

DEVELOPMENT OF INFORMATION MODEL OF INFORMATIONAL-ANALYTICAL DECISION MAKING SUPPORT SYSTEM

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Success of organization activity in any field depends on the level an organization is capable of maximally deriving out of disposable information resources.

Lately, deepening and extension of economical, political, juridical, ideological, diplomatic, military, cultural and other connections and interactions of Azerbaijan with different countries, as well as active participation of Azerbaijan on international forums on highest level were observed. For this reason, information resources of information space of any government institution (GI) composes an implicit and unsuperficial, but very important segment for decision making, such as *reports on foreign travels of GI employees*. These reports, containing important operative, historical and inquiry information are stored in paper or electronic form in archives of different departments of GI – human resources, accounting, scientific-organizational department etc, i.e. storage of such information has an unorganized and random character. Besides, it is practically inaccessible for usage for one or another purpose if necessary.

In given article, we propose an informational model, which is based on earlier proposed architecture of information-analytical decision-making support system (IADMSS) [1], necessary for administration of this sphere by GI, capable of processing large volumes different (continuously incoming) information, which include *reports on foreign travels of GI employees*, to convert this disembodied and scattered information into valuable knowledge based of which we can make not only intuitive and improvisational decisions, but circumspect and calculated decisions, directed to increasing the effectiveness of GI work in this sphere. Projecting of precise architecture is an important factor for effective investment, prevention of threats for effectiveness of function of the entire system. Information model reflects a complex of tasks, solved in given system such as organization of access to data, their collection, storage and processing. Processing of information model is a necessary condition for realization of this system, as it reflects subjects of the system, interacting between them, demonstrates the direction of main information currents, occurring as a result of this interaction, reflects characteristics of information presentation, methods of access, storage and distribution of information.

Graphical model of informational interaction is depicted in Fig. 1.

This informational model allows tracing informational connections among system elements and direction of main informational currents providing integration of Data Storage of all levels and effective organization of access to them.

Informational resources for functioning of given IAD MSS, necessary for conduction of analysis, are formed both from internal and external sources. For production and making of correct decisions, information requested from DS must meet requirements of comprehensiveness, authenticity, actuality and usefulness.

DS system have an hierarchic structure. We can emphasize three levels of information, entering into DS system depending on the level of government institution into which it enters:

1st level – information of highest agencies of State power, stored in Central Data Base (CDB);

2nd level – information of DS of ministries, committees;

3rd level – information of DS of their subordinate organizations.

Following tasks must be solved in relation to DS:

- Provision of compatibility of DS;
- Provision of effective access to DS;

- Provision of modes of creation, submittal, support in actual condition and administration of DS.

Following processes must be conducted on every level of the system:

- Preparation of information supply;
- Submittal of information into DS;
- Administration of DS.

