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USE OF CONSOLIDATED INFORMATION RESOURCE FOR IMPROVEMENT OF POSTAL SPHERE IN KHERSON REGION

Annotation. *Consolidated information is intended to provide information support and support of specific guidance on the development and enforcement of specific recommendations and programs aimed at the development and functioning of a competitive industry. This trend of analytical activities aimed at forming the subject of the information industry as a resource that will help devise the most effective management decision.*

The most important task today for specialists in the creation and use of consolidated information is to obtain and use of: the most effective methodologies; organizational models of social systems and tools of their support; development of algorithms for the effective functioning and sustainable development of these systems.

Keywords: *consolidated information, management, system analysis, information technology, postal enterprise, management decision.*

Introduction

In recent years, the rate of development of information technologies that are able to provide a large variety of services for the transmission of information to the consumers is very rapid. Thus, the task of constructing optimal, efficient and profitable postal areas that can repel all fluctuations of interests of modern society is very complex and therefore requires careful and a comprehensive study. The solution to this problem should be to design a unified model of the development of postal services by grounding methodological principles of transformation of the existing organizational and economic mechanism of functioning of the economy.

Modern high-quality use of consolidated information will allow a fundamentally new competitive advantage because it allows you to use and implement signals of new technologies, future needs and demand that are unknown to most of the market yet.

In order to create and continue to use consolidated information of the post companies in Kherson and Kherson region fully, it is necessary to create a database that would contain data of a postal companies in the region. That is to understand clearly the economic and organizational nature of this type of businesses.

That is, the introduction of modern information technologies in the activities of postal companies is essential to their successful operation. It is because the accuracy, reliability, efficiency and high speed of processing and transmission of information are the hallmarks of the work of consolidated information analyst.

Analysis of known study

The definition of "consolidated information" is stated in an explanatory dictionary on foundations of information activities as: "... consolidated information is public knowledge, which used a special selection, analysis, evaluation and possible restructuring and modification for the purpose of eligibility for immediate problem solving and meet other information needs of certain individuals or social groups that otherwise would not have direct access to this knowledge and could use them effectively."

Information-technology approach focuses on the need to control unstructured and federal information. That means "consolidation of information" is a technology-management problem or consolidation of IT resources according to the tasks facing the organization. Consolidation of IT resources provides a comprehensive centralized processing of data based on customized solutions [7]. Consolidation allows you to use a new approach and new practices on deployment of computing and application systems. Consolidation is a fundamental basis for the use of new technologies that can raise efficiency of use of corporate IT to a new level [1].

Overall, the consolidation of information is a production chain of following activities such as: collection of documents (data) - data mining - assessment of data - information product [4].

Adapting to the dynamic changes in the market and choosing the optimal development strategy become the central problem of enterprises in modern conditions. In this situation, information provision acts as the main control subsystem. Monitoring and evaluation of information about internal and external environment of the enterprise, the opportunities provided by the market, its threat is the basis for decision-making in the management of all production and business activities of enterprises [7].

Information security management - is the creation of targeted ranges and information flows, including the collection, storage,

processing and transmission of information (including the use of computer information systems) to analyze the results obtained in the preparation, justification and management decision-making by controlling bodies [5].

To make rational management decisions management companies must implement systematic analysis and most accurate prediction of the dynamics of a number of socio-economic indicators and do this only based on regular analytical and forecasting activities. In addition, each company has internal causes that determine the importance of continuous monitoring of the processes occurring in the industry. To find out what opportunities market opens, and what threats lurk company should be regular monitoring of the competitive environment [7].

Statement of the problem

In the Kherson region as well as in Ukraine in general, in the emerging economy innovation and information society there is a problem about the need to upgrade the innovative organizational and economic principles in the field of postal services.

Activation of services integrated with information computer technology will not only improve the economic efficiency of postal services, but will provide a significant effect in the development of national economic and political system of the state as a whole.

That is the most important task today for specialists in creating and using of consolidated information of postal companies is to obtain and use: the most effective methodologies; organizational models of social systems and tools to support them; development of algorithms for the effective functioning and sustainable development of these systems [3]. It is therefore necessary to carry out a systematic analysis and monitoring of development opportunities for the most efficient operation of postal enterprises in Kherson and Kherson region. Almost use tools consolidated information resources to create products and methodological support to information and analytical support of the postal enterprises of Kherson region for the most efficient and modern services.

