

# A CASE STUDY ON CLOUD COMPUTING STRATEGY OF A TELECOM COMPANY IN TAIWAN: AN ORGANIZATIONAL LEGITIMACY PERSPECTIVE.

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## Abstract

*Cloud computing is an emerging industry in Taiwan. Since this industry relies heavily on information communication technology (ICT) infrastructure, a telecom operator can play an important role in the establishment of cloud computing industry. In this paper, we adopt an organizational legitimacy approach to understand how a telecom company in Taiwan develop legitimacy strategy for cloud computing services. Our preliminary data analysis indicates that an organization can adopt multiple strategies to achieve legitimacy at organizational, industry and institutional levels. This study is expected to make contributions on enhancing practical understanding on organization's strategy in forming the nascent market.*

*Keywords: Cloud Computing, Industry Creation, Telecom Operator, Legitimacy, Content Analysis.*

# 1 INTRODUCTION

Cloud computing is an emerging industry that has been growing steadily in Asian countries (Chang et al., 2012; Microsoft, 2011). The rise of cloud computing is seen to provide new opportunities for transforming conventional business model and enabling IT-driven innovation at organizational and industry levels (Cusumano, 2010). Given its potentials, governments and industry players have been actively promoting and developing opportunities associated with the cloud technologies. In Taiwan, the central government agency, Executive Yuan deployed the Cloud Computing Industry Development Plan (CCIDP) in hope to develop cloud computing for future industrial transformation.

Based on the widely cited definition, cloud computing is the ubiquitous provision of computing and storage resources (Armbrust et al., 2010). In the prior studies, researchers mainly focused on the technical aspect and the issue of corporate adoption. For instance, the development of cloud system framework, efficiency and security are dominant topics in computer science field (Yang & Tate, 2012). In general management field, cloud technology adoption and application in corporate are key issues of concern (Leimeister et al., 2010). However, we argue that in these studies, the unit of analysis is typically at the organizational level. We believe that it would be valuable to broaden the scope of research beyond the organizational level, and to look at the adoption and diffusion process at the industry.

There are different stakeholders involved in the cloud computing industry such as hardware vendors, platform providers and application vendors. In our opinion, due to this nature of resource oriented service model, information communication technologies (ICT) are important infrastructure in enabling cloud-based services. Furthermore, based on the cloud industry value chain, telecom companies serve multiple functions such as a cloud resource operator, system integrator and consultant, data center and platform services. In other words, we consider telecom company as the major promoter for cloud computing industry. One should not ignore the significance of telecom operator in shaping the development of this particular industry (Armbrust et al., 2010; Ericsson, 2012). Therefore, from the viewpoint of industry creation, the objective of our research is to understand how such an important market player formulates strategies in shaping and developing cloud computing industry in Taiwan.

Thus, in this research we draw on the legitimacy theoretical perspective to conduct an empirical investigation of a telecom company in Taiwan to explore its strategies in creating, facilitating and maintaining the adoption process for cloud computing industry as a whole. We seek to extend the framework of legitimacy to offer a fresh and insightful lens for studying the strategic action taken by a telecom company to facilitate the process of cloud industry establishment in Taiwan. In particular, we take the viewpoint of industry creation and legitimacy management issued by Aldrich and Fiol (1994) and Zimmerman and Zeitz (2002) to analysis the case company's legitimation action. We expect to make the contribution to investigate on industry creation action in nascent industry which can serve as guideline on similar industry creation research in the future.

The organization of the paper is as follows. Section 2 will provide reviews for existing literature in the emergence of cloud computing industry, which is followed by the introduction of theoretical framework in Section 3. We will then present our research methodology in Section 4 and the preliminary analysis of results in Section 5. We conclude with the expected contributions in Section 6.

# 2 LITERATURE REVIEW

According to the definition of United States National Institution of Standards and Technology, cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (Mell & Grance, 2011). Cloud computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centers that provide those services which form the three service model: SaaS, PaaS and IaaS (Armbrust et al., 2010). Cloud computing is also viewed as the paradigm shift in IT industry, transferring the IT resources into utility model (Carr, 2009), converting conventional business model and providing new opportunities for IT innovation (Su, 2011).

