RESEARCH PROJECTS AND WEB 2.0: CHALLENGES AND EFFECTS

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Abstract

There are already a few years since we heard about Web 2.0. There was a real frenzy around this new concept. In short time new terms have emerged related to Web 2.0 like Government 2.0, Research 2.0, e-Science 2.0 and Project Management 2.0. This paper aims to focus on the challenges of project management under Web 2.0, especially research projects. What is the awareness of project teams in using Web 2.0 tools? What is the confidence on information gathered with Web 2.0 tools? How will the team results and productivity be affected? These are few questions that undertake to find some hypothesis for next article with focus on Romanian research projects. The analysis needs and the paper conclusions will be based on interpretation of existing statistics and data gathering on the web.

Keywords: Web 2.0, project management, research project
JEL classification: M15, O33

1. WEB 2.0 IN THE WORLD OF RESEARCH AND PROJECTS

For the past 10 years, in the current vocabulary of all those falling under the category of Internet users entered a series of terms, that changed the method for using the different web-based tools. We mainly refer to blogs, wiki pages, social networks, databases with online publications or links to them, online seminars - webinars, the joint using of documents (Google document), automatic reminder regarding the updating of some web sites,

video tutorials, article citations, online references etc. They were all included in a wider concept, Web 2.0 [Collins, 2010], [Filev, 2008], [Happ, 2006], [O'Reilly, 2006].

In simple searches for these terms, with the help of the different search engines, we obtain results that rise to the level of tens of millions, which means that they gained land in almost every field.

That is why, through the present paper, we are trying to identify if the terms listed above are as used in the world of researchers, but especially to see if the Web 2.0 resources are used and considered effective in research project management.

Being a relatively new field, the implications of which are still under study for the specialists of socio-economic, behavioral, educational etc., the results of the various polls, inquires or studies have not yet reached a consensus regarding the utility and efficiency of the Web 2.0 resources and tools for the research projects.

Many papers, among which also [Anandarajan, 2010], [Burgelman, 2010], [Chiruță, 2007], [Collins, 2010], [Purdy, 2010, 48-58], only approach the perception of researchers on the web 2.0 tools, others [Casati, 2006], [Chong, 2010, 1-10], [Gray, 2008, 112-118], [Lawrence, 1999, 116-122], [Pena-Lopez, 2007, 35-48] focus their attention on the flow of information, especially of publishing the results of the research, but we barely succeeded in identifying studies or articles that cover the entire life cycle of a project, in general, for research, especially. We do not intend to elucidate all the unknowns of the Web 2.0 phenomenon on the research project management, but to outline a few directions for future researches.

What is clear, from the mentioned papers, is the fact that research, researchers, sponsors and users of the results of the researches need to change their behavior, to adapt to the new resources and tools specific to Web 2.0, considering that it can be approached as a global knowledge management platform, that can be accessed both by researchers, professors, students, and by the broad public.

2. STAGES OF THE PROJECTS LIFE CYCLE AND USABLE WEB 2.0 TOOLS

We bring into discussion the stages of the life cycle of a project, stages that are also specific to research projects. We pondered on them, considering the multitude of shapes they are seen under, but also because in Romania, for the past years, they became especially big, because of the multiple sources of financing. In this context, we consider that we have the opportunity to manage projects by turning from the start to tools and resources that are state of the art, even if there are not much documentation or best practices in this regard.

What is interesting is the fact that not even the Project Management Institute, in the last edition of the Project Management Book, does not refer to Web 2.0. The explanation would be that PMI considers that any communication tool in any stage of the project and project management process is welcome, if it is proven to be effective in the unfolding of activities. Anyway, the adaptation to these tools must be made.

In short, we will refer to the main stages of the life cycle of the project, so as to approach in detail the use of the Web 2.0 tools and their effects on the specific activities to research projects. We are talking about project conception, its planning, project implementation, dissemination and exploitation of results.

2.1. Web 2.0 in project conception

It is known that any project starts with an idea. In the research world, the idea is essential, because on the originality, innovation and impact of the results depends the obtaining of financing, international recognition and putting into practice, the evolution of sciences, in general.

The *project conception stage* is one essentially based on the searching of information and on communication.

The information regarding other researches performed in the field, the potential partners for the project, the possible funds, and the legislative and procedural regulations are critical for this stage. Also, there are necessary the statistics, opinions of the researchers, conclusions of previous researches so the team to be able to formulate the project hypotheses, to establish the scope and objectives. Gathering all these information entails some quite consistent efforts and time.