Summarizing all the above said, we can finally determine the purpose of research – which is, using consolidated information resources as a basis, to create an automated system of post offices of "Ukrposhta"

in Kherson and Kherson region to collect and store raw data and use them in manufacturing, accounting financial systems and business analysis postal company.

Presentation of basic material

To perform a systematic analysis of the opportunities and monitoring of postal enterprises in Kherson and Kherson region it is needed to determine, firstly the sources of information resources, and secondly the methods of processing these resources and opportunities to use them.

Open sources of information (Open Source Intelligence, OSINT) are information sources that distribute information for use without any conditions, restrictions, exceptions. These include, above all, publications in mass media, scientific literature, websites and public information provided by the organizations. [7]

The relationship between public knowledge, consolidated information and users shown in Figure 1.

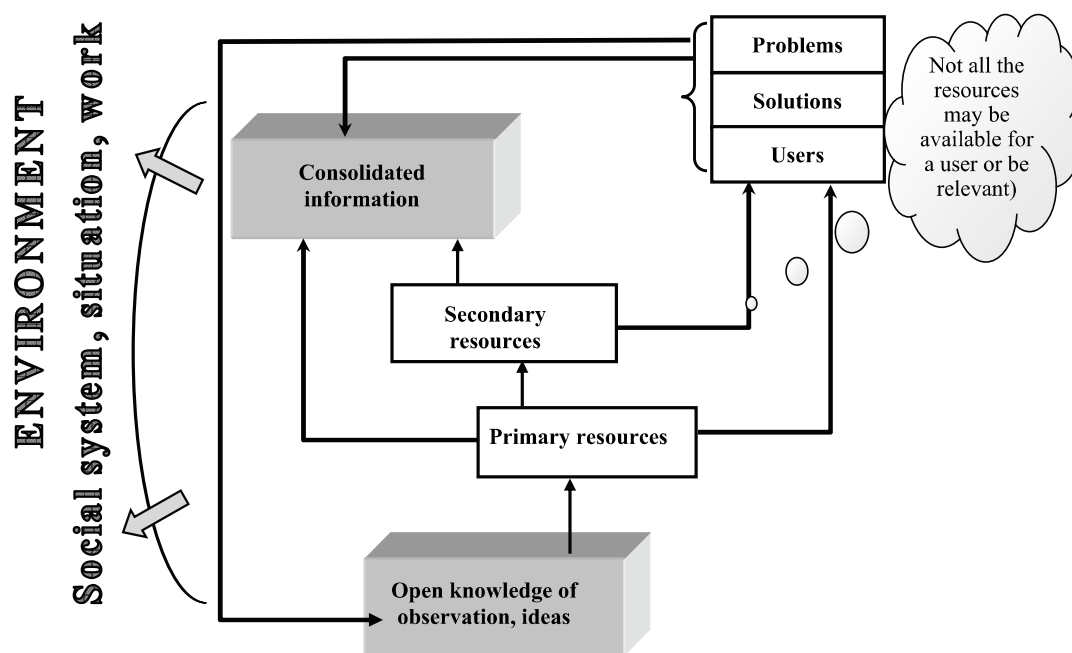


Fig. 1 – The relationship between public knowledge, consolidated information and users

Particular attention in solving of this problem should be given to information monitoring as a special technology of information diagnostics, based on the "portion" surveillance of new information about the object that appeared on the new co-wives observation period,

and their subsequent comparison with the previous period selected from a set of monitoring indicators [2].

We believe that for the creation of an objective picture of the situation in the postal sector of Kherson region it is advisable to use RSS-aggregator. This is the client application or web application to collect messages automatically from sources that export in RSS or Atom, such as news headlines, blogs and video blogs:

– tape (lenta.yandex.ru/) and GoogleReader (www.google.com.ua/reader/);

– Google Alerts monitors important news, events for customer.

The main indicators of the quality of Internet monitoring are obviously the level of automation, completeness of coverage of information field, selectiveness when providing results, the frequency and depth of search, regular delivery of information describing the complexity of the search criteria and the degree of compliance to found materials [7].

It is also advisable to use automated web monitoring service, which combines the best features of search engines (full cover "visible" part of the Internet), software, news gatherers and traditional press services:

– Monitoring Technology News InfoStream (<http://InfoStream.ua>), for which the main sources of information are online versions of traditional media; online editions; information agencies; sites of state structures; sites of companies and organizations; blogs; forums; social networks.

