Towards Research University through Ambidexterity Practice: A Lecturer Perspective

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Abstract

The concept of ambidexterity in organization theory refers to an organization's ability to innovate in explorative and exploitative manners (Duncan, 1980). Ambidexterity can be identified into structural ambidexterity and contextual ambidexterity (Tushman, O'Reilly, 1990). In small medium enterprises, for example, innovation activities take contextual form since most owners act both as entrepreneurs and business leaders (Kusumastuti, et.al., 2015), while in established corporations innovation activities generally occur in structural form. This research takes academic institution as its locus, within which innovation activities are mandatory for all civitas academica (academic community). The study uses mixed method for collecting data through questionnaires and in-depth interviews. It shows that university has the capacity to provide context in institutional support and remuneration system as a means to stimulate lecturers and researchers to be more innovative. The scheme also provided structure at the university and faculty level as tools to coordinate and integrate research projects. The organizational learning at the individual level reflects the pattern of contextual ambidexterity process.

Keywords:

ambidexterity; organizational learning; innovation activities.

Abstrak

Konsep ambidexterity dalam teori organisasi mengacu pada kemampuan organisasi untuk berinovasi secara eksploratif dan eksploitatif (Duncan, 1980). Pada perusahaan kecil menengah, kegiatan inovasi hanya kontekstual karena sebagian besar pemilik bertindak sebagai pengusaha dan pemimpin bisnis (Kusumastuti, et.al., 2015), sedangkan di perusahaan-perusahaan besar kegiatan inovasi umumnya terjadi secara struktural. Penelitian ini mengambil institusi akademis sebagai lokus, di mana kegiatan inovasi adalah wajib bagi seluruh civitas akademika. Penelitian ini menggunakan metode campuran untuk mengumpulkan data melalui kuesioner dan wawancara mendalam. Temuan penelitian menunjukkan bahwa universitas memiliki kapasitas untuk menyediakan dukungan kelembagaan dan sistem remunerasi sebagai sarana untuk menstimulasi dosen dan peneliti supaya lebih inovatif. Skema ini juga disediakan di tingkat universitas dan fakultas sebagai alat untuk mengoordinasikan dan mengintegrasikan proyek penelitian.

Kata Kunci:

ambidexterity, pembelajaran organisasi, inovasi.

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Introduction

Any organization environment is dynamic. Globalization requires organizations to have the capability to respond to both internal and external changes. According to resource-based view (RBV), organization capabilities are the sources of competitive advantage (Barney and Clark, 2007). These include culture, trust, human resource, and information technology (IT). Culture is a set of complex values, beliefs, assumptions, and symbols, which describe an organization. Trust is related to belief in an organization's performance. As an aspect of human capital in an organization, human resource is understood to enable organization to develop as it is a valuable asset. IT relates to how organization manages information within itself. Organizations that can adapt to their environment will have the ability to sustain and grow. Birkinshaw and Gibson (2004) on the other hand argue that technological developments, political dynamics, and uncertain economic conditions would determine the adaptation ability of any organization. Adaptation enables organizations to constantly seek out opportunities to improve performance.

The adaptive capacity of an organization in facing changes occurring in its environment requires competence in learning not only in regards to strengthening of its current capacity but also in terms of finding novel opportunities. This concept, according to Tushman and O'Reilly, is known as ambidexterity. Several experts state that exploitation and exploration activities are contradictive. However, if both were to simultaneously occur, the implementing organization will innovate continuously, creating competitive advantage to achieve success. In terms of strategic management, this concept is known as ambidexterity. Ambidexterity is the ability to simultaneously explore and exploit in order to innovate. Exploration is defined as the ability to find knowledge, novelty, experiments, innovations, radical changes, and value creation used in the processes, products or services; while exploitation is a knowledge-based capacity to improve, modify, and continuously change the processes, products or services (March, 1991; O'Reilly and Tushman, 2008). To put it simply, exploration emphasizes innovation, while exploitation focuses on improvement of existing processes (Luzon and Pasola, 2011).

There are two forms of organizational ambidexterity: structural and contextual. Duncan (1976) stated that an organization must put both structures in place, as initiating and implementing innovation require different approaches. These structures can be placed either in a different working unit or grouped within a single working unit. The organization can set the emphasis of exploration and exploitation through variant working units (see Table 1).

