

«E-SCIENTROCHAIR»- ONLINE DATABASE FOR MANAGEMENT AND ASSESSMENT OF THE RESEARCH RESOURCES OF THE UNIVERSITY BASIS UNIT – THE CHAIR

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The concept named e-ScientRoChair proposes searching for new informing and documentation opportunities, on fundamental structure in academic scientific research, meaning the chair or the research team, enabling the possibility to publish and as well as to disseminate some related information, research grant competitions, conferences, symposiums, workshops, various scientific publications. By summarizing and by pondering all the research activity components one can obtain the scientific profile of a researcher who activates in the academic environment. This concept tries to approach the university research as market whose participants are members of academic community.

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Introduction

In a knowledge based society, where the information and communication technology evolution is a continuous dynamic process, fast finding of information has become a fundamental criterion for users of scientific information. One of the fundamental human rights concerns the right of being informed which become operational through unlimited individual access to information. The information seen in the completeness of denotation and concept is one of the major trends in modern society. Today, in the era of information technology, virtual information spaces are the most complete, efficient, fast, diversified and easy to access ways to get informed. Ideas on developing such virtual information spaces are one of the most stable pursuits for today modern society, in its way towards an information society. One of the aimed fields, challenging a growing interest is the educational and research field. The interaction of the two fields leads to fundamental and applied research development, which in turn become more visible by using virtual information spaces.

In a world governed by knowledge, the science is universal. In this context, the main goal of scientific research is that starting from data towards information to reason out knowledge in the informational pyramid of knowledge (Mihai, 2005). Without disseminate the research results to further use them, this role played by science in contemporary society is annihilated.

Moving to a knowledge based economy is a fundamental strategic option and this will have a high impact on human durable development. Universities play a primary role in knowledge based society development by their contribution to information creation, release and use, in the process of transforming data into information and knowledge. The main role of the university consist in training highly qualified human resource, which is a process that implies the symbiosis of education and research, the educational system performance making its contribution to a great extent to society development. University scientific research is an inseparable part of an efficient education system and it is imperative for higher education development. In this way the higher education system can accomplish its role requested by economic and social development at a national, regional and local level.

In this context, the researcher's profile must be defined as good as possible in order to make the research visible, efficient, specialized but also interdisciplinary.

The Chair is seen not only as the primary provider of scientific resources gained by research but also as the final consumer of the research results which feed the scientific appetency demonstrated by research through new subjects and research themes. The primary expression of scientific research at a chair level means revealing of scientific skills of its members and this occur in the context of Romanian universities aiming to become research centers.

If this segment was valued from an informational point of view, by increasing visibility through attributes defined for researchers, teams, chairs or departments, it would bring great benefits in terms of increasing research efficiency. This would be done not only on the vertical axis of knowledge, by identifying similar preoccupations of

the researchers which could define the current stage of the research on a certain field, but also on the horizontal stage (in the final part of the segment), by corroborating dissemination sources of scientific preoccupations.

1. Analysis of the available information on the degree informing as concerns the research which are promoted by the entities making the science policy in Romania

The analysis of current stage of research in the field of promoting science policy and scientometry concerns the identification of the main entities visible at a local, national or international level and requires the analysis of the way in which they can offer descriptive information about these research project, white papers, conferences, books, etc., and how can one obtain the profile of a researcher and the scientific potential of chairs or departments whose members are involved in research.

Romania, the entities that perform the research and development activities are included in a national system (Dumitrache, 2006). The research national programs launch research topics, offers research grants by competition considering the science policy in each country.

The research activity approached by competition is functionally made up of two informational flows, at the borderline between information demand and supply. Thus, ANCS (The National Agency for Scientific Research), CNMP (The National Center for Management Programs), CNCSIS (The National Council for Scientific Research in the Academic Educational System), or other national entities involved in the science policy publish periodically information on launching of research competitions. This approach represents the demand of the academic scientific community interested in research work and, at the same time, the supply of the national entities that draw up, launch, apply, monitor and assess the policies in the research, development, innovation and science fields, according to the national strategy. This data flow comes from the entities that dictate the science policy, and goes to research suppliers – „the makers of knowledge”. At this level one can know data about the scope of the topic, the research fields, subfields, themes and topics.

