The Origins of the UNESCO-UNISIST Scientific Information System

Introduction

The variety of information, its volume, flow and way to transform has become an important starting point of many serious scientific discussions and analyzes, which in consequence have led, post World War II, to eruption of the new system of information, created with the UNESCO as a part of their operations.

The idea of this system was continuous and active gathering of data and information, their storage, responsible processing and their distribution in an attempt for quick and optimal decision making, allowing for better coordination of all the operations of its area. The importance of the decisions making regarding the information was realized then. The most significant information would be the one from the standpoint of the accuracy of decisions made with the addition of occurring variables, having the biggest value at any given time. It was believed, that the choice of right resources and appropriate information technique would help process the logistical operation which was making the right decision about information. While making the right decision the important factor would be thoroughly led analyzes of all elements and links being a part of the process, while taking into consideration all variables and occurring socio-economic and cultural occurrences in the examined area.

It was also acknowledged that the integration and complexity of this system should take place in a full symbiosis with the environment in which every planned and specific project achieves final and real shape. Therefore information systems, which were newly created every time, had to include all known and significant, as far as the information goes, economic, social, geographical and cultural problems [1].

The United Nations Educational, Scientific and Cultural Organization in an attempt to sustain peace and security around the world, has constantly initiated and supported every action having an influence on full development of cooperation between member states of UNESCO. Every free flow and access to information and communicational technologies between different countries, not necessarily developing countries, have been appreciated and propagated. The creation of a vast scientific information base has become a necessary element of knowledge about countries and not only their resources. It was well known that introducing unitary rules of international information exchange would allow, in consequence, to decrease existing inequalities as far as division of scientific knowledge between different countries go. This is what, according to the creators of the system, developing countries would take most advantage of. It was believed that properly functioning system of information exchange would eliminate at least partially, various administrative, technical, socio-cultural obstacles. This, in return, would help overcome most of economical barriers partially connected with the lack of financial resources and qualified staff. It was thought that the creation of efficient, worldwide system of scientific and technological system of information would allow to achieve highly better outcomes of scientific research and would lead to a stable development of knowledge. The synonym of progress and development of Science were all, even small, achievements accomplished in the field belonging to information [1].

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The creation of the international information system

Starting from the very first General Conference, UNESCO has led massive operations in order to take the best advantage of existing and well known scientific discoveries in the service of humanity. Specialists have used all the gathered theoretical knowledge as far as: regeneration of soil, adjusting dry lands for cultivation, exploitation of resources of marine food, increase of energy using natural resources and development of means of communication and also in the battle with diseases in an attempt to increase standard of life of people living around the world. Poland, despite the complex socio-political situation, from the very beginning has actively participated in bringing the operational program and UNESCO constitution to life. It has been especially active in the areas of helping with the gathering and distribution of knowledge data, necessary to the comprehensive development.

During United Nations and UNESCO deliberations many times the problems of unbalanced and insufficient development and access to the information or communication resources have been brought up. Former experiences of members of the organization, with helping to create press agencies or other mass media in the 1950’s, have shown enormous and long-term neglects in those fields. At the same time a huge growth of demand for the scientific information in different parts of the world has been displayed [2]. Secretaries of international organizations such as UNESCO and UN, based on current analyzes, repeatedly applied for increase of the amount of technical and financial aid – showing its level as a completely insufficient for formerly stated objectives and targets to be realized. As an effect of discussions and reached conclusions, resolution nr 1313 has been created jointly by organizations and signed during the UN deliberations in 1958.

This document has emphasized the role of information media emerging in all of the countries and with the particular emphasis on developing countries. It was then believed that the media mission would be an integral part of all incurred efforts directed at balanced economical and social growth in individual countries. The influence of modern techniques and technologies on the development of education and, in the future, on the growth of countries have been emphasized in the resolution. UNESCO and International Council for Science-ISCU has been associating, since 1931, such associations as: scientifc associations and national academies of Sciences, and also other councils covering narrower fields of interest but realizing full range of cooperation for the development of science and information. They became cofounders of the new system [4].