Table 1.
Comparison between Structural Ambidexterity and Contextual Ambidexterity

	Structural Ambidexterity	Contextual Ambidexterity
How is ambidexterity achieved?	Alignment-focused and adaptability-focused activities are undertaken in separate units or teams	Individual employees divide their time between alignment-focused and adaptability focused activities
Where are decisions made regarding the split between alignment and adaptability?	At the top of the organization	On the front line
Role of top management	To define the structure, to make trade-offs between alignment and adaptability	To develop the organizational context in which individuals act
Nature of roles	Relatively clearly defined	Relatively flexible
Skills of employees	More specialists	More generalists

Source: Birkinshaw and Gibson (2004)

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In structural ambidexterity, different sub-units have competencies, systems, incentives, processes, and cultures which will be aligned to facilitate exploration and exploitation. Meanwhile, contextual ambidexterity is the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit (Birkinshaw and Gibson, 2004). Contextual ambidexterity focuses on organizational capability at the individual level. This capability is valuable, costly to imitate by other organizations, and is therefore seen as a potential resource for competitive advantage. Birkinshaw and Gibson found that contextual ambidexterity is obtained by building a set of system or process, which allows and supports individuals in the organization to evaluate their actions.

In the context of ambidextrous organization, Kusumastuti (2013) argues that analyzing ambidexterity could be conducted by focusing at the individual, group, or organizational level. Inter-relation between internal and external knowledge process play an important role to organizational renewal. The main purpose of an ambidextrous organization is the ability to create competitive advantage and improve future performance. O'Reilly and Tushman (2008) found that organizations applying exploration and exploitation strategy usually survive. Their findings support Jansen et al., (2005) who stated that exploration and exploitation concepts are very important for organization as they are being called ambidextrous. Ambidextrous organizations bear emphasis on the following issues (Raisch et al., 2009):

1. Differentiation and integration, as separate exploration and exploitation activities within different organization units applying these two concepts at the same time.
2. Individual and organizational levels, which describe organizational mechanisms by combining exploration and exploitation.
3. Static and dynamic aspects, which create solutions allowing the organization to pursue exploration and exploitation activities simultaneously, and making organizations more dynamic.
4. Internal and external organizational perspectives, in which an ambidextrous organization focuses on how it uses exploration and exploitation activities internally.

This study focuses on the individual level of university as an ambidextrous organization. It describes activities that lead to lecturers and researchers becoming more innovative. It is important to apply the concept of ambidexterity in academic institutions since they are the producers of knowledge. Within this context, it can be observed that universities have yet to maximize their roles in developing and disseminating knowledge. According to Lodhi (2012), publication is one of the determinants to scientific progress and the quality of education. Having said that, the output of these publications are to contribute in the era of knowledge-based economy. Universities should not only focus on how to produce and disseminate knowledge, but also to expand and commercialize their research findings for economic development. As demonstrated by Figure 1, numbers of publications by academics in Indonesia are very low compared to those of Singapore, Malaysia, and Thailand. As of year, *Scimago Journal & Country Rankings* (SJR) ranked Indonesia in the 61st place for scientific publication, while Singapore, Malaysia, and Thailand are in the 32nd, the 40th, and the 43rd respectively. Scopus data also shows that Indonesia's scientific publication output at the international level is less than that of Singapore, Malaysia, and Thailand.

University ranking can also highlight the situation. Table 2 demonstrates the comparison of world level countries and ASIAN level countries by QS. The ranking made by QS is based on what it believes to be key aspects of a university's mission, namely: teaching, research, nurturing employability,

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Figure 1.
Comparing Publications in International Journals