As an emerging technology, cloud computing has attracted increasing scholarly attention over the past few years (Chang et al., 2012; Su, 2011). Research topics therefore divergently develop into few categories. However, a majority of studies on this topic have mainly focused on the technical and operational aspects (Birman et al., 2009; Su, 2011). Martens et al. (2011) have conducted studies on cloud computing using content analysis. They reviewed 40 scientific articles from major IS journals and the research proceedings of four international IS conferences from 2007 to 2010 and concluded that the main topics of cloud computing are technology, costs, personnel, security, quality, and compliance. Except for the general topic, cloud computing technology related articles account for the largest publication. Topics like cost, personnel and compliance can be considered as operational related topics.

Yang and Tate (2012) provided a literature review on the research of cloud computing. 205 articles from four major online databases covering 44 relevant IS journals have been analysed. Researchers concluded that the major topics in cloud computing research are technological issues, business issues, domains and applications. Technology and cloud operation related research including cloud performance, data centre management, software development and security are dominant research topics. The conceptualising topic that introduces cloud computing topology and ontology ranks at second largest publication. Haag and Eckhardt (2014) reviews 52 journals and proceedings of the information systems field and categorize 36 articles. Their review shows that business and management perspective are mostly related to the discussion on performance, security, cost and legal issue.

We have found few studies that apply the institutional perspective to analyze the adoption and diffusion of cloud computing. For instance, Saya et al. (2010) draw on the institutional perspective to examine the incentive that trigger company to adopt innovative cloud services. They considered institutional influence as one of the important incentives because the adoption of innovation is based on people's decision-making process which will be affected by people's knowledge-gaining and attitude-forming about the innovation. Su's (2011) research on vendor's strategy for the emergence cloud computing industry was another research using institutional theory. The study analysed the formation of global cloud computing market and the main strategy vendors conducted to react in the emerging market. Based on the concept of institutional innovation, Su (2011) divides vendor strategy into four categories: market adaption, market design, market diffusion and market co-construction. This study highlights the importance for studying industry creation phenomena and further indicates the importance of understanding how individual company can shape the emergence of evolutionary industry. In another research conducted by Ou-Yang and Hsu (2011), they have made an explicit review on the establishing process of cloud computing industry in Taiwan using the institutional perspective. Their research incorporates the organizational vision of IT innovation and identifies four key institutional forces driving cloud adoption. Their findings demonstrate the current status of cloud adoption in Taiwan and pointed out cloud industry is well conceptualized due to the government promotion.

In summary, we consider that the social embeddedness and institutional perspective considering social belief, norm and regulation are still relatively absent to offer more insightful and deeper understanding of the overall cloud computing creation process. In literature, institutional theorists posit that the development of a nascent industry is considered as a social process which the understanding and belief in the industry are crucial to gather resources and build market (Hannan & Carroll, 1992; Hannan & Freeman, 1986; Walker & McCarthy, 2010). Since cloud computing is a nascent industry waiting to be established and developed, we contend that the institutional lens of analysis is a suitable lens for the study on the development of cloud computing.

### **3. THEORETICAL MODEL**

The formation of nascent industry has long been discussed in the institutional theory (Aldrich & Fiol, 1994). Prior research had used institutional theory to analyse the creation of bio technology industry (Maguire et al., 2004) , the formation of international outsourcing industry in central Europe country, Moldova (Turcan & Fraser, 2012) and the creation of new standard in IT industry (Garud et al., 2002; Turcan & Fraser, 2012). The development of a new industry is considered as a social process. The understanding and belief on the industry is crucial to gather resources (Hannan & Carroll, 1992; Hannan & Freeman, 1986). In particular, we drawn on the concept of legitimacy, which is the generalized

perception or assumption that actions are desirable, proper or appropriate within social constructed system of norms, values, beliefs and definition(Suchman, 1995).

In strategic management literature, many scholars have identified the legitimacy as an important and value resources for new ventures, business growth and resources access. For instance, Stinchcombe (1965) pointed out that a newly founded industry often encounters the liability of newness and it is difficult for new venture or business unit to survive owing to the lack of profitable market and social support. He argued that organization can overcome this hurdle by the actions of gaining organization legitimacy. Vendors have to develop strategy to enhance the legitimacy of nascent industry in order to justify its market value and the necessity of existent. Without the legitimacy, the organization would fail to gather resource and gain acceptance of stakeholders who may support for the growth of the industry. (Aldrich & Fiol, 1994; Gardner et al., 2008; Hargreaves, 2003; Zimmerman & Zeitz, 2002).