– YouScan (<http://www.youscan.ru/>) - system of monitoring social media: blogs, forums, Twitter, Facebook and YouTube. Monitoring is done by keywords or phrases that a customer self-configures the system.

Internet monitoring results are given below.

Until recently, the postal services market in Ukraine was a completely monopolized UDPPZ "Ukrposhta" (numbering over 14 thousand offices throughout the country, of which over 10 thousand are in rural areas) and consumers had no alternative in obtaining postal services connection, that the market for these services was the "one market player" [9].

Over recent years, the postal market in Ukraine experiences a greatly intensified competition. Operators are fighting for customers in the segment of e-commerce as it is a key locomotive of market.

According to the Ukrainian Association of Direct Marketing (UADM) we have studied the results of the segment in 2016 to examine the status and dynamics of the market in terms of economic stagnation and determine the top 10 operators Fig. 2 – Fig. 4.

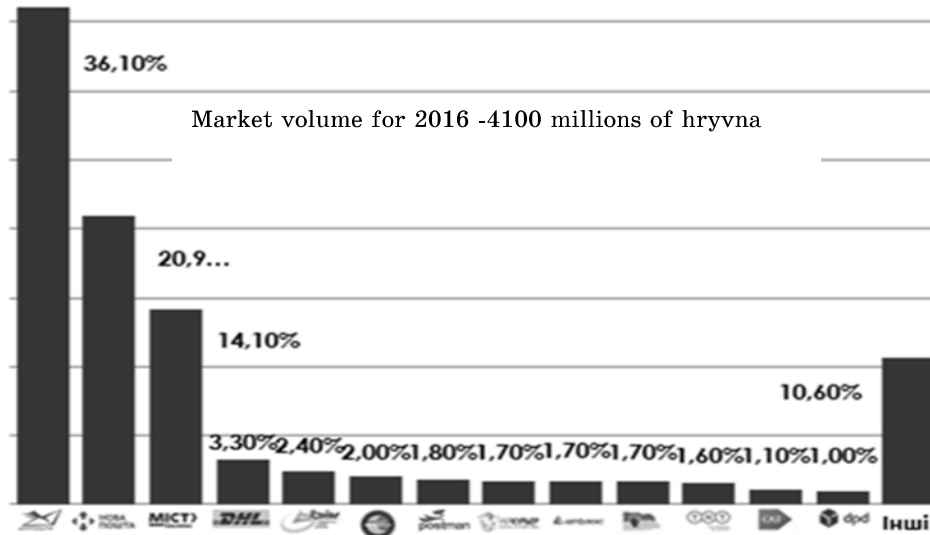


Fig. 2 – Market share of companies in cash for 2016 grams (market volume of postal enterprises in Ukraine as a whole)

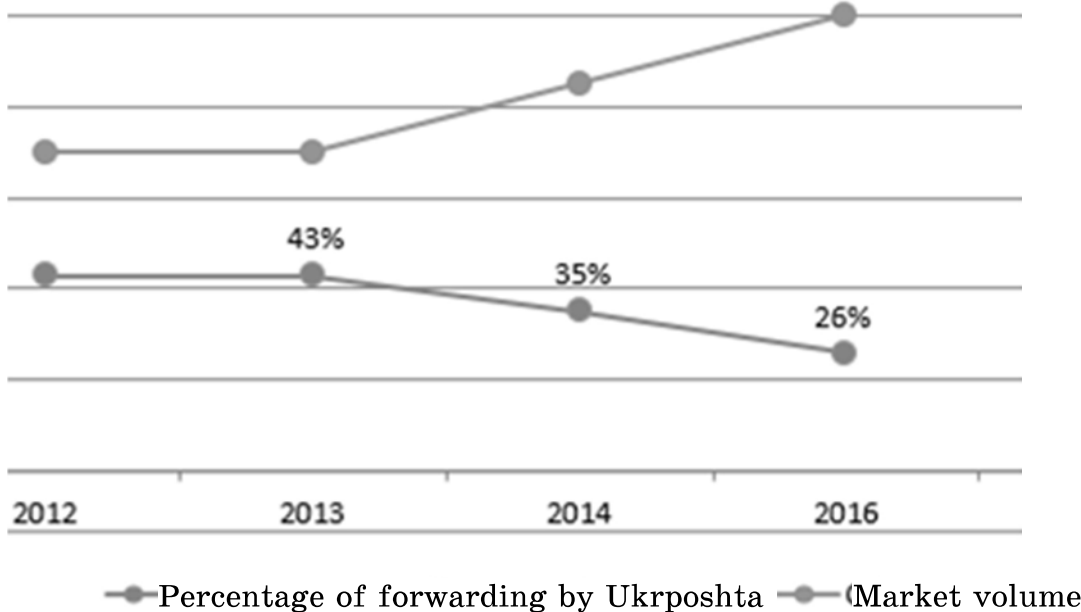


Fig. 3 – The market for domestic forwardings in Ukraine in 2012-2016 in kind of shipments of parcels and packages

