

Third-Party Logistics Provider Cluster Initiation using ITAP Mechanism

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Abstract

The fierce competition from the free market has alarmed many companies in transportation industry in Thailand to learn to change and improve their ability to compete in the market. Most of third-party logistics providers (3PLPs) are small- to medium-sized companies that have been in the business for long time but lack of systematic approach to manage fast-changing customers' demands nowadays. One of the leading logistics company (LLC) and a non-profit transportation group of companies (ANFTE) are seeking common goal of improving 3PLPs in their respective networks. Suranaree University of Technology (SUT) and Industrial Technology Assistance Program (ITAP) Suranaree University of Technology network were approached by these two parties and requested to find an expert team to consult and implement quality system to improve the operation of their 3PLPs. Thai Foundation Quality System (TFQS) developed by National Science and Technology Development Agency (NSTDA) was selected as an appropriate tool to provide groundwork and develop quality foundation for those 3PLPs. With the ITAP mechanism, it was proven that pilot groups of 3PLPs selected from both parties have successfully implemented TFQS in approximately 12-month period. This paper exemplifies the tripartite cooperation from companies in transportation industry, ITAP and Suranaree University of Technology in order to strengthen competitiveness of companies in this service industry. It is obvious that ITAP mechanism and TFQS are essential factors that contribute to the success of these two projects. Moreover, the ITAP mechanism has merged the common goal and promoted the critical linkage between these two parties. This leads to the agglomeration of 3PLPs as a cluster that is able to take advantage of synergy cooperation as well as seek continuous improvement in the future to maintain their competitiveness.

Keywords: Third-Party Logistics Provider, Cluster, ITAP, TFQS, Quality Improvement

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Third-Party Logistics Provider Cluster Initiation using ITAP Mechanism

Subtheme

S3 Triple Helix in action: unlocking economic and social crises

1. Introduction

Over the past 19 years, Industrial Technology Assistance Program (ITAP) has proven to be a successful mechanism that provides technology support and development to small and medium enterprises (SMEs) in Thailand. It was established in 1991 under the name “Industry Consultancy Services” (ICS) and was later changed to ITAP in 2001. Currently, ITAP is a unit under the supervision of National Science and Technology Development Agency (NSTDA), a national research agency that conducts research in various fields and also provides funding to other organizations in Thailand.

ITAP has a clear cut vision to enhance technology for Thai SMEs in order to increase competitiveness in world market. In order to fulfill this obligation, ITAP started building its network to cover other regions in Thailand, beginning with the northern NSTDA network in 2001. Currently, there are ITAP networks located at nine universities nationwide. Suranaree University of Technology (SUT) has been an ITAP network since 2004. With tremendous help from all networks, ITAP has grown rapidly over the past several years. The number of projects that support the private sector has increased exponentially. ITAP has approved more than 2,000 projects from 1991 to 2009. Most projects are product- or process-related such as product innovation, process innovation, product development and process development.

The introduction of ASEAN Free Trade Area (AFTA), which will be fully operational in six member countries at the beginning of 2010, has raised some concern to a lot of SMEs especially those in the service providing industry such as logistics and transportation providers. The influx of products from member countries and also China will increase market and price competitiveness particularly in reducing transportation and logistics costs. SMEs need to learn to adjust themselves in order to confront with this new challenge and heighten their ability to compete in the market. Furthermore, it is advisable that SMEs form a solid cooperation with other SMEs with the intention to take full advantage of synergy effects of the alliance (Karaev, Koh and Szamosi, 2007). An interfirm coalition forming such as a cluster is widely known and adopted in various industry sectors. UNIDO (2000) defined that cluster is a grouping of both small and large enterprises, all involved in the mutual sector aiming in the production and sales of related and complementary products and services. According to Novelli, Schmitz, and Spencer (2006) an alliance in the form of cluster boosts more opportunity for firms to compete both nationally and globally. In order for a cluster to seek continuous improvement and retain its competitiveness advantage, it is suggested that linkages be developed and maintained with universities or research institutions for R&D purpose.

This paper exemplifies the implementation of Triple Helix Model to build up a tripartite cooperation in order to strengthen small and medium third-party logistics providers (3PLPs). The role of ITAP Suranaree University of Technology network in facilitating the knowledge and technology transfer as well as propelling the Triple Helix Model in this service sector is elaborated. Methodology to lay down foundation for efficiency improvement of small and medium 3PLPs as well as outlines for cluster initiation will be described in this paper.