In order to understand the legitimacy process of industry creation, Aldrich and Fiol (1994) have developed a framework of industry formation with four levels of analysis: Organizational, Intraindustry, Interindustry and Institutional level. In addition to different level of analysis, this framework also includes two aspects of legitimacy: cognitive legitimacy and socialpolitical legitimacy. While cognitive legitimacy refers to the widely held belief and understanding of a certain objective as taken-for-granted in social context (Scott, 1995), socialpolitical legitimacy is known as the process by which stakeholder, general public, and government accept the industry as appropriate in the light of the existing regulations and social norms(Aldrich & Fiol, 1994; Zimmerman & Zeitz, 2002). Table 1 below summarizes the two legitimation mechanisms at four different levels of social contexts and their associated meanings.

	Cognitive Legitimacy	Socialpolitical Legitimacy
Concept	<ul style="list-style-type: none"> <li>the spread of knowledge about new industry.</li> <li>taken-for-grantedness cognition</li> </ul>	<ul style="list-style-type: none"> <li>accept the industry as appropriate and right given the existing regulations and social norms</li> </ul>
Organizational Level	<ul style="list-style-type: none"> <li>Refer to the status that organization has shared belief, understanding and expectation for new business</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the status that organization winning the approval of stakeholders.</li> </ul>
Intraindustry Level	<ul style="list-style-type: none"> <li>Refer to the status of increasing shared competence and dominant design.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the status that collective action happens and winning the approval within industry level.</li> </ul>
Interindustry Level	<ul style="list-style-type: none"> <li>Refer to the status that inter-firm actions and consensus exist.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the status that industry winning the approval of other industries members.</li> </ul>
Institutional Level	<ul style="list-style-type: none"> <li>Refer to the status that industry acquire persistent knowledge development ability.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to the status that industry as a whole winning the approval of government.</li> </ul>

*Table 1. Industry Creation Research Framework*

*Adapted from "Fools Rush in? The Institutional Context of Industry Creation," by H. E. Aldrich and M. C. Fiol, 1994, The Academy of Management Review, 19(4), p. 649.*

Besides using legitimacy as organizational resources, Suchman (1995) propose that organizations can proactively formulate different strategic actions to acquire and maintain different forms of legitimacy. Extending from the work Suchman (1995) issued on legitimacy management, Zimmerman and Zeitz (2002) proposed four types of strategic actions: conformance, selection, manipulation and creation for organizations to gain legitimacy. In terms of strategic efforts, conformance requires the least strategic planning and action whereas creation needs the most proactive and intensive strategic efforts in the process of legitimacy gaining. Conformance refers to following the rules of existing social value and norm to achieve conformity within the social structure the organization situates (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Selection involves selecting the compatible environment that the organization can survive and operate. Manipulation refers to making a certain change in the environment in order to achieve consistency between the organization and environment(Zimmerman & Zeitz, 2002). Creation involves the development of new practices, standards, and values to enable a new basis of legitimacy. Table 2 offers a summary of different strategic actions for two forms of organizational legitimacy described above.

	<b>Cognitive</b>	<b>Socialpolitical</b>
Conformance	Refer to following the rule without changing the social structure and adhering to the appropriate idea.	Refer to conforming government regulation and social norm restriction.
Selection	Refer to locate in a favorable environment that have better understanding on the organization.(Scott, 1995; Suchman, 1995)	Refer to locate in a favorable environment in which the organization are accepted as norm and regulation.
Manipulation	Refer to innovation that departure from prior practice that change the public's idea and understanding.	Refer to innovation that departure from prior practice that change the norm and government regulation.
Creation	Refer to create the new social context that change understanding and idea of public	Refer to create the new social context for the norm and government regulation.

*Table2. Topology of Legitimacy Gaining Strategy*

*Adapted from "Beyond Survival : Achieving New Venture Growth By Building Legitimacy" by M. A. Zimmerman and G. J. Zeitz, 2002, The Academy of Management Review, 27(3), p. 424.*

## **4 METHODOLOGY**

In this research, we adopt the qualitative case study approach to examine how RING (a pseudonym) Telecom develops organizational strategies to create and foster a new market of cloud computing industry. The reason for the selection of RING Telecom is twofold. First, as we mentioned in the introduction, information communication technologies provide an important infrastructure to support the development of cloud computing. That is, a telecommunication company can be considered as the backbone of this particular industry. Second, RING Telecom is the dominant network provider in Taiwan. It has been actively engaged in the offering and developing of cloud computing services. Therefore, we consider that the choice of RING Telecom will be appropriate case organization to understand how a focal organization develops strategic actions to acquire and maintain different form of legitimacy within the organization as well as at the intra and inter-industry level. In the following section, we will introduce the data collection method, data analysis method, and background introduction about the case company to give a brief view of case company's legitimating action.

