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Social Networking Framework for MyGRANTS Research Portal

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ABSTRACT

A university represents the knowledge creation and management organization. Even so, many researchers are not able to communicate comfortably with other researchers, research administrator and evaluator within research management. This often leads to ineffective research efforts as well as reduced innovation and productivity since they are not cognizant of the available expertise and resources that could greatly contribute to their own research endeavors. Social networking in research management activities represents a systematic means of acquiring, sharing, applying and storing knowledge effectively inter or intra organization. The paper presents a social networking system framework to create collaborative and interactive social media for researchers in their research works. It is used to facilitate researchers' to apply research grants, get connected to other researchers and experts and manage their research activities efficiently. It brings instantaneous and real-time knowledge and expertise to researchers. The framework has been implemented in MyGRANTS project to support all researchers in higher learning institutions in Malaysia. Sixty (60) universities in Malaysia are taking part in the implementation of MyGRANTS. It is found that a Social Networking framework supported by MyGRANTS system enable effective and efficient interaction between all parties involved in research management, thus empowers them to adapt to increasing complexities of knowledge and research society.

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INTRODUCTION

University is the knowledge organization which creating new knowledge through research, disseminating knowledge through teaching and learning and preserving knowledge through publication. Thus, to support knowledge creation and management activities, it requires a strategic approach of managing knowledge workers and knowledge to ensure the integration, standard and organization of knowledge being done properly. Therefore, in this paper, we are proposing a Social Networking Framework for managing research, grant application, research materials and researchers as part of knowledge creation activities. The Malaysia Great Research Network System (MyGRANTS) is designated to advance effective social networking and knowledge sharing and discussion among researchers, decision makers and evaluators over the Internet. They allow researchers to do their research effectively and share valuable research experience as well as materials and information stored at distributed sites, to exchange personal experiences, materials and to accelerate the research, development and dissemination of knowledge.

2. Related Works:

Social Networking:

The Internet has evolved to be the most frequently used medium of the 21st century and it is steadily growing. The so-called Web 2.0 movement (O'Reilly, 2005) engaged people in the active production of content on the Web and fostered technology-mediated human interactions in social networks. Despite various researches on the social networking, the issues of sustaining the usage of social networking system to sustain both the personal, working, research as well as learning activities are still an open area to be investigated. Among the existing researches which are focusing on enhancing the intelligence of the social network is artifact-Actor-Network (AAN) (Reinhardt, 2009). In addition, research in social networking has been expanded to various domain including learning network (Learning 2.0 (Koper and Sloep, 2003), Personal Learning Environments (Wilson *et al.*, 2007), Open Learning environments (Redecker *et al.*, 2003) or Learning Networks (Koper and

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Sloep, 2003), Technology Enhanced Learning), Research (research 2.0) and Science (science 2.0) networks (Kieslinger and Lindstaedt, 2009).

The main aim of this study is to enhance and extend the usage of social networking in research to support various types of actors including researchers, postgraduate students, supervisors, examiners, industries and publics into a single and personalized social research networking research platform through the development of a new social research networking framework.

3. Research Management System:

Research activity is a major social-knowledge-based initiative for knowledge creation or manufacture. Many universities and research institutes have established research management center to manage their research activities. Nonetheless, researchers facing a lot of challenges to initiate right and organized research, find right and well organized research materials, access to related researchers and right experts. Therefore, it is a crucial need to access to a portal which allows connectivity to the right researchers and experts. Various initiatives and projects of research portal have been researched and developed to serve the purposes. For example, StarBRITE project serves as the main online location for research support addressing issues such as identification and location of resources, identification of experts, guidance for regulatory applications and approvals, regulatory assistance, funding requests, research data planning and collection, and serves as a central repository for educational offerings (Harris *et al*, 2011). Another research portal project is Natural Organic Matter research portal, which is not only for information sharing but also provides tools to allow scientists to share remote computational resources and do science on the Web (Delannoy and Petiton, 2004). BioMart Central Portal (www.biomart.org) is another one offers a one-stop shop solution to access a wide array of biological databases with seamless data federation making cross querying of these data sources in a user friendly and unified way (Heider *et al*, 2009). In Malaysia, UPM has implemented a customized and specific Research-based Portal called 'AgroBio Portal' which is created specifically for knowledge sharing and collaboration of agro (Ismail and Chua, 2006). Besides, MMU also has developed A Social networking Portal called Share-Net which is a specific and customized portal to share publications, lessons learned in the projects, best practices, and case studies (Ismail and Chua, 2006).