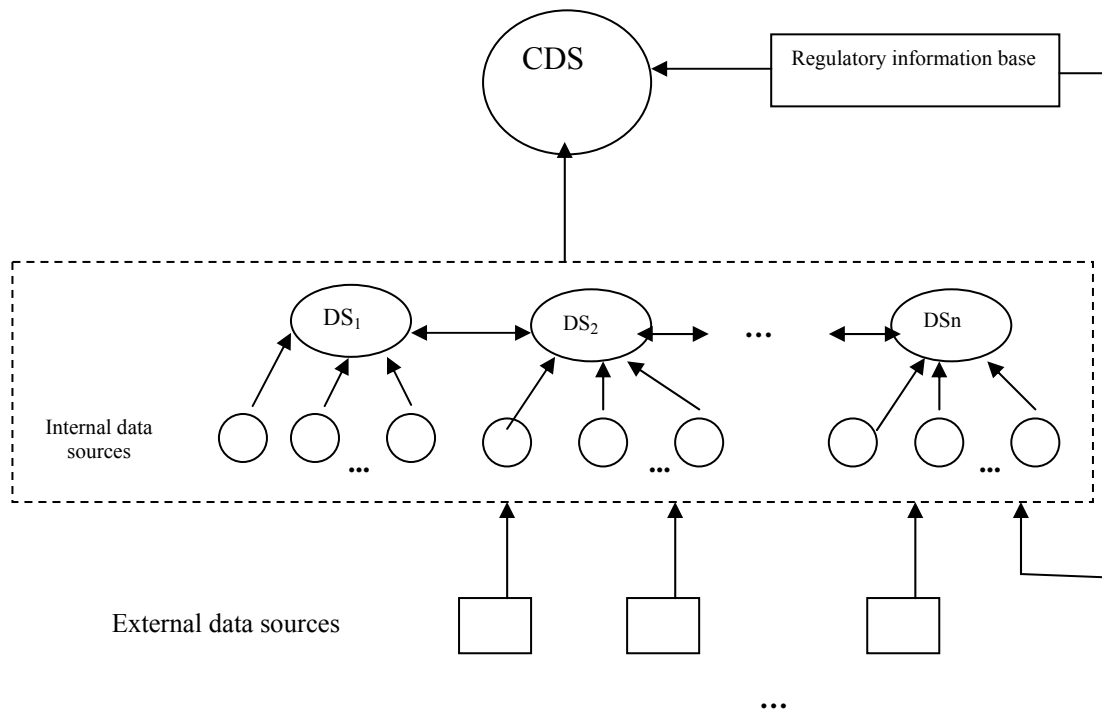


Fig.1. Graphic model of informational interaction of IAD MMS

Information resources, constituting documental reports on business trips abroad serve as internal information sources for each DS. Information exchange occurs among DS of equivalent levels, information of DS of lower level is submitted into SD from higher level. Besides, juridical acts on bilateral relations of Azerbaijan with foreign countries, information from external sources are submitted into DS.

On Fig.2, informational interactions of system subjects on one specific level are demonstrated.

For solution of tasks and for realization of abovementioned processes serving for provision of comprehensive actions of IAD MMS functioning of several services is necessary: preparation of information for submittal, submittal of information, administration of informational resources, administration of network resources, analytical information processing service etc.

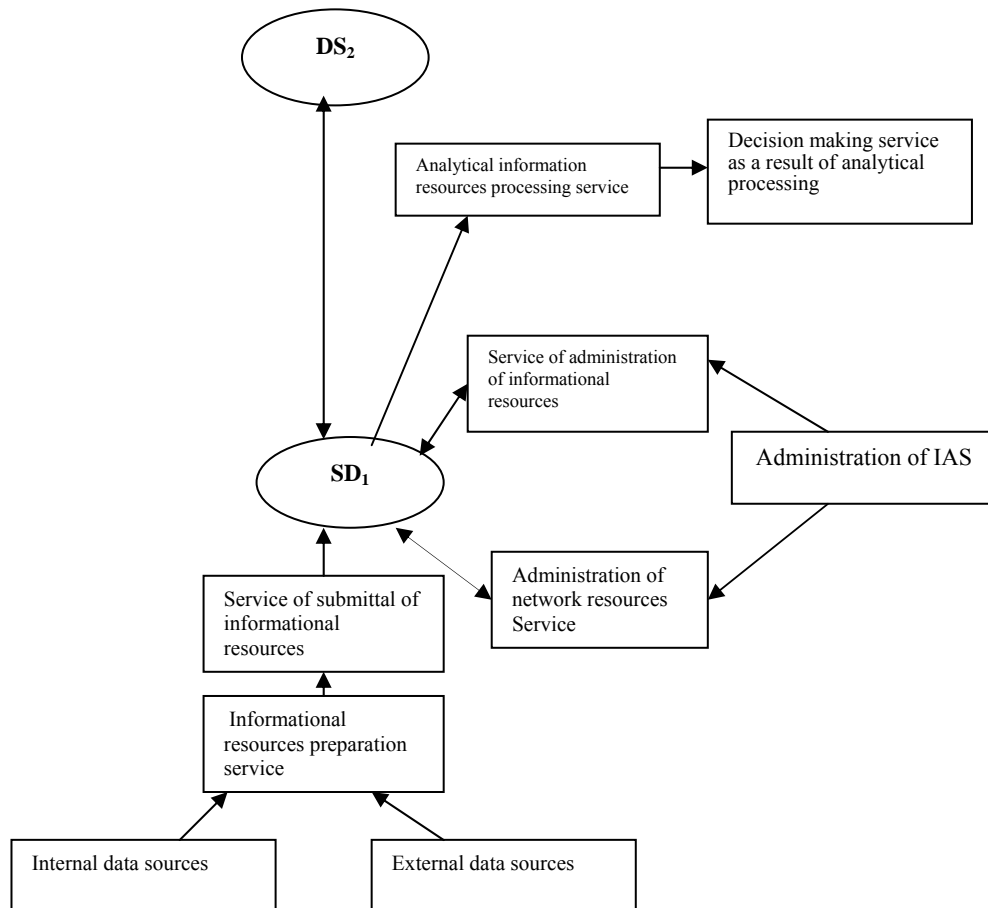


Fig. 2. Informational model of informational interaction of an individual DS with other subjects of the model.