### **4.1 Data Collection and Data Analysis**

We conducted the data collection process through face-to-face interviews and secondary documents. The documents included company's inner press release, annual financial report, presentation data, and company journal. Moreover, we collected data from dominant news agencies: United Daily News, Business Next, Digitimes, and Central News Agency to complement company data. We searched for news issued from 2010 through 2013 and collected in total 70 articles. Besides the secondary data, we conducted interviews with all eleven managers at RING Telecom. The interviews were mostly with the senior management who were involved in the formulation and development of cloud strategy at RING Telecom and hence were able to provide insights regarding the challenges and strategic actions occurred in the process of cloud industry creation in Taiwan. The duration of interview lasted more than one hour and was tape-recorded and then transcribed.

We used content analysis approach to carry out analysis of the secondary material and interview material at three different steps. The first step was to categorize the empirical data in accordance with industry creation framework suggested by Aldrich and Fiol (1994) (see table 1). By this way, we could analyse on the strategic implications of RING Telecom's action in different legitimation level. In the second step, we categorized the coded dataset from first step into a descriptive taxonomy. Our taxonomy is based on the four-type strategy framework of Zimmerman and Zeitz (2002)'s study, as indicated in Table 2. By doing so, we can identify the pattern of RING Telecom's strategic behaviours of industry creation. By the research analysis, we intended to make more comprehensive and in-depth understanding of the interaction and reciprocation between the legitimate action of RING telecom and social institution in Taiwan.

## 4.2 Case background

RING Telecom is the leading telecommunication company in Taiwan as well as the pioneer company in cloud computing industry. The company began developing its cloud computing business since the year 2009, and its development can be classified into three periods: 1) initiation period between 2009-2010 2) establishment period between 2010-2012 and 3) growing period after 2012.

In the initiated period, RING Telecom endeavored to build its cloud business section and product line. In the year 2009, RING Telecom set up cloud business units in its company headquarter, two branches, and its own research agency, which respectively carried out the function of strategic planning, business promotion, product operation and research and development. By cooperating with global cloud service vendor, RING Telecom launched its first product, CRM SaaS product, in year 2010. In the end of the year 2010, RING Telecom had already had the ability to launch its first self-developed product, cloud storage product. The creation of new cloud computing product and relevant business unit began its legitimating process on the organizational level.

The establishment period is the crucial period for RING Telecom to set up overall strategy on its cloud business and build up important business alliances. With its strategy to provide infrastructure and build ecosystem for cloud computing business, the company set up the Four Center strategy in the year 2010 aiming to build four centers including: Cloud Server Center, Operator Center, Cloud Computer Testing Center, the Cloud Computer Research Center, and the Cloud Service Experience Center for promoting the idea of cloud computing to both business partner and end user (Chen et al., 2011; Tai et al., 2011; Teng et al., 2012; Wu et al., 2011). In the same year, RING Telecom cooperated with industrial partner and government agency to forge the Cloud Computing Association, an industrial alliance consists of 138 members from both companies and government agencies. Meanwhile, more than ten business alliances are forged by RING Telecom to further integrate resource for research and development, marketing, and promotion. By this way, RING Telecom consolidate the resources from both the industry side and the government side which achieves the intraindustry, interindustry, and institutional levels of legitimacy.

In the growing period, RING Telecom had steadily grown in cloud business and continued on its effort to foster industrial environment. The company had met annual profit of 500 million in cloud computing section at the year 2012 and kept on playing an important role in supporting other industrial members. In the year 2012, RING Telecom built an incubation center to foster and support cloud start-up companies and set up multiple cloud innovation competitions to encourage student to join cloud industry. From the year 2012 to 2014, RING Telecom launched multiple product lines for business clients and end users. RING Telecom continually develops its cloud computing business in Taiwan.