2. Background

2.1 Project I: Medium 3PLPs Development

In May 2008, the ITAP Suranaree University of Technology network was approached from a leading logistics company (LLC) in Thailand, to find an appropriate way to improve its freight transportation suppliers. LLC does not own the transportation fleet but uses 3PLPs as tools to fulfill transportation jobs. There are more than 300 medium-scale suppliers under its network. These are

potential 3PLPs that are able to support LLC’s main business goal in the long run. Each 3PLP has more than 100 trucks in its operating fleet. Most of them have been in the transportation business for more than decades but have not developed any strong foundation for quality development. Their daily planning and operation are conducted based solely on past experience. In addition to that, fleet maintenance has not been organized and managed properly. These factors contribute to higher operating costs and lower vehicle utilization. LLC thought that the quality standard system such as ISO 9000 system could be a significant tool that enhances suppliers to improve their management system in the long run. However, it is impractical to implement the system for these suppliers to be fully functional within a short time period. As we are well aware, most Thai SMEs have not had a strong foundation and to implement the complex system such as ISO 9000 would be way too much for them to handle and manage.

2.2 Project II: Small 3PLPs Development

Also in May 2009, the ITAP Suranaree University of Technology network was contacted by the Association of Northeastern Freight Transport Entrepreneurs (ANFTE), which has more than four hundred 3PLPs as members under its network. Each 3PLP under the ANFTE is a small-size company that has the number of trucks in its operating fleet varying from fewer than 10 trucks to nearly 100 trucks. The aim of ANFTE is to enhance cooperation among its members. It anticipates that strengthen tie among member companies and lift up service standard in order to form a sustainable business alliance in the future. In order to achieve this goal, ANFTE has to motivate and educate its members to understand the importance of enhancing service standard and alliance forming as well as develop tools and systems that are fundamental for each member to follow and implement. It is an anticipation of ANFTE to improve not only efficiency of truck route planning of freight transportation in the network but also service level and quality management for all of its 3PLPs.

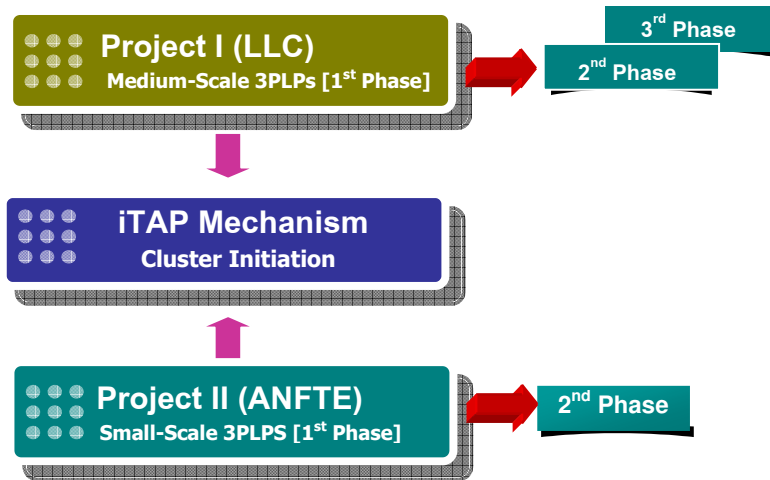


Figure 1: ITAP Mechanism to Link and Facilitate Two 3PLPs Projects



Figure 2: Proposed ITAP Scheme to Accommodate Stakeholders’ Needs Leading to Cluster Initiation

Figure 1 illustrates the role of ITAP as a facilitator that manages two 3PLPS improvement projects from two separate private stakeholders that seek common goal of quality development. ITAP studied the needs from these two stakeholders and proposed the basic quality system called Thai Foundation Quality System (TFQS) as an appropriate tool for these 3PLPs to implement. Furthermore, ITAP discovers the channel to merge needs from two stakeholders in order to create an appropriate opportunity for small-scale 3PLPs and medium-scale 3PLPs to work on the common platform with the same standard. Thus, it can be said that ITAP mechanism leads to the initiation of 3PLPs cluster as can be shown in Figure 2.

3. ITAP Mechanism

ITAP mechanism has proved to be a functional tool to facilitate knowledge and technology transfer from experts in academic or research institutions to entrepreneurs for almost two decades. Basically, ITAP work is divided into three stages: (i) Preliminary finding and proposal development; (ii) Consultation; and (iii) Final assessment and fund reimbursement, as shown in Figure 3.

