

Summary

The main goal of this dissertation is to answer “how do the different institutional logics impact the participation behavior of academics in the complex environment of University-Business Co-operation (UBC)”? Co-operation between university (knowledge institutes, in general) and the business (industries) world has become the fuel for innovation and economic growth. Nevertheless, UBC remains complex and is considered as a problematic task for universities and their business partners. When many countries design policy aimed to “exploit” science and knowledge produced by the university, it appears that many hurdles for government and university to maintain or even to “start” the UBC. The studies in this dissertation based on an in-depth investigation and analysis of UBC program, which took setting in Indonesia. As the country that has a goal to be an Innovation-Driven Economy in 2020, empowering academics (scientists) and transferring knowledge to industries is the one of the innovation policies. However, low participation and plenty of unmotivated academics who were not interested to involve in such program become the obstacles. Hence, this dissertation attempts to explain such phenomena by questioning (1) what is the impact of different institutional logic for innovation system? (2) What are the incentives and obstacles of UBC perceived by university managers and academics? (3a) How do academics cope with competing institutional logics in UBC? And (3b) What are the academics’ roles and responses under the complexity of UBC? Two approaches were deployed, desk and case studies, which divided into four empirical papers.

Although the driving and inhibiting factors are taking into account, the findings suggest that that both organizational actors such as university managers and scientists share a common perception on the incentives of UBC which consisted of industrial funding; organizational and individual reputation; trust from industries and applied research. Further, organizational actors at both universities (private and public) considered bureaucracy, industrial commitment, different in vision and orientation, teaching obligation and basic research are the major obstacles for UBC. The dissertation shows that the participation behavior of academics in the complexity of UBC can be classified into several

groups of coping strategies based on their roles and responses. Group I (Traditional Academics): academics who are familiar in science logic but novice in business logic. This group of academics ignore business logic and comply to science logic. Persons in this group will act as the follower. If the persons “identified” with science logic, they will act as a “protector”, who defy business logic. In Group II (Traditional Hybrids), academics who identified with science logic and familiar with business logic may act as an “integrator”. The persons in this group compartmentalize the science and business logics. In Group III (Entrepreneurial Hybrids), academics who have (or before academic’s career) had experience with business may act as an advocator. The persons in this group are “identified” with business logic and familiar with science.

The dissertation underlines that recognizing the participation behavior of academics should be included in the starting phase of cooperation. Based on the finding of this research, university or government should “recognize” the “skills”, “values” and “experience” of individual academics in business before engaging them in university-business co-operation. This research infers that inexperienced academics must “learn” in advance about the logic of business before involving themselves in collaboration with business projects. Eventually, to make UBC successful, individual academics should be able to manage the different vision and orientation with the business world.

Chapter 1: Introduction¹

1.1. Background

Countries are developing and preserving an innovation ecosystem where government, universities, and business have their place (Lundvall, 1992; Etzkowitz and Klofsten, 2005). Such an innovation ecosystem would ideally result in a mutual (economical) gain when these actors can collaborate and synergize (Mars et al., 2012). It offers policy-makers a more integral understanding in the formulation, design, and retention of a National Innovation System (NIS) (OECD, 1997). Accordingly, the government agencies in the Organization for Economic Co-operation and Development (OECD) countries have played their roles as the ‘stimulators of action’ by promoting University-Business Co-operation (UBC) (Mowery and Sampat, 2004).

Universities are increasingly considered as part of the innovation ecosystem and as important actors in creating and preparing knowledge to be commercialized in various forms and shapes. Over the last 25 years, universities have gradually adapted to perform this ‘new’ role (e.g. Etzkowitz, 2002; Wissema, 2009). Nevertheless, this ‘new’ role is still a bit ‘strange’ in the university and the tasks (‘third mission’) connected with this role are known under a variety of names ranging from ‘technology transfer’, ‘outreach’, ‘science marketing’ to ‘commercialization’ and ‘valorization’. Many authors have built models to describe this new role in the context of the university and its environment. For example, Chatterton and Goddard (2000) emphasized that the ‘new task’ or ‘third mission’ should be performed in conjunction with the tradi-

¹Parts of this chapter are authored by Van der Sijde, P., David, F., Frederik, H., & Carretero, M. R. (2014) and have been published in ‘University-Business Co-operation: A Tale of Two Logics’, *Moderne Konzepte des organisationalen Marketing* (pp. 145-160) Springer Fachmedien Wiesbaden. Edited by T. Kliewe, T. Kesting (Hrsg.).

tional university tasks: research and education; moreover, it should provide added value to those tasks (Van der Sijde et al., 2002). Etzkowitz (1998) and Leydesdorff and Etzkowitz (1996) introduced the Triple Helix: university (or more generally: knowledge institutes), government and industry (business) should co-operate and develop together to enhance wealth and prosperity for all. Notwithstanding the benefits for all involved, it appears that there are many hurdles to take and governments all over the world design policies and incentives to encourage co-operation between university and business, indicating that UBC is not a 'natural' strategy for either of them.