Indonesia ■ Malaysia ■ Thailand ■ Singapore
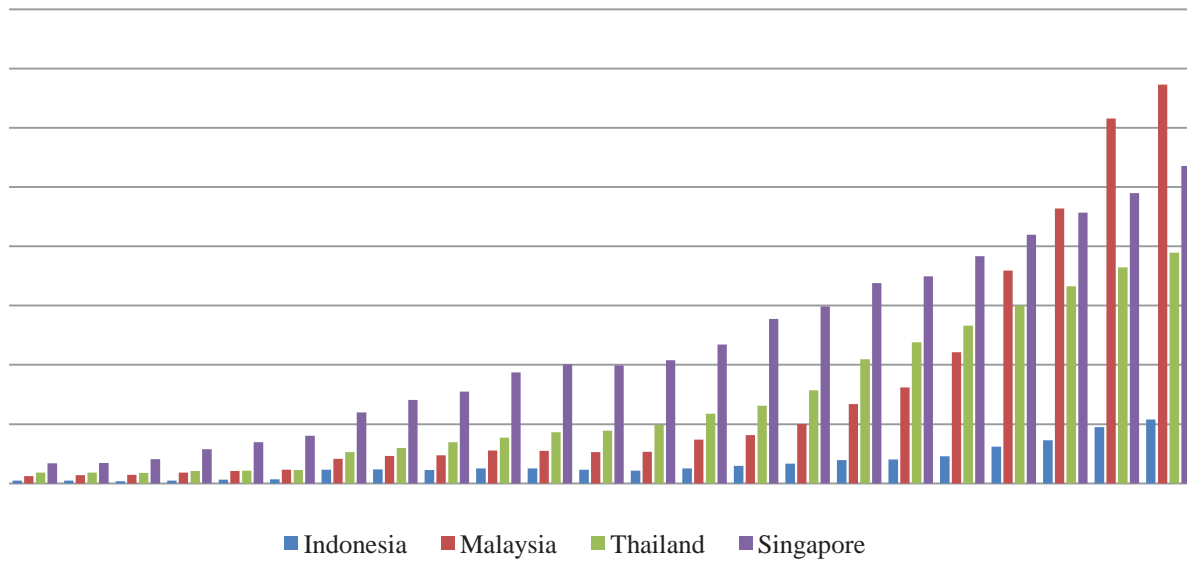
Source: www.scopus.com (2013)

and internationalization. One important key point in the world ranking assessment is academic publications of these higher education institutions. Citations of published research are used by QS to assess the quality of universities around the world. The total number of citations per year is divided by the number of academic personnel in certain universities to yield the score for this measure.

Figure 1 and Table 2 have shown that the ranking of Indonesian universities is below other universities in Singapore, Malaysia, and Thailand. Indonesian universities do not have a strong competitive advantage at the international level. As a consequence, they need to implement strategies to improve their performance and capability.

According to Sivrais and Disney (2006), embodying research culture in academic contexts will lead to a better research university. Determining programs, building research communities to facilitate learning process among researchers, nurturing critical and creative thinking, and facilitating the design for researchers are steps that will boost universities to possess a better research culture. With the

case of University of Indonesia (UI) as the focus of this study, it is found that nurturing research culture is a challenging arena since faculties have different, unique contexts.

The maturity to engage in innovative activities that are either explorative or exploitative within the respective faculties in the university is not similar. The Faculty of Medicine, Faculty of Engineering and Faculty of Economics is regarded to be more mature than others. This is demonstrated through their ability in securing more trust scheme, acquiring more patent/intellectual rights as well as more prototypes compared to other faculties. Nurturing research culture in these faculties is relatively easier than in the other faculties. Since the initiation of UI as a world class research university, the process of developing a culture of research had begun by implementing a professor based research cluster, developing research groups in collaboration with the industry and even utilizing research results based learning materials (Kusumastuti, 2016).

This study analyzes the perception of lecturers in the implementation of the ambidexterity concept at the individual level

Table 2.
Ranking of Selected ASEAN Universities

| World Ranking			Asian Ranking		
Ranking	University	Country	Ranking	University	Country
24	National University of Singapore (NUS)	Singapore	2	National University of Singapore (NUS)	Singapore
41	Nanyang Technological University (NTU)	Singapore	10	Nanyang Technological University (NTU)	Singapore
167	Universiti Malaya (UM)	Malaysia	33	Universiti Malaya (UM)	Malaysia
239	Chulalongkorn University	Thailand	48	Chulalongkorn University	Thailand
269	Universiti Kebangsaan Malaysia (UKM)	Malaysia	57	Universiti Kebangsaan Malaysia (UKM)	Malaysia
283	Mahidol University	Thailand	42	Mahidol University	Thailand
309	**Universitas Indonesia (UI)**	**Indonesia**	64	**Universitas Indonesia (UI)**	**Indonesia**
380	University of the Philippines	the Philippines	67	University of the Philippines	the Philippines

Source: QS World University Ranking (2013)

in terms of both exploitative and explorative means. There are two reasons why this study is focused on UI: it has a good ranking in the world or Asia and it is one of Indonesia's leading research universities.

