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## **A comparative study on scientific approaches for Center of Excellence in TVET sector under the scientific aspect of the demands in Thai Education System**

submitted by

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## Abstract

This research offers an essential enlightenment for a better understanding towards the significance to establish the Center of Excellence for Technical Vocational Education and Training (CoE for TVET), especially in vocational education. It analyzes and synthesizes the data from the existing academic and commercial sources based on the fact that, in most cases, “excellence” is referred to as a foundation term for competitions. Many entities being recognized as or perceived by target audiences in business conduct as “excellent”, are generally “abstract”. In practice, there are only a few entities actually worthy of a true “excellence” judging by appropriate criteria—having “concrete” evidence of activities and components. Exemplifying an existing Center of Excellence would promote a better understanding both in terms of definition and its characteristics.

The researcher focuses on conducting comparative research that combines with qualitative and case studies, with an important goal of acquiring "new definition, new knowledge and specialized practical guidelines related to the CoE for TVET", and to invent a set of practices that will lead to answering of these key questions:

- What is "CoE for TVET"? How many types are they of ?
- How is it currently recognized for the "CoE in TVET" ?
- What approaches should be taken to promote a better understanding of definitions, classification, and operations of “a COE in TVET?”

This is to provide in-depth research that can be beneficial to the public and visualized clearly worldwide. As per the mentioned aims, comparative case studies between different countries are required. There are neither much studies in the world which clearly proposed the definition; the identification and the demonstration of the applied practical guidelines nor in the dimension of excellence of TVET education management because all that exists are the context of excellence in business and nor in education sector that are often referred particularly to the level of Higher Education and that the basic education cannot be applied to TVET because of its being of different context.

In each topic, the researcher clarified points of information including the perception, access, and maintenance of excellence. There shall be further discussion on the classification of all globally existing centers of excellence which is based on perception, presentation, and public understanding in conclusion.

Once the foregoing section has been thoroughly accomplished, the next step is accessing the process and techniques of pursuing elements and characteristics that CoE in TVET at least should have by relying on techniques and principles called “Benchmarking<sup>+</sup>USP” that the researcher has developed recently based on the understanding that "Apart from being superior to general standard and quality, that is, - no ordinary - ; having a status of excellence, the center of excellence, no matter operating or providing services in any regards, must have a unique identity and distinctiveness that should be as close as possible to -the top-notch – in that particular

area." To be an example case, the researcher had selected the "Benching Partner" which is recognized for achieving excellence in service providing and educational management in the field of TVET: GTDEE and TGPES, as the answer of the research items that say:

- How will there be techniques or processes in the pursuit of components, attributes that indicate the status of excellence of TVET CoE?
- Are there any examples of centers of excellence or comparable organizations existing in Thailand? And how do those organizations have the required elements and characteristics of excellence?

The final essence, therefore, is studying and striving for the needs in various dimensions regarding the establishment of the Center of excellence in TVET that is able to response to the demands of society for teaching and learning management of the Thai vocational education sector in the points of view of the sample groups --the direct stakeholders--, thus leading to answering the question in the endmost part of the research, that is:

In what dimension does Thailand need TVET Center of Excellence?

These will be beneficial suggestion to the relevant sectors in Thailand or those wishing to learn, study extensively on the basis of substantial findings delivered by this research.

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Last but not the least, I would like to thank Thai people in Germany for providing me spiritually in writing this thesis and my life in general while my stay in Germany.

With all my heart, may all blessings be yours.  
Adisorn Ode-sri

## **Dedication**

To worship the lord of the king in the highest place. I bow to your mercy, compassion, break through, and holy power that encourage and support me.

Ratanattaya, Bodhisattvas, Ganesha, Holy Mother Uma, Shiva, Vishnu, Ashta Lakshmi, Brahma, Saraswati, Dharaṇī, Ganga, Phosop, Gráha, Holy Dhevi in Brahma Realm, Deva realm, Naga Realm, Garuda Realm, the 4 Lokapala,

All glorious Thai kings, and German protector, above all, my father, mother, grandparents, professors, those who support and provide me with kindness, and all great friends and companion.