Once the competition is launched, the flow is reversed, the researcher thus becoming bidders of projects, while the entities involved in science national policy change into representatives of the demand. At this level there are three types of information, as follows: those referring to an accurate description of the research projects and their inclusion in the scope of the topic, those referring to the human resources de involved in research work (the university, the faculty, the chair, the research institute) and those which would describe the competences outlining the profile of the researchers or of the research team. Juxtaposition of the three types of available information is poorly turned to account from the informational standpoint.

One may say that the national entities involved in the science policy don't have in view the connections existing between the research resources at different level stages of the research resource suppliers (along the informational line - researcher – research team – academic chair - faculty – university), as against the respective fields, subfields, scope of the topic. At a higher level, governed by the scientific research management principles there are three coordinates to be used: the interrelated use of the project information; framing-in of the project according to the scope of the topics; use the information describing the team members.

The break through channel identified at this level might informationally distribute all the eligible projects or the projects declared winners in the grant competition based on other criteria than those based on the activity fields, the universities or the research institutes. The mix-up of the complex information that describe the research through grants and competitions, stored at this level, might be recursively drive in to the constitution of a profile of the researcher participating in the research competition, supported by grants. It also may lead to the connection of this profile to the chair they depend on. From its level, it may produce some other information as well (articles, books and manuals) that meant to fully describe the researcher's profile.

This information corroborated with the purpose of dissemination, nationally and internationally, of the research results might become the object of a database, as a solution of unifying the informational resources, determined by a heterogeneous participation in competitions and research grants. From the latter one can draw out data which would outline both the scientific profile of the researchers, their field of concerns, their competences, and information describing and quantifying the institution involved in the research activity (at the level of different organizational stages including chair and department).

Equally database might contain information on the research projects submitted for certifying purposes to the authorities that perform the science policy at a national level, but declared ineligible or even non-winner. This information is useful to the university researcher community in order to further resuming the competition and recalibration of the informational contents of the suggested topic, depending on the remarks of the assessment commission.

On using efficiently the information stored in the database, one can carry out statistics according to certain scope of topics or scientific fields of interest that aroused the interest of the scientific community and represented a national priority promoted by the entities that determine the science policy in Romania.

2. Analysis of scientific research activities involving the academic entities stages

Universities in Romania promote the science policy at an academic level. The components of the research activity in academic institutes, as research entity, can be found in multiple organizational forms: articles published in scientific journals, articles indexed in scientific databases, treaties, specialized literature, applications and case studies, inventions and innovations, student research.

In most cases, the Chair, the primary storage of the scientific potential in a university doesn't provide significant elements from the stand point of the scientific research activity transparency. The chair is presented only historically as a component from the administrative standpoint (subordination) or from the didactic point of view. Some chair publish their research themes depending on the scope of the topic or on the field the respective topic is part of, without leaving aside the human resource under research. There are also cases in which one can see the scientific concerns, materialized from the quantitative: books published (authors, publishing houses, publishing date, date of issue), articles, scientific contributions etc.

Even if the chair research activities are becoming transparent in faculties or universities, there is no possibility at present to include this information in national database, which is indexed on a multicriterial bases. This database should include the research resources provided by each chair, research team or individual. The concept called **e-ScientRoChair** suggests the interconnection of these research resources (by Web services, under all possible ways) for each chair.

All the chairs should be transparent in all research components: national or international competition, supported by research grants, articles published in scientific journals, participation in conferences, symposiums, workshops, participation in devising bibliographic material (books, compendiums, case studies, printed course stuff), invention and innovations, doctoral research, student research, didactic activities adjacent to research work.

The above components are elements defining, both the profile of each researcher, and the potential of the chair or of the department they are part of. All of them can be found distributed to the entities that organize actions and scientific events - research projects of the national entities responsible for the science policy, scientific articles published in scientific journals or in scientific databases; symposiums and conferences published in tomes or scientific annals, supplements of journals or of scientific activities, editorial publications, in libraries, on the Internet or the book network; inventions and innovations published in OSIM.

The concept e-ScientRoChair unifies these scientific activities provided by each researcher and it circumscribes them to the chair. By combining the components that provide potential to the research work one can develop a break through channel project in the science policy, so that it may intersect the scope of topics, fields, subfields, subjects matter and research themes, to add a value to the development, turning to account and use of the scientific information.

