Continuous Entrepreneurial Mechanism in the Modern Conglomerate- Through the Perspective of Complex Adaptive System

Stephen Dun-Hou Tsai, Professor, Dep. of Business Administration, National Sun Yat-Sen University
Shang-Jen Li, Ph.D. student, Dep. of Business Administration, National Sun Yat-Sen University
Mansour Amjadi, Ph.D. student, Dep. of Business Administration, National Sun Yat-Sen University

ABSTRACT

In the era of new economy, technological development and advancement trigger economic globalization. The exceptional characteristics of globalization in new economy create abundance of opportunities for entrepreneurship in the marketplace. Under such especial circumstances, new businesses compete to capture global market shares rapidly. Only by building a Contiguous Entrepreneurship mechanism, conglomerates can implement integrating internal resources and capacity, in order to seize new opportunities in this dynamic environment. Close collaboration between Top Management Team (TMT) and branch employees operating with “shared identity” motivate and inspire contiguous entrepreneurship internally. Organizations conducting strategic contiguous entrepreneurship have several remarkable characteristics such as decentralization, originality, on-going business development, highly intensive inter-relationship among units and shared identity. Additionally, another distinctive feature is especial attention to maintain a balance between venture capital creation and careful potential risk assessment. Meanwhile, the headquarters construct a platform that stimulates and motivates its entrepreneurial teams to continuously create and exchange their entrepreneurial knowledge from within. This is what we call: “strategic evolutional mechanism of contiguous entrepreneurship”. With this paper we propose such innovative mechanism and identify its traits and critical elements which can make it function well.

Keywords: Complex Adaptive System (CAS), Entrepreneurship, and Innovation

INTRODUCTION

Research Background

During past few decades of 20th century, we have seen exponential technological advancements and global economic integration. This has nourished “New Economy” that made significant differences among all industries around the world. Ventures and start-ups, benefitting from new economy, rapidly transformed to multi-national giants such as Microsoft and Google. According to Peter Drucker (1992), creation of “start-ups” launching new businesses in the United States each year have increased to 600 thousands, a number seven times greater than the start-ups established during the 1950/60’s economic boom. Taiwanese version of the same phenomenon illustrates the rise of Quanta Computer and HonHai / Foxconn, founded by Barry Lam and Terry T.M. Gou respectively.

Starting and maintaining a company in New Economy is something significantly different from the equivalent activities during the industrial age. Globalization and its momentum have made it a prerequisite for any newly founded businesses to capture market share worldwide as quickly as possible. Due to dynamic environment, independent inventors and research enthusiasts do not always have an edge in existing enterprises. This has created a unique situation where companies effectively utilize their internal resources and capabilities. For example, 3M demonstrated this mechanism by encouraging individual employees to innovate, thus creating new branches, affiliates, and in-house new ventures from its project teams.

Management in New Economy

It is arguable that New Economy facilitates potential opportunities for entrepreneurship, which either conducted
by independent technology-developers exploring novel areas or by large companies with internal entrepreneurial systems. First rank employees, such as brand managers and sales managers, are often the most keenly aware of market conditions and existing opportunities. Contribution from these employees should be recognized by conglomerates in order to stay competitive and innovative in the marketplace. This requires a high degree of cooperation between top management and branch employees. Facilitating this cooperative effort requires “real-time” interaction, dialog and communication amongst subordinate units.

Another example can be found at Intel. The top management (Andy Grove and his executive team) concentrated on development of memory chip, and next generation product developments only in the memory chip industry. Conversely, project managers and sales executives were fine-tuning a strategy and shifting their focus to microprocessor business. History shows that at Intel, the first rank employees were enthusiastically far more aware of potential market opportunities than executive management team. By shifting Intel’s focus, the first-ranked employees created a whole new market for Intel. Thus, it is important to pay more attention to the innovative ideas generated from employees who are in the market doing day-to-day activities and as a result, recognize potential opportunities earlier. Similar situations may be observed at 3M and Canon, just to name a few.