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## List of Abbreviations

APACC	Asia Pacific Accreditation and Certification Commission
APQC	American Productivity & Quality Center
ASEAN	Association of Southeast Asian Nations
BMAP	Bosch Mechatronics Apprenticeship Programme
BMBF	Ministry of Education and Research
BMZ	German Federal Ministry for Economic Cooperation and Development
BOT	Thai Chamber of Commerce and Board of Trade of Thailand
CEDEFOP	The European Centre for the Development of Vocational Training
CERI	Centre for Educational Research and Innovation
CoVE	Centre of Vocational Excellence
CQAF	Common Quality Assurance Framework
DIHK	Association of German Chambers of Industry and Commerce
EFQM	European Foundation of Quality Management
ENQA	Quality Assurance in Higher Education
EPIs	Excellent Performance Indicators
EPIs <sup>+</sup> USP	Excellent Performance Indicators <sup>+</sup> USP
ExPSA	Excellence in Public Service Awards
DSD	Department of Skill Development
DVE	Dual Vocational Education
EIU	Economist Intelligence Unit
FTI	Federation of Thai Industries
FTPI	Thailand Productivity Institute
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GTCC	German-Thai Chamber of Commerce
GTDEE	German-Thai Dual Excellence Education
IMHE	Institutional Management in Higher Education
ITE	Institute of Technical Education
ISO	International Organization for Standardization
KMUTNB	King Mongkut's University of Technology North Bangkok
MBNQA	Malcolm Baldrige National Quality Award
MBWA	Management by Wandering Around
NCVER	National Centre for Vocational Education Research
NESQA	National Education Standards and Quality Assurance
NSW	New South Wales
NTU	Nanyang Technological University



NUS	National University of Singapore
OECD	Organization for Economic Co-operation and Development
OVEC	Office of the Vocational Education Commission
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RCVE	Research Centre for Vocational Education
SAR	Self-Assessment Reports
SEM	School Excellence Model
SKOPE	Skills, Knowledge and Organisational Performance
SQA	Singapore Quality Award
TDRI	Thailand Development Research Institute
TGDE	Thai-German Dual Education and e-Learning Development Institute
TGPES	Thai-German Pre-Engineering School
TIMSS	Trends in International Mathematics and Science Study
TPA	Technology Promotion Association (Thailand-Japan)
TQA	Thailand Quality Award
TSLN	“Thinking Schools, Learning Nation”
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	International Centre for Technical and Vocational Education and Training
USP	Unique Selling Proposition
VETnet	European Research Network on Vocational Education and Training
VET	Vocational Education and Training
WSC	World Skills Competition
WSI	World Skills International

# **Chapter 1**

## **Introduction**

### **1.1 Background and Importance**

Aspects of excellence are widely spoken in the field of business and industry competition via the image of accreditation that the organizations, products or persons are brought into the system of consideration process by central authority who determines the measures, along with criterions having been established to be used as a measuring instrument leading to the achievement of a reward or guarantee in such a way the person, the organization, those things are in the state of excellence and more marvelous more than anyone, anything, any organization. Besides; this also includes the status of excellence awarded without passing any complicated process; but could be depending on a matter of a long experience; of consistency in any action or operation; of fame, newness, oldness, or public acceptance; and there are many people who have announced themselves having a status of excellence by thinking that they are or do so well in that particular thing. Today is not just business sector, influence of excellence is also widely utilized in the education sector through various features, such as ranking, assessment, competition, and the application of business rules to the education sector. Amid the popularity that moves in the same direction with business sector; but still be unable to reach any certain conclusion or referential theory what structure, format, or norm the definition of excellence and the scientifically explainable and tangible practice to achieve or maintain the status of excellence have if views from the education organization's corner. In the world of vocational and technical education, there is an intentional effort toward this direction as well, but seemingly many countries still be unable to reach it. Many countries in the East are trying to look at and follow the West while Western countries are also looking for common ground on excellence through community forum or global vocational and technical education network.

### **1.2 Definition of Excellence**

During the past two decades, there was the word "Excellence" that was frequently mentioned although it did not have a big influence that international organizations would try to find critical interpretation or set as public policy. However, it had a powerful impact on recognition and image of the organizations. It promoted public understanding including the goals, special potential or mission of the organizations.