Methods

This study employed a quantitative approach based on a deductive pattern (Neuman, 2003). Data were collected using quantitative and qualitative methods, especially with questionnaires and in-depth interviews. Some in-depth interviews were conducted with informants from UI who have sufficient information related to research policy. The respondents of the questionnaire surveys were permanent lecturers, based on quota sampling. UI has thirteen faculties and one vocational program. They are divided into three disciplines: medical science, science and technology, and social sciences and humanities. The medical discipline incorporates the Faculty of Medicine and the Faculty of Public Health; the science and technology stream includes the Faculty of Pharmacy and the Faculty of Engineering; while the Faculty of Humanities, the Faculty of Social and Political Sciences, and the Faculty of Economics come under social sciences and humanities.

Figure 2.
Theoretical Framework
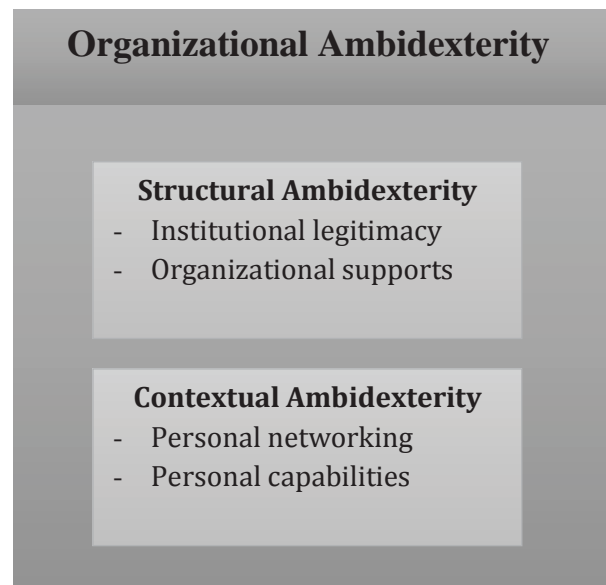
Source: Adapted from Birkinshaw and Gibson (2004); Chang et al., (2009)

The study consists of five stages. The first stage is data collection in order to obtain various information. In this stage, a literature review was conducted to develop the ambidexterity concept. In the second stage, we arranged questionnaires based on information acquired in the first stage. We also disseminated the questionnaires to all faculties in an attempt to seek a general outlook of ambidexterity.

In the third stage, to support questionnaire results, we conducted in-depth interviews to a number of informants with a background in research policy, such as research managers of each faculty and management personnel from the Directorate of Research and Community Engagement (DRPM). In the fourth stage, we interpreted and analyzed the data. In the fifth and final stage, the research is composed into a paper and draft article as an effort in disseminating the research results.

Figure 2 shows the theoretical framework of this study to better comprehend the implementation of ambidexterity practice in UI.

Results and Discussion

As an Indonesian higher education institution, UI is obliged to implement the *tri dharma* (three pillars) of higher education: teaching, research, and community engagement. The synergy of those pillars must be conducted and achieved by using research-based methodology. In order to become a research university, the vision and mission, policy, research fund, human resources, research management, infrastructures, research culture, and the key performance indicators of UI are essential. UI has its research policies stipulated in the Development Roadmap of 2012-2107. One of the policies is in education, research, and community engagement. This policy is multidisciplinary. Any supporting sustainability development is focused on leading sectors which must be unique, multidisciplinary and cutting-edge in accordance with the major challenges faced by UI.

The leading sectors that became the focus of this research are information and communications technology (ICT); poverty alleviation; child, family and community issues; genome; governance, democratization and public or social policy; energy, restoring the earth's natural support system, advanced and nanotechnology; culture; indigenous studies;

and urban planning and transportation. These leading sectors are expected to produce many researchers with widely recognized competencies. This could pave the way for UI to achieve its four goals: to become a leading ASEAN university in 2013-2016, to be recognized for its research results capacity in 2017-2020, to be the leader of competence recognition in 2021-2024, and to become a leading Asian university in 2024-2028.