Until the emergence of Web 2.0, the activities in this stage were performed by turning to search engines, going through articles in the journals and magazines the researcher or the institution had access to, turning to e-mail lists and forums, known sites and contacts existing at institutional level. All these take time, and the waiting period for replies is quite extensive, provided replies are given.

Also, at the time of identifying the financing source, the covering of the documentation, the understanding of the procedures and conditions for submitting the financing request can often puzzle researchers. The clarification of many aspects that are not understood means contacting the financing authorities, who, most often, reply with great delay or their replies are pretty evasive, sometimes even contradictory.

The Web 2.0 resources and tools can eliminate many of the previously mentioned problems, but the users must not expect spectacular short-term effects, because it greatly depends on the degree of acceptability amongst them.

Thus, for the quicker identification of the results of the previous research, opinions regarding the unfolding method of projects from various financing sources, best practices, project partners, there can be used:

Databases with articles and papers published in various magazines, journals, conference volumes, to which the online access can be free of charge for the entire material or at least for abstracts. Among the best known one are: Nature.com, Sage.com, SciTopics.com, ScienceDirect.com, JournalSeek.net, SSRN.com, JSTOR.org, Springerlink.com, CSA.com, ThomsonReuters.com, EBSCO.com, SciCentral.com, RePec.com, Myexperiment.org. For identifying the stage of the research and developing the scope and objectives of the project these sources are real treasures. There is one *barrier* left, especially for emerging countries - the financial support of the organizations the researchers are a part of for the payment of subscriptions or articles considered to be important for the chosen research theme, because not all articles or papers can be obtained free of charge. But, from the perspective of project management there can be obtained an important time saving in the incipient stage of project conception, because almost all the article collections of the acknowledged scientific journals, with an impact factor, can be found much easier.

The social networks dedicated to the research and researchers, such as for example Researchgate.com, Mendeley.com, TheScienceNetwork.org, BiomedExperts.com, aipUniPHY.org, MeshForum.org, BioCrowd.com, SciLinks.com, CitizenSci.com, LabRoots.com etc. These are only a few, many of them being built on specialized fields,

such as physics, biology, medicine etc. These networks offer the possibility to trail the latest research and interest themes for a certain project, the discussions on certain themes or results of the researchers.

With the help of the members of social networks there can also be identified the possible partners of the research projects, members of the research team can be co-opted both from the academic environment, and from the business environment, to ensure the setting into practice of the future results of the research. There remains though *one challenge - the credibility of the individuals registered within these networks and the quickness with which they can accept the involvement in a project*. The low level of the credibility represents one of the most common perceptions in the various polls performed [Burgelman, 2010], [Collins, 2010]. It is true that based on the registered profile, each individual can be verified if they are who they say they are. Also, it is necessary to also keep track of the institutional policy of those proposing the project, the conditions under which a person or institution can become a partner in a project. But, at least in the prospecting stage for future partners, the social networks can be an important source, if we consider, for example, that on ResearchGate there are more than 500.000 researchers, on BiomedExperts.com over 300.000. Nevertheless, for the researchers in Romania, it seems that, through the low number of registered members, on ResearchGate a little over 75, the communication through social networks does not yet represent too much interest.

Blogs of researchers and specialists in various fields are another tool. They contain most often research ideas and themes, comments and opinions regarding certain projects or results. The information found on blogs are frequently questioned, considering that there are no standards or regulation elements for the validity of information. In the end, they are a sort of journal in which specialists give their opinion, and other interested parties comment on the subjects set into discussion.

Still, in cyberspace there can be found portals dedicated exclusively to scientific blogs, such as ScienceBlogs, Academic Blog Portal [Burgelman, 2010]. And so are the online portals of the various publications or publishing houses, of the universities and research institutes that have special sections for blogs. In this context, we consider that the information on these platforms can be awarded with a higher degree of credibility, especially since most of the institutions hosting the blogs also have a set of rules concerning the publishing of information and comments.

Sadly, the method for identifying the blogs dedicated exclusively to the interest field is still a slow one, because of their very high number and the rate of emergence of the new ones. According to [Meyer, 2010] and [Sifry, 2007], in 2007, there were more than 70 million blogs worldwide, with a rate of 120.000 new blogs each day, and in 2009 sit got to approximately 133 million blogs. In Romania, according to [Chiruță, 2007] and [Holotescu, 2007], in 2007, there were approximately 30.000 blogs, from which only 3,85% in the educational field, without clearly specifying the orientation towards research. The easiest way to identify them is through the social networks or by searching by the name of the specialists in the field.