Excellence comes from the Latin *excellere* "excellent" or *excellentia* "excellence", metonymically "higher position". "Excellence" is referred to as an institution or a person has a higher position or function or in a special field. Cambridge Advanced Learner's Dictionary has given the most comprehensive definition to the word "excellent" as "the quality of being excellent"<sup>1</sup>. The ancient Greeks had their own word for excellence: *Arete* (ancient Greek = ἀρετή= arete). However, this word means even more. "Excellence" as a property of people was directly connected to Virtue and a successful lifestyle. The related state of mind of *eudaimonia* (ancient Greek = εὐδαιμονία = eudaimonia) as "succeeding in life" presupposed possession of *Arete*. *Arete* occurred not only with respect to the suitability of a thing but especially in the performance of tasks related to the purpose for which they are intended. To be good for something, in the sense of a high level of fitting in for a specific goal would certainly be a good measure for a good collaboration (Alexander Klier, 2016).

Cambridge Advanced Learner's Dictionary has given the most comprehensive definition to the word "excellent" as "the quality of being excellent". Whereas BB&T (Branch Banking and Trust), one of the largest financial services holding companies in the U.S. established and operated since 1872 or 145 years ago had published a book entitled "The BB & T Philosophy" for people inside and outside the organization to understand the philosophy of the business by referring words of Aristotle, Greek Philosopher (384 BC - 322 BC) who has extensive insight to "Excellence" as an art won by training and habituation. We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit." (The BB & T Philosophy, 1998)<sup>2</sup> it was included philosophy group to create value for the people in the organization and the public.

In the TVET history, the history of effort searching for excellence through "Skill" become major result in 1950. The 1<sup>st</sup> International Vocational Training Contest took place at "Virgen de la Paloma" Vocational Training Institute in Madrid and were held only between Portugal and Spain. In 1953, contestant from Germany, Great Britain,

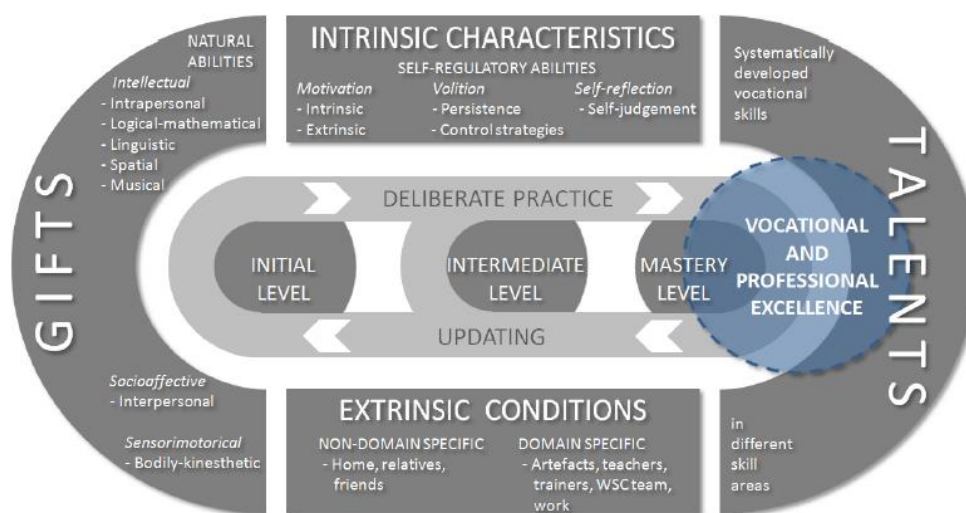
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<sup>1</sup> <https://dictionary.cambridge.org/dictionary/english/excellence>

<sup>2</sup> BB&T Corporation (1998), *The BB & T Philosophy*, P.6

France, Morocco, and Switzerland took part in it. The event was later renamed to the World Skills Competition (WSC). The World Skills International (WSI), a non-profit association that promotes Vocational Education and Training (VET) internationally in traditional trades and crafts as well as in multi-skilled vocations, is monitoring and working within the six key areas of Research, Promoting Skills, Career Building, Education and Training, International Cooperation and Development, and Skills Competitions. World Skills has a goal to be the global hub for skills excellence and development with ongoing activities nationally, regionally and globally.<sup>3</sup>

The WSC is recognised by many as the pinnacle of excellence in VET (Mayhew, James, , Chankseliani & Laczik, 2013).<sup>4</sup> These competitions provide a benchmark for high performance and an objective way to assess vocational excellence. They also provide an opportunity to research the various dimensions of vocational excellence. (James, 2016)<sup>5</sup>



**Figure 1.1:** Developmental model of vocational talent (Pylväs & Nokelainen, 2017)<sup>6</sup>

<sup>3</sup> <https://worldskills.org/what/competitions/>

<sup>4</sup> Mayhew, K., James, S., Chankseliani, M. & Laczik, A. (2013). *Benefits of Developing Vocational Excellence through Skills Competitions: Research Brief*. SKOPE, University of Oxford, p. 1.

