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# INTELLECTUAL COMMUNICATIONS AND CONTEMPORARLY TECHNOLOGIES ALTERNATIVES OF THE SCIENCE LIBRARIES

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The new technologies and the globalization are the factors which have brought essential changes in human society and its environment. The unceasing dynamic changes imposed new strategies for survival and prosperity of institutions and people in the new conditions. The spheres with greatest potential for achieving competition priority are compatible to the fastness of research results implementation in each field of human activity.

The extended knowledge requires narrower specialization as well as interdisciplinarity to solve the arising problems. The new research fields and trends are a synthesis of science and high technologies determined by the new discoveries.

The present study aims at finding answers to the questions about the place of science library in the dynamic restructuring of research environment. The necessity of transformation of the scientific library's genetically set functions from a guardian of the achieved knowledge to an active participant in the creation of new knowledge is a natural consequence of the processes and tendencies of the social medium. The priorities of Europe and USA for intensive creation of knowledge economics are at the first place and this requires intensification of that research an integral part of which are the new communications realized at a new technological level.

Chapter One outlines the stages of one cycle of the development of research and achieving new knowledge. The evolution of scientific communications in the new information environment is determined by the new technological background of the communication channel. Their purposeful development is shown in the context of the research priority in the last ten years – creation of information society. The role of the scientific library as a mediator and a communication institute is surveyed in four basic projections: research communications, library and information support of research, infiltration of the scientific library in the infrastructure of information society and its transformation into a high technological component of infosphere.

Under the pressure of the changes in the information infrastructure which has begun with the computer revolution and the development of new communication generation, the traditional model of science library undergoes transformations oriented from static communication towards active, interactive, dynamic interaction with the users. In this way it has developed as a basic structural component of the information society being constructed.

The model of information society gains position in the accepted theory for the European development. The frame programmes are concrete terms of the concept, their priorities change in conformity with the development of technologies and the practical creation of information infrastructure.

On the other hand, the prior fields in knowledge development are a consequence of the intensification of research and the influence of the new forms of knowledge organization, including the self-organizing "invisible colleges", as an objective determinant of the new information technologies.

The general structure-determining components of the information infrastructure are represented in their interaction according to the given definition of the term infosphere. The concrete types of realization of infosphere expressed in transformation of the functions of science library from traditional to electronic and virtual, and the influence of the information superhighway Internet upon this process are regarded in their mutual determination and dynamic development.

The integration of science library into the educational process, which is an essential stage of the preparation of the intellectual potential for creation of new knowledge, requires the development of its immanent functions at a new level. The social needs regarded in their dynamic development predetermined by the socio-economic parameters of information society force the infiltration of science library into the new structure and

contents of the educational process. Education and teaching are shown as a dynamic and changing constituent in the life of man. The science library has a decisive part also in the realization of the principles of democratization of society through development of new functions with which it participates of full value in the realization of the right of each citizen to information.

Chapter Two outlines the challenges of the changes in the system environment of science library. The problem situation of the science library is identified and the major factors of change with their dynamics and tendencies of impact are determined. The expected transformations of the functional model of science library in the fields of interaction with the dynamically changing system environment are traced.

The problem trends and the types of influences upon the structure determining and resource ensuring elements of science library are localized. The change of the system environment includes not only the new technological medium in which the science library functions, but also the corresponding changes in the users' interests and attitudes towards search of new information sources and resources (Internet, online data bases, electronic documents, etc.). This interdetemined series of changes leads to a change in the functions from rendering document sources towards rendering an access to them, i.e. the structure and the character of library services change – to direct use of library functions and to new structure of information resources.

The defined general problems require implementation of such strategies of science library development which ensure flexible and dynamic adaptation to the changes of the system environment and the conditions of its functioning. The models of its future development are determined by the concretization of the reasons for eliminating the library institution as an element of the new infosphere and respectively by the loss of staked out claims in the information field and of positions in the dynamically developing virtual markets.

The future possibilities contain the two mutually excluding extremes. At the first place among the destructive factors is the insoluble for the traditional libraries contradiction between the static of the implemented library classifications and the dynamics of modern knowledge. This contradiction is followed by others which are consequences of the considerable deviations from the initial conditions of functioning at which the traditional science library model is approved. Independently of the periodical improvements of the leading libraries in the world the unceasing dynamic changes are reflected by all elements of the science library models and it stops to function efficiently. The two shown models of the library information resource structuring – focal and fractal are promising from the point of view of the sustainable preservation and development of the basic function of science library. The implementation of modern methods and means for systematization and classification of information resources brings order in the increasing chaos, allowing maximum satisfaction of the search of information by the users. The advantage of the fractal model is determined by the context of the dynamics of changes in the system environment and by the necessity of corresponding to this dynamics flexibility, adaptability and maximum productivity. The fractal library is shown as a stage and a basis for passing to a virtual-fractal model of a library of the future.

