THE ANALYZATION OF IDEF METHODOLOGY IN PRODUCING THE SOFTWARE FOR MANAGING THE EDUCATIONAL PROCESS

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Annotation. The analyzation architecture, necessity and structure of one of the wide spread technologies software directed to service in present days were given in this article. Issues such as IDEF functional and infographic models and its requirements, development stages and its testing were considered in the development of software tools architecture.

Key words: software, IDEF methodology, integration, A0 diagram, users, interface, database**.**

The necessity to manage the educational process and integrate them into a single system is one of the most pressing issues. Expansion of software and technical capabilities requires constant updating of educational process management systems and their database. The development of an integrated information environment for the management of the educational process requires a thorough study of the entire cycle. To do this, unique models must be developed in order to form a general picture. The development of these models using IDEF methodologies provides more efficient results [1].

It well-known, that any system (including an integrated information system) can be represented as an integral object or as a set of interconnected and interacting small objects. One of the most common methodologies in the field of modeling various processes, including learning processes, is the IDEF family of methodologies. The IDEF methodology emerged in the late 1960s. In the twentieth century, this methodology was called SADT (Structured Analysis and Design Technique). The IDEF methodology consists of 3 specific sets of modeling methodologies based on the graphical representation of processes:

The IDEF methodology allows the formation and analysis of a wide range of models of complex systems in different spectra. Currently, the IDEF methodology consists of the following set of specific methodologies of modeling based on the graphical representation of processes [2]:

- **DEF0** is a functional modeling methodology that allows us to describe these processes as a hierarchical system of interrelated functions. Using the visual graphics language IDEF0, developers/analysts use it to build functional models of the system under study as a set of interrelated features.

- IDEF1 is a methodology for modeling information flows between the underlying system and their subsystems, which allows modeling and analysis of their structure and interactions.

- **IDEF1X (IDEF1 Extended)** is a methodology used in relational database modeling. It is a methodology for constructing interdependent structures, which is a type of logically interconnected relationship methodologies.

- **IDEF2** is a methodology used in dynamic modeling of systems.

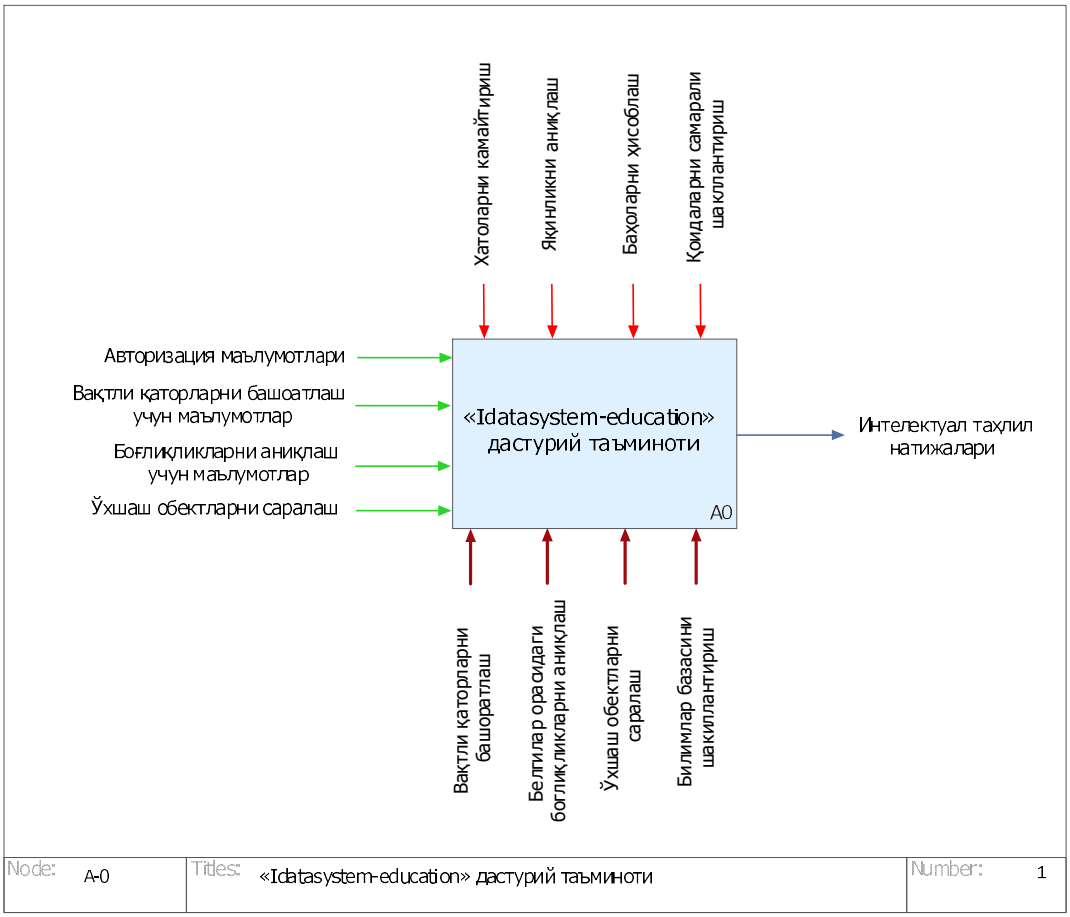
- **IDEF3** is a methodology used to document technological processes occurring in a system, for example, in the study of technological processes in organizations. Using IDEF3, they describe the scenario and sequence of operations for each process. IDEF3 In conjunction with the IDEF0 methodology, it will be possible to model each functional block as a separate process.