At the same time pay attention to the fact that at present the positive feedback from recipients when sending through "Ukrposhta" is about 5% higher than when sent via other courier service. This indicates that the sender status confident of the state structure.

Analyzing the data shown in the diagrams Fig. 5 - Fig. 6 it is obvious that in the Kherson region postal services ranks last compared to other kinds of communication. [8]

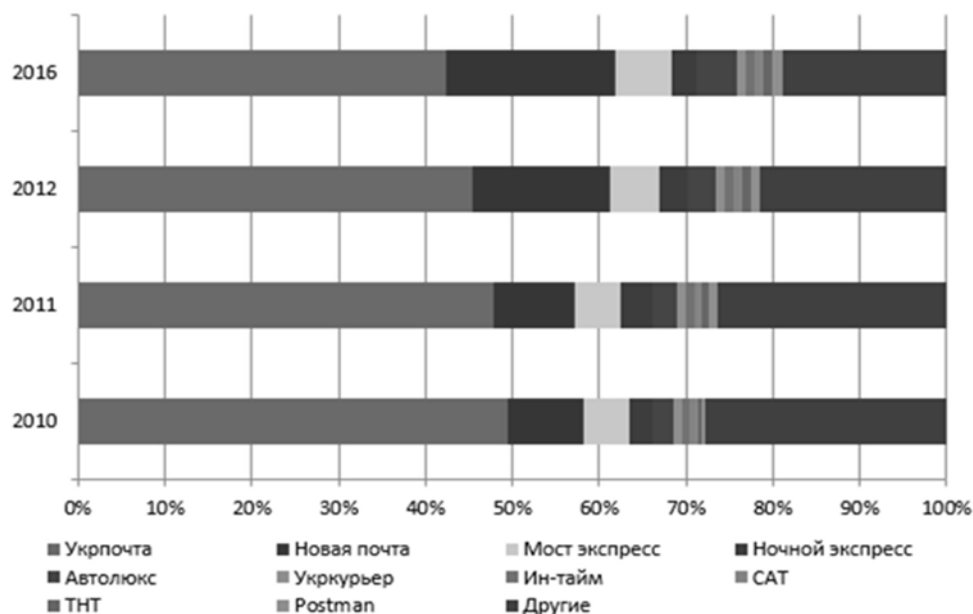


Fig. 4 – High-quality express delivery to the demanded address in the 2012-2016 period in kind of delivery parcels and packages

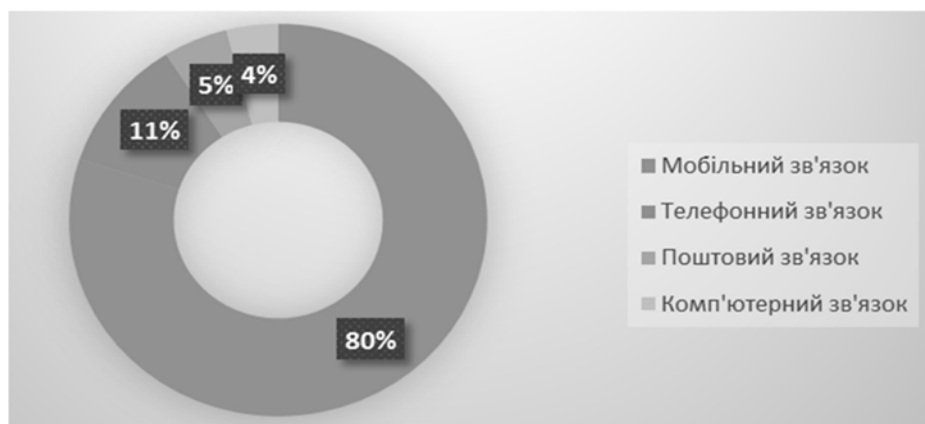


Fig. 5 – Average total income of the enterprise "Ukrposhta" from the provision of post and communication services in Kherson and Kherson region in 2016

We believe that by creating a consolidated information resource may withdraw postal company "Ukrposhta" on the leading position in the field of postal services. That is, the market research postal market must have a certain range of input data, based on an analysis of which conclusions about the status and prospects of the market.

