

Identifying Needs, Designing, and Implementing  
Virtual Research Center:  
**A Case Study in Building Virtual Research Center for Management  
– Bina Nusantara University**

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## ABSTRACT

Internet usage has influenced aspects of life including academic activities. One of academic activities that needs collaborations in conducting their processes is research. At the beginning this paper will introduce virtual research center, differ virtual research with ordinary research process conducted, then explain why virtual research center are needed followed by reviewing literature references and explaining process of building virtual research center, including identification of the needs, design, and implementation of the virtual research center. Research methods that are used in this paper will be explained followed by steps of designing activities. Web pages designed will be shown, including components of research center, to give clearer examples of the design explained. A simple guide of how to use manual will also be provided. Limitation of the paper will be discussed, and finally conclusion and recommendation will be made at the end of this paper.

**Keywords** *Virtual Research Center, case study*

## BACKGROUND

Different from “conventional” research center, virtual research center can make use of internet for its major activities. “Conventional” research center may use internet for certain parts of activities but not as extensive as the virtual one. The utilization of both kinds of research centers may accelerate technology development.

One of aspects in assessing technology development in a country is by looking at the amount of published scientific papers. The papers written are of course based on researches carried out by researchers. In 2004 Indonesia’s researchers only published

522 scientific papers compared to Malaysia 1438 scientific papers, Singapore 5781, and China 57740 scientific papers (Yulianto, 2005 and Rofiuddin, 2007).

One of the causes why research is not growing as expected in Indonesia is budget for science and technology allocated only 0.05 per cent from its gross domestic product compared to neighboring country Malaysia with allocation of 0.5 per cent from its gross domestic product (Anonymous1, 2007). Indonesia was also at position 60 of 72 in term of Technology Achievement Index countries (Pusat Data Redaksi, 2006). Despite of data shown Indonesian government pays high attention to research and its related activities. Considering the varies of higher education institution ability in research and its related activities, Director of Research and Community Services Care in 2005 has planned research assessment involving Directorate General of Higher Education and targeted Higher Education Institutes (Munir, 2005) as follows:

**Table 1.**  
**Composition of Proposal Selection Team**

Year	Proposal Selection Team Composition (%)	
	Directorate General of Higher Education	Targeted Higher Education Institutes
1	70	30
2	60	40
3	50	50
4	40	60
5	30	70
6	0	100

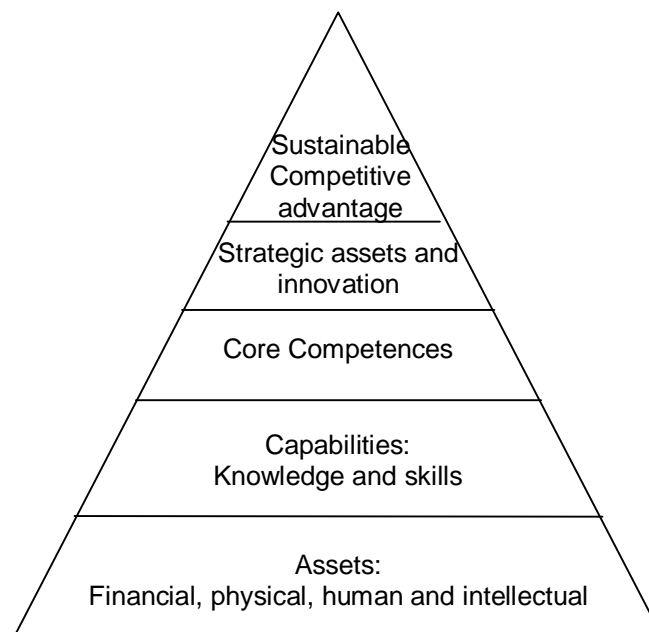
Source: Munir, 2005

Responsibility to contribute in developing science and research are not merely belonged to the government. Higher education institutions are also stakeholders that must contribute in these activities. Bina Nusantara as one of information and communication technology (ICT) based universities in Indonesia represented by its Management Department develop a virtual research center for Management as a contribution, moreover building virtual research center may also broaden research with involvement of researchers from different cities and even countries. Conducting research in different countries implies issues as follow (Aaker, et. al., 2004) as follow:

1. Understanding type and nature of information sought
2. Relevant unit analysis definition
3. Formulating problems, variable specifications, and categories
4. Sources of information identification and selection
5. Data availability and comparability
6. Achieving equivalence of samples and measures across countries and cultures
7. Identifying the degree of centralization of the data
8. Coordinating research over countries
9. Finding errors in research design
10. Learning the cost of conducting research in more than one countries

Virtual research center may contribute in specifically coordinating all issues from point 1 to 10. This may reduce consumption of time, fund and other resources with coordination through internet, and moreover virtual research center can also be used to publish research reports, and other research related materials, such as journals. One of simple example of making use of virtual research center to save resources is to coordinating research over countries using discussion-forum which is embedded in the research center.

