD Professional program in Ukraine and abroad is also facilitated by the possibility of obtaining the requested data in Ukrainian and Russian and the availability of a training catalog with information on the main rules of customs regulation of foreign economic activity in Ukraine.

Efficiency and high professional level of QD Professional program implementation since December 2001 were repeatedly awarded by the Diplomas of

the winner of the All-Ukrainian Software Development Competition Softregatta in several nominations, including "Software for Foreign Economic Activity".

The complete regulatory framework, the filling of the cargo customs declaration (CMA), duties and regimes, the commodity nomenclature of foreign economic activity, the alphabetical and substantive index of goods, preliminary calculation of transactions - this is an incomplete list of subsystems QD Professional.

## 2.Key Features of QD Professional:

• Getting a complete certificate of goods, depending on the purpose of their movement across the border (rates of duties and excises, permits, warnings and reservations, preliminary calculation of payments by the given parameters, etc.)

• High speed, convenience and simplicity when filling cargo customs declarations

• Automatic payment calculation and full control when filling in cargo customs declarations

• Operational reception of informational and reference materials for minimization of risks in export-import operations

• Automatic generation of reports and additional documents for customs clearance (help-calculation of customs value, packing letter, act on customs inspection, register of documents, etc.)

• Obtaining clear and complete information on checkpoints across the state border (location on the map Ukraine, category of the checkpoint, type of transport, restrictions on the passage of goods, staffing control services, etc.)

• The base of legislative and normative legal acts, conventions and international agreements, as well as recommendations on the implementation of foreign economic activity, is constantly being replenished.

**3. AutoDoc ™** enables:

• automated filling of customs transport documents;

• possibility to independently change the form of documents;

• independent creation and connection of new types of documents;

• the ability to fill documents by template;

• exchange of data with QDProotm customs declaration program

AutoDoc ™ is developed by NTF "Intes" to automate the process of filling in standard documents on standard forms or have a standard appearance. Such documents may include, for example, carrier information (form MD-5), declarations (form MD-7), overheads (speed-wise), air waybills, etc. With this program, in a matter of seconds you can fill out and print such a complex and "saturated" document as the airline bill of Federal Express or UPS. If you use your original forms, you can effortlessly develop a template for them that simplifies your life and allows you to fill them out without worrying about how to make the text "hit" exactly in the area of the form that you need. ..

**Key Features:**

• User-friendly and intuitive user interface provides quick document execution

• Maintaining an archive of completed documents

• Ability to expedite the execution of certain types of documents on the basis of an electronic copy of the cargo customs declaration (TMA)

• Filling in documents according to a pre-prepared template

• Filling in the informative fields of documents based on data of the information system

• Adding new types of documents prepared by means of the program

• Prepare, preview and print all types of documents supported by the program

• Full and open access to the directories included with the program, including the ability to modify and supplement them.

• Ability to connect additional directories

• There is a help system on the main modes of the program

**Lecture 8**

**Theme of lecture : Complex of programs on customs legislation of Ukraine MD Office**

**1.The MD Office complex of customs legislation programs includes:**

• MD Info - the most powerful and up-to-date information system for foreign economic activities in the post-Soviet space. The normative reference database containing 56.011 documents (as of 10.11.2011), both customs authorities and various ministries and departments, TN ZED - UKTZED, are available all the conveniences inherent in work in the Windows environment, unique document search capabilities, work with thematic assemblies

• • MD Declaration - a program for drawing up a cargo customs declaration - can satisfy any whim of yours and the Inspector. Realized "legendary" table of help-calculation of customs value directly at the registration of the IUD, the system of preparation of invoices, direct work on the introduction of information on the invoice from the tables MS Excel.

• • MD Form - especially loved by users, this program allows you to draw up documents related to customs clearance: MD-7, CMR, railway notes, delivery notes, invoice invoices, invoice notes, promissory notes and others.

• • MD Warehouse - Accounting for goods in a customs licensed warehouse; Various forms of reporting on the activities of the warehouse; entering information from the electronic copy of the TBD;statistics and analysis of the work of the warehouse; preparation of the necessary documentation when working with the client (invoices, invoices, tax invoices, contracts, etc.) with the possibility of forming arbitrary forms of documents.

• • MD WareHL - Accounting for goods at small and medium-sized trading firms; Various forms of reporting on the activities of the warehouse; Statistics and analysis of the work of the warehouse;Preparation of the necessary documentation when working with the client (invoices, bill of invoices, tax invoices, contracts, etc.) , control of the balance of goods, taking into account the reserved goods at the time of release of the goods, etc.

• The MD Office software suite is based on state-of-the-art information technology, high-performance databases that provide reliability, stability and high stability when working with massifs of information of different volumes.