There remains, though, *like a challenge or a barrier in the using of blogs*, the degree of acceptance by the project evaluators, for the literature review part and the analysis of the stage of the research in the field, the information contained by them.

The challenge is even greater for the research projects in Romania, because in our country, through the multiple search criteria used, we have not succeeded in identifying blogs with a specific solely for research or which belong to the researchers in a field. They

are, most often, personal blogs, not dedicated exclusively to the research themes. At the same time, we must also consider the inflexibility and conservationism of the financing authorities, who adapt slowly to the evolutions and dynamism in the field of information technologies usable in the world of research projects.

RSS feeds ensure the updated information for the areas of interest, without having to periodically search for the latest news. It is especially useful, in the conception stage, if the sponsors' sites have such a technology incorporated, because those who work for proposing a project can be immediately alerted regarding the modifications occurred in the financing requests or documentation. Also, if at the level of the discussion groups or of the forums RSS is present, then the dialogues between the ones involved in various financing projects can be tracked, the possible best practices or problems other have been confronted with can be identified. From our searches, we found that most of the Romanian government agencies financing research have such a component, which significantly facilitates the fund searching process, but also for the latest information concerning financing.

Wikis can represent a starting point in defining the research theme and in the quick visualization of some synthetic information regarding the field. Although, it seems to be one of the best means for information, because of the open-access system, wikis are considered to be, as also stated in [Myhill, 2009, 228-238], susceptible to „virtual vandalism". Nevertheless, for many types of wikis there are control systems for the members and for validation of the contents added by users. A few examples of such functional sites, found on Wikipedia, are Sykes Lab Wiki, Güntert Lab Wiki, The SAIL Wiki wiki, Cyana Wiki wiki, SciMate Life Science pre-publication wiki, OpenWetWare "wet" biochemistry wiki, UsefulChem Lab wiki, SklogWiki, biowiki.org, SVI wiki etc. Most of them belong to some research teams or laboratories within universities, which ensures them a higher degree of credibility. From our point of view, we consider that these web pages can be used, for the time-being, only as a primary information source or as a starting point in finding some initial data on the research theme. This type of sites can better prove their utility during the implementation of the project.

Starting from the previous descriptions and based in the empirical research performed through web searching, we can say that one of our hypotheses is represented by the fact that *many Romanian researchers fully use, at this time, the databases with access to online publications, they will turn to registering to social networks dedicated to researchers to identify the partners, but few will use the blogs, wikis for the documentation of project ideas*.

2.2. Project planning with the help of web 2.0 tools

With the information gathered in the previous stage, with the scope and the objectives established, the partners identified and selected, we can go on to planning the project. It is one of the most important stages in the project life cycle, considering that now there are established the work packages, activities, tasks, the resources are estimated and distributed, the costs and budget are estimated, the risk management plan is set up. In other words, the project plan and everything that will be considered during the implementation of the project is defined. The success of the project will depend to a great extent on how successful the planning will be. According to some studies [Dvir, 2003, 89-95], [Hirshfield, 2006, 310-314], [Patterson, 2010], [Standish Group, 2010], 39% of the projects fails because of bad planning. The reasons invoked most refer to the poor communication between all those in-

volved in the project, erroneous estimations of resources, insufficient time granted to planning etc.

These types of situations are also met in the case of research projects, especially those that entail partnerships. The problem emerging in such projects is, to some extent, the lack of understanding of the objectives and scope of the project, based on which the responsibilities of the partners are established and, implicitly, the work packages, activities and results to which each partner must participate. Moreover, most often, the planning is made by the coordinator, and the plan is sent to the partners for approval. In many cases, the OK is given without a detailed analysis of the plan, relying on the fact that they will be modified during the implementation. The main reason for such a behavior is represented by the short time in which the planning must be made, the not knowing exactly the requirements of the project, poor communication with the partners, starting from the premise that the major liability belongs to the coordinator, the latter being the one interested that the project has a coherent plan, accepted by the sponsor.

The classic means of communication, e-mail, phone, fax, appear not to be the most effective ones for this stage, because the flow of information is of one-to-many type, which makes that the requests for information receive delayed replies, and many of the replies are not visible for all the participants to the project. Under such circumstances, the coordinator must lose precious time collecting the data necessary for the planning from all partners, pencil the plan based on the requirements received, re-send the result and receive the feed-back. In such a communication environment there is one other inconvenient, the tendency to reduce the transparency of information as much as possible, especially on the side concerning the allocation of responsibilities and funds.