Many Taiwanese businessmen have continued pursuing innovation and long-term evolution in the same fashion. For example, CID Group was founded in October 1999, and rapidly raised approximately NT$ 4.4 billions in four separate venture capital funds in just less than a year. The total market value of the funds had increased to NT$ 10 billions by 2003, and to an astronomical level of NT$ 25 billions in just 12 months later. Strategically, the company created a diverse business portfolio focusing on industrial/technological market. CID group plays a significant role as a capital fundraiser and market opportunity seeker, swiftly acquires latest technology in targeted industry and enhances its vertical development. This innovative approach created a ground for CID group to capture market share as efficiently and quickly as possible. In addition, with the help of its financial experts, CID group initiates IPO (initial Public Offering) rapidly. The company owes its overall success to innovative and creative time-to-market strategy.

As another example in Taiwan, Wang’s Restaurant Group (in hospitality/service industry) came up with an operating goal of launching at least two new brands per year under the sponsorship and supervision of its chairman and board members, genuine believers of entrepreneurial activities from within. For example, the “Dancing Lion” project aims at 30 upcoming brands with 10 thousand outlets in the next 30 years. In addition, the company encourages and inspires senior executives launching their own entrepreneurial ideas, calling it “organic growth” of the group.

**Configuration of Enterprises in New Economy**

Thus far, we can conclude that an organization promoting contiguous entrepreneurial activities should focus on three main areas. These are:

A) **Decentralization.** A decentralized decision model guarantees delegation of powers and responsibilities.

B) **Heterogeneity of subsidiaries.** Subsidiaries must elevate the heterogeneity and diversity of their specialized areas in order to respond correctly and quickly to the dynamic environment.

C) **Autonomy of subsidiaries.** High autonomy enjoyed by all subsidiaries. Delegation and heterogeneity can only be completed if different subsidiaries are allowed to customize their own rules of engagement and operating principles dealing with specific situations.

With these in mind, the concept of Horizontal Enterprises brought up by Castells (1998) is actualized. He argued that, at this age of new economy, global economic evolution is accompanied by the strengthening of relatedness among peer organizations, turning their “mother” enterprise into a hub of the multi-functional decision-making network. To prevent articulation errors in such a network, a new management pattern has to be formulated, so that the multi-functional decision-making network is effectively reinforced by the integration of existed resources and capabilities, while the flexibility of decision-making and the advantage of coordinated efforts are retained, ensuring innovation and sustainability the enterprise seeks in an ever-changing environment.

An organization involved in sustained entrepreneurial activities is bound to face an environment with industry-wide challenges such as:

1) **Chaotic market.** Due to rapid development of information/communication technologies and Internet media,
symmetry of available information no longer exists between the firms and their customers. The latter become thoroughly aware of all product/market-related information and trends, stimulating changes in demand. Therefore the uncertainty of the market drastically rises, and market situations become unpredictable for suppliers/providers.

2) **Keener Competitions.** Aforementioned blurring and unpredictability intensify struggles and “dogfights” for resources and market niches, which promise sustained market advantages and maximized profits, among competing firms. Bitter battles against rival companies can be expected in an industry/market going in that direction.

3) **Higher dynamics.** Setting foot in a market full of chaos and competitions, the enterprise must cope with higher dynamics of its market environment.

**LITERATURE REVIEW**

As mentioned above, industries are under a condition of serious competitive, drastic and dynamic environment in which they can no longer sustain in the stable equilibrium situation; instead they balance in the dynamic-equilibrium circumstances. Businesses interact with each other and evolve in the market. The conventional theories, such as I.O. and R.B.V. School can barely explain how businesses perform, behave and strategize under these especial market circumstances. Thus, through the perspective of complex adaptive system (CAS), we can explore how conglomerates apply self-organization, network-feedback and emergent-order to conduct continuous evolution under non-linear, dynamic environment (Lengnick-Hall & Wolff, 1999).