- **IDEF4** is an object-oriented design methodology. IDEF4 tools allow you to visually model the structure of objects and the integral principles of interaction. IDEF4 tools allow you to visually model the structure of objects and the integral principles of interaction. The result is the ability to analyze and optimize complex object-oriented systems.

- **IDEF5** is a methodology that provides visual representation when processing ontological queries. Using the IDEF5 methodology, the ontology of a system can be described using a glossary of specific terms and rules, on the basis of which reliable information about the state of the system under consideration at a given time is formed. Based on this information, conclusions are drawn about the further development of the system and measures are taken to optimize it.

- **IDEF6** is a methodology that uses rational design experience to help prevent structural errors in the design of information systems.
- **IDEF7** - Information Systems Audit Methodology.
- **IDEF8** is a methodology for developing a graphical model of a user interface.
- **IDEF9** is a methodology for analyzing the impact of existing conditions and constraints on decision-making in the process.
- **IDEF10** is a methodology for modeling the execution architecture.

IDEF11 is a methodology for information modeling of artifacts.
IDEF12 is an organizational modeling methodology.
IDEF13 is a three-dimensional object design methodology.
IDEF14 is a methodology for modeling computer networks.



1-picture. The A0 diagram in the base of IDEF0 methodology

As can be seen from the list above, the notation includes a fairly large number of possibilities and areas for modeling. Let's look through the most famous and important notations from the IDEF family.

A model using IDEF methodologies is required to integrate learning processes into a single database. Based on the IDEF0 methodology, a general model of the information system of the Ministry of Internal Affairs and its educational institutions has been developed (1-picture). According to the model, the incoming data includes:

- the information of authorization;
- a finite number of data in vector form to solve the problem of prediction based on time series;
- data in the form of a matrix of numbers to determine the relationships between the characters;
- data in the form of a matrix consisting of numbers for sorting similar objects.

Methods include methods for predicting time series, determining relationships between characters, sorting similar objects, and forming a knowledge base that directly affect the model.

Criteria influencing the model include error reduction, proximity, and object estimates, as well as intellectual analysis results as a result of the model [3,4].

Based on the IDEF0 methodology developed above, information models of functional processes of the integrated information system of educational process management are developed.

It is based on the developed model IDEF0 we can build a general model of processes in a single integrated information system based on the methodology IDEF1 (2-picture).

2 -picture. A0 diagram of IDEF1 model

The blocks presented in the model allow to express the functions of the information system. For any level of the IDEF1 model developed above, we will be able to express it in the form of tree-like nodes using structural decomposition. It is not required to have a single standard format when describing a structure. The only condition for this is that the hierarchy nodes of the model must be represented in a clear and understandable way.

We describe the functional processes that take place in an information system.

Every functional process is managed by the users of the information system.

Users are divided into 3 categories in the information system.

1. Administrator
2. Employee.
3. TM administrator

The work done by each user is also divided into several processes. All of these processes are divided into functional processes based on the IDEF1 methodology. The IDEF1 methodology is basically that each process is managed by a specific user. As can be seen in the diagram, the System data entered by the Center Administrator manages the data entered into it by the TM Administrator.

Based on the above analysis and the developed IDEF methodologies, we can conclude that the use of IDEF methodologies is one of the most effective technologies in software structure development. In addition, the use of IDEF methodologies in modeling different learning processes allows integrating management processes into a single system.

REFERENCES

1 Polyakov I.V., Chepovsky A.A., Chepovsky A.M. Algorithms for finding paths on large graphs // M.: Open Systems. Fundamental and applied mathematics. 2014. Volume 19. No. 1. 165-172 s.

2. Aleksic-Maslac K., Magzan M. ICT as a tool for building social capital in higher education" // CampusWide Information Systems, 2012. Vol.29 No4, 272-280 p. (www.emeraldinsight.com/1065-0741.htm)

3. Aristovnik A. ICT expenditures and education outputs/outcomes in selected developed countries: An assessment of relative efficiency // Campus-Wide IS, 2013. Vol.30 No3, 222-230 p. (www.emeraldinsight.com/1065-0741.htm)

4. Johannes M. Z. Marlon D. Service Interaction Modeling: Bridging Global and Local Views // Proceedings of the 10th IEEE International Enterprise Distributed Object Computing Conference (EDOC'06)