All these difficulties could be overcome by using the web 2.0 tools, especially the document management systems, blogs, social networks, wikis and RSS feeds. With their help the many-to-many communication is achieved, and the lack of transparency is eliminated. Moreover, the coordinator will no longer have the role to manage all the information received and to redirect it towards the interested parties, but to create the vision of the project [Filev, 2008], because all the information is accessible to anyone interested in the project. Including *productivity can register an increase, if the participants to the project are used to working with such tools*.

As previously presented, social networks are very useful in the exchange of information for the ones interested and involved in the project. Moreover, there can be known in time the dates when scientific events interesting for the research theme take place, so that the planning of these actions is accurate, and the research activities can be much easier framed into a period of time, depending on these dates.

In the planning stage it is much easier to communicate the stage of the estimation and information can be quickly transferred to the project coordinator, so that any change is known to everyone. The same occurs if a wiki page is developed for the project, on which there will be added all the observations concerning the allocation of responsibilities, resources, distribution of tasks on research partners, establishing the results to be obtained. *One of our hypotheses consists of the fact that for the individuals already familiarized to the working method of portals, things will not seem difficult, but for those used to working in a closed system, it is possible to have some reserves*.

From the same perspective it can also be seen the development of a project blog, on which participants can express their opinions regarding the made estimates. And to ensure the security of information, one can turn to the authorized users' account system who will be

the only ones having access to the information and comments on the project. The challenge consists in the fact that the partners instead of using the common e-mail or the traditional fax to express their points of view, will find themselves having to express their opinions concerning the involvement into the project, the assumed tasks and the desired results through so-called "journal".

But, maybe the most important Web 2.0 tool for this stage is represented by the document management system, like Google Documents, which allows for the distribution, safely, of all types of documents that online users can modify. It is a more open version of the portal work version, because it does not depend on a certain platform. The new generation of collaboration tools allows project managers to have the control on the modifications happening in the plans of the projects, but also the possibility to update in real time and to distribute the information towards the other participants. With their help, there can already be created standard documents for reporting and evaluation project status.

We shouldn't understand that in the planning of the project all these tools must be used. The decision will be made jointly by all the project partners, so that the circulated information is not blocked at some point because of the refusal or impossibility for exploitation.

Some researchers will adapt more quickly, others more difficult to these new forms of collaboration and communication. We hope that in Romania the adapting will be quick, although there are some uncertainties, because the process for introducing the traditional planning tools, such as Microsoft Project, Open project etc, was quite difficult as well.

Another hypothesis for this stage is the fact that the turning to Web 2.0 tools by researchers for project planning will be made in a much slower pace than in the case of the conception stage.

2.3. Web 2.0 a challenge in the research projects' implementation stage

The Web 2.0 tools can ensure the increase of efficiency during the implementation of the research projects, especially along the line of communication and collaboration. Through them there is created what in the literature in the field [Bonabeau, 2009], [Filev, 2008], [Remoreras, 2010], is called collective intelligence. The quote found quite often in order to highlight the utility of Web 2.0 of [Surowiecki, 2004] is interesting: „groups are remarkably intelligent and are often smarter than the smartest people in them. Groups do not need to be dominated by exceptionally intelligent people in order to be smart". And this proves to us once more Aristotle's axiom, the whole is more than the sum of its parts.

Web 2.0 offers the possibility to search, master or to transmit the knowledge from various fields of competency of each member much easier than through the traditional project management software. That is why, the information, experience and results of the researchers will be found in a joint project data warehouse, so that the establishing and transmitting of tasks is no longer only a prerogative of the project manager, but even of each person in the team. This way, the project manager will guide the team's activity and will choose the correct direction based on the information received from each member of the project.

For the research projects in partnership, when there are difficulties for the researchers to meet or there are considerable time zone differences, turning to blogs, wikis, social networks, RSS or document management systems represents the ideal solution. Each researcher can add his results or comments on the results of other colleagues, without depending on

someone else's presence. The information is sent immediately, and each member of the team is notified of the modifications intervened or of the conclusions others have reached.

