

ICT APPLICATION IN SCIENTIFIC ACTIVITY: MONITORING INFORMATION SYSTEM

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In accordance with the decree of the President of Republic of Azerbaijan Mr. Ilham Aliyev dated October 21st 2005, within the framework of "Electron Azerbaijan" State program (SP), "State program on development of Information and communication technologies in the Republic of Azerbaijan in 2005 – 2008" was accepted. Currently, based on experience of foreign countries development of "Electronic Science" within the framework of "Electronic Azerbaijan" SP has started in Institute of Information Technology of Azerbaijan National Academy of Science (ANAS) alongside with many scientific and practical works.

"Electronic Azerbaijan" is a component of "Electronic Azerbaijan" DP as well as e – government.

"Electronic Science" is a project that deals with solution of scientific problems and has a necessary communication infrastructure and conducts activities jointly with scientific institutions and organization that have an access to scientific-technical information and computing resources through high-speed internet.

State policy in construction of information society, successes achieved in this field, thought for science of Azerbaijan President Ilham Aliyev, assurance of indicators characterizing ANAS on IC, using e – science potential by scientists in international projects give grounds for realization of e – science concept of Azerbaijan science.

The main purpose of creating "E – science" program is to raise the efficiency of results at every phase of scientific – research works conducted in scientific institutions and organizations of the Republic, to connect and to direct their activity in this field, to assist to development of national science and to make provision to integrate Azerbaijan to worldwide electronic information space.

Considering all abovementioned, activity sphere of "E – science" program includes state and private institutions of higher education of different fields (ministries, state committees, state companies, transportation institutions and organizations), field scientific – research institutes and other scientific enterprises and organizations of republic, besides ANAS scientific – research institutes.

The following principles are considered in order to create conditions for development and provision of efficiency of "E – science" and at the same time, for participation of all abovementioned interested sides in this process:

1. **Systematic character.** Systematic contact among structure elements that provide system integrality.
2. **Development.** Provision of system evolution by considering regular addition of new elements to "E – science", renovation of its functions and provision parts.
3. **Innovation.** To enhance alertness to performing of significant scientific – researches by considering innovations of scientific – research development (as well as international experience).
4. **Internetization** Complex automation of scientific – research activity on base of Internet technologies and formation of online scientific infrastructure which provides integration of this information systems.
5. **Relevance.** Interrelation capability of "E – science" with "E – state" in joint activity.
6. **Administration.** Equal consideration of interests of participating state administrative institutions, administrations of scientific institutes, organizations and companies, their direct participation and their interests in this process.

7. **Phasing.** Realization of "E – science" in phases, by considering priorities of preparation of projects and programs, rapid obtainment of results, as well as efficient use of financial capacities.
8. **Consideration of international experience.** Realization of open access idea to results of scientific researches in country by creating "E – science" and consideration of progressive world experience (Budapest initiative, "open access" 2001, Berlin declaration about "open access" 2003, international agreement "Berlin – 3", 2005 and etc).
9. **International cooperation.** Creating conditions for participation of local specialists in international forums, large use of creativity capabilities of foreign countries in project preparation.

We must note that, based on the experience of foreign countries developed in realization of E-science program, the second wave of internet technologies prompting automatization and development of scientific-research activities from different directions in recent years has been massively strengthening. In its turn, it creates conditions for changing organizational and individual activity models in science.

For the purpose of developing "E – science" program, provision of its efficiency, and e participation of all interested sides (scientific – research institutes of ANAS, ministries, state comities, state companies, transport institutes and organizations, state and private higher schools, field scientific – research institutes and other scientific organizations and companies of republic) in this process, it is considered to create "Monitoring information system of ICT application in scientific activity".

Monitoring covers six groups (ANAS, Ministries, State Comities, State Companies, Transport Institutes and organizations, other institutes and organizations); institutions belonging to each group (for ex: education institutions, field scientific – research institutes and other institutes); 67 sections composing the structures forming these groups and 150 organizations that belong to these sections.