Building virtual research center for Management must create value, which afterwards establishes sustainable competitive advantage, the pyramid of value creation shown in Figure 1 (Dorf and Byers, 2008), this research center which will invite researchers form everywhere in the world may also discovers important and creative inventions as many inventions were discovered by individuals researchers from small research laboratories compare to industry's huge laboratories (Yoshihara and McCarthy, 2006). Pro active and low to no cost research can now be conducted using emailed questionnaires, or by directing potential subjects to a basic web site set up to collect responses / data (Tommons and Spinelli, 2007)



**Figure 1.**  
**Pyramid of value creation**

In accord with the intention of Bina Nusantara University to contribute to research world, Indonesian government represented by Directorate General of Higher Education chose two proposals from the university as grant winners of Hibah Kompetisi INHERENT K1 2007 (Indonesia Higher Education Network Grant Competition K1 2007), and one of the grant winner's proposasl was from Management Department of Bina Nusantara University.

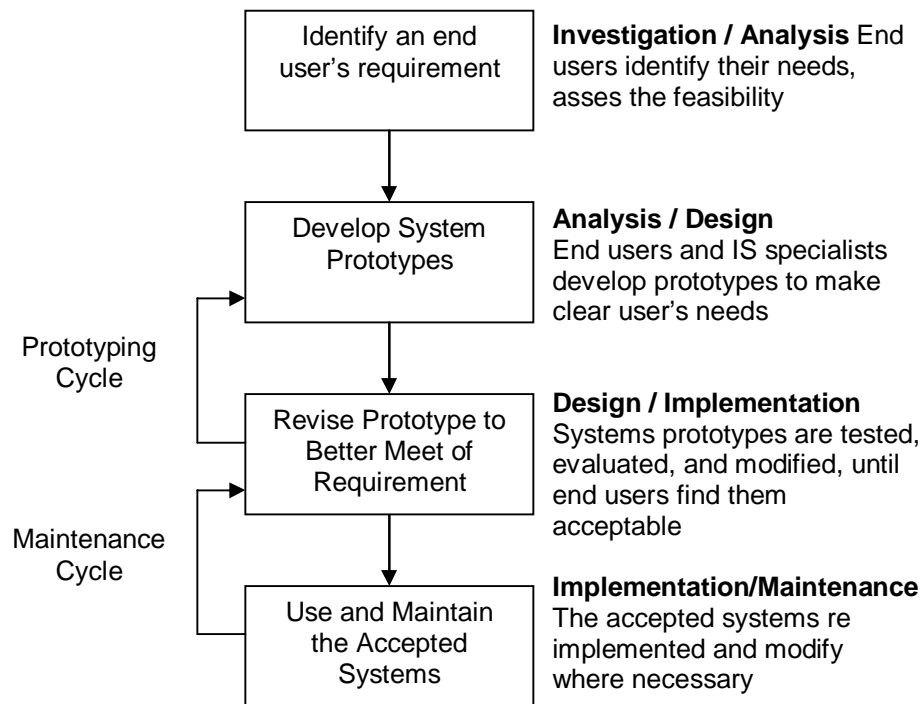
## **METHODS**

This paper is written with combination of literature study, focus group discussion (FGD), observation, and implementing software-development's system development life-cycle (SDLC) methods. Literature study was made by collecting ideas and research basis requirements; observation was carried out by observing virtual research centers built in both the United States and United Kingdom. Benchmarking has been a part of observation since many comparisons were carried out, with benchmarking the research center built has actually been prepared to be basically a world class research center. SDLC was used to analyze, and design the research center.

Literature study was done by studying research process, starting from problem encounter / research purpose, research objective, research question, hypothesis, data collection methods, research tactics and implementation, research findings and report. Literature study was also carried out by browsing the internet especially research related sites.

Focus Group Discussion (FGD), which can provide insight into issues that cannot be covered on a survey (Anonymous2, 2007), was done by gathering team members, both researchers and non researcher, which have great interest and / or familiar with research activities. The first three rounds of FGD were attended merely by researchers, benchmarking with research centers built were done during the sessions. Two FGDs then carried out with involvement of researchers and information systems developers, these FGDs produced scratch mock-ups which were then proceeded to be a prototype of the research center to ease communication between researchers and IS developers. The prototypes then were also discussed with partner universities, when they were visited by the team, the discussions were done in FGDs format. Inputs from partner universities have been treated respectively, and enriched the prototypes.

Observation was done by observing virtual research centers in United States and United Kingdom. Benchmarking has also been parts of observation process; most of benchmarking process was to compare features provided by the research centers and mock-ups of FGDs results with the realizations that the needs might be difference. In this process benchmarking was done for quite short period while it is a continuous process (Anonymous3, 2007).



**Figure 2.**  
**SDLC with Prototyping (O'Brien,2004)**

Systems Development Life-Cycle includes steps of (1) investigation, (2) analysis, (3) design, (4) implementation, (5) maintenance (O'Brien, 2004), and SDLC corresponds to a generic development decision making structure (Brugha, 2001). The steps of SDLC is drawn in figure 2 above.

Steps in SDLC can actually run at the same time, since the activities are highly related and interdependent, thus many activities in literature study, focus group discussion (FGD), observation, and steps in software-development's system development life-cycle (SDLC) methods were run at the same time.