Surely the question will rise why e-mail is no longer a reliable tool for the implementation of projects. There is no mentioning of giving this tool up. But, according to [Ploughmann, 2006], if at the level of a [project there was an important modification, and it was sent through e-mail to 10 persons, then only 9 will read the message, 8 will try to forward it to a specific director of the project, 7 will interrupt their activity, 6 will no longer be able to find the e-mail, 5 were not directly interested in that change, and 4 persons that will join the project later on and will be conditioned by that change will not receive that e-mail. The scenario can go on. In fact, if we take into consideration that during the implementation of a research project, the ideas, intermediary results, conclusions, registration to different scientific manifestations, getting the patent must be made as soon as possible, and the information must reach exactly the persons who need it, then the Web 2.0 tool ensure that.

Through a wiki page or through a blog, for example, researchers can add their own results, can track the evolution of the results of others, even if their activities are not interdependent. Also, it is much easier for the project manager to manage and supervise the activities of all involved, because he can immediately identify if there are delays, if a partner did not perform the updating of the project unfolding stage, if there is the risk of exceeding the time or budget. Moreover, there is a much greater transparency, considering it is possible to offer access to all persons involved, irrespective of whether they are part of the researchers' category, of that of the administrative staff or of management.

An obvious advantage of using the social networks during the implementation is represented by the quick feed-back on the intermediary results from those who have as area of interest the research project's theme, but are not part of the team. There can be given useful directions for continuing the researches, for retracing some steps, for verification, testing and validation. The specialized social networks represent a pool for sampling and applying the polls and social inquiries or of other tools specific to the research methodologies chosen for the project. Unfortunately, according to some statistics [Bradley, 2009], only 1 in 7 researchers use the social networks in their activity, contrasting with the business world, where almost 9 out of 10 employees turn to them.

The document management system represents an entirely special tool for project implementation, especially for the elaboration of scientific articles or of the presentations for different conferences, workshops, to which each team member can bring their direct contribution, depending on the allocated tasks and abilities. In this way, there are no versioning barrier on different computers and the transmission of different versions via e-mail.

Another advantage that this system brings is the ease of generating reports to monitor and control the project status, specific to the projects funded with own or external resources of the research institutions or universities. It is known, that each sponsor has his own forms and standards for financial and technical reporting. Once the reporting procedures established, all the information could be collected automatically and sent further. Moreover, the control on the unfolded activities and the observation of the future one is much easier to achieve.

All this is only possible if at the level of the project team there is opening towards using the mentioned tools. Sure, things are not simple at first. But if all the rules are established from the start, lists with who-has-what-to-do, who-when must offer information, and all other participants closely track the pages specific to the activities they perform, then

Web 2.0 will determine a considerable diminishing of time and financial efforts for the project implementation.

Our hypothesis is that until Romanian researchers will understand and accept the using of Web 2.0 tools, will be registered a double record of the information about the project implementation, both through the classic communication (e-mail, phone, fax, work sessions), as well as through the modern technologies. Also, *there will be a colossal resistance from sponsors to accept as viable the technical information registered on wiki-type pages or blogs,* considering that the largest share of the recognition criteria for the results of a research project is represented by the peer-review type evaluations, the impact factor of the magazines in which the results of the researches are published, the number of citations for the published articles and not the number of accessing and the comments made by different persons interested in the theme of the research.

The *conclusion*, which is also based on the one we reached in the previous stage, is that *the implementation of a project can be facilitated and turn efficient by using the Web 2.0 tools only if there is the acceptance from all the partners and persons involved, but also by the coordinating and contracting institutions*. In the same context, there can even be said about an increase of the administration expenses, if the involved parties do not master the use of these tools or do no delegate a person to facilitate their exploitation.

2.4. The dissemination and exploitation of the results - favorite in Web 2.0

As is known, the stage for the dissemination and exploitation of the results precedes the closing of a research project, through which its success or failure is recognized. Many financing sources for the research projects have as criteria for the final evaluation of a project quantitative elements such as the number of ISI published articles with an impact factor or international databases recognized for the field of the research theme, including the number of citations of those articles and of their authors, the number of participations to international conferences whose proceedings are ISI quoted, the obtaining of international prizes through brevet awarding, the setting into practice of the results in a time as short as possible etc.

There are a great debates over such evaluations, their objectivity of subjectivity in this regard, the difficulty or easiness with which valuable articles can be published in some magazines, the evaluation duration and the considerable large period that elapses from the time of proposing for publishing and the actual publishing, the degree of access to those articles through subscription or open access, depending on the editorial policy or the interest of certain category of institutions etc.