In MyGRANTS project, the portal has been designed to create more interesting and motivating social networking environment for the researchers to allow more effective collaboration and communication to facilitate knowledge creation, sharing, usage and storage.

4. Background On Mygrants Project:

To achieve the country's growth on research and innovation, the Malaysian Ministry of Education (MOE) has initiated grants of 741 Million Ringgit for two (2) years running under 10th Malaysia Plan. Four (4) types of funds that have been initiated for higher institution which is Fundamental Research Grant Scheme (FRGS) in 2010 and three (3) other types of funds which are Long Term Research Grant Scheme (LRGS), Exploratory Research Grants Scheme (ERGS) and Prototype Development Research Grant Scheme (PRGS) in 2011.

Thus, to support the government research initiatives, MyGRANTS (Malaysia Greater Research Network System) project has been designed, developed and implemented as a fully web-based MyGRANTS solution that effectively bring all those involved in research managements and operations onto a common information platform and to fully exploit and harness the capabilities afforded by the proposed MyGRANT solution. MyGRANT is designed to be the tools to help researchers, nurture collegiality amongst researcher and to help develop a critical mass of researches by offering a conducive research ecosystem. The objectives of MyGRANTS project are the following:

- ✓ to manage the operation of research management at university level to optimize the available research grants.
- ✓ to coordinate researches and grant applications under FRGS, LRGS, ERGS and PRGS to avoid overlapping and duplications.
- ✓ To facilitate the research grants approval which need to be federated for better selections of research proposals and transparent process.
- ✓ to systemize information search and retrieval in order to help researchers and industries.
- ✓ To nurture collegiality among researchers.
- ✓ to assist, nurture and guide young researchers.
- ✓ to analyze the research areas and progress for better decision and planning.
- ✓ to better monitor researches progress.
- ✓ to have a one-stop centre to help the industries search for relevant researches thus better potential for research commercialization.
- ✓ to expose the researchers and their works to the world.

The project was started in 2012 and expected to be finished in 2014. Sixty (60) universities in Malaysia are involved in this project. The phase 1 and 2 of the project have been deployed in 2012-2013, the phase 3 shall be

deployed in 2014 and other phases shall be deployed in 2015. The project is fully sponsored by Malaysian Government.

5. The Framework Of Social Networking For MyGRANTS Project:

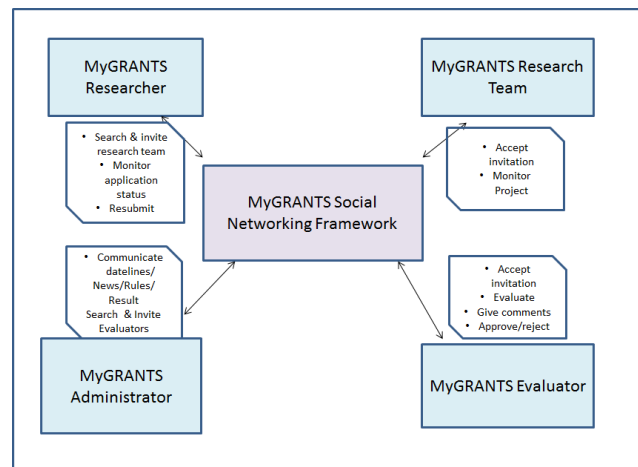


Fig. 1: Social Networking Framework for MyGRANTS.

The Social Networking Framework (Fig. 1) shows that through Social Networking embedded in MyGRANTS, it supports various social activities among the actors including researchers, administrator and evaluator. They interact during grant application where researchers need to have access to other researchers' profile to invite them to become the member of their research team. The researchers shall use the social networking features in MyGRANTS to monitor their application status and resubmit their application if necessary. All communication is done online and real time through MyGRANTS system. While administrator shall use the social networking features of MyGRANTS to communicate datelines, news, rules and results, as well as search and invite evaluators. As far as evaluators, they shall use MyGRANTS to accept invitation, discuss among evaluators and experts regarding research application, give comments and submit result.

The above framework shall provide the government with a common ground and level playing field, bringing all those involved onto a single centric information and knowledge systems platform primed to foster collaboration at all levels in the research management at university level. This strategic platform shall advance work efficiency and effectiveness by reducing the time and effort involved in the management, administration, collaboration, reporting, consolidation and distribution of related information activities that presently use manual means and/or existing disparate information systems.

MyGRANTS comprises of several components.

1. Knowledge repository

Knowledge repository is a place where knowledge is stored and can be accessed via the knowledge adapter.