## 5 EARLY RESULTS

Table 3 summarizes the early results from our data analysis. At the organizational level, we found that the RING Telecom has adopted the conformance and selection strategies for cognitive and socialpolitical legitimacy. For conformance strategy, the RING Telecom tried to encourage and engage its existing employees to develop cloud-based services, and put the resources in its own research agency to evaluate different possible cloud solutions. In particular, for the selection of employees, the company has opted for more experienced organizational members who are familiar with the RING Telecom operational and business process. One manager told us about the reason for choosing more experienced employees:

*“We used to have a team responsible for the enterprise network technology, we move the team to the new cloud business unit. The team is formed by experienced engineer and project lead, making cloud project implement more smooth and successful and thus more trustable for our potential enterprise customer.”*

For cognitive and socialpolitical legitimacy at the intraindustry level, our data findings show that manipulation is the primary strategic action for cognitive legitimacy. As we mentioned in our theoretical model section, manipulation requires the organization to make certain change in the environment to ensure the consistency of perception and value between the organization and the external environment. In the case of the RING Telecom, the company consider that the vendors and users might not view the RING

Telecom as the dominant players for the cloud computing services. In order to change this mind, the company has founded Cloud Service Experience Center and Cloud Test Center. The former provides a place for individuals or companies who would like to experience different cloud-based services offered by the RING Telecom. The latter provides a testing environment for the software developers to test their software on the cloud platform developed by the RING Telecom. In doing so, the company attempts to alter the perception and understanding of users and software developers, thereby increasing its organizational legitimacy. One senior manager has explained how these two centers help to change people’s perception:

*“Having Service center allows us to promote our services to enterprise and end user. Users can experience and play with our cloud products in Service center which makes abstract Cloud computing technology look more realized and reliable. We can also demonstrate our profession in cloud computing industry”*

*“The Test center allows small cloud vendors to test their products. Having an authorized organization like us to test on the product quality makes buyer trust on the cloud product. Moreover, vendors are more willing to join the industry because we make testing more easy which saves vendor’s time on R&D.”*

Similarly, we discovered that manipulation is the dominant strategic action taken by the RING Telecom to achieve socialpolitical legitimacy at the interindustry level. Instead of setting up a center, the RING Telecom has founded Cloud Computing Association to engage organizations from different industries. Furthermore, it also formed business alliance with potential users from other industries such as medical and manufactory industry. With the participation from a variety of organizations in different industry sectors, the RING Telecom attempts to create a new ecosystem to obtain the approval from the external environment. This manipulation strategy is also used for cognitive institutional legitimacy by cooperating with the education agency and setting up incubation center to support start-ups. For socialpolitical institutional legitimacy, the RING Telecom considers that it would be easier to conform with the existing government policy on cloud industry, instead of undertaking other strategic actions.

Theoretical categories	Major strategic action	Empirical Findings	Strategic Topology
Cognitive organizational legitimacy	Extend existing expertise and resources to develop business	<ul style="list-style-type: none"> <li>Engage existing employees into new cloud business.</li> <li>Utilize talents in its research agency to develop cloud product.</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> <li>Conformance</li> </ul>
	Conduct internal marketing and education to spread knowledge	<ul style="list-style-type: none"> <li>Release publication to introduce and promote for cloud business.</li> <li>Set up educational workshop to train employee.</li> <li>Employ experienced employer to train others and lead R&amp;D project.</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> <li>Selection</li> <li>Selection</li> </ul>
Socialpolitical organizational legitimacy	Build internal consensus to win the approval of stakeholder	<ul style="list-style-type: none"> <li>Prove the profitability of cloud business to win stakeholder’s approval.</li> <li>Build trust from top manager so that to develop consensus for cloud business.</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> <li>Conformance</li> </ul>
Cognitive intraindustry legitimacy	Set up agency to promote knowledge of new industry	<ul style="list-style-type: none"> <li>Found Cloud Service Experience Center to promote cloud computing.</li> <li>Organizing seminar for business client to promote cloud knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> </ul>
	Encourage convergence around dominant design	<ul style="list-style-type: none"> <li>Found Cloud Test Center that allowed other companies to test and verify their product which indirectly encourages a united software standard.</li> <li>Develop and promote their self-build core virtualization software.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> </ul>
Socialpolitical intraindustry legitimacy	Cooperate to encourage a collective action	<ul style="list-style-type: none"> <li>Form business alliance with other companies.</li> <li>Make co-branding product with other professional partner firm</li> </ul>	<ul style="list-style-type: none"> <li>Selection</li> <li>Selection</li> </ul>
	Engage in its own	<ul style="list-style-type: none"> <li>Chose to start business in its own expertise on</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> </ul>