That is why, the Web 2.0 tools can represent a start for changing the view about the evaluation of the articles and scientific results of the research projects, through a repositioning in front of the new forms of disseminating them and the quickness with which they can reach everyone interested.

According to [Burgelman, 2010], because of the explosion of Web-user generated content, the behaviors and expectations of many persons are modified profoundly. The question marks that rise on the border between the professional and amateur researchers, which is fading more and more, and the relevance and degree of trust on some results of the researchers could rise suspicions.

At this time there is the trend of publishing the article drafts or the intermediary results through blogs or social networks, in order to reduce the period for receiving feed-back and

to increase the number of suggestions or recommendations for improving them, before the final publishing. In other words, the blogs and social networks allow for the exchange of opinions between researchers much faster, much easier and all around the globe. Certainly, there is the question of the property right on the results of the researches, the paternity of ideas and innovations launched [Burgelman, 2010], [Deb Besten, 2009]. But it can be solved through mechanisms like those launched by US Patent Office, Peer-to-Patent, through which each person can comment on a patent request and can bring evidence for evaluating its originality. On the other hand, there can be explicit terms in the financing agreements regarding the nature of the control on the data and publications, the attributing of the intellectual property rights on the results, especially when there are several organizations taking part in the research project.

Aside from blogs and social networks, an especially efficient tool for ensuring the dissemination and exploitation of the results is represented by the databases with open access to the high-impact publications. According to a study [Swan, 2010], the visibility, accessibility, easiness in finding the articles through open access to publications will determine an increase of the number of citations for those articles in a much shorter period of time than in the subscription-access system variant. Also, there will be registered a much higher audience for the articles pre-published on such databases, until obtaining the final verdict from peer-review. The international recognition of the results, the appreciation of the quality and the acceptance on the market of a result can be achieved in a much shorter time, than in the classical variant of publishing. Step by step they might forgo the evaluation of a impact factor depending in the number of citations existing in the printed publications, the citation of established authors so that others can be published and turn to the new forms of online citation, to the number and type of comments posted for an article, to the quality of the persons accepting to make online reviews.

On the one hand, the publishers and the great publishing houses, but also researchers must adapt to such a trend. Accepting the comments from researchers who you have not worked with, who you don't know, but about which you can find out information in a very short time, represents a real challenge. We are not talking about popularized science, but about a much more flexible and fast mechanism for validation of some results, especially for the emerging countries, where the budgetary allocations for subscriptions are minute. In this way, can be diminished quite a lot the „digital divide" that is manifested especially in research.

One of our *hypotheses* regarding research in Romania is that *it will take some more time until the accepting, by the public institutions, of the new methods for publishing and disseminating the results of the research projects through blogs, social networks, open-access databases*. Even, *researchers can represent a barrier*, considering the reticence and the quite closed system in which research projects are worked.

3. LIMITS OF THE RESEARCH, CONCLUSIONS AND FUTURE DIRECTIONS

As with any scientific research paper based on already existing empirical research and statistics, the present one can also raise certain *comments or critiques* regarding the use of some information sources or statistical data. It is, in fact, exactly the phenomenon that can be induced by the use of the Web 2.0 tools in the research projects, of rejection of such sources of information. Nevertheless, we must consider that including renowned interna-

tional organizations (OECD, ONU, WHO) have reached the conclusion that it is much more efficient and useful to set at the disposal of the ones interested in raw data, that can be subsequently processed depending on the necessities of those who use them.

Also, it is possible that some hypotheses we formulated will not be validated following future researches. Still, based on the investigations performed, on studying some reports and interviews performed in the great university centers, we consider that many of them are in the already registered trend.

Beyond these limits, which will be able to be exceeded through future researches we intend to perform, we can reach a series of *conclusions*, the most important of which are presented below.

Some of the web 2.0 tools and resources are *especially useful during the conception stage of a project*, because they offer a huge information pool, with multiple connections that can be made, the discovering of some state of the art information and finding some partners that could otherwise not be contacted. For the emerging countries, finding the partners and collaborating with them represents now a much easier stage through the existence of these tools.

We must not forget the fact that, on the one hand, *researchers have some reserves* regarding the use of these tools, and on the other hand *many universities, financing authorities, evaluators are not yet ready* to use at full capacity their potential, they don't have rules regarding the use of information or don't have enough financial resources to develop them and to train their people to use them.

