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Abstract
The main task is to find out the regional development complex monitoring information space forming conditions, including ecologic, social and economic processes in the region. Different approaches to the category "information space" definition are analyzed in this work and the author's understanding of an information supplied region integrated spatial-temporal form.

Keywords: regional development, monitoring, integrated information space, geoinformatics.

A system strategic ecologic-socio-economic monitoring information space forming, corresponding to modern regional management technologies, includes information processes influence evaluation on potential development exposure and their effectiveness analysis.

The article objective is an examination of complex approaches towards the integrated information space notion and regional ecologic-socio-economic monitoring optimal information space forming.

The made science publications analysis let us mark out several approaches, each of them gives priority to some concrete feature of the "information space" definition.

The first theory group gives the main role to integrated space technological components, presenting networks data base collecting, processing and structuring block. Paying attention only to information keeping and delivery, this group leaves aside such important moments as its organization and receiving.

The functional approach to information space is determined by its subject orientation: an enterprise, an organization, etc. information space, for instance. The "space boundaries" here are set by some professional definition fields and sectoral relations specific characteristics. With main characteristics (hierarchical pattern, organization and differentiation) we get dynamic or active information space, characterizing functioning objects and subjects integrated features, according to their organization grade in the subject-oriented information system.

The social-psychological conception followers examine a technical component of the integrated information space structure. But they place communication subjects – information users in the center of the integrated system.

The geopolitical position defines the integrated information space as a territory, covered by information, information resources and infrastructure, where all subjects in any place of this zone have equal information access possibilities.

The informational approach is presented by information resources and infrastructure complex, which provides, on the base of unified principles and according to general rules, save State, organizations and citizens information intercommunication, with open information resources equal access, and their maximal information need satisfaction all over the Country, with an interest balance for the world information space (cyberspace) access and the National information sovereignty providing.

Sociologists point of view is presented by information communication field, created by informationally intercommunicating subjects, but at the same time having got its special quality, absent in subjects themselves.

Having analyzed the existing views and approaches to the "integrated information space" notion definition, we noticed that there has been yet no its strict science definition, in spite of its frequent usage in social discourse. Often, information space is understood as "a

simple metaphor, an original artistic device, an image-stylistic allegory form, when an understandable to everybody and habitual word is used in a figurative sense [2]".

The need for "information space" notion itself raised in Russian science in the 90-s of the XX century, when several program documents, providing Russian society informatization base, were published.

To improve public authorities information-telecommunication support, "Russian integrated information space and State information resources forming and development conception" was adopted in 1995. According to the Conception, "information space" contains "data bases and information blocks collection, their support and usage technologies, information-telecommunication systems and networks, functioning under unified principles and according to the standard rules, providing organizations and citizens informational intercommunication, and satisfying their information needs" [3].

Russian information society forming conception, adopted in 1999, underlines integrated information-telecommunication space forming as a characteristic feature and an indication of an information society, completely meeting sustainable development conception; that means: economic forming, based not on natural resources overconsumption growth, but on knowledge, waste products reducing, ecological problems solving and anthropogenic civilization welfares access giving [4].

The applied internetics dictionary [5], published in 2001, defines information space as information systems existing form, characterized by structural properties, extent and differentiation.

In all "information space" definitions there is a meaning field of this notion and an idea of overall informatization, as information and communication technologies mass spreading, and informational infrastructure creation.

The general and abstract character of the notion "information space" is determined by a semantically initial category of "space", which "is an attributive characteristic of being in any meaning, and that is why it logically influences all other shades and degrees of localization relations [6]", characterizing all main matter activity forms: mechanical, physical, chemical, biological, and social.

To understand true universality of space, it is necessary to differ "real, existing in reality, space and conceptual, science view on real space…and perceptual space, a human perceives with his/her sense organs, first of all, with sight and touch, in other words, apparent space, which can be purely individual [7]".

Going from physical world objects relations level to relations without material base (mental space, meaningful space and information space), we should answer the question: is it true to use space logic in the relations outside physical world boundaries?