<sup>5</sup> James, S. (2016). *Developing & Understanding Vocational Excellence: Final Report*, SKOPE, University of Oxford, p. 3.

<sup>6</sup> Pylväs, L., Nokelainen, P. (2017). *Finnish WorldSkills Achievers' Vocational Talent Development and School-to-Work Pathways*. International Journal for Research in Vocational Education and Training,

Individuality under the basis of “Skill” the Research Centre for Vocational Education (RCVE), University of Tampere, Finland, has become a model of vocational talent. It is used to explore the acquisition of vocational expertise among Skills Finland competitors (Pylväs, Nokelainen, & Roisko, 2015). The theoretical model draws on research into individual attributes and characteristics and the dimensions of talent, where specialty in excellence is employed.

Witoon Simachokedee (2002)<sup>7</sup> an academic and former Deputy Minister of Industry of Thailand defined "excellence" as those organizations who received quality awards and the awards are recognized internationally such as national quality award. National “MBNQA” (Malcolm Baldrige National Quality Award) enacted in the United States. “SQA” (Singapore Quality Award) enacted in Singapore and “TQA” (Thailand Quality Award) enacted in Thailand.

The American concern for excellence (highest quality) is also associated with the process of achievement, the effort the individual makes to accomplish goals. Furthermore, the scope of excellence is large. Rogers (1981) puts it this way:

There is the excellence of a beautifully crafted silver bas-relief on a delicate drinking vessel -and there is the excellence of a well-crafted critical essay on the structure and meaning of a great work of literature.

There is the excellence of a master training a wild horse and eventually riding in precise dressage. And there is the excellence of mastery of rules of evidence by which an intelligent and interesting argument can be made both truthful and convincing.

There is the excellence of a finely tuned instrument played with both technical competence and deep feeling. And there is the excellence of an elegantly constructed research design in mathematics or the sciences.

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Vol. 4, Issue 2, p. 98.

<sup>7</sup> Simachokedee, W.(2002). *Quality is Integration* . Bangkok:Technology Promotion Association (Thailand-Japan).

In every case there are those hard-won elements of discipline, refinement, quest for constant improvement, extension to the limit -the final blending of attention to every detail and to the attainment of beauty in the whole.

Defining anything, any manner, any activity as excellence is intangible and immeasurable because meaning and definition of the word “excellence” itself has not been globally agreed. Excellence has different aspects, factors, components and expectation. Uraipan Janvanichyanont (1993)<sup>8</sup> concluded in her research that “Excellence can be looked at differently. Economic context would look at the quality correlation between import factors and production whether the production meets demand of the market or is it really worthwhile investment. In academic context, excellence is considered in terms of quality, effectiveness and efficiency of the teaching and learning process as well as the ability of students to solve problems and analyze critically.

The definition of “Excellence” can also be literally associated with other words such as “quality” in which the American Heritage dictionary of English has provided adjective meaning as having a high degree of excellence. Likewise, Conrad & Blackburn (1985)<sup>9</sup> famous academic researchers in America stated that *“Our opening quotations found the two terms essentially interchangeable. Like quality, excellence carries with it a dimension of style, not just an outstanding accomplishment but the manner in which the accomplishment is achieved. Both excellence and quality imply the highest standards and an unwillingness to settle for anything less than that which could be achieved.”*

However, in business context, the indicator of “Quality” and Excellence” is “Standard” which means something is holding out to be compared (Royal Institute Dictionary, 2003)<sup>10</sup> or criteria required or specified by the "quality" to uplift standard requirements.

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<sup>8</sup> Janvanichyanont, U. (1993). *The Development of Indicators for Academic Excellence in Faculties of Nursing, Private Institutions of Higher Education*. Chulalongkorn University : Graduate School.

<sup>9</sup> Conrad, C.F. & Blackburn, R.T. (1985). *Correlates of Departmental Quality in Regional*. American Educational Research Journal, 22(2), 279-259.