To properly analyze the data we separated structured and unstructured sources and defined parameters and rules for their

analysis, created a repository for structured and unstructured information sources, structured the unstructured data and as a result of the aggregation of data received consolidated informational resource of postal enterprises "Ukrposhta" in the Kherson region on Figure 7.

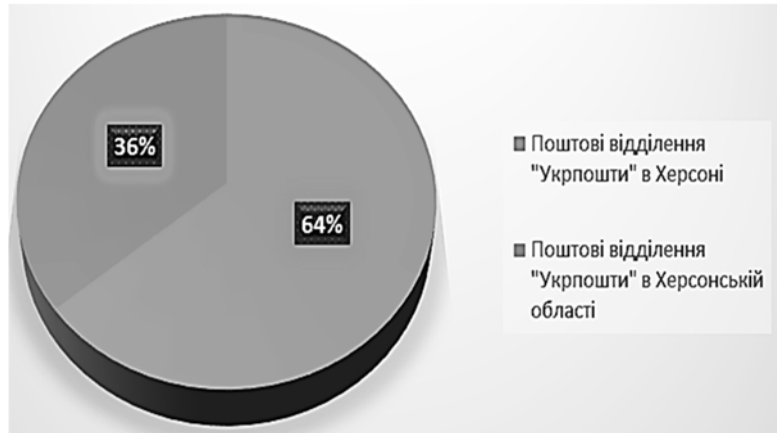


Fig. 6 – Number of branches of "Ukrposhta" in Kherson and Kherson region (percent of total)