In 1953 the joint office of analytical abstracts – ISCU has been created and it provided connectivity and information exchange in reports published in analytical forms in English, French and German especially in areas of Physics, Chemistry and Biology [4]. Those actions were taken in order to expand possibilities of using formerly gathered data on progress made in Science and their usage in practice.

In the late 40’s UNESCO, was a first international organization to create a network of facilities grouping researchers and technicians from all the countries as a part of various specialized teams. Centers of cooperation were created in the regions most distant from the enormous scientific centers, such us: Montevideo, Cairo, New Delhi, Jakarta, Rio de Janeiro, Shanghai or Manila [2]. Decentralization allowed for direct actions of UNESCO in countries isolated from the newest scientific and technological achievements. Success of those actions allowed not only for the expansion of operations taken by the organization itself or modification of their programs in the scientific research department, but also creation of newer information and science system service centers [2]. The role of a well-functioning network of information exchange, which would create new international systems, was appreciated.

In many neglected regions of the world, after the World War II, the most difficult barriers would be crossed. Networks of initially free flow of information would be created in chosen countries. What previously had been unavailable due to limited technical range and used means of communications, has become more accessible for everyone interested in the scientific cooperation. Technological leap as a result of development of science, economic, geographic factors or even social growth allowed for a modern system of scientific information exchange to be created. The concept of the global system of the scientific information would erupt not only due to the development of Science, scientific research, widening of scientific and technical literature, increasing the amount of scientific centers, variety of languages that
scientists used, but also due to more common and perceptible problems with the communication between vital system elements. Establishment of the economic, political, social and cultural bases, so significant to the modern information systems, have accelerated their process of creation, which at the same time allowed for the broader and quicker introduction in the developing countries [3].

During the geopolitical era, often called “the Cold War”, in the whole world there would be a huge rivalry in the economy, science and technology sphere. With this occurrence understandable demand for the scientific and technical information has developed. International, specialized organizations decided to substantially expand work area on the process of information flow. In the well developed countries systems of scientific and technical information were created which led to the creation of systems with economic knowledge. Those were used even more often as a tool for the political rivalry between countries of different systems in the ongoing economic competition. The demand for the various products related to the informational works has also increased.

ICSU and UNESCO in 1967 made a very important decision as far a scientific development go. They originated the creation of the joint program, established mainly on the base of their own experiences, which was called United Nations International Scientific Information System-UNISIST [5]. The system was a result of long-term analyzes of scientific postulates and elements occurring in the UNESCO program in the areas of Science, which was realized as a part of International cooperation within the technical and scientific information areas. It was also the effect of actions taken as a result of long-term experiences taken from gathering, valuating and distributing the documentation related to their full exchange within the international range. UNISIST summed up the whole international effort and experiences which were a synthesis of a certain philosophical thought, program and policies related with the mobile flow of the technical and scientific information [6].

The concept itself of the global scientific information and the beginning of the joint research of UNESCO and ICSU were published in a document prepared and called the research report-published in 1969. For the very first time only main directions of research and the description of basic tasks of various work groups established by the UNESCO-ICSU committee were presented, but also the integrity of those directions into one global system of the vastest range and accessibility were shown. Methods of communication between systems and efficiency of information services, responsibilities of work groups, institutional framework as well as elements of international help toward developing countries were also a part of the report [7].

The first group covered in the report showed recommendations of a technical nature. This part consisted of: permanent inventory of documentation materials, which was based on establishing and using international norms in bibliographic descriptions, using codes and formats in presentations and descriptions of elements of mechanized systems, as well as establishing explanatory and encyclopedic notes. It was recommended that this group would have a registry of scientific journals in order to standardize periodic scientific and technical publications. Thanks to the French UNESCO government such a registry was created. The success laid in compatibility of materials, which were a part of telecommunication and telex network for further exchange of the scientific information [7].