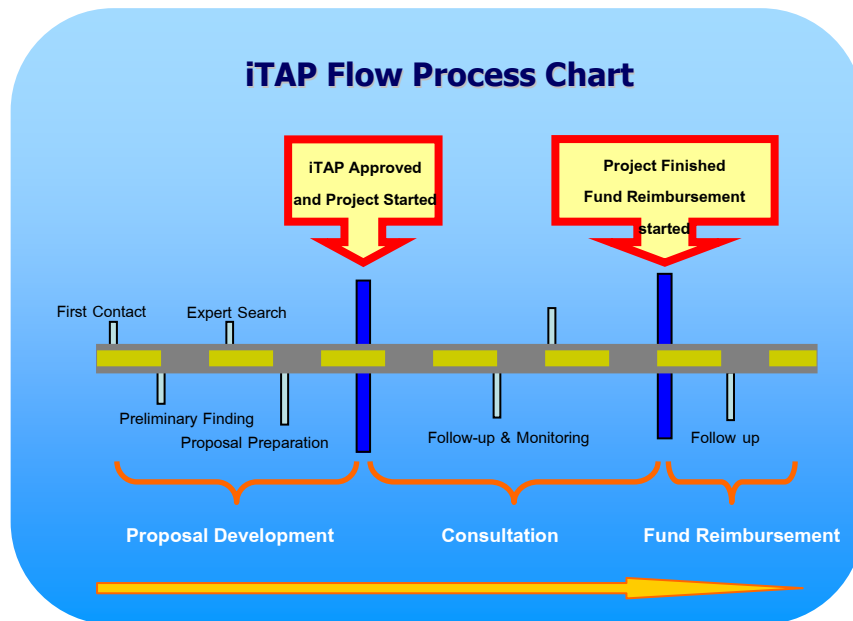


Figure 3: ITAP Flow Process Chart

3.1 Preliminary Finding and Proposal Development

Normally, ITAP receives contacts from entrepreneurs that seek solutions to their demands or problems. ITAP assigns Industrial Technology Advisor (ITA) to coordinate each project with each entrepreneur and an ITA will inspect and prioritize all demands requested. Then, an ITA will search for appropriate expert that matches to entrepreneur’s need. Thorough investigation by an expert will be conducted for proposal development. A mutual consent between an expert and an entrepreneur is an essential factor for a success in each project.

3.2 Consultation

After a project is approved, an expert will provide a consultation as described in the proposal. In the mid of the project duration, ITAP will provide outsiders to assess the work of an expert and the quality of work delivered according to timeline as well as follow-up whether or not the demand of an entrepreneur has been properly served.

3.3 Final Assessment and Fund Reimbursement

Final assessment of the project will be done when an expert fulfills his or her work as stated in the proposal. Outsiders will be again sent to evaluate the work delivered. Continuous improvement idea or additional project may be discussed and proposed for the further development among an entrepreneur, an expert and outsider appraisers. This can be a channel for SMEs to realize that research and development is vital for their existing in the market. After the completion of the project, ITAP will process the fund reimbursement to the entrepreneur.

4. Methodology and Proposed Model

4.1 TFQS

TFQS was developed by NSTDA to be a prototype for quality management in an appropriate level for SMEs who are not in need of or ready for ISO 9000 system (Tannock and Krasachol, 1999). Implementing TFQS has advantageous aspects for SMEs due to its fewer number of auditing criteria than ISO 9000. Moreover, it is not too difficult to implement and it can create a strong foundation for SMEs. If TFQS has been implemented successfully, it is not difficult for SMEs to continue improving its process to meet ISO 9000 certification. There are four requirements to fulfill TFQS obligation, namely, (i) quality policy and target setting; (ii) quality planning [quality characteristics, process planning and inspection, training, inventory control, and document control] ; (iii) quality control and corrective action; and (iv) supplier selection and appraisal, as illustrated in Figure 4.