Nowadays, university is not only recognized as a teaching institution, but also as the center of excellence to discover strategic knowledge. Focus on research has become the norm for universities the world over. Becoming a research university is an honor: it contributes to the development of knowledge for mankind. UI has a goal to maintain its reputation as one of the best universities in Indonesia that generates highly qualified graduates able to compete in the global market. UI is committed to produce high quality educational system, conduct global standard research, and maintain high standards of international academic publications. Based on these commitments, UI is preparing to become a research university, being supported by its vision and missions. UI's vision is to become a world class research university, while its missions are to manage research based higher education for the development of science, technology, and art, as well as to manage higher education to improve the quality of life for Indonesians and humanity as a whole.

In achieving its goals, UI created an institution to facilitate and conduct research and community engagement, called DRPM. The DRPM, as a directorate under the Vice Rector for Research, Development, and Industrial Cooperation, is a working unit that manages and develops all research activities and community engagement. Its responsibilities should fit UI's vision and missions to become a world class institute for research and community engagement management. The DRPM's stated

Figure 3.
Research Grants Achievement
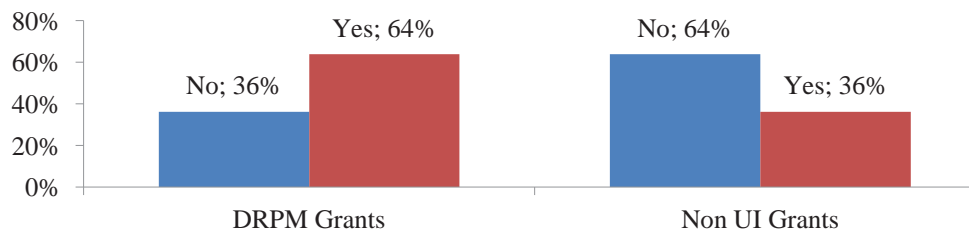
Source: DRPM UI (2013)

missions are to perform quality assurance of research and community engagement, to assure the sustainability of research and community engagement programs according to its Road Map, as well as to collect, synthesize, and analyze research and community engagement data to be used as a reference for decision making both at the faculty and university level. The DRPM has several strategic targets for the 2013-2017 period, namely: supporting the achievement of international accreditation; improving UI's ranking by enhancing integration, competitiveness, and enterprise in research and community engagement, which includes increasing the number of international scientific publications; increasing the number of intellectual products useful to the society; improving the quality of research culture, community engagement, and scientific publications; and maintaining international cooperation.

In order to measure the ambidexterity in UI, this study distributed 80 questionnaires, in which 70 were returned. As many as 54% respondents were males. The majority of respondents was from the Faculty of Social and Political Sciences (37%) and consisted of the core teaching lecturers (70%). Half of the respondents hold Master's degree and the majority of respondents were over 40 years old. Then, as demonstrated by Figure 3, based on the research grant source, the majority of respondents had been awarded UI grants (60%), with only 36% of respondents accepting

non-UI grants. These non-UI grants were from L'oreal, IM4DC Australia, Norwegian Embassy, Pattiro, University of New South Wales, AusAID/DFAT, giz Germany – to name some of them. Most of the respondents (70%) have published their research publication in journals, books, international and national proceedings, and others.

Ambidexterity Learning Process

a. *Structural ambidexterity practices*

The ambidexterity learning process implemented by UI is divided into structural and contextual ambidexterity. Structural ambidexterity can be observed from institutional legitimacy and organizational supports, while contextual ambidexterity can be observed from personal networking and personal capabilities (Birkinshaw and Gibson, 2004; Chang, et.al., 2009; Sivrais and Disney, 2006; Zohreh, et al., 2011).

In terms of structural ambidexterity, institutional legitimacy can be interpreted as innovation activities implemented by UI. Within this context, the majority of respondents (more than 73%) agree that innovation policy in UI includes both research and development. Lecturers who have a research heavy status plays an important and strategic role in scientific programs, and most lecturers agreed that innovation had been conducted in research and teaching. Innovation usually occurs in an exploitative way when lecturers teach and in an explorative way when they conduct research.

