Chapter 3
The New Competitive Advantage Paradigm: Cognitive Knowledge Model for Chronic Situation

The novelty proposed from this study is based on the finding of a new paradigm of the dynamic elements adjusting to the externality governing parameters projected from the system thinking of maintaining the intersection between the government policies and firm strategies over the cluster's lifecycle. It is one of many alternative considerations which can be explored with different techniques and tools. In this study, the knowledge management is the main idea exploration concept.

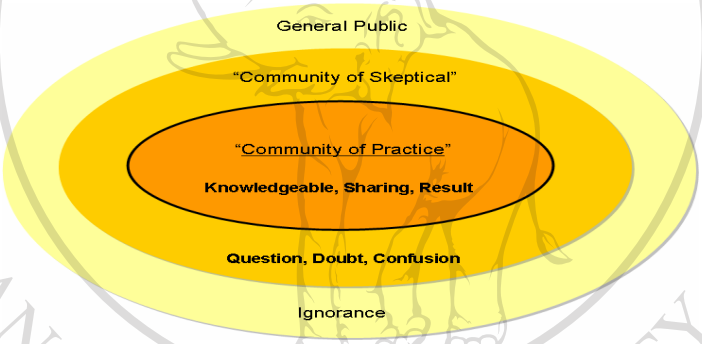
3.1 The basic presumption of the study

"Competitive Advantage of Nations" is the new trend of economic theories. They have been accepted from both the academia and policy makers around the world after Dr. Porter's Diamond model was introduced in the 90's. Ever since, there are a number of schools of thought both argued and enhanced the original concepts. Even though the concepts of cluster which is the consolidation of the high skill groups of industries and business driven by innovative ideas to penetrate very niche global market is the key success of the national competitiveness, most of the cluster initiatives are unpredictable and considered to be unsuccessful due to a wide variety of the contribution factors. This study intends to amplify other important mechanism in which the cluster initiatives can be considered as the new alternatives for success. The following is the hypothesis of this study:

1. Porter's Diamond model only predefines the essential factors for cluster and competitiveness development.
2. Enhancement of the other studies was suggested on the impact of enlarge the number of factors or including the interaction between predefined factors in the diamond and MESO models since in order to be able to manage changes and predict the outcome of the development.
3. The other studies had already proved that impact of the interaction of the clustering components is significantly governing the cluster dynamism. And, other factors i.e. social and local concerning are also the other governing variables for cluster success. Hence, factors identification and improve the methods to enlarge the number of the controllable elements may not be the answer to the solutions.
4. Dynamism should be managed and controlled by the other means, i.e. process, knowledge building not on the competitive advantage criteria but also other important intersection factors of public policies and private business strategies over the complexity of cluster and competitiveness accelerating by compounding irresolvable issues over time.
5. A knowledge model could be an example of the answers to the solutions for clustering management dynamism deviated from the existing contributing factors

6. Each Cluster initiative is not a “search-in-action” competitive advantage research output. The outcome and predictable of Cluster Initiative must be managed and controlled over its life cycle with the underlining competitiveness frameworTherefore, cluster initiatives require other types of frameworks i.e. Knowledge management and others to develop the essential integration of learning in action with the contribution factors for competitiveness model particularly to create the innovation and indigenous.

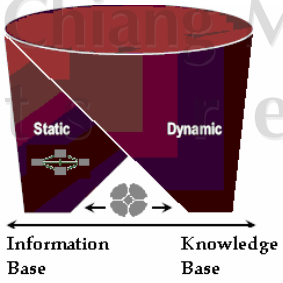
The hypothesis of this study was based on the cluster initiative challenges and, this can be illustrated by the *confusion circle* concept (Figures 3.1). It described the cluster initiatives as the skeptical development processes with unpredictable results. Information, knowledge and decision making to resolve the skeptical, in this research case study, might be as important as the known contributing factors. By applying the newer methods of modeling technique into the cluster development process, we can discover the alternative model as described in the following:



Figures 3.1 Confusion Circle
Source: Tamprasirt, 2006

3.2 The New Competitiveness Paradigm

The new competitiveness paradigm in this research proposed by the enhancing the competitiveness model to recreate the dynamic engine model as suggested from other previous work i.e. CPIM model [14]. The proposed enhanced model for cluster development and competitiveness can be described according to the following figure (Figures 3.2).