<sup>10</sup> Royal Institute (2003). *Royal Institute Dictionary*. Bangkok : Nanmeebooks.

In addition, customer satisfaction and needs of customers must be taken into account (Somsak Sinthurawetch, 1999)<sup>11</sup>. Standard is a part of excellence (Thippawan Lhoasuwan, 2003)<sup>12</sup> and the significant difference is product or service that meet standard requirements. It does not have to be product or service with high quality. But quality of service or product requires certain standards because the standards are generally set by the manufacturers, mostly without taking into account the needs of the customers. "Excellence" can be achieved from fundamental factor is the quality but "excellence" means superior quality. "Excellence" is distinguished with highest level of quality and can be used as an example to others. (National Productivity Institute, 2004)<sup>13</sup>.

Excellence comes from the Latin excellere "excellent" or excellentia "excellence", metonymically "higher position". In conclusion, "Excellence" is referred to as an institution or a person has a higher position or function or in a special field.

According to the above study, initially, the researcher noted that any definition of excellence, whether in the dimension of vocational education or organizations of other types of missions, is based on working principle under the process that produces results with special quality; which is; is superior to the norm in case where there is benchmarking or a comparison, and may be, is a prototype of excellence in case where there is no such benchmarking or a comparison as there is no one or any organization developed, created or established them. However, process indicator emphasizing on efficiency and effectiveness is required as a key factor to make the state of excellence tangible and touchable.

### **1.3 Thailand's vocational education policies in the direction of excellence development**

*"It is known that vocational education is important to development of Thailand and other countries that have higher need vocational school graduates. It appears that*

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<sup>11</sup> Sinthurawetch, S. (1999). *The Best Way to Achieve Quality of Education*. Bangkok: Wattana Phanich.

<sup>12</sup> Lhoasuwan, T. (2003). *Modern Organization Theory*. Bangkok: National Institute of Development Administration.

<sup>13</sup> Thailand Productivity Institute (2004). *The Case Study for Best Practices TQA Winner 2002 Thai Acrylic Fiber Co., Ltd.* Bangkok: Redfern Creation.

*vocational school is insufficient to address this challenge due to the fact that vocational school is looked to be inferior as compared to higher education..."*

*"Germany is well known for the dual system that is very successful and accepted for a long time through effective integration and development of modern vocational. Many educational institutions in Thailand follow the German way to create career path for students. Through the bilateral system between the educational institution and private sector. Theory and practice for vocational school need to response to need of public sector and industrial sector. Industrial development require that knowledge created through research in the institution. Therefore, the relationship between vocational institution and industrial sector is another challenge."*

*"It is considered an urgent issue to be considered to improve the foundation of vocational education. At the mean time, every sectors have to together take action in pushing forward and sharing to achieve goals of developing vocational colleges. Education is a longterm invesment and education is an investment for ourown future. (Her Royal Highness Princess Maha Chakri Sirindhorn, 2014)<sup>14</sup> "*

The above is of the speech of Her Royal Highness Princess Maha Chakri Sirindhorn in the opening ceremony in a conference that was hold with an aim to develop vocational education using Work-based Learning model called "Excellence bilateral Thailand - century German 21: Thai-German Dual Excellence 2014".

This is the evidence that Thailand has adopted teaching and learning strategies for vocational education in Germany as a model known as "Dual System". The conference was organized by the Association of Private Technological and Vocational Education Colleges of Thailand and the Thailand Embassy in Berlin, Ministry of Foreign Affairs of Thailand with collaboration of Ministry of economic and energy, Federal Republic of Germany and the Confederation of professional qualifications of the Federal

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<sup>14</sup>Her Royal Highness Princess Maha Chakri Sirindhorn (2014). *Excellence bilateral Thailand - century German 21: Thai-German Dual Excellence 2014*.  
[http://www.prachachat.net/news\\_detail.php?newsid=1414650356](http://www.prachachat.net/news_detail.php?newsid=1414650356)



Republic of Germany. There were more than fifty experts in vocational education from Germany participated the conference with more than 10 representatives from Thailand's leading vocational education institutions in Thailand along with representatives from ASEAN countries such as Cambodia, Laos, Myanmar and Vietnam joined to exchange ideas on innovative technology to the modern world.