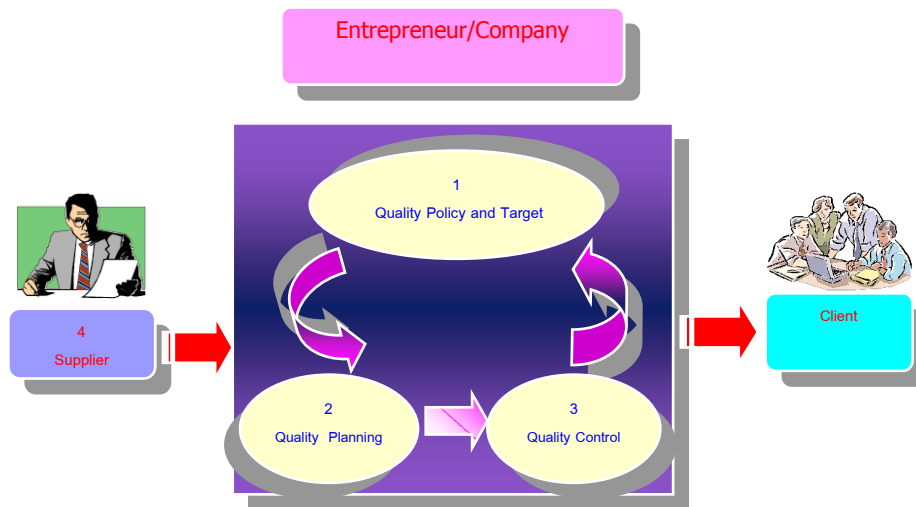


Figure 4: TFQS Requirement

ITAP uses its support mechanism by using its network to administer the project. This TFQS project for logistics suppliers was conducted via the cooperation between ITAP central and ITAP Suranaree University of Technology network, the latter being the leader that managed this project. A TFQS expert team was provided to implement the basic quality system and ITAP provided an auditor team.

4.2 Proposed Model

These two projects, LLC project and ANFTE project, were run separately but managed by ITAP Suranaree University of Technology network. However, the management pattern and effort that ITAP added to fulfill the objectives of these two projects were different.

LLC (Project I) selected its five potential 3PLPs from its network as pilot companies for system and process improvement according to TFQS requirements. The average time to implement TFQS for these five companies is 12 months with the budget of approximately 250,000 baht per company. LLC actively involved in mentoring, supporting its 3PLPs, and adding competition ambience among five companies throughout the TFQS implement process. This factor is crucial to the success of the project. TFQS has been implemented successfully in these five companies within time limit and ITAP reimbursed 50% of its actual project payment to the company after the project completion as indicated in Figure 3. These companies were audited and passed the minimum requirements of TFQS. The outputs of this project that can be measured are as follows: better work flow; improved communication within organization; more client-focus; reduced number of traffic accident; cost reduction; improved vehicle utilization; better check and balance system within company. The output from these five pilot companies turns out to be at a satisfactory level and LLC decides to carry on the project with ITAP. In 2010, LLC asked ITAP to implement TFQS system in eight additional companies in its network. For the first five pilot 3PLPs, two companies decide to further improve their process continuously with the same expert team in order to develop foundation to be on par with ISO 9000 standard and anticipate ISO 9000 certification in a few years from now. The summary of the implementation of Project I is summarized as a model in Figure 5.