UBC becomes a foothold for countries to 'bring' universities into the arena of innovation ecosystem (OECD, 1997). Nevertheless, universities remain organizations that carry out their (main) missions in education and research. In the innovation ecosystem, universities should extend their missions further beyond the boundaries of research and teaching (Culum et al., 2013; Sam and Van der Sijde, 2014), with a 'service' to the community. This mission, as mentioned earlier, often referred as the 'third task' showing universities should contribute and share knowledge to society in order to complete the task. As approached by several researches, the third task may lead to various forms and shapes, for example, 'community service' (Preece, 2011); 'technology transfer' (O'shea et al., 2005; Laredo, 2007); 'knowledge transfer' (e.g. Gulbrandsen and Slipersaeter, 2007; Geuna and Muscio, 2009); 'academic entrepreneurship' (Rothaermel et al., 2007; Wright, 2007); 'university and business interaction' (Lawton et al., 2001; Groen and Van der Sijde, 2002); and 'university-business co-operation' (Davey et al., 2011; Ranga et al., 2013). In this dissertation, we use the term UBC to refer to the third task in all its shapes and forms.

Academics play an important role in the process of UBC. At the individual level, an academic can act as an 'agent' and start a relationship between a university and a business that is in the two parties' mutual interest. This is rather a challenging task, since by acting as agents; academics should extend their orientation beyond teaching and research. Academics should be able to bring together features from the two different worlds into a mutually beneficial 'framework' that incor-

porates university and business interests. Also, at the organizational level, fostering a relationship between two different institutions is not an easy task; it requires effort to prepare both types of organization for co-operation. Third parties, such as government agencies or funding organizations can have their own interests in bringing universities and business together. All policies and strategies imposed on or created by an organization are considered as influencing the 'logics' of an institution.

Studies on UBC are vast and evolving, allowing scholars to approach the topic from various theoretical perspectives, methods, and contexts. The characteristics of universities and academics are considered to be an emergent topic, particularly in developed countries (Teixeira and Mota, 2012), with less interest from the developing countries' perspectives (Schiller and Liefner, 2007). Moreover, the topic of academic characteristics was corroborated by many studies emphasizing the roles and motivations of individual academics in the creation of UBC (Arvanitis et al., 2008; D'este and Perkmann, 2011; Ankras et al., 2013). The engagement of academics can be driven by factors like opportunity, commercialization, funds, and research (Perkmann and Walsh, 2008). Such engagement remains problematic due to various causes; one of the classic issues is institutional complexity (Geisler and Rubenstein, 1989; Lee, 2000; Agrawal, 2001; Barnes et al., 2002; Etzkowitz and Klofsten, 2005; Fontana et al., 2006; Ranga et al., 2013; Perkmann et al., 2013). Few studies have paid attention to scrutinizing this issue from the institutional logic perspective, which gives a feasible approach to studying the academics' attitudes under the institutional complexities, particularly in UBC (Bjerregaard, 2009, 2010; Sauermann and Stephan, 2013; Perkmann et al., 2013). Responding to the need for close examination, this dissertation aims to obtain a better understanding of the participation and engagement behavior of individual academics under such circumstances.