However, this is because the Office of Vocational Education Commission Thailand has reconsidered the policies on educational collaboration with entrepreneurs and established dual education system in 2012. In 2013, there was an order to set Committee to evaluate education system vocational colleges that adopt dual education towards being excellent. In budget year 2014 the Office of Vocational Education Commission Thailand had announced the implementation of Criteria for Promoting and Developing Excellence of Dual Vocational Education: Guidelines for the Institution Assessment which was developed from version 2013 in the same way higher education institutes has but it was master rules that indicates excellence known as organization of control and development of vocational excellence of Thailand. There are now 421 branches. *“The Joint Committee of Government and Private Sectors for Manpower Development in Vocational education had a plan to enhance quality of dual vocational education with the major goal to expand collaboration in vocational teaching and learning with foreign countries. The collaboration will be carried out in two forms: sending students for training abroad and co-teaching and learning with countries that have succeeded establishing dual education system for example: open classroom japan model and germany model etc. (Klungsa, 2014)<sup>15</sup>”*

In September 2016, Primeminister Prayuth Chan-ocha, General Dapong Ratanasuwan, Minister of Education have issued a policy to enhance excellence in vocational education especially vocational institutions under Office of the Vocational Education Commission to have their own unique expertise in 16 fields that meet career standard of ASEAN.

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<sup>15</sup> Dr. Aganit Klungsa, Secretary Deputy General, Office of the Vocational Education Commission

Office of the Vocational Education Commission have considered and selected pilot institutions in fiscal 2016 to encourage investment in six super industrial clusters as follows:

1. Communications Cluster Program in Maritime at Nakhon Si Thammarat Seaboard Industrial College
2. Chemical and Petrochemical Cluster, Program in Petrochemical at Map Ta Phut Technical College
3. Food Cluster in Food Safety Technology program at Phayao College of Agriculture and Technology
4. Molds and Auto parts cluster, Program in Molding Technique at Samutsongkhram Technical College
5. Tourism and Hotel cluster, Program in Hotel and Tourism at Chiang Rai Vocational College
6. Electrical and Electronics Cluster, Program in Electric Power at Mae Moh EGAT The College of Technology and Management

And there are six projects for the fiscal year 2017 as follows;

1. Communications Cluster, Program in Rail transport at Thai-Austrian Technical College
2. Chemical and Petrochemical Cluster, Petroleum Program at Hatyai Technical College
3. Food Cluster in Food Safety Technology program at Suphanburi College of Agriculture and Technology
4. Molds and Auto parts cluster, Program in Automotive Parts at Chachoengsao Technical College
5. Tourism and Hotel Cluster, Program in Hotel and Tourism at Ubonratchathani Vocational College
6. Electrical and Electronics Cluster, Program in Electronic Power at Nakornnayok Technical College

The Deputy Director-General of the Vocational Education Commission, Mr. Wanich Uamsri (2015)<sup>16</sup>, said that *“the consideration and selection of Potential colleges based on previous development and the participation of enterprises, the 12 programs were recruited to pilot has been popular today and are interested by a large number of students. Moreover, enterprises can reserve potential students before they graduate. From now onwards, there will be four years’ phases development plan with collaboration from enterprises”*

There is constant movement in building vocational education excellence in the context and understanding of Thailand. On December 23, 2016, the Public–Private Collaborative Committee (E2: Competitive Workforce) held a signing ceremony of projects cooperation "Excellent Model School" for schools under the Office of Vocational Education Commission of 46 schools and 14 leading private organizations to jointly develop the model school for dual education with a prominent expert and potential in the specific field. The model school will be the house of combined school and enterprise that attract young learners into vocational education system<sup>17</sup>.

The 14 leading private organizations are from diverse industries such as business services, trade business and tourism that took part in DVE: Dual Vocational Education with an emphasis on 46 vocational schools to build a strong professional background. The private sector will work with the vocational colleges in designing curriculum that meet the requirements of business sector. Moreover, the private sector will provide support for training, for students in technology programs and consider recruiting them when graduate.