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Research policy had been managed and implemented not only at the university level, but at the faculty level as well. Innovation policy and focus area were designed at the university level and implemented at the faculty level. The dispersion of the favorable perception of lecturers regarding institutional legitimacy that represents structural ambidexterity is shown in Table 3.

Table 3.
Structural Ambidexterity from the Perspective of Institutional Legitimacy

No	Indicator	Percentage
1	Innovation policy at Universitas Indonesia includes research and development.	75
2	Innovation policy of research and development at Universitas Indonesia is not only implemented at the university level, but also at the faculty level.	73
3	The presence of core lecturers for research is very important in scientific development.	76
4	The presence of core lecturers for research is strategic in scientific development.	76
5	Innovation is undertaken in research activity and teaching.	76

Source: research finding (2014)

The organizational support that represent structural ambidexterity at UI was found to have taken place in various activities. About 61% of lecturers felt that they were free to undertake innovations through numerous means. As many as 68% respondents were satisfied with the reward system and incentives regarding innovation activities (see Table 4).

The mean of all those items being over 4,5-5,1 on a scale of 6 on the likert scale in the favorable area indicates that UI is quite dominant in structural ambidexterity. The majority of respondents evaluated that UI provides sufficient programs that encourages faculty members to conduct research, including scheme and facilities for core lecturers to undertake research as well as to write proposals and to publish in international

Table 4.
Structural Ambidexterity from the Perspective of Organizational Support

No	Indicator	Percentage
1	There are programs that encourage faculty members to conduct research.	90
2	The reward for research conducted by faculty members is sufficient compared to other tasks.	59
3	There are opportunities to help faculty members renew their technical ability in conducting research and development.	65
4	There is a mentor to help and support faculty members in conducting research and development.	65
5	The leader always provides clear guidance in relation to changes in the organization.	68
6	There is strong support from the faculty on all research and development activities set by the university.	68
7	There are rewards for every faculty member's effort to disseminate knowledge with fellow colleagues, particularly the research findings.	60
8	There are rewards for every faculty member's effort to disseminate knowledge with fellow colleagues, particularly the research findings.	64

Source: research finding (2014)

journal. In addition, various schemes of research and facilities of grants to attend international conferences and seminars are routinely run by the DRPM in order to encourage faculty members to conduct research. The respondents recognize quite a strong presence of support from their respective faculty for research and development activities set by the university, ranging from the delivery of information about various research grants offered by UI and other institutions to the facilities provided for Core Lecturer for Research as well as support in the form of training related to research and development.

The following are some indicators with the lowest mean compared to others: innovation policy at UI is associated with research or development only; innovation is conducted in research activity or teaching only;

and there are restrictions on the movement of faculty members to conduct research and development. This shows that the majority of respondents disagree that innovation policy in UI is associated with research and development only. They feel that they have the intention to create innovations on research, teaching, and others. Universitas Indonesia does not limit the movement of faculty members to conduct research and development in terms of funding, with funds offered by the DRPM for research grants continuously increasing from year to year. However, survey data shows that there had been restrictions on the movement of faculty members to conduct research and development. Limited research themes had prevented faculty members from applying for their desired research; they merely followed research organized by the university. Regarding the clear guidance related to changes in the organization, some respondents think that the leaders of UI were still reluctant to disseminate and share the details of existing changes, leading to multiple interpretation among faculty members.

Table 5.
Contextual Ambidexterity from the Perspective of Personal Networking and Capabilities

No	Indicator	Percentage
1	Most of the tasks are conducted by the faculty members through teamwork	78
2	Lecturers have a strong information network in disseminating information related to research and development of faculty members.	69
3	The university hires faculty members based on their competence.	68
4	Faculty members and leaders are mutually involved in creating a conducive working environment.	65
5	There is mutual respect between the leaders and subordinates to achieve organizational goals.	70
6	Faculty members have ample opportunity to seek new skills.	68

Source: research finding (2014)

The indicators of reward and opportunity to help faculty members renew their technical ability in conducting research and development tend to have lower mean compared to others. This indicates that the presence of mentors to help and support faculty members in conducting research and development as well as reward for research were still deemed insufficient by faculty members. The majority of respondents understand that the university remained unwilling to provide satisfactory reward for any innovative activity conducted by faculty members. This leads to necessary evaluation by the DRPM in particular as it should design programs supporting innovation activities of UI's faculty members.