1.2. Theoretical perspective and debates

1.2.1. University-business co-operation: a tale of two logics

How a university can create and maintain its co-operation with the business world is an intriguing topic. Many approaches and theories were applied to obtain a better understanding of how academics utilize the drivers and resolve the barriers (D'Este and Patel, 2007; D'Este and Perkmann, 2011); however, hardly any recent studies give further insights on how individual academics handle the institutional complexities in UBC (Perkmann et al., 2013). The studies in this dissertation aim to investigate the participation behavior of academics in UBC from the institutional logics perspective, as this lay feasible groundwork for observing the behaviors of individuals under institutional complexities (Thornton et al., 2012). Thornton and Ocasio (1999, p. 804) define institutional logics as 'the socially constructed, historical patterns of cultural symbol and material practices, including assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activities'. An institutional logic refers to a set of assumptions and values guiding attitudes and behaviors of agents in the specific institutional environment (Dunn and Jones, 2010; Thornton et al., 2012). These definitions have provided a foundation for discussing the integration process between field level and micro level actions (Coleman, 1990; Thornton et al., 2012). These definitions also allow a discourse of an integration of the top-down with the bottom-up effects of institutional demand (Christiansen and Lounsbury, 2013). When we bring these definitions to the context of UBC, they predict that academics and business professionals in such co-operation, because of the different types of organizations, will have different values, beliefs, and rules. It has also been said that institutional complexities shape rational, mindful behavior, and individual and organizational actors have some hand in shaping and changing institutional logics (Thornton, 2004). In the world of business and industry the denizens differ from those in academia. Although both groups of denizens received their education and training in a similar world, afterwards they started 'living' in different worlds, each world with its own logic.

The two worlds of universities and business are two worlds governed by different institutional logics (Elmuti et al., 2005, Sauermann and Stephan, 2013). At the 'organization logic' level, Merton (1973) proposed that the university system is basically founded by a norm of science, such as universalism, organized skepticism, and communalism. Murray (2010) and Sauermann and Stephan (2013) support Merton's norms and divided the differences in the organizational characteristics between universities and businesses into two labels - 'academic logic' and 'commercial logic'. The academic logic is emphasized in the search of fundamental knowledge or research, independence in research activities, peer recognition, and the openness in the dissemination of research results. Further, they argue that commercial logic (business logic) is the opposite term of academic logic. For instance, in practice, businesses will expect an applied research, limited disclosure or dissemination of research results, and private allocation of financial returns of research results. In the expected products, businesses aim to have a concrete application, while academics at the universities undertake their contribution in forms of new ideas, empirical findings, new models, measurements, and new methods (Cyert and Goodman, 1997). Moreover, in research collaboration, businesses will consider the research results to be only for private ownership while universities will intend to extend their scientific knowledge through the publishing of research results.

Further, the norm of 'academic logic' is at very general which it has been widely shown that the way it works in practice depends on the characteristics of the scientific fields or disciplines (Whitley, 2000). A university consists of various intellectual disciplines where each of the disciplines has its own sphere or 'logic'. We presume this is a form of another institutional logic: the 'science logic' or field logic. We refer to the Whitley theory that describes the 'science logic' as the nature of intellectual disciplines that is diverse in dimensions of 'mutual dependences' and 'task uncertainty' (Whitley, 2000). The 'mutual dependence' refers to the degree of 'dependencies' between academics and is dependent upon knowledge produced in other fields. The 'task uncertainty' is related to the general goals, the degree of research outcomes, and research processes. These norms add to the complexity of logics in UBC

and may create conflicts that academics must deal with. To make UBC successful, academics are supposed to or be demanded to successfully cope with such institutional complexities (Perkmann et al., 2013).

1.2.2. Academics and the business world

Why and how the academics run their collaborations with the world of business is an interesting research question and has been approached by scholars over time (Gallart et al., 2002; Perkmann et al., 2013). No matter what the context is, the main reason for an academic to be involved is that the activity creates benefits in some forms (status, contacts, financial revenues or academic acknowledgement). Boyer (1996) argues that an academic will get benefits if he/she is able to build up a relationship with person(s) outside academia. The person or persons outside academia refers to individual and groups in the society, particularly organizations that can bring profit for academics. Such a relationship needs to be a mutually beneficial one: academics provide knowledge, and professionals 'outside academia' use the knowledge; the collaboration arising from such relationships is widely known as UBC and it can directly impact the innovation ecosystem.

Although such benefits and the mutual relationship between academics and professionals would create a bright future for the implementation of the 'third mission' of a university, there are major barriers, one of which is the difference in institutional logics. An academic, naturally, would be exposed to university logic or academic logic. This academic logic (Merton, 1973; Perkmann et al., 2013) requires individual academics to dedicate valuable time to two activities: teaching and research. For the third mission, sometimes there is not enough time or no prioritization for academics to explore and carry out this mission. The university gives (groups of) academics the 'privilege' of managing their research independently for a given period of time. Basically, academics are 'appraised' on evaluations from students (teaching) and publications (and H-indices) in peer review journals (research). Unlike the university, business has its own 'logic' or commercial logic (Merton, 1973; Perkmann et al., 2013). The business expects (high) profits in the short-

est period and it has to deal with market conditions that change frequently (Cyert and Goodman, 1997; Elmuti et al., 2005). Academics in universities are working in a sustained and more predictable situation, although science (research) can be unpredictable.