*“The Collaboration to establish Excellent Model School started from recruiting potential colleges to participate and match the disciplines from selected colleges with the workplace. This aim at together develop a curriculum as well as teachers in that fields to have the ability to transfer knowledge to the learner ... ”<sup>18</sup>*

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<sup>16</sup> <https://www.moe.go.th/moe/th/news/detail.php?NewsID=43401&Key=hotnews>

<sup>17</sup> <https://www.dailynews.co.th/education/539551>

<sup>18</sup> <http://www.komchadluek.net/news/edu-health/253415>

In term of teacher development, King Mongkut's University of Technology North Bangkok or as it is known in the past as "Technical Thailand - Germany" has an important role in this sector tremendously because the university is the origin of the German Dual system and passed along to Thailand through the German expert Council in building teachers and education system that become successful and being recognized. Currently, Thai-German Dual Education and e-Learning Development Institute (TGDE) is established to support the responsibilities.

#### **1.4 Research Question**

Educational institutions in vocational education in Thailand is familiarized with education quality assurance both being internal assessment and external assessment. They are accountable for quality assurance of the colleges. It is possible that many institutions and their internal organizations possess higher standard and can be developed into being excellent and beyond which lead to public recognition. Some of the institutions might have already been excellent but have never been accredited for excellence. However, some institutions do not have any of the qualities for being excellent but more or less exaggerate to build good image for the institutions for public acceptance.

The researcher is interested to study the method, model, assessment tool or establishment of agencies involved in education, training, human resource development under a Vocational Education. The researcher aim to collect guidelines in establishing Center of Excellence in Thailand by comparing case studies concerning the operation and standard in Germany. The researcher would apply scientific principle in the studies. However, the primary phase of the research was refined using the following “Key questions” to understanding Excellence:

- What is excellence?
- How is it currently recognized?
- What criteria can be used to assess the application of excellence?
- Can excellence be achieved through quality assurance?

- What current examples are there of excellence in scientific approaches?

Although, definitive answers to all these questions may not be provided, but the researcher hopes it helps to clarify the significance of these issues. It is intended to make a contribution to the broader issue of how the concept of excellence can promote adherence to standards in agencies in education sector and drive quality enhancement. The ultimate goals of the research is to seek, study, compare and analyze to provide answers to the questions below;

1. What is “CoE for TVET” ? How many types are they of ?
2. How is it currently recognized for the “CoE in TVET” ?
3. What approaches should be taken to promote a better understanding of definitions, classification, and operations of “a COE in TVET” ?
4. How will there be techniques or processes in the pursuit of components, attributes that indicate status of excellence of TVET CoE ?
5. Are there any examples of centers of excellence or comparable organizations existing in Thailand? And how do those organizations have required elements and characteristics of excellence?
6. In what dimension does Thailand need TVET Center of Excellence?

## **1.5 Hypotheses**

- 1.5.1 Society of vocational schools and academics in Thailand is still ambiguous about different perceptions and directions of understanding toward "Excellence", no matter in dimensions of meaning, composition, approach, process, and method to access the excellence state, till it has become a barrier to the development of vocational education institutions into the state of excellence in the international context. Illumination of such relevance through a scientific approach and comparative analysis will lead to a major guiding framework, which is clearer, at both policy and operational levels.
- 1.5.2 Vocational schools with strong quality management systems and academic production mechanisms have the opportunity to enter into the status of excellence rather than weakened vocational schools when considering a comparative analysis of qualification.
- 1.5.3 Lessons learned on academic excellence; using case examples from developed countries or countries with internationally recognized vocational education systems such as Singapore, England and countries in Europe to compare with

case examples in Thailand based on scientific approaches; will bring about the rational academic analysis - synthesis process, and will introduce principles or prototype models appropriate for Thailand to concretely develop a center of vocational excellence rather than utilizing within- country comparative study or monocultural study.