If generally understood space relations, in one or another degree, draw our attention on some bodies' interaction in the space, in this case, such opinion is hardly productive, because these nonphysical spaces cannot be interpreted with distance measures and with classical territory geography terms. "One thing - is a physical space, mountains, rivers and planes, or buildings, streets, transport ways – human made objects, artifacts. The other things - are meanings and symbols, even if their carriers are physical world objects [8]".

So is it rightfully to localize a thing that has not physical embodiment in physical space (geographical country or other territory boards, enveloped with different communication channels, or social interaction boundaries)?

Chaykovsky D.V. thinks that it is incorrect to define information space in material boundaries, localizing information intercommunications in some territory. Information space should be examined as a coordinate system for information communication, where the real world has got its meaning in a subject consciousness [9]. Subject constructed information space has become accessible in its space characteristic only in social activity process. And it can be apprehended as such only by persons, acting in this space.

Such subjective approach completely denies information space territory projection, defining reality through reality images reflection in a concrete format, described by virtual characteristics, and is controversial to present-day understanding of information nature.

Demin A.I., at the same time, argues that information can be always described as ordered space structures, organized according to the certain matter spatial location rules, and objectively exists, independent from a human will and consciousness [10].

Demin A.I. differs the initial information, which we see in the surrounding world, in natural form, and which we perceive with sense organs; and secondary information, which we get in a coded form in the process of education and thinking.

The twofold nature of information: from one side, material quality of the initial information, existing independently from a human; from the other side, information subjective reflection in a human memory, in a coded form; raises contradictions in information space essence definition.

Zakupen T. follows an opposite point of view, examining information space as a "territory, "enveloped" by information, information resources and infrastructure, in which frames all subjects… have the same access, transfer and all other manipulation possibilities in any point of this space [11]".

It is undoubted that information processes are objectified in the external world in a material form, beginning from information existence, directly

depending on its material carrier, and ending with information intercommunication concrete results materialization in a social activity process.

Prohorov E. follows an analogue point of view [12], he underlines that "information space is not just a territory of information data intercommunication, but a zone which has audience characteristics as well as geographical ones".

So in the territorial projection, the "information space" notion is a territory, marked out by a subject with some criteria, where information resources, information sources, technological information collection, processing and spreading systems are located, including also users of different kinds of resources, coming within the purview of law, operating in this territory.

It is absolutely obvious, that close interlink goals of economic, social and ecological processes monitoring in a region, have a territorial projection, and it is necessary to form an integrated information space on the base of spatial data usage.

The key link, in integrated information space forming, is information resources forming and using. The notion "information resources" is written in the Russian Federation legislation and means separate documents and separate document files, documents and document files in information systems (libraries, archives, funds, data banks, other information systems kinds) [13]. In a wider meaning, they present a collection of periodically actualized timely and reliable initial parameters values for a qualitative informational support, for strategic and day-to-day management tasks of a sustained territorial development. The process of information resources forming and using contains information collecting, processing, spreading, keeping, searching and giving under requests or regulations.

One of the best information resources for a spatial data zones presentation is a geoinformational system, providing spatial coordinated data (spatial data) collecting, keeping, processing, access, display and spreading.

In the adopted spatial data infrastructure creation and development Conception of the Russian Federation, there is a provision for the turn to completely digital technologies of spatial data getting and using, as a universal different data bases connection element, which makes the State integrated information space creation possible. According to the Conception, a hierarchical territorial-distributed system should be formed for base spatial data and metadata collecting, processing, keeping and giving, including governmental authorities and local government levels subsystem, and providing users with a remote access to spatial data and metadata bases.

There are two key notions in the base of the Conception: base spatial objects and base spatial data:

- Base spatial objects present spatial objects, relevant to specially chosen types, which differ in space position stability in time and more exact coordinate's description in comparison with other spatial objects.
- Base spatial data contain base spatial objects coordinate descriptions in the given coordinate system, and have got an object name, its addresses and other information (of economic, social and ecological character). Base spatial data creation suggests a sequential turn to their usage as base information about the concrete territory.

Interconnection between a base spatial object (object's image) and base spatial data (attributive information) is possible through unique identifiers, which exist in explicit or implicit form in every geoinformation system (GIS).

Spatial information in GIS presents separate transparent layers with geographical objects images. Information of one layer in GIS is presented by one data base table.