University policy can increase academics' participation in UBC and stimulate academics to engage with the world of work. The university can collect benefits in its different forms (e.g. practitioners' publications and reputation) with such activities and this also strengthens the universities' role in enhancing innovation in a certain region or cluster. However, when this policy meets practice, logics collide: academics become exposed to two different logics. On one side, academics must fulfill their basic requirements in teaching and research to meet the university demands. On the other hand, academics must understand the logic of the business world.

1.2.3. Coping attitudes and strategies toward institutional complexities

The blending of multiple logics is problematic for individuals within many organizations (Seo and Creed, 2002; Battilana, 2006; Binder, 2007; Battilana and Dorado, 2010; Greenwood et al., 2011; MacPherson and Sauder, 2013; Pache and Santos, 2013; Kodeih and Greenwood, 2014; Blomgren and Waks, 2015). The scholars' understanding on the relationship between individuals and institutions remains limited (Thornton et al., 2012) and calls for further research on this topic, especially due to the growth of UBC (Owen-Smith, 2003; Bjerregaard, 2010; Murray, 2010, Sauermann and Stephan, 2013; Lind et al., 2013; Perkmann et al., 2013; Arvanitis et al, 2008). In UBC, academics will face complexities in logics where they are expected to not only be able to shift their academic (science) logic to business logic, but also to blend both logics (Murray, 2010); or to transform their dominant logic (science logic) into business logic (Jain et al., 2009). Christiansen and Lounsbury (2013) labeled these circumstances with the expression of 'logics in action', which indicates the dynamic interaction and mixing of two or more in-

stitutional demands. Moreover, examination of individual roles and different identities in response to institutional complexities is still open for further studies (Lok, 2010).

Pache and Santos (2013) emphasized that although institutional scholars declare that institutional logics provoke similar actions at the field level, scholars recognize that several fields are exposed to competing logics, which was also proposed by Friedland and Alford (1991). The competing logics may cause competing demands in organizations, and their members may use a set of logic that may diverge from regular obedience (Pache and Santos, 2010; Murray, 2010; Greenwood et al., 2011; McPherson and Sauder, 2013). Swan et al., (2010), for example, states that the colliding logics between the university's policy and its practice will lead to two distinct situations: '(1) tensions can exist within, as well as across constituent communities, in an organizational field and; (2) mobilizing a new institutional logic related to knowledge production may produce its own contradictions that can, paradoxically, lead to simultaneous resurrection (and reinforcement) of the old logic' (Swan et al., 2010, p. 1311).

To illustrate how an individual behaves under competing institutional logics, we adapted an approach from Pache and Santos (2013), as it presents a concept of coping strategies at the individual level. The approach proposes that, depending on the level of availability, accessibility, and activation of a given logic, an individual may relate to logics with three different behaviors. In increasing order of adherence, individuals may be a 'novice', 'familiar', or 'identified' with a given logic. An individual who is a 'novice' to a given logic has no (or very little) knowledge or information available about the logic. This condition occurs when an individual has not been exposed to the logic and its related demands, nor has intermingled with others exposed to them. An individual who is 'familiar' with a given logic holds available knowledge about it. Such knowledge is made available via direct or indirect/mediated social interactions. An individual who is 'identified' with a given logic is one for whom the logic is favorably accessible. The logic of an individual can define what they do, who they are, and how they 'communicate' with their society (Pache and Santos, 2013).

Further, Pache and Santos (2013) assembled a comprehensive model that predicts responses of individuals in an organization when they are faced with two competing logics. Such responses are individual-level strategies that are eventually collected as the organizational-level responses. Thus, in this dissertation we provide empirical evidence of how logic is deployed in the context of UBC. When we bring the propositions into the context of UBC, the coping strategies may encompass one of the following situations. If an academic is a 'novice' with business logic but is familiar with science logic, the academics may ignore the business logic but comply with the science logic; thus, his/her role is likely to be a 'follower' in UBC. An academic who is 'identified' in science logic is likely to act as a 'protector', showing that the academic may not with businesses. If an academic is familiar with both logics, suggesting that the logics are comparable, he or she is likely to compartmentalize the logics, and act as an 'intermediary' or a 'bridge' between the two logics (Bjerregaard, 2010; van der Sijde et al., 2014). An academic who is 'familiar' with business logic and 'identified' with science logic is likely to act a role as 'integrator'. If an academic is 'identified' with business logic and is 'familiar' with science logic, the academic role is likely to be an 'advocator'. Finally, when an academic is 'identified' with both logics, she/he is likely to act as a 'hybridizer', showing she/he can combine or blend of both logics, as also proposed by Murray (2010). We presume that these predictions may fit to describe the coping strategies of academics in UBC. Indeed, the call for empirical studies on these predictions was proposed by Pache and Santos (2013).