3. Designing an online database with the purpose to interconnect all components of research from a scientific portfolio.

The concept e-ScientRoChair purposed is intended to create a database that should interconnect the specialized chairs of the universities to the convergence of the interests of the creators and users of scientific information. The database will contain all the descriptive information about the research concerns of the chair members. The information will be labeled and indexed according to various criteria from which different components can be extracted. These components describe the research activity of each individual, research team or specialized chair.

Practically, any researcher in Romania or elsewhere will be able to have access to this portal and obtain information concerning the scientific activities from the portfolio of the academic chairs. They also can have information about the scientific profile of the researchers, depending on the scientometric quantification criteria. The database will be loaded by the system's users.

Thus, each academic chair wishing to promote the ideas of their researchers for the purpose of their scientific participation in research projects, articles published in scientific journals, conferences, symposiums, etc. or for the purpose of distributing the results, can do this by providing descriptive information about the potential or their own research portfolio. In order to be registered in the database the researchers should publish their scientific concerns according to categories (books, articles, research contracts, etc.). They receive from the system registering time delay. Until the potential users are given access to the online program they will be checked by a scientific committee regarding their scientific works. After being checked, depending on the result and the degree in which the works declared are identified they will be given a score of authenticity. If a minimum number of points is achieved the user is allowed to access the program.

In parallel with the facilities of consulting the research concerns of the academic scientific community the references to the paper sources will become available as a full-text or abstract.

The database of the system e-ScientRoChair should reunite all research components (articles, books, contracts, etc.) issued by the entities concerned to make visible the undertaken efforts to conduct research activities and the dissemination, analysis and quantifying the effects arising there from. The system will frequently update the database through decentralized level by approaches taken by researchers or by departments or academic departments.

The exhaustive transpose of the disseminating demands of research results for individuals or groups, in a relational model that would provide the completeness for an on-line database is centered on a table with the results of research, with relationship to all the components of a portfolio research provided by scientific papers.

Scientific papers are included on the model of relational database as components of research portfolios (books, articles published after participation in conferences, articles published in scientific journals, books, patents of inventions, products made after research thesis of PhD, etc.). The flexibility of adopted the model consists in the possibility of adding any components of research, in relation to a scientific work, as a result of scientific research. Thus, the model can be extended by defining other activities related to teaching or research: Symposium, workshops, participation to bibliographic material (books, collections, case studies, and media training), Doctoral Research (doctoral essays), student research, etc.

Conferences are part of the model of relational database, classified as national or international, with the date on which they are scheduled, the university where are organized and usually associated with magazines or publications identified by ISSN or ISBN codes).

Scientific articles published in magazines are associated with the research results. Considering the fact that magazines are evaluated periodically by the forums that implement science policy at national and international level, qualifications fluctuates in time, the same magazine can be quoted differently in time. Therefore, the relational model contains a special designed relation that specifies the magazine's quotation for each occurrence.

The association of scientific papers with scientific research grants has a reverse sense to the articles and conferences, considering that a research grant may have more results disseminated in the form of scientific papers. Very important for the e-ScientRoChair concept are the teams or groups of researchers. The teams bring together several competitor researchers participating to a research project. The efforts of the researchers who participate are evaluated as results of research and become visible in scientific papers that have full connections with all components of a research portfolio.

The model design is influenced by the concept of unification of research components and by the need to disseminate the portfolio of these components and reveals the hierarchic structure of research domains. The main areas of scientific research in the database are those stated by the organizations involved in science policy. Each field can be divided into several domains (eg in the area economy, there may be sub-domains as accounting, management, finance, management, etc. Also, within these sub domains, there can designed several classifications in the form of research themes, and the sub-classifications can drill down on topics.

Based on the association made between the research subject - as a primary classification (which follow the theme, the sub domain and the domain of the research) and the "Scientific Papers", all the research results can be spread according to classification and hierarchy of science domains. In this way, the concept of e-ScientRoChair, implemented as an online database allows the assignation of each researcher or group to any component of a result of research, on the main categories of science domains. In fact, this concept allows developing a social infrastructure for researchers.