In the same context, there can also be raised the problem of the confidentiality of information regarding the chosen research theme. It is known that when an idea is transmitted through social networks or on blogs, the propagation ratio is several time higher than in the variant of launching it through some e-mails to known persons. As a result, the risk of the idea being taken by other persons is much higher. In time, this aspect could probably be submitted to some regulations as the ones specific to the author rights, patents and inventions.

The use of Web 2.0 tool for project planning can transform itself into a real challenge for researchers, considering that, in general, they avoid as much as possible activities that entail bureaucratic and administrative work. It is certain that they can be attracted in this stage at least for the identification of the work packages, depending on the established results, the accepting and assuming of the activities they will be involved in, establishing the conferences and the methods for dissemination of the results and transmitting the feed-back for finalizing the project plan.

The project implementation can be facilitated and more effective by using Web 2.0 tools only if there is consensus on the tools that will be used. Until achieve a certain experience and until discovering all facilities offered it is possible to register a certain increase in the project administrative expenses and of the communication complexity.

The quick publishing of the results can constitute a real advantage for researchers by including them in international research teams, to which the access is no longer restricted by the existence of an institutional relationship, as it is usually the case in Romania, but it can be based on interpersonal relationships and the knowing of the activities and results unfolded through these tools. Also, the results can be absorbed on the market much faster, so their exploitation is made in a short period of time, even from announcing their emergence.

Based on these conclusions and the hypotheses identified in the paper, we wish to perform *a questionnaire and interview-based research*, with the help of the web 2.0 tools

(social networks, blog analysis, wikis etc.) in order to identify in what context are these tools used by the researchers in Romania, how many of the public institutions accept the results of the projects published in forms other than the traditional ones, which is the degree of acceptance of these tools for the unfolding of research projects with non-institutional international partners, what legislative frame is there and how permissive is it for the implementation of some projects with the help of Web 2.0.

References

[1] Anandarajan, M., *Web 2.0 portals for Effective Research Practices*, www.mynetresearch.com/Resources.aspx?id=%20105, retrieved on June 6th, 2010

[2] Bonabeau, E., Decisions 2.0: the Power of Collective Intelligence, *Harvard Business Review*, January 01, 2009, available online at http://hbr.org/product/ decisions-2-0-the-power-of-collective-intelligence/an/SMR302-PDF-ENG

[3] Bradley, D., *Gen-F Scientists Ignoring Social Networking*, October 7, 2009, posted on www.sciencebase.com, retrieved on August 11, 2010

[4] Burgelman, J.C., Osimo, D., Bogdanowicz, M., Science 2.0 (change will happen...), *First Monday*, Vol. 15, Nr. 7-5 July 2010, http://firstmonday.org/, retrieved on July 10, 2010.

[5] Casati, F., Giunchiglia, F., Marchese, M., *Publish and perish: why the current publication and review model is killing research and wasting your money*, 2006, www.acm.org/ubiquity/views/v8i03_fabio.html, retrieved on March 17, 2010

[6] Chiruță, R., Blogul, a cincea putere în stat, *România Liberă*, April 19th, 2007

[7] Chong, E.K.M., Using blogging to enhance the initiation of students into academic research, *Computers & Education*, 2010, pp. 1-10, available online at www.elsevier.com/locate/compedu , retrieved on April 14th, 2010

[8] Collins, E., Hide, B., *Use and relevance of Web 2.0 resources for researchers*, 2010, http://dhanken.shh.fi/dspace/bitstream/10227/599/20/ 19collins_hide.pdf., retrieved on July 6th, 2010

[9] Den Besten, M.L., David, P.A., *Data and Information Access in E-Research: Results from a 2008 Survey Among UK E-Science Project Participants* (January 6, 2009), Oxford Internet Institute, Research Report No. 18, available online at http://ssrn.com/abstract=1323812, retrieved on June 16, 2010

[10] Dvir, D., Raz, R., Shenhar, A.J., An empirical analysis of the relationship between project planning and project success, *International Journal of Project Management*, Volume 21, Issue 2, February 2003, pp. 89-95

[11] Filev, A., Project Management 2.0: The Ultimate Benefits of the New Approach to Project Management, in *PM World Today*, Nov. 2008 (Vol X, Issue XI), www.pmworldtoday.net, retrieved on March 1st, 2010

[12] Gray, K., Thompson, C., Clerehan, R., Sheard, J., Hamilton, M., Web 2.0 authorship: Issues of referencing and citation for academic integrity, *Internet and Higher Education*, 11, 2008, pp. 112-118, available online at www.sciencedirect.com, retrieved on March 23th, 2010