Table 6.
Contextual Ambidexterity from Personal Remuneration Systems

No	Indicator	Percentage
1	There is a very clear measurement to evaluate the performance of faculty members.	62
2	There is accountability in implementing performance measurement for faculty members.	69
3	Faculty members obtain satisfactory compensation in research and development.	68
4	Faculty members have ample opportunity in their efforts to increase knowledge in a broad range of disciplines.	65
5	The performance of faculty members is only given based on skill and ability.	70
6	Performance evaluation of faculty members is given based on the output produced.	68
7	Faculty members have an opportunity to participate in decision making affecting their job.	74
8	The university has a clear design of career development.	60
9	Faculty members can be rotated to any department depending on the policy of the university.	50
10	Faculty members have strict main duties and functions.	55

Source: research finding (2014)

b. *Contextual ambidexterity practices*

There are two dimensions in terms of contextual ambidexterity: personal networking and personal capabilities. Most lecturers agreed that most tasks were conducted by faculty members through teamwork with an average mean of about 4.7 from a scale of 6. This indicates that faculty members tend to agree that UI already has a strong network in disseminating information related to research and development of faculty members. It is strengthened by the presence of various research centers and research managers in each faculty that regularly coordinate with the university (see Table 5).

UI regulation which states that research should be conducted through teamwork has encouraged faculty members to work as a team. This in turn would encourage a conducive working atmosphere and mutual respect among colleagues. Not to mention, faculty members have specific disciplines among them so that rotation will encourage scientific bias. It is important to provide a multidisciplinary research scheme in which faculty members conduct cross-faculty research to encourage scientific innovation.

The majority of respondents tend to agree that the university hires faculty members based on their competence and provides ample opportunity for them to seek new skills. However, faculty members tend to disagree that the university has a clear design

of career development related to research and strict main duties and functions (see Table 6). They found that there is no clear boundary between core lecturers for research and core lecturers for teaching in terms of research. From Table 5 and 6, it can be concluded that ambidexterity learning process in UI tends to be in balance between structural ambidexterity and contextual ambidexterity.

UI has designed a program to strengthen research collaborations between UI and the government, private sectors, and non-government organizations at both national and international level. Therefore, it generates a resource sharing of materials and non materials that help research products usage for the society and industries, such as intellectual property rights (*hak atas kekayaan intelektual*, HAKI). All of UI's HAKI (Table 7) are generated by science and technology disciplines, meanwhile social sciences and humanities have not generated any invention.

Conclusion

As an academic entity, Universitas Indonesia has been involved in organizational learning activities. UI's policies and actions reflected favorable indicators for both structural and contextual ambidexterity. The perceptions of lecturers and researchers covered in this study indicated favorable attitudes in relation to indicators of ambidextrous organization. Structural ambidexterity is represented in

Table 7.
Total of HAKI Submission 2008 – 2014

Year	Total Submission	Total Accepted	Acceptance Year			
			2009	2010	2011	2012
2008	8	8	7	0	0	1
2009	42	36	0	27	8	1
2010	13	13	0	5	4	4
2011	71	65	0	0	15	50
2012	29	0	0	0	0	0
2013	14	0	0	0	0	0
2014	14	0	0	0	0	0
Total	177	122	7	32	27	56

Source: www.ui.ac.id

the internal structure of UI that separates the research unit from other units. At the university level, the implementation of structural ambidexterity is managed by the Directorate of Research and Community Engagement (DRPM) which is tasked to elaborate university research policy and strategic direction of research activities as well as to allocate various grant schemes. Meanwhile, the organization support for research activities is found to be varied at the faculty level. This is due to absorption of research funding being allocated according to the financial capability of each faculty, the institutional and individual network owned, and personal capabilities of faculty members in obtaining grants.

The contextual ambidexterity is reflected from research activities and capabilities-based teaching, and personal networking as well. There are exchanges and combining process of knowledge among the lecturers. The key competitive advantage that UI has is the capability of learning to innovate through both explorative and exploitative means as demonstrated.

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