The human element in the concept of e-ScientRoChair is materialized in tables describing the researchers as individual subjects and as subjects of interest in which they manifest their skills. The relationship between scientific work carried out as results of individual research and researchers is done through a connection tables. The database e-ScientRoChair unifies the scientific interests of each researcher or group and assigns them to the institutional hierarchy. The institutional component defined by the concept e-ScientRoChair is materialized in tables which refer the researchers belonging to different faculties, departments or chairs

The relation between the institutional and the human element is realized by a table that stores the association between the researchers and departments.

The implementation of the scholarship concept in the e-ScientRoChair database is the result of the association of research results (as implemented by all the scientific works) with the human element, institutions and table describing the subjects of scientific interests that assign a researcher associated to a classification domain of science (domain, sub domain, theme or subject). According to this association between the each researcher and scientific topics in which he describes his research skills, could be designed a market research which can reveal a hierarchy of the most wanted researchers, themes, contracts, scientific publications on various fields and scientific domains.

The concept e-ScientRoChair, which can be seen in all its forms of manifestation, propagation and implementation, determines the fact that the scientific research should be considered as a market ruled by the scientific demand and supply.

According to the portfolio principles, the supply of information may include the entities that provide the research contracts (national, international or even business environment), as well as, individual researcher or research teams who wish to attract collaborators concerning their scope of topics in their scientific concerns. The demand of information may come from any member of the scientific community (if a minimum guaranty is assured from the point of view of their scientific concerns). At the borderline between demand and supply, the research project may solve some interdisciplinary problems, identified in the scientific concerns of the research teams, namely finding competent person from the scientific standpoint working at chairs having other profiles than that of the research team.

The concept e-ScientRoChair presumes the integration of the research team concerns from the chairs into a unitary and coherent information system. Initiation of such an approach leads to the harmonization of the interests shown by the creators and the consumers of scientific information who can communicate directly concerning topics of common interest.

The importance for the area regarding the way the scientific research is treated, as a portfolio of resources is located in the following coordinates:

- One can identify ideas and connecting scientific concerns of other research teams or other academic chairs (these elements may represent strong points of eligibility in national or international grant competition);
- One can identify problems complementary to the research topics outlined by the research team in order for them to participate in research consortiums. The research ideas which are complementary can be placed on a horizontal line (e.g.: between the close fields of the same scientific field) or on a vertical line (between sciences belonging to different fields);
- One can identify the potential users of research work (e.g.: the members of the business community can show their interest in some research topics, or on the bases of the analysis of the research market: the symposium and conference organizers who have the possibility to become more selective when they send the invitations.

By the e-ScientRoChair database one can make a list containing the most wanted researchers, topics, contracts, scientific publications of various subjects and subfield. The scientific community can have such information concerning certain fields of interest.

Implementation of the stock exchange principle in the database e-ScientRoChair is the result of the combination of research results (as implemented by all the scientific works) with the human, institutional component and with table describing the subjects of scientific interest that a researcher associated with each field classification of science (domain, subdomain, theme or research subject). According to the association between the presence of each researcher and scientific topics that he describes his research skills one can stand out a market research which can be a hierarchy of most researchers looking for, research themes, contracts, scientific publications on various fields and scientific domains.

Another consequence derived from the concept e-ScientRoChair is the informational building of an academic researcher profile through the analysis of their scientific research portfolio. The research activity has become the main component of the assessment system of the teaching staff activity according to Bologna guideline. The academic assessment system for the teaching staff is ruled by the well-determined norms. It would be interesting to know if those norms defining the teaching staff research portfolio are unanimously accepted by the entire academic scientific community.

The original elements of the concept e-ScientRoChair derive from the parallel development of the assessment criteria accepted by the academic scientific community as against the normative approach and as well as from the description of the scientific profile of an academic researcher, according to their scientific portfolio.

By exploiting and query the online database can bring the research results to individual, team or chair level with a system containing the individual and collective reports concerning their research work. The starting point of this system is the Chair. The database manages all the research components, made by individuals, research teams and chair/department according to various normative criteria of assessing the science of quality. These criteria being flexible, the system will be able to adapt quickly to any normative changes which contribute to the qualification of a scientific researcher. This approach can facilitate the adaptation of the academic assessment norms to the requirement and to the research potential of the academic scientific community.