**Perspective of Complex Adaptive System**

The theory of Complex Adaptive System (CAS) proposes that actors in the systems realize co-evolution and, as time goes by, adapt themselves to their respective environment to strive for higher rewards or adaptation functions (Holland & Miller, 1991). Moreover, the reward for a certain actor is influenced by decisions made by other actors. In other word, the adaptive landscapes of actors are ceaselessly shifting/drifting (Levinthal 1997). That result is some kind of dynamic equilibrium standing at the edge of chaos (Kauffman 1992). Simply put, complex adaptive system operates is far from the global optimum of system performances (Holland & Miller, 1991). As the systems distance themselves from equilibrium, small initial changes are amplified by the effect of positive feedback, causing unexpected, important impact. When every system involved becomes sensitively dependent on initial conditions, the cause-and-effect connections will be lost. That is to say that, there are no linear relations between individual actions and global consequences. The long-term consequences basically emerge. Therefore, while persons and groups in the organization are able to choose, plan and manipulate their interfering actions, the outcome of the actions cannot be chosen, planned or manipulated (Stacey, 1999).

In summing up, the highlights of the theory of CAS are: (Coleman, 1999; Kelly, 1994; Lissack, 1999; McKelvey, 1999; Muffatto & Faldani, 2003).

1) All actors are independent agents, with their strategies distinct from one another.
2) As a whole, the strategy of a complex adaptive system cannot be pre-planned or foreseen, for its emergent during the evolution.
3) Strategies taken by the actors evolve with the scenarios/situations until they reach optimum, so that the actors respond better to the challenge of competitions and environments. Such procedures promise the effect of fitness landscapes for the evolutionary mechanisms of the actors’ strategies (Beinhocker, 1999).

**Contiguous Entrepreneurial Organizations through the perspective of Complex Adaptive System (CAS)**

The study of Complex Adaptive System, derived from Complexity Theory, actually provides a relative simple structure to examine systems discussed in social science (Stacey, 1996; Anderson, 1999; Beinhocker, 1997). Dooley (1997) also believes that complex adaptive systems are capable of self-organization and learning, creating a holistic viewpoint for those who wish to analyze the organization or society to which they belong. Hence an organization
engaging in Contiguous Entrepreneurial activities can be looked upon as a complex adaptive system, with four primary features. These are:

1) Enormous specialized and independent business units doing different businesses. The units are as decentralized as possible and constantly entrepreneurial. The units consist of specialized, heterogeneous, and highly self-ruling bodies running on their own. Under such a structure, autonomy can be witnessed in every comprising unit in the organization.

2) An environment of discrete equilibrium. Organizations involved in sustained entrepreneurial activities are usually situated in industries of chaotic conditions, extreme market competitions, and intense dynamics.

3) Adoption of emergent, instead of pre-planned strategies. Holistic strategies of such organization take shape as subordinate units of the organization interact with one another while coping with their respective industrial environments that evolve at their own pace. Emergent strategies like those are so spontaneous to be worked out in advance.

4) Complex network and co-evolution. Though autonomous and heterogeneous, units engaging in contiguous entrepreneurship are still closely tied to their headquarters. Analogically, however diverse and loosely related their new business are, these units support one another financially and materially when necessary, creating a highly connected network of affiliation.

**Strategic Evolutionary Mechanisms of Contiguous Entrepreneurship**

Conglomerate conducts contiguous entrepreneurship evolves in three directions, these directions are:

1. Continuous evolution of business units.
2. Continuous evolution of capital and governance mechanism.
3. Continuous evolution of human resources.

Contiguous entrepreneurship of conglomerate not only addresses business initiation, but also covers critical factors of intra-organizational investment and management. Three major criteria should to be taken into account to implement our model:

1. **Shared Identity Construction**
2. **Business Risk Aversion**
3. **Knowledge Sharing**

Therefore, conglomerates engaging in constant entrepreneurial activities should contemplate following important questions:

1) **How is it possible to build up common recognition for the integration of different business units into a low-risk, substantially consolidated organization?** Executives in the headquarters must realize that, units under their supervision, though formally independent, still need basic consensus and mutual recognition on certain levels to make a difference.

2) **How to establish platforms benefiting effective information exchange and knowledge deposit?** Entrepreneurial know-how is dynamic, and can only be perceived during actualization (Krizner, 1973; Minniti & Bygrave, 2001). Every enterprise has to find its own mechanism of knowledge-sharing/brainstorming that promises a better chance of successful entrepreneurial attempts.