In terms of the hybrid behaviors of the academics, Tuunainen (2005) argued that hybrid practices show the ways that academics are able to bridge the gap between basic and applied research, as well as 'fuse' their science logic into commercial development. From an entrepreneurial perspective, Lam (2010, 2011) suggests academics can be a hybrid entrepreneur, where they can combine or blend the values of science and business when they engage in research commercialization. Moreover, Jain et al. (2009) proposed that the hybrid identity results from the ability of academics to bridge the two worlds by 'delegating' and 'buffering' the science logic into business logic. These authors pro-

posed that by acting as hybrid academics, an academic should be able to ‘translate’ the science to business logic, showing an effort to transfer the technology successfully. Another approach was proposed by Murray (2010) who argued that academics are kept in their (dominant) boundary (i.e. the science boundary), and can create a hybrid by ‘compartmentalizing’ the logics of science and business, even though the boundaries are sometimes blurred. Given this point, we highlight that scholars continue to debate the term of hybrid academics and the coping strategies they use to navigate the complexities of UBC.

The studies noted above suggest that drawing a complete picture on coping behaviors toward institutional complexities is an important step to make UBC successful. Thus, the studies in this dissertation used formal and informal participation (Perkmann et al., 2013) of academics as a probe to get a snapshot of academics’ coping strategies and to understand what logics play prominent roles. Furthermore, the studies in this dissertation also take into account the driving and inhibiting factors (Etzkowitz et al., 2000; Bruneel et al., 2010; D’Este and Patel, 2007; Arvanitis et al., 2008; D’Este and Perkmann, 2011; Link et al. 2007; Ponomariov and Boardman, 2008; Grimpe and Fier, 2010; Franco and Haase, 2015) and their impact to the participation behavior and the involved logics. Figure 1 illustrates the conceptual framework and the chapters included in this dissertation.

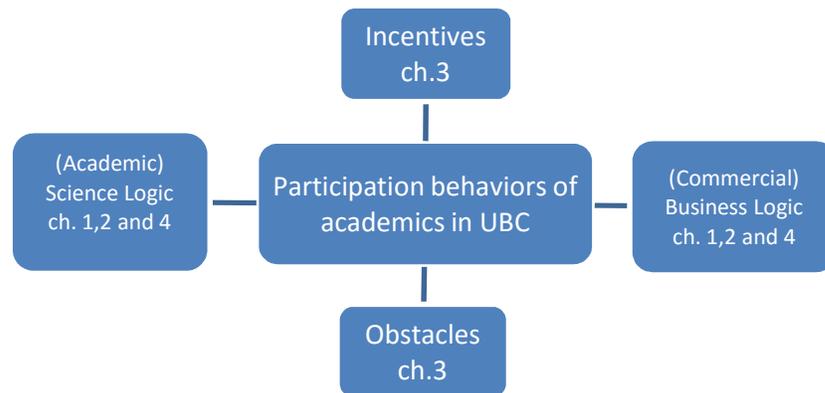


Figure 1: Multiple institutional logics and factors involved in UBC

1.3. Research setting and methodology

The context of this study is Indonesia. The World Economic Forum released that Indonesia's position has dropped four points to the 50th (2012) from 46th (2011) and has ascended to 41st in 2016, but it keeps the country as an efficient-driven economy (Schwab and Sala-I-Martin, 2012, 2016). Thus, Indonesia has an ambition to improve its innovative performance and aims to become an innovation-driven country by 2020 (KIN, 2012). One of the focal points of the economic policy of Indonesia is to incorporate and to involve its universities into this endeavor by stimulating the co-operation between universities and the business world. In respond to this ambition, Indonesian government has developed strategies to make universities as the center of innovation. The structured UBC programs in Indonesia have been introduced for over two decades, so-called Pengabdian Masyarakat or Community Service. Supported either by the government or university funding, academics involved in UBC in the form of activities such as performing short courses, one-day seminars, and group discussions on new methods or technologies with the person(s) and or group of business professionals. The Institute of Research and Community Service (IRCS) or Lembaga Penelitian Pengabdian Masyarakat (LPPM) handles all the UBC programs done by the academics at universities in Indonesia.