	expertise to acquire approval	telecom and infrastructure domain. <ul style="list-style-type: none"> <li>Found Operator Center and Server Center to run infrastructure business.</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> </ul>
	Gather and utilize shared resources to win approval	<ul style="list-style-type: none"> <li>Build “app store” to provide cloud service transaction platform which attracts other company to get into the industry.</li> <li>Support other companies to build cloud business by its PaaS service.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> </ul>
Cognitive interindustry legitimacy	Build linkage through third party to promote industry	<ul style="list-style-type: none"> <li>Found Cloud Computing Association to promote the knowledge of cloud computing.</li> <li>Set up “partner project” to cooperate with system integrating vendor and build up distributor network.</li> </ul>	<ul style="list-style-type: none"> <li>Selection</li> <li>Manipulation</li> </ul>
	Foster an friendly environment	<ul style="list-style-type: none"> <li>Set up a “rain forest” plan to provide cloud infrastructure and foster industry environment that support other companies to enter the cloud industry.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> </ul>
Socialpolitical interindustry legitimacy	Create linkage to other industry for winning the approval	<ul style="list-style-type: none"> <li>Found Cloud Computing Association to foster cooperation between multiple industries.</li> <li>Forge business alliance with other industries to create different cloud application, like medical industry and manufacture industry.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> </ul>
	Create ecosystem to win approval	<ul style="list-style-type: none"> <li>Build “app store” to provide cloud service transaction platform.</li> <li>Support other company to build cloud business by its PaaS service.</li> <li>Provide technical support for other company.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> <li>Manipulation</li> </ul>
Cognitive institutional legitimacy	Create linkage to existing education curricula	<ul style="list-style-type: none"> <li>Cooperate with education agency and spread cloud knowledge.</li> <li>Held incubation center to support start-up companies and provide couch service.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> <li>Manipulation</li> </ul>
	Organizing collective marketing to spread knowledge	<ul style="list-style-type: none"> <li>Held competition to promote and encourage new practice for cloud industry.</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation</li> </ul>
Socialpolitical institutional legitimacy	Conform to government policy to build cloud business	<ul style="list-style-type: none"> <li>Take government project to develop its business.</li> <li>Take advantage of the good relation with government to begin the cloud business, like taking government subsidy to develop cloud product.</li> <li>Conform to government policy to develop business.</li> </ul>	<ul style="list-style-type: none"> <li>Conformance</li> <li>Conformance</li> <li>Conformance</li> </ul>

Table3. Coding scheme

## 6 EXPECTED CONTRIBUTION

This paper intended to shed light on the telecom operator’s legitimated behaviour in cloud computing industry creation. By integrating the industry creation framework and legitimacy management strategy, we identified strategies and legitimization actions of case company and thus provide unique insight into the establishment of cloud computing industry in Taiwan. The study provides contribution on both practical and theory applications. To the best of our knowledge, this research is the pioneering empirical study on industry creation specifically on nascent cloud computing industry. Theoretically, the model that links up industry creation model with legitimacy gaining strategy may serve as research framework for future researchers who attempt to studying the legitimacy management issue of a nascent industry. Practically, the research result might serve as a strategy guideline for future vendors in the cloud computing industry as well as other nascent industries. We hope the study could provide insights on business management and innovation industry development.