[13] Happ, S., Wunsche, A., Rohrborn, D., Henkel, F., *Blogs, Wikis, Webcasts: Utilization of State-of-the-Art Communication Instruments for Project Management*, 2006, www.centrestage.de/pdfs/060303_PMI_Paper_Blogs_ Wikis.pdf, retrieved on May 14th, 2010

[14] Hirshfield, M., Lee, P.D., *Critical Success Factors for Healthcare Software Implementations*, Health Care Manager, Oct./Dec. 2006, Volume 25, Issue 4, pp. 310-314, available online at http://journals.lww.com/healthcaremanager journal/pages/default.aspx, retrieved on September 17th, 2009

[15] Holotescu, C., Manafu, C., *O analiză statistică a blogosferei româneşti*, Nov.5th, 2007, www.timsoft.ro/ejournal/analiza_ro_blogosfera2007.html, retrieved on May 5th, 2010

[16] Lawrence, S., Lee Giles, C., Searching the Web: General and Scientific Information Access, *IEEE Communications Magazine*, January 1999, pp. 116-122
[17] Meyer, K.A., *A comparison of Web 2.0 tools in a doctoral course, Internet and Higher Education*, 2010, available online at www.sciencedirect.com, retrieved on June 18th, 2010.
[18] Myhill, M., Shoerbridge, M., Snook, L., *Virtual research environments - a Web 2.0 cookbook?*, Library Hi Tech, Vol. 27, Nr. 2, 2009, pp. 228-238, available online on www.emeraldinsight.com, retrieved on July 8th, 2010
[19] Niu, X., Hemminger, B.M., Lown, C., et all, *National Study of Information Seeking Behavior of Academic Researchers in the United States*, Journal of the American Society for Information Science and Technology, Volume 61, Issue 5, pp. 869–890, May 2010, available at http://onlinelibrary.wiley.com/doi/ 10.1002/asi.21307/pdf, retrieved on May 3rd, 2010
[20] O'Reilly, T., *What Is Web 2.0*, 2006, retrieved on May 14th, 2010, www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html
[21] Patterson, D., *Why Project Scheduling Must Not Become an Extinct Science, Executive Brief*, www.executivebrief.com, retrieved on April 9th, 2010
[22] Pena-Lopez, I., *The personal research portal: web 2.0 driven individual commitment with open access for development*, Knowledge Management for Development Journal 3(1), 2007, pp. 35-48, www.km4dev.org/journal, retrieved on March 24, 2010
[23] Ploughmann, L., *A 10-to-1 rule of email based project management*, August 24, 2006, http://www.mindthis.net/mindthis/2006/08/a_10to1_rule_of.html, retreived on March 10, 2010
[24] Purdy, J.P., *The Changing Space of Research: Web 2.0 and the Integration of Research and Writing Environments*, Computers and Composition, 27, 2010, pp. 48-58, available online at www.sciencedirect.com, retrieved on April 14th, 2010
[25] Reed, A.H., Knight, L.V., *Effect of a virtual project team environment on communication-related project risk*, International Journal of Project Management, 2009, available at www.sciencedirect.com, retrieved on April 14th, 2010
[26] Remoreras, G., *Forecast 2020: Web 3.0+ and Collective Intelligence*, http://mysimpleprocesses.com/2010/07/28/forecast2020/, July 28, 2010, retrieved on August 14, 2010
[27] Research Information Network, *If you build it, will they come? How researchers perceive and use web 2.0*, July 2010, available online at www.rin.ac.uk/system/files/attachments/web_2.0_screen.pdf, retrieved on July 10th, 2010
[28] Sifry, D., *The State of the Live Web*, April 2007, www.sifry.com, retrieved on May 3rd, 2010
[29] Standish Group, *Standish Chaos Report*, http://www.standishgroup.com/, retrieved on March 2010
[30] Stuart, D., *Web 2.0 fails to excite today's researchers*, October/November 2009, Research Information, www.researchinformation.info/features/ feature.php?feature_id=236, retrieved on June 6th, 2010
[31] Surowiecki, J., *The Wisdom of Crowds*, New York; Anchor Books, 2004.
[32] Swan, A., *The Open Access Citation Advantage. Studies and results to date*, Research on Institutional Repositories (IRs), 2010, available online at http://works.bepress.com/ir_research/31/, retrieved on August 16, 2010