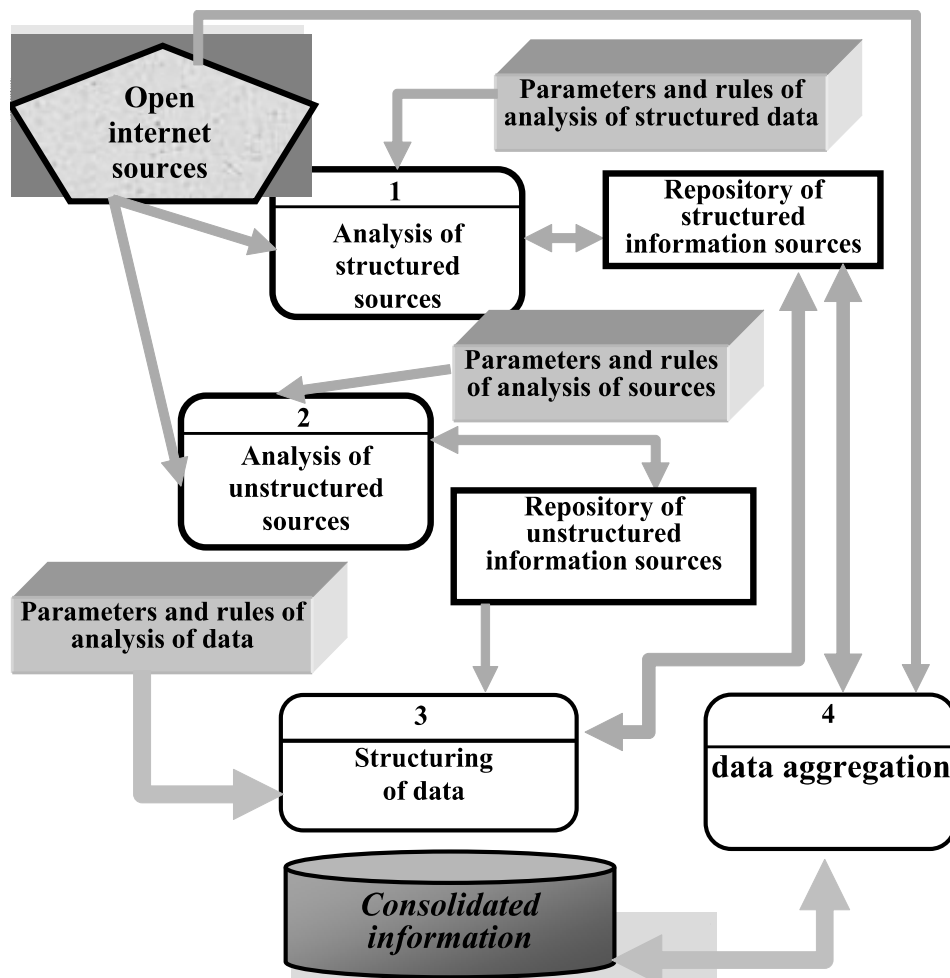


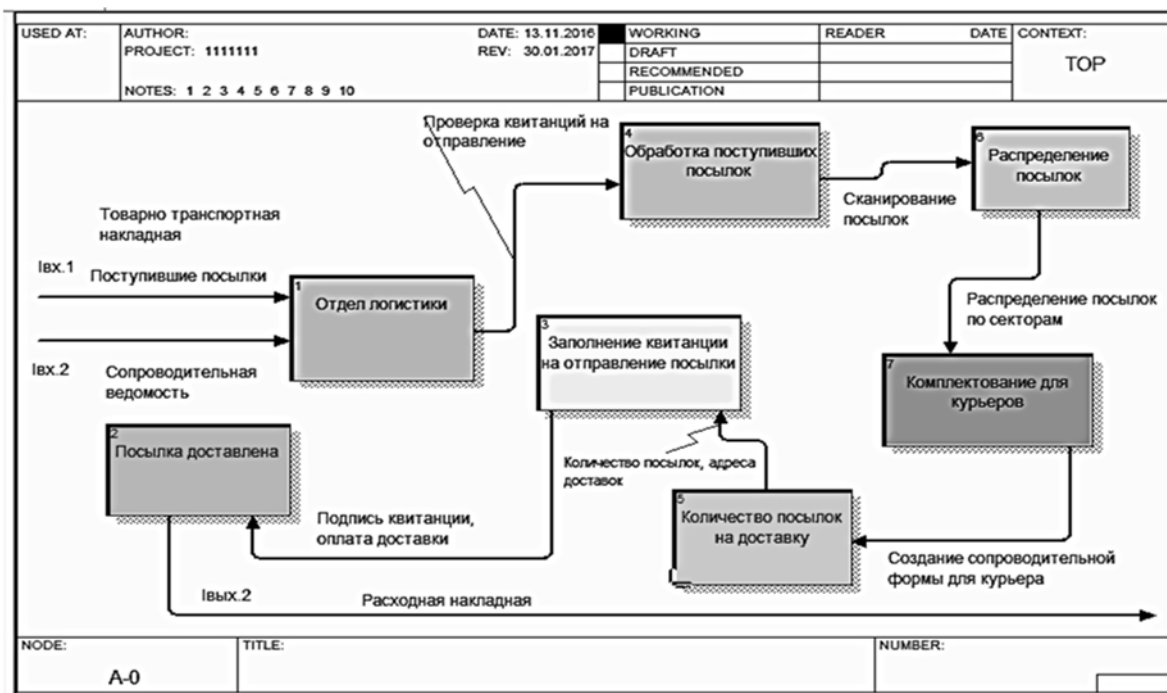
Fig. 7 – Analysis of data sources to form documentation of the post office

Consolidated information, in this context, is the information support for creating, testing and operation of the automated system of postal enterprises of Kherson region. This is collection of data sets, language methods of data description, the hierarchy of functional processes that are interconnected by streams of data, methods of organization, preservation, storage and access to information files that provide grant all the information required in the process of solving functional problems.

On the other hand, the creation of modern automated information systems is extremely complex task. To solve it the use of special techniques and tools is required.

Recently among analysts of consolidated information interest in the CASE (Computer-Aided Software / System Engineering) increased greatly. It is the technology that allows organizing and automating all phases of system development.

Using software BPwin and its vivid charts it is possible to solve many problems of information transfer from one object to another Fig. 8, Fig. 9 and Fig. 10. The purpose of this presentation is a visual representation of how each process converts its output to the output ones, and identifies relationships between these processes. [10]