## References

- Aldrich, H. E., & Fiol, M. C. (1994). Fools rush in? The institutional context of industry creation. *The Academy of Management Review*, 19(4), 645-670.
- Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., & Zaharia, M. (2010). A view of cloud computing. *Commun. ACM*, 53(4), 50-58. doi: 10.1145/1721654.1721672
- Birman, K., Chockler, G., & Van R. (2009). Toward a cloud computing research agenda. *ACM SIGACT News*, 40(2), 68-80.
- Carr, N. (2009). *The big switch: Rewiring the world, from Edison to Google*. Norton & Company.
- Chang, C. H., Yang, C. T., Lu, C. W., Chen, J. N., Hsiung, P. A., Chu, C. C., & Lee, H. M. (2012). Cloud computing in Taiwan. *Computer*, 45(6), 48-56. doi: 10.1109/MC.2012.188.
- Chen, W. C., Hu, C. H., Hsu, Y. Y., Chu, C. C., Wu, C. S., Huang, C. C. & Liang, K. H. (2011). Design and implementation of CHT cloud-centric BSS/OSS. *Telecom Research*, 41(3), 487-502.
- Cusumano, M. (2010). Cloud computing and SaaS as new computing platforms. *Communications of the ACM*, 53(4), 27-29.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited institutional isomorphism and collective rationality in organization fields. *American Sociological Review*, 48(2), 147-160.
- Ericsson. (2012). *The telecom cloud opportunity*. New York: Ericsson.
- Fernando, N., Loke, S. W., & Rahayu, W. (2013). Mobile cloud computing: A survey. *Future Generation Computer Systems*, 29(1), 84-106.
- Gardner, H. K., Anand, N., & Morris, T. (2008). Chartering new territory : diversification, legitimacy, and practice area creation in professional service firms. *Journal of Organizational Behavior*, 29, 1101-1121.
- Garud, R., Jain, S., & Kumaraswamy, A. (2002). Institutional entrepreneurship in the sponsorship of common technical standards: The case of Sun Microsystems and Java. *Academic Management Journal*, 45, 196-214.
- Haag, S., & Eckhardt, A. (2014). Organizational cloud service adoption: A scientific metric and content-based literature analysis. *Journal of Business Economics*, 84(2), 1-34.
- Hannan, M. T., & Carroll, G. R. (1992). *Dynamics of organizational populations: Density, legitimation, and competition*. New York: Oxford University Press.
- Hannan, M. T., & Freeman, J. H. (1986). Where do organizational forms come? *Sociological Forum*, 1, 50-72.
- Hargreaves, S. (2003). Conceptualizing legitimacy for new venture research. Paper presented at the Small Enterprise Association of Australia and New Zealand 16th Annual Conference, Ballarat.
- Leimeister, S., Riedl, C., Böhm, M., & Krcmar, H. (2010). The business perspective of cloud computing: Actors, roles and value networks. Paper presented at the 18th European Conference on Information Systems (ECIS 2010), Pretoria, South Africa.
- Maguire, S., Hardy, C., & Lawrence, T. B. (2004). Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada. *Academic Management Journal*, 47, 657-679.
- Martens, B., Poepplbuss, J., & Teuteberg, F. (2011). Understanding the cloud computing ecosystem: Results from a quantitative content analysis. Paper presented at the 10th International Conference on Wirtschaftsinformatik, Wirtschaftsinformatik.
- Mell, P., & Grance, T. (2011). *The NIST definition of cloud computing*. National Institute of Standards and Technology, Information Technology Laboratory, 15.
- Meyer, J., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, pp.340-363.
- Microsoft. (2011). *Microsoft survey highlights cloud movement across the US*: Microsoft.
- Ou-Yang, S., & Hsu, C. (2011). The organizing vision for cloud computing in Taiwan. *Journal of electronic Commerce Research*, 12(4), 257-271.
- Saya, S., Pee, L., & Kankanhalli, A. (2010). The impact on institutional influences on perceived technological characteristics and real option in cloud computing adoption. Paper presented at the International Conference of Information System.
- Scott, W. R. (1995). *Institutions and organizations*. Thousand Oaks, CA: Sage.
- Stinchcombe, A. L. (1965). Social structure and organizations. In J. G. March (Ed.), *Handbook of Organization* (pp. 142-193). Chicago: Rand McNally.
- Su, N. (2011). Emergence of cloud computing: an institutional innovation perspective. Paper presented at

the Thirty Second International Conference on Information Systems, Shanghai.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571-610.

Tai, W. C., Chu, Y. H., Chen, Y. J., Huang, J., Hsu, H. J., Hsieh, C. T., & Ko, C. H. (2011). The design and implementation of Chunghwa cloud computing testing center. *Telecom Research*, 41(3), 477-486.

Turcan, R. V., & Fraser, N. M. (2012). The emergence of an international new software venture from an emerging economy. Paper presented at the The 3rd International Conference on Software Business, Cambridge, United States.

Walker, E. T., & McCarthy, J. D. (2010). Legitimacy, strategy, and resources in the survival of community-based organizations. *Social Problems*, 57(3), 315-340.

Yang, H., & Tate, M. (2012). A descriptive literature review and classification of cloud computing research. *Communications of the Association for Information Systems*, 31, 35-60.

Zimmerman, M. A., & Zeitz, G. J. (2002). Beyond survival : Achieving new venture growth by building legitimacy. *The Academy of Management Review*, 27(3), 414-431.