The second group of the report covered an area related with the efficiency of documentation services: libraries, the use of abbreviations, centers of information analysis and data evaluation. The role of scientific libraries was emphasized on multiple occasions, as one of the most important elements of scientific information exchange mechanism. It was postulated to support all kinds of programs affiliated with the coordination between institutions working on abbreviations and indexes of scientific information. Creation of specialized information analysis centers was suggested. Centers would perform evaluations and synthesis of elements of the whole documentation. It was inspired and encouraged to develop all possibilities and actions related with the usage of figures. In the third group of the report there were recommendations and remarks on the responsibility of authors, editorial staff, editors, people of Science and specialists of the information field. The emphasis was on the need for inspiration and coordination of efforts in the information, education, scientific research of improvement of press and better cooperation within national and international scientific associations relating to the process.
of the knowledge exchange. The first part of the presented documents consisted of rules covering the cooperation as a whole, in different institutions. It was suggested to create national, leading and cooperating organizations which would gather national resources – taking under consideration UNISIST policies. The document encouraged also all of the governments and organizations interested in the growth and scientific information exchange, building of at least minimum infrastructure, which would be significant to the right usage of all possibilities of cooperation by the international centers. It was suggested that industrial countries, with the mediation of UNISIST would perform a particular amount of constructions projects which would strengthen the cooperation with developing countries. All of the suggestions stated in the report became recommendations, being not only a catalyst - a guarantee of the cooperation between different, individual institutions of the scientific information, but also they would have a direct function of initiating projects which then would improve the information gain and allow for better access to the global information resources. Authors of the report, members of the UNESCO-ICSU committee agreed that the global system of the information exchange, being a network supported by voluntary cooperation of existing information services, was a much needed and feasible project. UNISIST system became a significant program which would coordinate modern tendencies on the international level, and also direct toward various evolutions in the constant growth department of the scientific information [7].

Due to a decision made by the Science and Technology Committee in Poland a first work group was established. Its aim was to coordinate, on the national level, all of the tasks evoked by our active involvement in UNESCO/UNISIST. The group worked on the suggestions for the programming, planning and control system related with the process of the information and data search, necessary to the developing economy and the country. After the organizational works were finished, a director of the Research and Development of Computer Science Center, Jan Bursche established a team of National System of Scientific, Technical, Economy and Political Information-Światowid, with Zbigniew Michajda – a pioneer in the Computer Science and scientific information fields [8]. The innovative information system was being created during tumultuous political changes in Polish People’s Republic era. It was created mainly based on former, existing scientific and research institutions, using humble pre-war experiences and achievements of librarians and bibliographies. The information system, which was with difficulty built, met many obstacles related to the methodology, theory of problems, research organizations and significant shortages of staff.

UNISIST has significantly decreased the gap between the variety of information and its efficiency. It has helped, interested countries, many times with the creation of information centers, education and retraining of specialists in the information field. The system has led to a better work organization and integrity of national, regional and international services within its created work. Without a doubt UNESCO made it easier for developing countries to gain the access to variety of information, it supported them in the creation of scientific and technical politics. As a consequence, a growth of the economy in the country would be supported as well. Cooperating organizations and creators of the new system were fully aware of the strong connection between the development of the information network and a creation of the new economic order.