1.3.1. Conflicting² logics: Indonesian universities dealing with business co-operation

Universities worldwide have recognized the third mission for decades (Etzkowitz, 1998). In the Indonesia context, this mission is described in the Law on Higher Education which has been institutionalized as

²We use the term 'conflicting' and 'competing' interchangeable.

‘community service’ and it is commonly organized via a central office (LPPM). The LPPM has been ‘institutionalized’ at the universities as the central office to manage knowledge transfer activities (similar to Technology Transfer Office) (DRCS, 2012; Van der Heide et al., 2008), such as mobilize people (academics, students, and business professionals) and serve the university and business interests. To do its task, the LPPM has to set coordination with many stakeholders such as government agencies, businesses, non-government organization, other LPPM or universities, and other related organizations. Academics consider LPPM as ‘one-stop shop’ to involve in UBC; either the funding comes from the university itself or from the external sources that is provided by stakeholders’ grants. To assist the LPPM objectives, the government has developed and offered various funding schemes over the years, and extended the budget substantially in 2010. During the period 1992-2008, these funding schemes had just attracted a few universities and it was dominated by public universities.

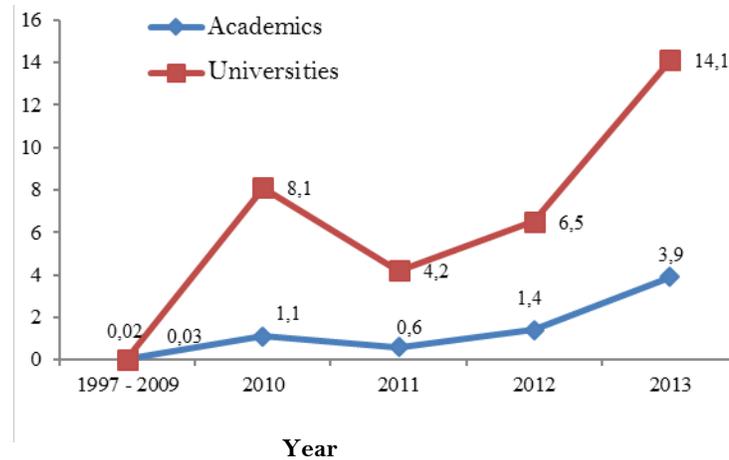


Figure 2: The percentage of universities and academics who engaged in the UBC programs (government funded). Source: DGHE documents of Community Service Program.

A big leap happened in 2010 because of cutting down bureaucracy and changing policies (see Figure 2; DGHE, 1997 - 2013). However, this percentage still does not reach the goals of academic involvement set by the Indonesian government: by 2020 at least 30% of academic staff should be involved in the UBC programs (DRCS, 2012). For comparison: Davey et al., (2011) found in their European sample an involvement of about 30%. Davey et al., (2011) also state that funding and bureaucracy are the drivers and barriers of UBC, but are not the only factors that reducing or increasing the number of UBC programs.

We propose that institutional logics might throw some light on this situation. We argue that the Indonesian community service programs show that academic logic is persistent and even in situations where the co-operation with the business world is to be complied and stimulated with subsidies (compliance), it still has not reached the level the government has set. In the academic logic, academics in an Indonesian university have to fulfill three tasks during his/her 'academic career': teaching and research are the two major tasks, for which 'career credits' can be earned. They will get at least 75% of credits from doing these activities while the other 25% can be earned via other obligations, such as Community Service³ (DGHE, 2013). This 'career credit' system should motivate academics to engage in UBC, but the government numbers tell a different story. In general, studies show that academics have different cultures, targets, and time orientation compared to their counterparts in government and the business society (Etzkowitz et al., 2000; Cyert and Goodman, 1997). Amalia et al., (2011) argued that differences in 'language' cause difficulties in implementing research results from Indonesian universities to business. Moreover, they added that government, university and business have different 'languages' in how they 'communicate' with each other. Government has its 'bureaucratic language' which is difficult to comprehend by universities and businesses in the UBC programs. Since 2012, the government has gradually cut down its bureaucracy and now 'trusts' universities to manage

³It is an obligatory task if an academic willing to obtain 'academic credits' (not specified in a particular period).