A final element regarding the impact of the e-ScientRoChair concept is studying, designing, developing of a scientometric reporting system for the members of the scientific university community of the research activity at an institutional level.

According to the requests of Bologna process (1999), research activities have become basic components of professors' evaluation systems. The research evaluation and audit system of universities describe only a part of the activity research. When they manage to obtain the whole activity this is describe only at the university or faculty level and information are not related to the components of other research entities (nationals and academics).

Starting from the online database that preserves the research resources disposed by category and entities involved in research, data aggregation can be done from individual researcher towards chairs and also towards superior university structures (faculty, university).

This uphill approach concerning research information aggregation can offer to every academic entity a score for each of its components using various criteria (ISI papers; B or C category; grants; etc). Likewise, the results of this project can offer to academic managerial staff from every university that wish to implement it reports that will allow the research quality assessment not only at the individual level but also at a chair and faculty level.

Conclusions

The **e-ScientRoChair** concept proposes to search new opportunities of information and documentation by exploiting the scientific potential offered at the basis unit of scientific university research - the chair (in fact, the individual researcher, the chair itself or the research team), offering this way the possibility of identifying,

publishing and disseminating of information that concerns the scientific research, in all its forms and components (research grants, conferences, journals, and so on).

Turning to account of the online database e-ScientRoChair will arise a major interest from the part of the young researchers, editors, as well as, from the part of scientific information users who in their turn are researcher, practitioners, representatives of the business environment, etc. Such a database will underline the transparency of the universities on a national or international plane, bringing about quantifiable benefits concerning image. This may influence the research results in this academic institution. The impulse given to the scientific activity through the database, as well as, the exchange of ideas promoted by the scientific community, developed by the chair will stimulate the scientific research and document work for all structures.

Bibliografy

1. Arsanjani, A. (2004) "Service-oriented modeling and architecture: How to identify, specify and realize your services", <http://www.ibm.com/developerworks/webservices/library/ws-soa-design1/>
 2. Cerami, E. (2002) Web Services Essentials, O'Reilly Media, Inc.
 3. Dumitrache, I., Curaj, A., Filip, F.G., Popa, G., Stanculescu, I., Szabolcs, L., (2006) Sistemul Național de CDI în contextul integrării în Aria Europeană a Cercetării, Bucuresti:Ed. Academiei Romane
 4. Feuerlicht, J.G. & Meesathit, S. (2004) "Design Method for Interoperable Web Services", Proceedings of ACM-ICSO, November 2004, New York: 299-307
 5. Kevin, A. (2008) WSDL 100 Success Secrets, Emereo Pty Ltd
 6. Kimball, R., Reeves, L., Ross, M., Thornthwaite, W. (1998) The Data Warehouse Lifecycle Toolkit : Expert Methods for Designing, Developing, and Deploying Data Warehouses, Willey
 7. Mihai, F. (2004) Sisteme informaționale financiar-contabile, București: InfoMega
 8. Mihai, F. (2005) "Servicii WEB.NET: implementarea unui serviciu WEB pentru preluarea automată a informațiilor dintr-o revistă online, de către abonații și partenerii virtuali" – Contabilitate și Informatică de Gestiuone, no. 11-12/2005
 9. Mihai, F., Stanciu, A., Aleca, O. (2006) „Proiectarea unei baze pentru consultarea online a resurselor documentare”, Simpozion International Abordari moderne în managementul și economia organizatiei, Bucuresti:ASE
 10. Moise, M. (2006) "Conducerea proceselor de business intre institutiile din administratia publica, folosind aplicatii orientate pe servicii" - Revista Romana de Informatica si Automatica, Vol.16, Nr.3
 11. Nadhan, E.G. (2004) "Seven Steps to a Service-Oriented Evolution", Business Integration Journal, January 2004: 41-44
 12. Timofte, C. (2007) „E-Business Technologies”, Informatica Economica, no. 4 (44)
- (1999) "The Bologna Declaration of 19 June 1999", at http://www.bologna-bergen2005.no/Docs/00-Main_doc/990719BOLOGNA_DECLARATION.PDF