The functional transformation of science library is shown in its dynamic interaction with the system environment. The reformation of the structure and type of library stocks is pointed at in conformity with the changes of infosphere and the necessity of achieving coordination between the information resources needed for research and the information ensured by science library. The evolution and the stages in the development of system environment – vertically and horizontally structured hierarchies, and the place of science library in them are shown as a natural consequence of the accepted concept "from possession to access" and in the light of the social and political and economic processes in the last thirty years in Europe and USA.

The specific and the general information functions of scientific library are re-defined in accordance with the pressing requirements of the system environment. The concrete reflections of the basic and super structural technological ware in the communication functions of library are expressed in the strategies for their transformation and achievement of integration of the user with the generated by them information resources.

A comparative analysis of the assessment criteria for the quality of the traditional and the new information resources is made. The classification of the new information resources is shown from the point of view of the new library functions. The recent achievements are in the field of creation of new and most valuable information resources – data metabases. This is an example for the technology of creation of such resources which includes an algorithm of procedures.

Chapter Three gives the basic elements of the library marketing-mix refracted by the realized at a new technological level traditional and new library functions. The elements of the marketing system of science library are marked as the different marketing concepts are shown in their evolution and are analyzed from the point of view of the new functionality of science library.

The main participants in the market of telecommunication and information services are presented, and the necessity of new moving force is substantiated which should give an impetus to the transformation of library functions. It is underlined that the bringing of competition to the field of library services does not necessarily require privatization of its stocks. The coming of new participants who get the right to carry out library services might look like a heretical perspective, but it is a reality in the developed countries. The variants of realization are multiple in the whole spectrum from competition to partnership including intermediate mobile units, etc.

The position of science library in the modern marketing system is presented as a consequence of the influence of the last upon its new functionality. The advantages of its new functional models are shown at a first place in Chapter Two. The described factors of impact on the marketing system are concretized in the priorities for development of science library – moving the stress from possession to access and to the activities ensuring it. On its part, the marketing system turns into a global factor for influence and dictates the changes in the future. The accelerating effect of new technologies and the expected reflection in the library functions are shown in the context of conversion of the library marketing system. The identification of the elements in the library marketing-mix is made by the offered marketing concept of the library. The integration and the adaptation of all elements of the library marketing-mix to dynamic changes of the users' interests require a precise monitoring for the achievement of which some of the most successful methods are shown. The impact of new technologies upon the heuristic potential of marketing finds most dynamic reflection in the evolution of electronic markets, especially in the tendencies of information markets' segmentation. The reaching of optimum mix is shown in dynamic interaction of the life cycle of the new information products of libraries with their position in the new infosphere. The offered strategies for management, organization and optimization of exchange rates are shown in the conditions of reorientation of science library towards active interactive communication with the identified user – individual and mass.

By concretization of the role of the library information broker in creating additional digital contents in the science library an attempt is made for identification of the transformation of the science library functions into services. The parameters of digital marketing and the market segmentation in Bulgaria are described. Among the mentioned different strategies and their basic elements the advantage of CRM is underlined for finding the place of the science library information services. The potential market niches are shown in the context of the new directives of the European Union and their expected impacts upon the constructed information infrastructure. The setting of Internet as a universal communication channel accelerates the new mobile communications, the share of intelligent nets increases as well as the use of computers as terminals. The stimulating influence of these factors upon Interconnect technologies leads to restructuring and expansion of markets, new services and participants, new level of production and new products.

The offered technology of information products and services creation by the science library is an attempt of synthesizing its mission and new functionality, having in mind the modern tendencies and the experience of the leading companies in this field.

A strategical perspective in the new conditions is the adequate use of the global net Internet through integration of functions and services, realized in the library. The growing of Internet and the integration of intelligent networks gives an opportunity for achieving surplus value from the services realized by them.

Having in mind these tendencies and moving the problem into the sphere of library services, it is necessary to determine the priorities and to develop such functionality of the library, by which not only products, but also services will be produced and rendered. In this way all elements along the channel of communication will be united and not only the high efficiency of information services and sustainable presence of library in the market niche, but also the real transformation of libraries from a passive, stationary communication institution to an active mediator and knot of research communication will be achieved.

The priorities of the Sixth Frame Programme are united into one major trend – the creation of integrated European research space which is achieved also by new institutionalization of the "invisible colleges", by new virtual structures and unions. The strategical trends are two – better life quality and a better life environment, which is a necessary condition for accumulation of a potential for expanding the borders of knowledge.