The knowledge repository which is included in MyGRANTS are:

- a. University / Lab / Academy / Institution / Publisher
- b. Open Repository / Foreign Institution
- c. E-Learning / Educational Media Centre
- d. Users / Public Portal

2. One Stop Knowledge Bank

One stop knowledge bank is a central place where users can retrieve any type of knowledge and access to researchers and experts. The components in One Stop Knowledge Bank in MyGRANTS are:

- a. Knowledge Bank which comprises of expert directory, local and foreign Research Contents such as books, journal, Encyclopedia etc.
- b. Researchers' knowledge bank is used by researchers to access to library, fellow researchers, supervisors, examiners, proposed template and guidelines.
- c. Industries' Knowledge Bank is used by industry players to access to the research knowledge bank, researchers, research grants and researchers' blog.

3. Knowledge Services:

Knowledge services are applications used by users to access knowledge bank. The services include:

- a. Grant Application
- b. Social Networking

- c. Analytics
- d. Personalized Search
- e. RSS
- f. Rich Internet Application
- g. Tagging
- h. Researcher's Blog

4. Knowledge Users

MyGRANTS is designed for several type of knowledge users which are:

- a. Researchers
- b. Masters/Phd Students
- c. Students
- d. Professors
- e. Ministry/Government
- f. Industry

5. Social Networking Features In Mygrants System

The following are several MyGRANTS screen capture which illustrate the use of social networking during Grant Processing and Management.

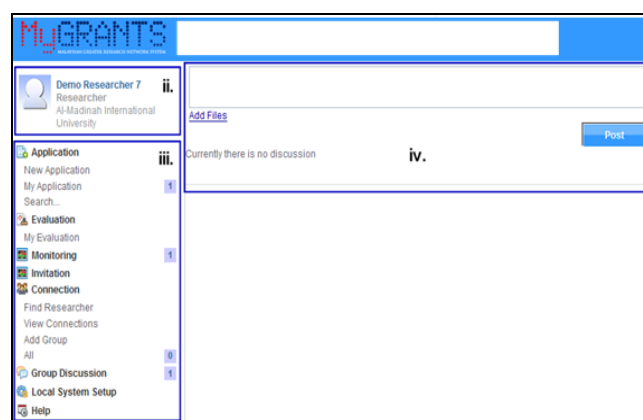


Fig. 2: Get Connected to Other Researchers through MyGRANTS.

Fig. 2 shows the screen where researchers can get connected to other researchers, view existing connection, add group and create a discussion board. In connection module, the following features can be used by researchers for social networking:

- i. *Find Researcher* – Find researcher registered in MyGRANTS
- ii. *View Connections* – View all your connections between you and other researchers
- iii. *Add Group* – Create new group for discussion
- iv. *All* – View all conversation in discussion group

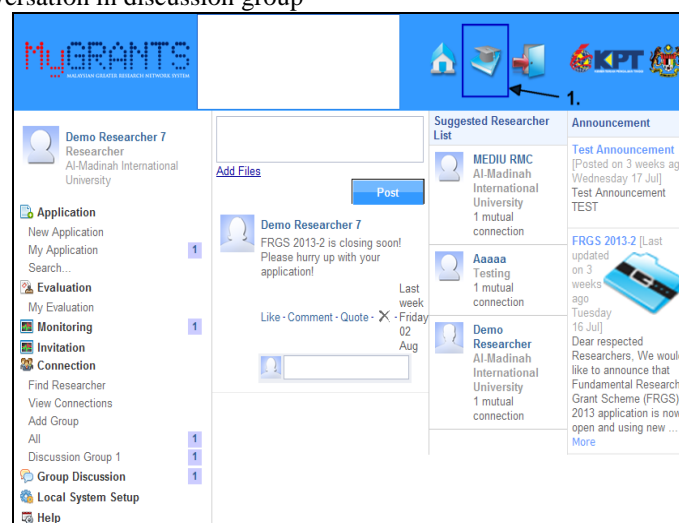


Fig. 3: Intelligent Suggestion of Relevant Researcher List.

Fig. 3 shows the intelligent suggestion of relevant researchers for their research project. System shall do the mapping process to identify the previous projects done by other researchers through various parameters including project title, project outcomes and abstract. Through MyGRANTS also, announcement regarding research can be made easily where everybody shall be updated from time to time.



Fig. 4: MyGRANTS Research Cluster Information Search.

Fig. 4 shows the ability of the system to provide researchers’ cluster information from all university’s database to be chosen as research team.