Figures 3.2 Dynamic Engine Model
Source: Solvell, 2003

Dynamic Engine will consist of:

1. The integration of the all contributing attributes which classified by the following:

1.1 Hard-side components.

They are the predefined attributes i.e. the attributes of the Porter's Diamond model, Dr. Enright's Meso Analysis Model, CPIM model which all the important factors and attributes for the cluster and competitiveness development. According to the preliminary research and domain knowledge in the previous sections, these attributes and components are considered to be the driven factors largely within the domain of the business profit orientation and these factors are static in nature.

1.2 Soft-side Components.

The attributes impact from the situational particularly the interfacing between the predefined attributes and the local context. These attributes changed drastically for each situation for any specific cluster initiative. These attributes situate the unique environment for particular initiative. Therefore, each cluster analysis and initiative will be different and difficult to duplicate with the same kinds of action even for the same type of cluster or similar clusters. From the previous studies of the contribution toward the situational economy, the examples of these attributes are i.e. Social Economy, Judgments Wisdom, Indigenous and etc.

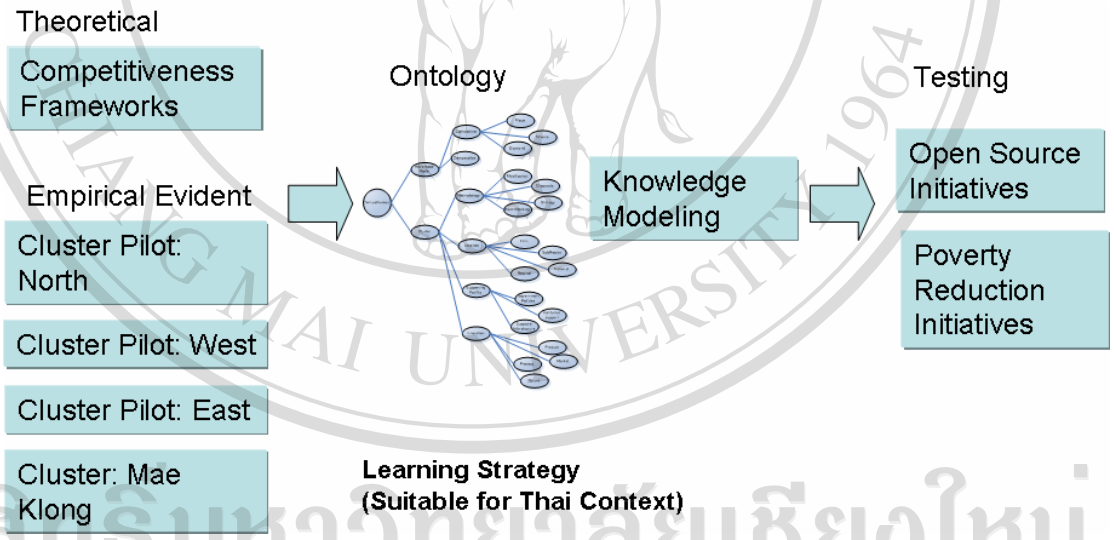
2. The Dynamic Engine.

The unique learning process in which manage the dynamic integration complexity and transforming the information base model onto the knowledge base configuration. As suggest in many studies the complexity of cluster for competitiveness created from the local significant elements, the dynamic engine is the strategic learning model necessary for building up human capacity to create indigenous and self dependency to be able to handle the large complex cluster situations. In this case, the complexity of this is created from very large undefined complex externality parameters to the system the cluster for competitiveness system. Therefore the new discovery proposed here in this research is a shifted methodology to create a new learning platform for Cluster Development Agents (CDA) and cluster participants to deal with the boundary and scope of the complex externality for cluster for competitiveness. This is a socio-knowledge platform for decision making. The dynamic model proposed from this study offered strategic learning judgment mechanism. Weighting the qualitative factors i.e. social welfare, job creation and etc will be a dynamic continuous learning decision making rather than direct input factors.

3.3 Research Development

Within the scope of this research to create a new platform for cluster development, this study was initiated along with the eighteen-month cluster initiatives of the four clusters in Thailand supervision by the Office of Finance Economic (OFE), Ministry of Finance. Cluster Development Agents (CDA) formed Community of Practice (COP) and exchanging information, guidelines recommendation, following up by some of the international best practices case study and etc. using closed ThaiCDA.org website. This study was developed in parallel with cluster development for CDA prior the sub-cluster initiatives. It is also constructed collectively based on the cognitive approach to cope with cluster's behaviors as described by the following details.