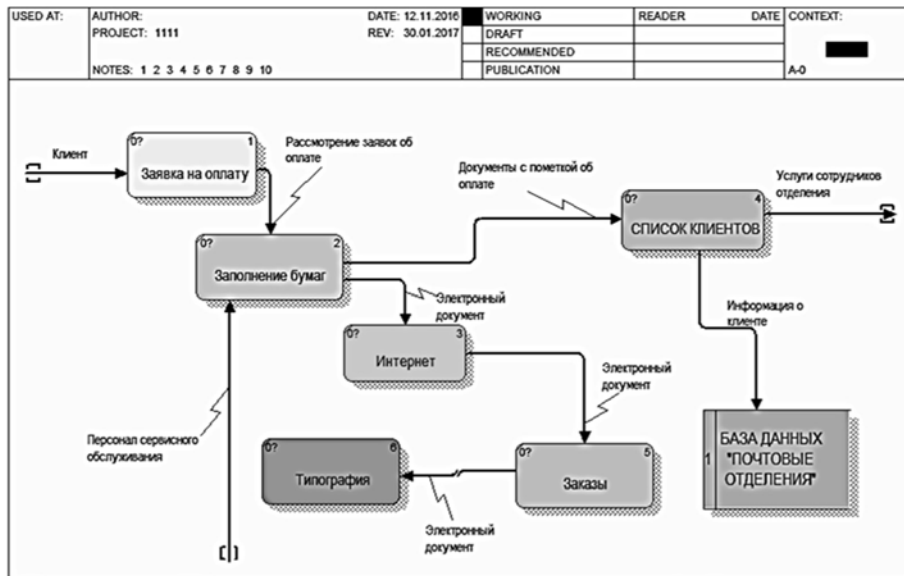


Fig. 9 – Diagram of decomposition IDEF 0 - detailed scheme of information flow of interaction between post office, publishing, customers

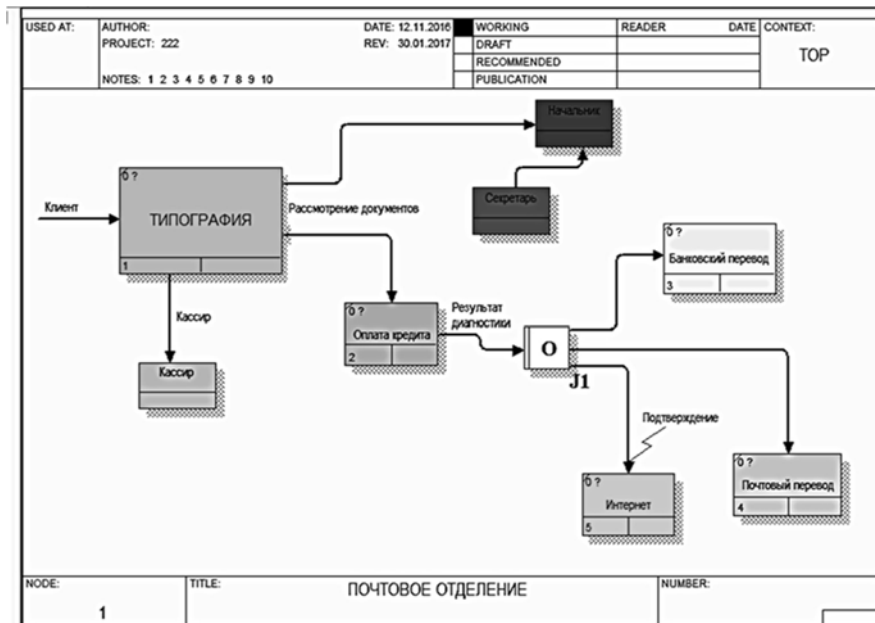


Fig. 10 – Model IDEF3 which is a sequence of actions and scenario of processes of "post office, print shop, customers" subsystem

Illustrated above steps of automated system aimed at maximizing profits of postal company are given. That is, analyzing the algorithm of the system, we are able to obtain a mathematical model of the system:

$$P = \sum_{i=1}^n (pr_n \times S) + \sum_{j=1}^m Q_m - \sum_{k=1}^t Sh_k \rightarrow \max ;$$

$$\begin{cases} 1 < pr \leq 2 \\ S = (0; +\infty) \end{cases}$$

where:

P - Profit (hryvna);

pr - coefficient of increase in profit for parcels with priority (for urgency);

S - Earnings per parcel with a priority equal to 1 (hryvna);

n - number of parcels with priority (pcs.);

Q -profit for ordinary parcel (hryvna);

m - number of ordinary parcels;

t - number of overdue parcels;

Sh -value of fee for k package overdue (hryvna).

Based on the studies above, we were able to practically implement the automated "Ukrposhta" post offices in Kherson and Kherson region" system, i.e. to create a valid database using ACCESS database in 2016.