On Fig. 3, DS structure developed based of constructed information model is presented. In DS, three currents of information are unified. These are – archive of information on business trips abroad, normative-juridical information on bilateral relations of Azerbaijan and information received from Mass Media.

As known, main components of data storage structure are fact table and dimensions tables. Fact table, as a rule, contains initial key uniting initial keys of dimension tables [3]. On picture 3, it is shown that, proposed structure is composed of Fact tables (Foreignpol_Fact) and three Dimension Tables (Person_Dim, Country_Dim, Event_Dim). Consequently, unique composite key of dimension tables is composed of three lines (notes). These are:

- Last name, name, patronymic of the employee
- Business trip destination country
- Title of conducted event

Now, let's review dimension tables. First dimension table (Person_Dim) – is contains comprehensive information about the employee.

Second dimension table – contains information about destination country; let's note that here is placed full information about country, information about situation in the country in different spheres submitted from external sources and information about normative-juridical documents submitted from MIA, which include the title of the document and its contents.

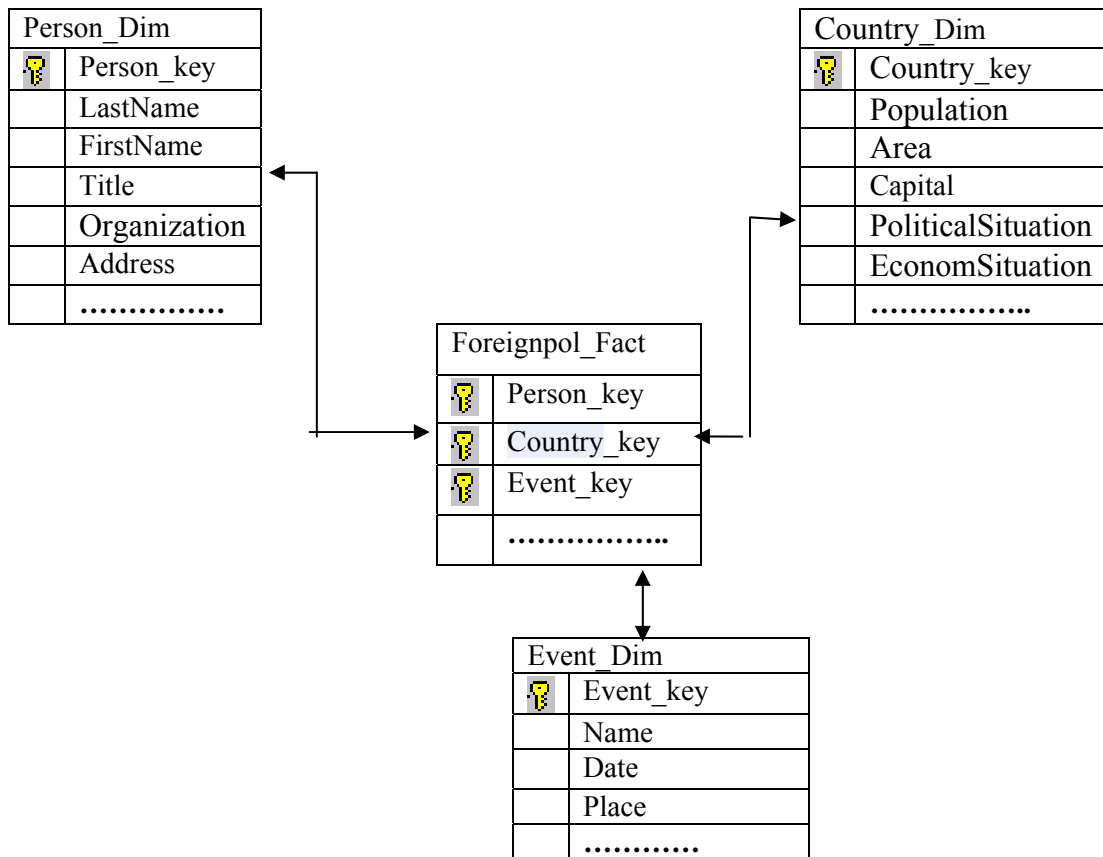


Fig. 3. Structure of Storage Data

Third dimensions table – contains comprehensive information on the event: title, location and data of conduction, objective of conduction of the event, event participants, meetings in the framework of the event, accepted documents etc. As seen from the picture, in proposed structure, every dimension is contained in one table. Such data storage scheme is called star schema.

IAD MMS in external policy sphere “E-government” program included in “E-Azerbaijan” GP, will provide information support of external policy conducted in the country. At the same time, it will be an integral element of informational-communication infrastructure of the republic.

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