It is important to note that clustering is a psychological implication concepts conducted based on economical theoretical frameworks. The empirical evident displayed the massive different gap of different when learning from the success cases elsewhere. The study in this research recognized this different and will try to discover some important missing key elements and create the new strategic learning platform necessity for cluster development. The following is the illustration of the mechanism of research (Figures 3.3) to discover such elements mentioned above.



Figures 3.3 Research Process Paradigm
Source: Tamprasirt, 2007

The input of the research consisted of the variety of previous works in various multidiscipline in conjunction with the competitiveness frameworks and the CDA working experiences. The competitiveness framework domain was already digested into the well defined conceptual models mentioned earlier in the domain knowledge. It was a part of the five year information build-up since the competitiveness terminologies first introduced in Thailand by USTDA in 2001. The CDA working experiences was aggregated from at least two independence channels. The first mechanism is the output of the knowledge capture of CDA using knowledge

capturing technique as the information polling tools. And the second was the formal report output of cluster project by which this study was associated with the project supervision.

After the base knowledge acquired from various sources mentioned about, the information validation and audit were used in conjunction with other frameworks mentioned in the later chapters of this study to create the new model according to the hypothesis mentioned above. This model was also tested to verify the potential of the generalization of it. The open source development and poverty reduction were considered to be the initial test cased due to the chronically similar nature. By the end of this study, the new platform will illustrate the significant improvement of strategic learning for the various public-private partnership initiative which usually complicated and unpredictable.

Even if this research was conducted base on eighteen–month of cluster development, however the model was created from the transcribing of the tacit knowledge of the competitiveness frameworks over at least 5 years period. It is a new paradigm from another perspective of the cluster development since it is the cross over between the theoretical frameworks and the cluster initiation project development. More importantly, this focused on the knowledge of how CDA should know in order to significantly improve the long and unpredictable activities instead of the information sharing as it revealed later at the end of this research.

The detail of the study was separated into four methods concurred with the research illustrated above (Figures 3.3). The detail study consisted of the following**:**

1. **1st Method**: Cognitive Criteria Selection

1.1 Determine critical theoretical Factors in Cluster Development according to the competitiveness frameworks.

1.2 Reviewing and consolidation of the affirmative actions taken from the empirical cluster initiatives into theoretical contribution factors.

2. **2nd Method**: A New Paradigm of The Cognitive Knowledge Model

2.1 Conduct series of structure interview using common KADS as the intermediately to capture empirical evident of the project contributing factors from the sample population of the two case studies from cluster initiatives in Thailand.

2.2 Categorize the driven cluster factors from different perspectives and aspects, particularly the impacts of theoretical frameworks and the cross over of empirical impact of the externality factors which was usually largely unknown to each particular initiative using

2.2.1 Cynefin Framework

2.2.3 Bi-polar extreme Learning Methodology

3. Construct the cognitive knowledge model using system thinking.

4. **3rd Method**: Case Studies of Cognitive Knowledge Management System (KMS)

4.1 Evaluate a few similar chronic case studies appropriate for developing this into Cognitive KMS application beyond the cluster frameworks.

5. **4th Method**: Analysis and Results

5.1 Profiling Cognitive KMS system

5.2 Analyze the model proposed with the predefine indicators.

3.4 The new discovery

Unlike the fundamental competitiveness theories which solely based on economic improvement framework, the alternative solution proposed here in this study offer the following thinking philosophies:

1. The social valuation in parallel with the economic uplift. This consideration has never been before considered as part of the studies. However, these criteria are extremely signification for the developing countries due to their limited resource allocation toward the welfare persuasion.
2. New proposed model base on socio-knowledge strategic learning methodologies that allow knowledge workers involved in the process to conceptually create and manage the outmost virtual boundary of the scope of work supposed to be involved in each projects to determine the horizon of the outcome that not yet to foresee from the complexity of the processes from the entire lifecycle of the development.

The expected outcome of this research is highlighted on the following criteria:

1. New strategic thinking model for competitive advantage concept is signified its novelty based on the proven knowledge management framework conjunction with cognitive decision making concepts.
2. The knowledge alternative model solution which focuses more on the people know-how rather than economic theoretical concepts usually defined in the normal competitive advantage frameworks.
3. Finally, the knowledge model by which expanded into Newer Kind of Knowledge Management System and Knowledge Map represented by unified common definition language called ‘Ontology’

Up-to-now, the generalization frameworks of competitiveness dealing with the large and complex uncontrollable factors of competitiveness are yet to be defined. Before the research of this study is revealed in the greater details, the domain knowledge involved is perused in more details. The result of their evaluation will be described in more detail in the following chapter.