To do this, we firstly decided on the information and logical model that reflects domain as a set of information objects and relationships between them. This model is data to be stored in the database. That created an ER-model, which is designed for a logical representation of data. Any fragment of the domain is represented as a set of entities between which there are many different types of connections, and is a model of the domain database that defines the relationship tables with foreign keys [11]. ER- model of implemented automation project is shown in Fig. 11, made in MS Visio 2016.

Secondly, in databases Microsoft Access 2016 we created a database for postal employees who work in a united system of "Ukrposhta" post offices. It displays a list of all the newspapers and magazines that are available as a subscription data information for these newspapers and magazines, as well as receiving and sending letters, parcels and packages, and the ability to pay utility bills, receive accounting and send letters and parcels.

Separately, it must be said that, Access has the tools to create local database, centralized database on a local network file server and projects (client applications that work with databases Microsoft SQL Server).

Access supports OLE mechanism - Object Linking and Embedding of various Windows applications in the database. It stores data tables of: other databases Access; Database dBase, Microsoft FoxPro, Paradox, Oracle, Microsoft SQL Server; spreadsheet Microsoft Excel. External data for Access may be this as well: data of e-mail program Microsoft

Exchange; HTML tables and lists on the local and corporate network, Internet [6].

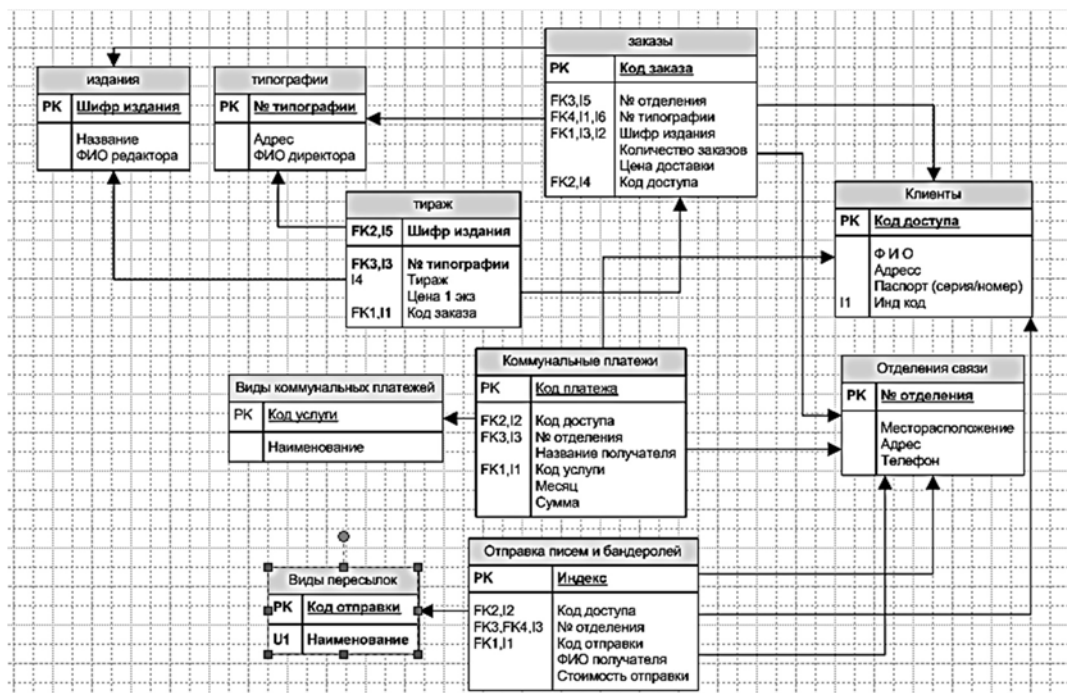


Fig.14 – ER - model of "Ukrposhta" post enterprise in Kherson and Kherson region

Conclusions

During the study it was concluded that the combination of the latest information technology of consolidation of information resources and multimedia presentation of information helps to create high-quality information products and therefore acquires relevance of combination of several information technologies in the creation of modern information products. Consolidation of information is done due to the need to ensure the information management of various social and organizational systems to support continuous process management, decision-making - from the problem to its solution.

In this article, the example illustrates how to use practical tools of consolidated information resource to create products and methodological support of information and analytical work of the postal enterprises of Kherson region for the most efficient and modern services.

Implicitly, consolidated information is the basis for effective management solutions by enterprises in Ukraine and Kherson region, as it is shown from an example of the "Ukrposhta" enterprise. The research will identify prospective areas of telecom operators work and

ways of expansion of activities and also will identify areas of high risk in developed mail market.

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