## RESULT

In identifying stage, run parallel activities of literature study, observation, and focus group discussion. This stage provided user requirements; the users are researcher members of the group.

Analysis stage which was also the combination activities of literature study, observation, and focus group discussion resulted prototypes. The prototypes were then revised based on inputs of partner universities.

The designs resulted form design stage is websites that has been accepted by member of FGDs. Some of the pages are captured and put in this paper, as follows:



Figure 3.  
Design of Homepage



Figure 4.  
Webpage of About Us



**BINUS UNIVERSITY** VIRTUAL RESEARCH CENTER FOR MANAGEMENT People. Innovation. Excellence.

HOME | ABOUT US | RESEARCHER | RESEARCH | JOURNALS | PARTNERS | CONTACT US

## RESEARCHER LIST

**Retno Dewanti**

- Education : Sarjana Komunikasi alumni UNPAD Bandung tahun 1992  
Magister Manajemen alumni Budi Luhur Jakarta tahun 2005
- Research Experience : 1. Analisis Pengaruh Kebijakan Harga dan Pelayanan terhadap Kepuasan Pelanggan Kereta Argo Bromo Angrek Jakarta-Surabaya, tahun 2005, 2. Analisis Brand Equity Bina Nusantara University di lingkungan SMU Jakarta Barat, tahun 2007.
- Email: wancbukti@yahoo.com
- Interest Group: Ekonomi, Pendidikan

[View his/her research](#)

**Synthia Atas Sari**

- Education : S-1 : Universitas Padjadjaran - Hubungan Internasional  
S-2: Pascasarjana Universitas Indonesia - Manajemen Keuangan
- Research Experience : Penelitian mengenai Pasar Modal Penelitian mengenai Bullying
- Email: synthia@binus.ac.id
- Interest Group: Manajemen

[View his/her research](#)

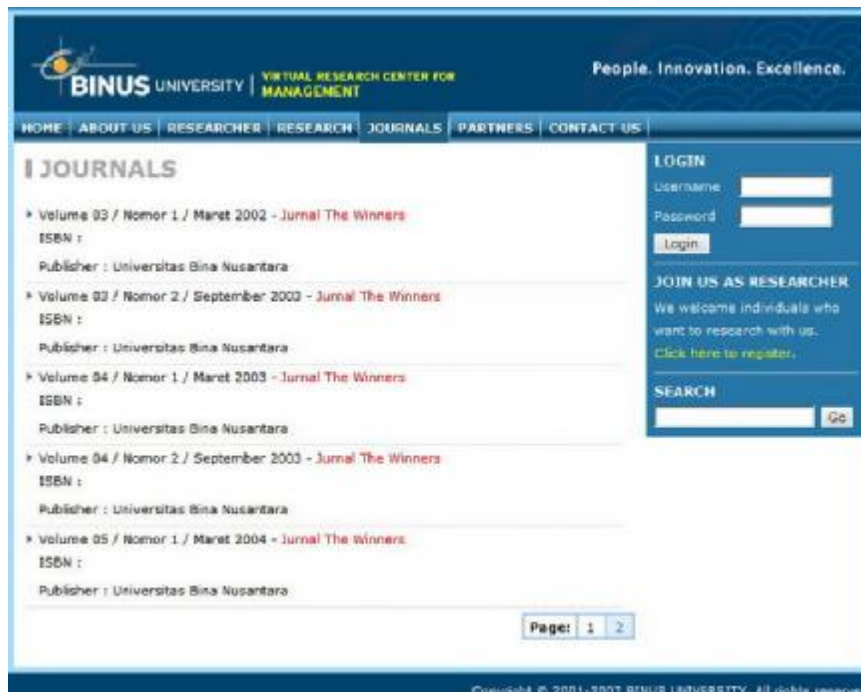
**LOGIN**  
Username   
Password

**JOIN US AS RESEARCHER**  
We welcome individuals who want to research with us.  
[Click here to register.](#)

**SEARCH**

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Figure 5.  
Webpage of Researcher List



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## JOURNALS

- Volume 03 / Nomor 1 / Maret 2002 - Jurnal The Winners  
ISSN :  
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Figure 6.  
Webpage of Journals



**Figure 7.**  
**Webpage of Contact Us**

Implementation stage directs information systems (IS) specialists to web-host the designed web-pages to make it available to public, both to be used and to give constructive inputs for enhancement. Receiving inputs from web visitors make the maintenance stage come in at the same time with implementation stage.

The address of this virtual research center is <http://vrcm.binus.ac.id>. To access this website simply type the address mentioned in an internet connected browser. Mouse-over and click the chosen button lead users to the web pages related to the choice.

## **CONCLUSSION AND RECOMMENDATION**

Virtual research center has been built and this research center is intended to collaborate and coordinate research community virtually, thus will be able to cope with methodological differences of different disciplines (Borda, et.al, 2006) in this case still in Management discipline perspective.

Virtual research center may be useless unless it is utilized by the research community, and utilization of this center is an uncontrollable factor to the administration of the research center. Sustainability of this built research center need to be maintained by activate research and its related role through this research center.



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