3) **How to manage risks in unknown, swiftly changing environments?** Predicting possible market fluctuations has always been a difficult task to accomplish. However, enterprises in the age of New Economy face a different, unpredictable, and complicated environment. Operating risks have become even more irregular to be held under control especially for large enterprises; hence a more flexible mechanism of risk management is necessary for organizations frequently starting up new businesses.

Instead of returning to the same old strategy-structure-system model of traditional strategic management, we believe that it takes the logics of complex adaptive system to construct new strategic mechanism responding to these questions. The following are strategic evolutionary mechanisms of sustained entrepreneurship.

We recommend the following:
1) **Strengthening organizational identity to promote sustainable innovation that enhance integration of business units, reduce operating risks, and heighten consolidation among comprising agents of an organization.**

Managers should embed specific assignments and intensive communications in the adaptive, flexible organizational structures for continuous improvement of individual projects. Once these principles are maintained, there will be neither lack of creativity nor anarchy inside the organization. Moreover, the constantly entrepreneurial organization will confront little difficulty in integrating various business units, reduce operating risks, and heighten consolidation among its members.

2) **Enhance knowledge-sharing platform that accumulates and shares entrepreneurial knowledge.**

Knowledge in enterprisers is not static or fixed. It is dynamic, subject to changes, and can only be empirically accumulated via direct experience in launching new businesses. Through practical experience, entrepreneurs reinforce the evolution of their entrepreneurial knowledge, continuously expanding their knowledge pool (Krizner, 1973).

Therefore, Minniti & Bygrave (2001) further implies that the act of “entrepreneur” is a learning process, and entrepreneurs launching new business make the most out of their experiences from the past and in the making to pile up more and more entrepreneurial knowledge. While the new ventures are being founded, the cumulative amount of entrepreneurial knowledge climbs up accordingly. In an organization utilizing strategic evolutionary mechanisms of sustained entrepreneurship, however, there are multiple entrepreneurs acting separately on their own entrepreneurial knowledge that lead to different market information, different allocations of resources, and different market opportunities for development. Besides, the headquarters of such organizations are able to integrate communicative platforms for different kinds of entrepreneurial knowledge, maximizing the accumulation of all related knowledge. As an example, in Taiwan, Wang’s Restaurant Group has made it a rule for the venture committee of the “Dancing Lion Project” to dine at one hundred or more competitor restaurants famous for their unique cuisines or exceptional services every year. This rule creates future discussions by the committee members on actual surveys and empirical investigations that essentially accelerate the accumulation of entrepreneurial knowledge, which then becomes their most precious assets when they start more new businesses in service and hospitality industry.

3) **Building up business risk aversion mechanism and optimal maneuver.**

Through the perspective of complex adaptive system, Beinhocker (1991) has made an enlightened analogy between the formations of operating strategies of enterprises and the evolutionary process of coming to a climax in fitness landscapes. As the enterprises keep moving forward, they should make multiple explorations in different areas for future development and fine-tune their long-term and short-term investments in new businesses and capturing best market positions. Thus, during their constant, recurring starting-up of new businesses, these enterprises neither expect nor have to be successful at their very first attempt of multi-dimensional investments in various new markets. Sometimes, loss-making ventures reveal key clues concerning the most probable target for future investments once the withdrawal of resources is completed.

Hence, organizations adopting strategic evolutionary mechanisms of sustained entrepreneurship, with their headquarters capable of running multiple investing projects in diverse industries concurrently, are in touch with potential future developments of different markets. Such mechanisms help evade the tragic domino effects of the failure of a certain business unit undermining the operation of the whole group or collapsing the ongoing innovation of the organization, which illustrates how the feasibility of modern age risk management can be retained.