Selected Researcher							
Picture	ID	Name	Research/Org Name	Department Name	Groups	Position	Cluster
	21662	Demomom1	Monash University Of Malaysia			Professor	Defence and Security>Aerospace & Maritime, Defence and Security>Cyber Security, Defence and Security>Cyber Security, Defence and Security>Aerospace & Maritime
	21663	Demomom2	Monash University Of Malaysia				Defence and Security>Cyber Security, Defence and Security>Defence Management, Defence and Security>Cyber Security, Defence and Security>Defence Management
	21714	Test Foreign 2	National University of Madagascar			Professor	

Fig. 5: Researcher Search Result.

Fig. 5 shows the detail of researcher information. Accessing detail information is required for effective social networking in MyGRANTS.

No.	Panel	Assign Date	Status	Response Date	<input type="button" value="Add Panel"/>
1	Panel 3	15/05/2013	Confirmed	15/05/2013	<input type="button" value="Remove"/>
2	Panel 4	16/05/2013	Confirmed	16/05/2013	<input type="button" value="Remove"/>
3	Demo Researcher 3	16/05/2013	Pending		<input type="button" value="Remove"/>

Fig. 6: MyGRANTS Evaluation Panel Assignment.

Fig. 6 shows the evaluation panel assignment which is done by research administrators. Through MyGRANTS social networking features, panels are easily access, invited and monitored.

Fig. 6 shows the comments given by evaluators in evaluation module where it is used by evaluators to evaluate the grant applications. Through the social networking features in MyGRANTS, the applicant is able to view the comments in a real time and do the fixing immediately. They can even communicate through MyGRANTS discussion board.

A. Application Details

Application ID	6485
Application Type	Single Disciplinary
A(i) Selected Grant	FRGS 2013-2
A(ii) Title Of Proposed Research Project	Adaptive Mobile Web Services Discovery Model

1. The title is too vague. Please change it to be more specific

2. A(iii) Keyword Adaptive model, Mobile computing, Web Services, Service Discovery

[Keyword describe the proposal accurately:]

Fig.7: MyGRANTS Comments.

Title	Batch	Role	Remark	Version															
Demo RMC Resubmission	FRGS 2013 -2	Leader Show members	Please revise based on the comment made	3 Hide															
<table border="1"> <thead> <tr> <th>Version</th> <th>Title</th> <th>Batch</th> <th>Role</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Demo RMC Resubmission</td> <td>FRGS 22/04/2013 - 19/06/2013</td> <td>Leader</td> <td>Please revise based on the comment made</td> </tr> <tr> <td>1</td> <td>Demo RMC Resubmission</td> <td>FRGS 22/04/2013 - 19/06/2013</td> <td>Leader</td> <td>Please revise again this proposal</td> </tr> </tbody> </table>					Version	Title	Batch	Role	Remark	2	Demo RMC Resubmission	FRGS 22/04/2013 - 19/06/2013	Leader	Please revise based on the comment made	1	Demo RMC Resubmission	FRGS 22/04/2013 - 19/06/2013	Leader	Please revise again this proposal
Version	Title	Batch	Role	Remark															
2	Demo RMC Resubmission	FRGS 22/04/2013 - 19/06/2013	Leader	Please revise based on the comment made															
1	Demo RMC Resubmission	FRGS 22/04/2013 - 19/06/2013	Leader	Please revise again this proposal															

Fig. 8: MyGRANTS Resubmission.

Fig. 8 shows the social networking features of MyGRANTS where the researchers can do the resubmission of their application as many time as they want. They evaluators can easily evaluated the resubmitted application based on their previous comments.

Concluding Remarks:

In this paper, we addressed challenges with the existing research management, in which many researchers are not able to access to other researchers, communicate with administrators and evaluators as well as materials and get updated on research activities within their own university and other universities. This often leads to ineffectiveness in research management and activities as well as reduced innovation and productivity since they are not aware of the available expertise and resources that could greatly contribute to their own research endeavours. We propose a collaborative and integrated Social Networking Framework for managing research. By designing the system to be integrated and interactive where it is provided with social networking and searching features, it shall improve the effectiveness of research management and activities for various knowledge users. The framework has been implemented in a Malaysian national project MyGRANTS where sixty (60) universities are using the system for research related activities.. Phase one (1) of MyGRANTS is presented which illustrate the application of knowledge management in managing research.

Future Work:

MyGRANTS portal shall be continued in several phases including the development of complete knowledge management portal, analytics, integration with all universities' system in Malaysia and a continuous effort in promoting the usage of MyGRANTS to all knowledge users.

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