In spite of the fact that spatial or cartographic information is the base of GIS information block, we are more interested in attributive data enter questions, which let us carry out economic, social and ecological processes monitoring.

As well known, spatial objects locality has got metric, thematic and time characteristics. Thematic and time characteristics are called attributes in GIS, and their description is called attributive description. The GIS attributive model class can be defined by attributes collection, reflecting in tables. Each spatial object is corresponded to a table row, and each thematic feature is corresponded to a column in an attributes table. There is a certain feature for a concrete object values in table compartments (cells).

There are several methods to reflect time characteristics:

- Time period of objects existence indication;
- Information correspondence to certain time moments;
- Objects movement speed indication.

A time characteristic place depends on its reflection method. It can be one table or several tables for one attribute for different time stages.

Applying standard request forms, filters of different kinds and mathematical logic expressions, an analysis of data base objects can be carried on. The attributive description supplements a coordinate one, creating together a full GIS models description. Attributive and coordinate descriptions interconnection forms an object four-dimensional space, where first two sizes are given to X/Y data (coordinates), in the third dimension there are attributes, and the fourth dimension is reserved for time data sets.

Kinds of attributes: symbols (names), numbers (statistic information, the object code) or graphical features (colour, picture, contours filling-in).

That is why it is so important make a semantic and structural analysis of all spatial information, used for

ecologic-social-economic monitoring, and to analyze its origin and usage, to set this information main interconnections and characteristics.

We offer the following spatial information grouping for ecologic-social-economic monitoring (Fig. 1):

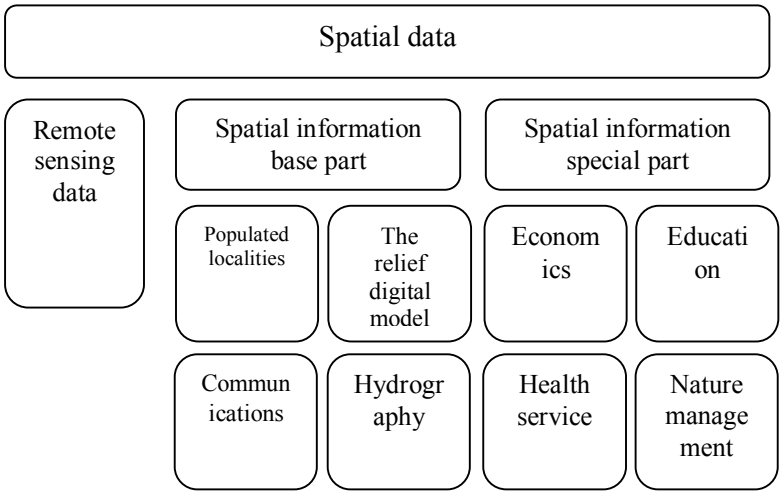

Figure 1. Spatial data structure.

But if to enter information, referring to social-economic region development, they take official monthly statistical reports of state authority bodies, local government, legal persons' and individuals' business entities; a continuous on-line monitoring of quite a number of environment and water components from so called "ecological posts" is demanded for ecological systems.

We offer an innovative approach to real-time environment data collection systems on the base of GIS integration with the hardware-software complex SCADA (Supervisory Control and Data Acquisition), carrying supervisory control and data collecting with their further visualization in GIS; the information from remote stationary environment data collecting posts, given by SCADA, is displayed with strict binding to their spatial position.

It is important to formalize description of all, got by a spatial data analysis, data, their interconnections and usage. Then there is a task to integrate different (in types, formats and description methods) spatial data, distributed to territorial keeping places (to different organizations) and to acting information systems belonging. The same real objects represent different interests for different organizations and, as result, are characterized by different information sets and their different periodicity.

According to all written above, the *integrated information space of ecologic-social-economic monitoring* term means geoinformational systems spatial-temporal existing form, providing operative information data makers' intercommunications with innovative discrete and continuous monitoring data enter technologies, and their information needs satisfying with an information-telecommunication system in the formed information infrastructure.

The given approach to *integrated information space of ecologic-social-economic monitoring* as an informatizated territory, filled in with multi-faceted data in economic, social and ecological fields, binds them together and provides the region strategy realization and development effectiveness complex evaluation, on the base of true, full and operative information, with results displaying in the "development map".

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