Help provided by UNESCO, from the very beginning, was based mainly on delegating experts and consultants, giving practical advice in order to improve information services as well as giving financial help. Recognizing those actions as legitimate and intentional they became a part of the UNISIST program as well [9]. All of the international initiatives of UNESCO in this field were aimed at the creation of flexible network on the terms of voluntary cooperation of information services i.e. System of International Nuclear Documentation (SIDON-INSI). The information exchange became possible between countries, in those fields mainly thanks to the operations of the information center created in Wien. Along with couple of organizations the Center would once a moth publish data on scientific research, the computer would process it and write reports as microfilms. The global system of scientific information created as a part of UNISIS program conveyed also: International Agriculture Information System-AGRIS, Global Network of Agriculture Libraries-AGLINE, International Network of Documentation Policy and Mass Communication Research – COMNET, International System of Social Science Information-DARE, International System of Documentation Research Information-ISORID, International Net-
work of Standardization Information-ISONET, International Network of Patent Information-PIN WIP and International Nuclear Information System-INIS. Some of those systems helped to develop regional scientific information systems, which improved the cooperation of the same network.

Summary

Problems related with the scientific information development have led, at the same time, to new issues presenting themselves affiliated mainly with the exchange of the information data with the use of newer technologies. Operations of UNESCO, being a specialized organization, were based mainly on various aspects and problems related with the evaluation of tendencies in science and technology and their influence on the development of society. In countries, belonging to UNESCO, scientific politics depended on joint decision made on cultural and natural problems, taking under consideration human aspects respecting science and technology. Possibilities for finding sources of information and their acquisition have broadened due to improvements in electronic and communication technology. All of those actions have, in consequence, led to the creation of a new platform of the information exchange involving the full communication and symbolic goods transmission by a device called – computer. This much of an inflow, volume and variety of information can only be handled by highly developed computer techniques – process them in a limited time frame, adapt and qualify them to useful groups of valuable data [9].

And this is how a new system of thought and transformation has originated. The Internet and a mobile phone have expanded the range of impact on each member of the network on Internet users. This is how new informative formation has developed. It has led to deeper economic changes in the world. Thanks to modern information systems every piece of information, seizing it and processing might become a personal success and also a beginning to a new, promising business-even on international scale. It might also become a dangerous weapon if used by irresponsible people, who, for no reason, start armed conflicts. Information or knowledge itself have become valuable goods, and like other, meeting the needs of every human being. But the carrier of the information itself has become the synonym of knowledge and wealth.

Abstract

The unrestricted flow and common availability of scientific information and communication technologies have been a chance of even development for many countries. Poland joined the process of creating the basis of scientific information, which UNESCO acknowledged as an indispensable element of knowledge on countries and their resources, which later made it possible to eliminate some obstacles: administrative, technical, and sociocultural. The UNESCO’s and ICSU’s mutual program has been created on the basis of experience and it has also been the outcome of realisation of the demands of the international scientific society. In many countries, UNISIST has become the synonym of the development caused by acceleration of technological transformations.

The aim of this article is to present the elements of the International Scientific Information System and to introduce its main idea, which was written in a 1969 report.

Keywords: system, UNISIST, logistics, International Council of Scientific Unions, ICSU, ŚWIATOWID

POWSTANIE SYSTEMU INFORMACJI NAUKOWEJ UNESCO-UNISIST

Streszczenie

Swobodny przepływ i powszechny dostęp do informacji naukowych i technologii komunikacyjnych stanowił szansę na równomierny rozwój wielu krajów. Polska włączyła się w proces tworzenia bazy informacji naukowej – uznanej przez UNESCO za niezbędny element wiedzy o państwach i ich zasobach, który w przyszłości pozwolił usunąć niektóre przeszkody: administracyjne, techniczne czy społeczno-

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kulturowe. Wspólny program ICSU i UNESCO powstał na bazie doświadczeń i był jednocześnie wynikiem realizacji postulatów międzynarodowego środowiska naukowego. UNISIST stał się w wielu krajach synonimem rozwoju spowodowanego przyspieszeniem transformacji technologicznych. Artykuł jest próbą prezentacji elementów Światowego Systemu Informacji Naukowej i przedstawienia jego koncepcji zapisanej w raporcie, opublikowanym w 1969 roku.

Słowa kluczowe: system, UNISIST, logistyka, Rada Unii Naukowych, ICSU, ŚWIATOWID

Literatura References