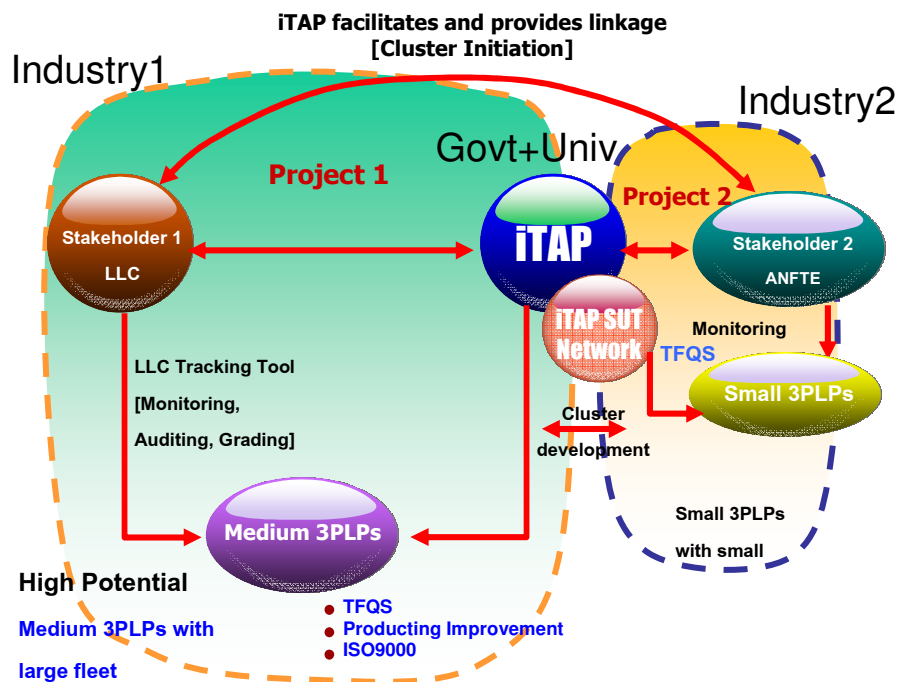


Figure 5: Proposed Triple Helix Model that leads to Cluster Initiation for 3PLPs

ANFTE (Project II) has an enthusiasm to develop a cluster but faces difficulties to do so because of its lack of trust among member companies, lack of systematic management approach, and lack of check-and-balance system. Besides, each member has small-sized truck fleet. Without good leadership and strong management system, these companies cannot survive in the competitive market. ANFTE is a non-profit organization without much of funding. So the management team approached SUT in order to

seek assistance in these matters. SUT searched a funding from a government agency to support and provided an expert team to work on. The expert team decided that TFQS is an appropriate tool to assist ANFTE. SUT and the expert team requested ITAP Suranaree University of Technology network to facilitate and administrate this project. ANFTE assigned two transportation nodes in upper northeastern region and lower northeastern region to conduct this TFQS project. The objective is to shift management paradigm of each member company involved. The paradigm shift would lead to the appreciation of cluster and alliance concept and heighten opportunity to do business with leading company, like LLC. Figure 5 also illustrates the idea mentioned for ANSTE.

5. Results

ITAP mechanism and TFQS are pivotal factors that contribute to the success of these two improvement projects. ITAP works on customers' needs so we can be focus in solving the problem. Besides, ITAP provides a team of experienced ITAs that are trained to appreciate three core values: (i) client focus; (ii) excellence in delivery; and (iii) networking. So these are key factors that contribute to the success of many projects that ITAP handles. TFQS apparently is the right solution that responses to the right needs of LLC and ANFTE. It is a basic management tool that contributes to paradigm shift of small- and medium-scale 3PLPs. The management staff learns to adjust and change to do business more professionally.

The other key factor for Project I to be fruitful is the internal carrier audit system of LLC that is put in place to evaluate the performance its 3PLPs annually. Therefore, each 3PLP is eager to improve oneself and enhance its competitiveness advantage, which is favorable to LLC in the long run. Moreover, these 3PLPs that receive TFQS certification can set themselves as benchmarking companies for other 3PLPs to follow. The result of paradigm shift for the 3PLPs management staff would also lead to further improvement beyond TFQS and climb higher ladder to higher quality standard such as ISO 9000.

The key success factors of Project II are the support from the university and a funding from a government agency. The persistence of the expert team is also a contributing factor that is vital to the accomplishment of this project. The success of Project II is in the direction that LLC desires. Linkage between LLC and ANFTE can be initiated with the help of not only ITAP mechanism but also quality improvement tools such as TFQS or ISO 9000. Therefore, the agglomeration of small 3PLPs in ANFTE that is sustainable will strengthen the bargaining power that ANFTE can use to negotiate with LLC or other leading companies in the future.

6. Conclusion

It can be proven in the implementation of these two projects with small-scale 3PLPs and medium-scale 3PLPs, as well as with a leading company, like LLC, and a non profit organization, like ANFTE, that systematic approach and quality standard are essential tools for the survival of 3PLPs and Thai transportation industry. With the great help of ITAP mechanism, it is a guarantee factor that yields the success of any project. Linkage that leads to cluster initiation as well as alliance forming of both projects is provided by an ITAP mechanism. Success of these two projects is reflected by the trust of LLC and ANFTE to extend the idea to additional 3PLPs in their respective networks. ITAP also seek a tremendous opportunity to adopt this model and implement in other logistics networks in the country to strengthen the cluster and alliance forming. Furthermore, this ideology can be well adapted and incorporated in other industrial sectors of the country.

7. References

- Karaev (2007), A., S.C.L. Koh, L.T. Szamosi, "The Cluster Approach and SME Competitiveness: a Review", *Journal of Manufacturing Technology Management*, Vol. 18, No. 7, pp. 818-835.
- Novelli, M., B. Schmitz, and T. Spencer (2006), "Networks, Clusters and Innovation in Tourism: A UK Experience", *Tourism Management*, Vol. 27, pp.1141-1152.

Tannock, J. and L. Krasachol (1999), *“Thai Foundation Quality System”*, NSTDA, Bangkok.

UNIDO (2000), *Promoting Enterprise through Networked Regional Development*, United Nations International Development Organization, UNIDO Publications, Vienna.