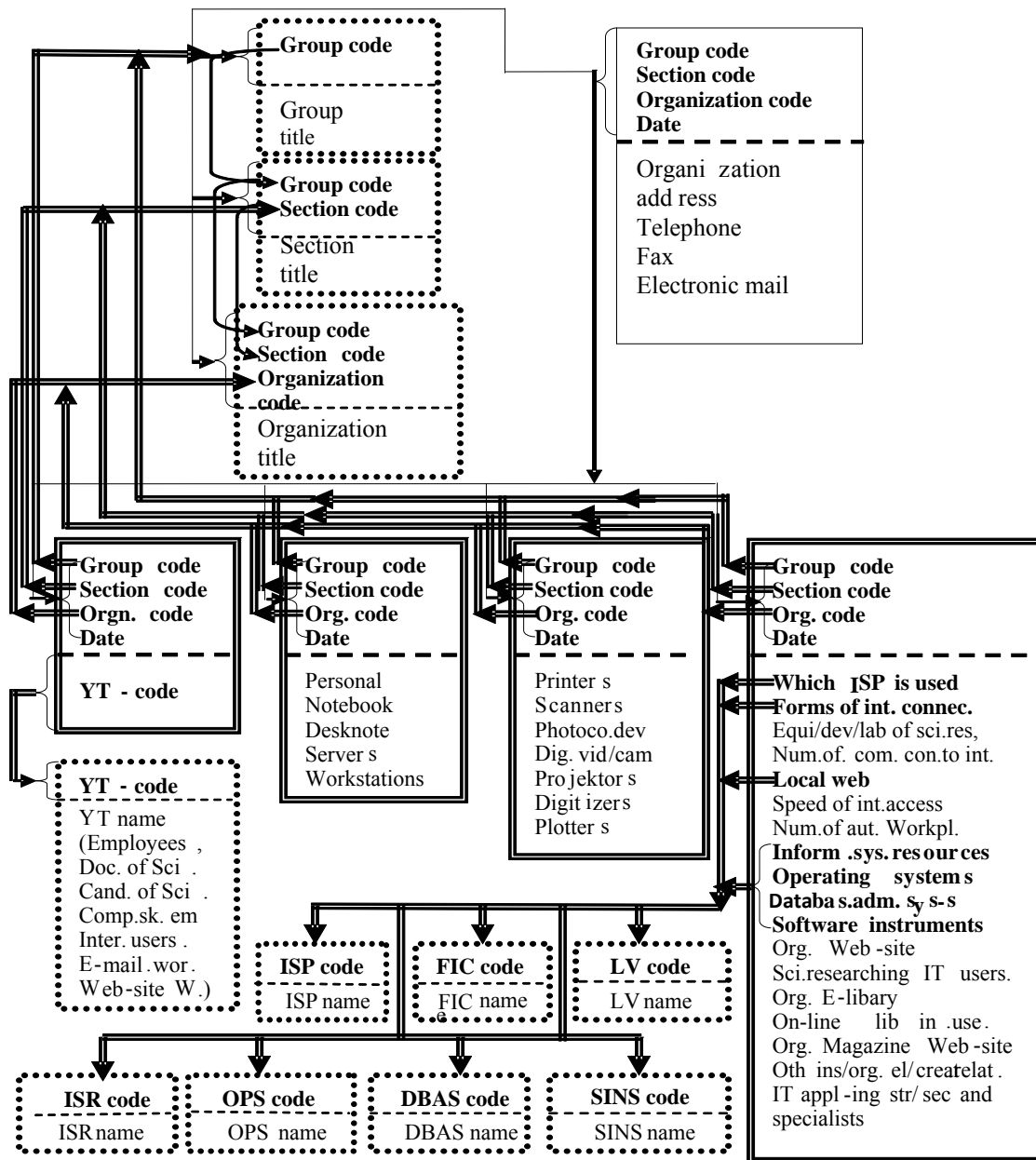
1 main, 4 dependent, and 100 supporting schedules were developed based on properties of application forms, connections among structure of schedules, and relations among them were identified, and architecture of system was prepared based on these (scheme 1).

Statistical data, reports and diagrams of the Republic, groups and different organizations on following subjects were reflected in the system:

- **computers** (*personal, notebooks, desk notes, servers, workstations*);
- **computer equipments** (*printers, scanners, photocopy devices, digital video cameras, projectors, digitizers, plotters*);
- **different groups of employees** (*employees, Doctors of Science, Candidates of Science, employees with computer skills, internet users, employees which have e – mails, employees which have web – sites and at the same time age restrictions belonging to every requisite: ≤ 30 , 31- 40, 41-50, 51- 60, 61-70, 71-80, >81*);
- **other indicators** (*which ISP is used, form internet connection, local networks, computers connected to internet, automated work places, organizations owning web – sites, organizations that have electronic library, organizations owning e – mail, equipments – devices – laboratories for performing scientific researches, information systems resources, organization magazine with web – sites, organizations which have creative relations with other institutes and organizations, organizations that have IT-using structure sections and specialists*)

According to indicators of abovementioned 6 groups, 67 sections and different elements of employees (employees, doctors of Science, candidates of Science, employees with computer skills, internet users, employees with e – mails, employees with web – sites) of active institutes and organizations in the Republic and other indicators, indicators per every 100 people and each organization, indicators of ICT usage degree including different employee groups and with illustration of age restrictions (≤ 30 , 31- 40, 41-50, 51- 60, 61-70, 71-80, >81) were determined. Also statistic indicators for general and per every 100 person were identified based on

computers (personal, notebooks, desk notes, servers, workstations) and computer equipment (printers, scanners, photocopy devices, digital video cameras, projectors, digitizers, plotters) that they use.



Scheme 1. Scheme of Electron-science monitoring information system architecture

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