For instance, Taiwan-based CID Group has noticed that in the high-tech world, the advent of new products usually marks the rise of several corresponding component suppliers. Inspired by the fact, the group broadens their investing scope to cover IC packaging/testing services, semiconductor assembly, telecommunication component makers, and so forth, capturing larger market share at the headstream of pioneering business including 3G cellular phone manufacturing. While the financing experts of the group raise capital with professional efficiency, its portfolio teams search for various market opportunities and promptly acquire crucial technologies in promising industries, initiating both vertical and horizontal development to ensure its investing advantages. With numerous investing targets diversely picked up, CID effectively averts from the risk of concentrated investment in homogeneous industries. And the portfolio teams do a remarkable job replenishing working funds and uncovering remunerative opportunities hidden in the market, which deepens its success and charts out more critical paths toward further development of existing businesses.
CONCLUSION

The common strategic concept of earlier theories of industrial organizations (IO), Resource-Based View (RBV), and dynamic capacities, hypothesize that the confirmable pairing of specific causes/effects or actions/consequences does exist in the real world. They all regard an organization as a system, but they overestimate the power of choice (enjoyed by external consultants and internal executives) over the organization’s objectives and directions that employees are supposed to pursue/defend. Strategic theories of this kind have been taken for granted. However, the strategy-structure-system model of conventional strategic management turns out to be insufficient when applied to interpret the evolutionary process of modern organizations engaging in sustained entrepreneurial activities, for the process involves continuous evolutions of business units, capital, governance mechanisms, and human resources over time.

Another defect of those decades-old theories lies in their limited descriptive ability beyond linear, equilibrium-oriented issues of strategic management. For modern enterprises comprising several highly-connected, co-evolving heterogeneous business units, the theories barely provide any account of how to establish collective recognition to integrate different units, how to minimize risk management in unknown, ever-changing environments, or how to enhance association between all business units to maximize the synergy under a decision-making mechanism of multiple cores.

To complement the precedent theories, our study appeals to the views introduced by the complex adaptive system, achieving better understandings of organizations devoting themselves to sustained entrepreneurial evolutions. Such organizations are identical to complex adaptive systems in appearance, and the essence and process of their entrepreneurial activities do conform to the features of non-linear evolution, which can be fully elucidated by the theory of the complex adaptive system. The findings of our research indicate three distinct qualities observed in the process of starting up new business inside such organizations. These are:

1) Units within the organization are always in the process of starting up new businesses.
2) Start-up units maintaining intensively close association with their headquarters, without compromising their autonomy and specialized heterogeneity.
3) Headquarters turning itself into a consultant, talent-incubating, capital-supplying center.

As the entrepreneurial activities continue to move forward, the organizations themselves evolve along on three different levels. These are:

1) Sustained evolution of all business units.
2) Sustained evolution of capital and governance mechanism.
3) Sustained evolution of human resources.

Such organizations also make the best of the strategic evolutionary mechanisms mentioned below to solve problems standing in their way of evolution:

1) Organizational recognition mechanisms of sustainable innovation.
2) Communicative platform mechanisms that accumulate entrepreneurial knowledge.
3) Risk management mechanisms and optimal maneuvers.

This study focuses on the strategic evolutionary mechanisms of contiguous entrepreneurship and the emerging organizations that adopt these mechanisms. It adheres to a softened, nimble, organic management pattern, pointing toward a previously overlooked yet potentially promising direction in the field of entrepreneurial studies. Furthermore, the management of top executives in such organizations should place emphasis on different ways of assisting these executives in working out long-term prespectives of organizational development and leading the organizations in new and hopeful directions, instead of meticulously analyzing the environment to respond to it with proper strategies in a conventional fashion. It may exactly be what most Taiwanese enterprises are looking for as they improve their outdated management methods.

We hope these findings provide strategic implications for further studies in the field of entrepreneurial research. The Contiguous Entrepreneurial mechanism challenges conventional organizational theories with respect to environmental analysis, strategy planning and structural organizational. Further studies are unquestionably needed, but
the Contiguous Entrepreneurial mechanism offers an appropriate solution to a business environment that demands constant innovation, new vision, competitiveness and flexibility.

**Glossary:**
- **I.O.**: Industrial Organizational Theory
- **RBV**: Resource-Based View Theory
- **CAS**: Complex Adaptive System Theory
- **TMT**: Top Management Team or “executive management team in organizations
- **CID**: An international Venture Capital group located in Taiwan
- **Wang**: Service and hospitality group in Taiwan

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