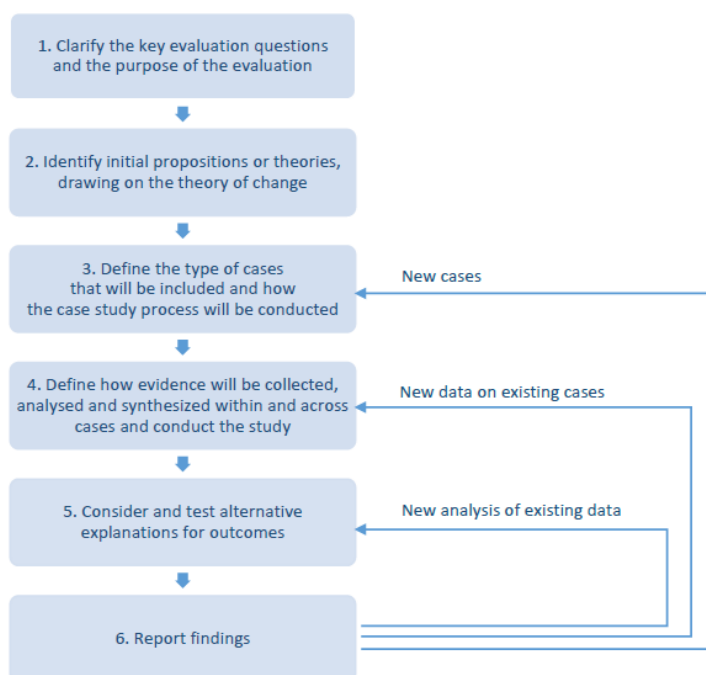
- 1.5.4 When applying the analytical process, it is clear that some Thai vocational schools have the strengths and opportunities that representing the potential advantage of establishing an International Center of Excellence for Vocational Education, as compared to other countries in the same region. And engaging in the academic cooperation with the industrialized nations will help to link international academic competitive excellence to be more explicit and acceptable, and also will be able to respond well to the challenges of a global education development direction, labor market demand, and migrant workers' mobility behaviors in the context of the 21<sup>st</sup> century world, such as the creation of intercultural competence, skills, working internationally, including the creation and development of educational personnel to have quality accredited globally.

## **1.6 Purpose of research**

- 1.6.1 To study the definition of " excellence" in order to achieve clear definition of "Excellence in Technical and Vocational Education and Training"
- 1.6.2 To study policies and moments of the excellence in vocational education of Thailand in the contexts and to seek vocational institutions that administer using the policies above.
- 1.6.3 To study patterns and compare educational management through case studies of vocational colleges in Thailand, particularly the views of excellence and internal recognition.
- 1.6.4 To study and compare and analysis of the differences and similarities between Thai and another countries vocational colleges that meet a state of excellence.
- 1.6.5 To study and analyze the possibilities that vocational colleges Thailand will attain to the status of excellence under international framework or comparative studies conducted in another countries.

## 1.7 Method and Scope of the Research

In addition to the aim of this research which is to study the definition, nature understanding and factors of "excellence" according to international perspective and also to clarify particularly for vocational education in Thailand. This is to provide in-depth research that can be beneficial to the public and visualized clearly worldwide. Due to the aims mentioned, comparative case studies between Thailand and another countries are required.



**Figure 1.2:** The logic of comparative case studies (Goodrick, 2014)<sup>19</sup>

Comparative Case Studies was developed by the United Nation Children's Fund: UNICEF in 2014 as shown in diagram above (Figure 1.2). the case studies were based on the discussion of case study designs in Yin, Robert K., Case study research: Design and methods. However, scientific approach will be adopted to control the research methods in order to ensure that the procedures is carried out systematically, controllable and verifiable. The scope of this research focuses on covering, answering the research questions and verifying hypothesis

<sup>19</sup> Goodrick, D. (2014). Methodological Briefs Impact Evaluation No. 9: Comparative Case Studies. Florence: UNICEF. p. 3.

- 1.7.1. The research studies definitions, meaning, characteristics, factors and point of views of "Excellence in a global context".
- 1.7.2. The research studies definitions, meaning, characteristics, factors point of views and tools "Excellence in vocational Education".
- 1.7.3 The research examines case studies, policies and activities that bring about the development of excellence in Vocational Education of Thailand, both in the past and present.
- 1.7.4 The research examines educational policies of Thailand that imply or reflect the appreciation and gratitude that vocational education system of another countries is regarded as a perfect model of excellence.
- 1.7.5 The research examines case studies and compares between Thai vocational education and vocational education in another countries that are considered to have excellence characteristics.
- 1.7.6 The research analyzes and synthesizes data to acquire prototype procedure and guideline to develop the institutions responsible for vocational education in Thailand towards achieving global recognition of being excellent and to extend international collaboration in education in the near future.



## Chapter 2

### **Quality: Matters behind the scenes of excellence for vocational education**

Before studying anything, understanding the true meaning of the key words of that study is essential so that the essence of the study obtained is framed and fully covers all- dimensional perspectives. Therefore, this topic will present the results of the query, “Excellence”; through the viewpoint of academics, experts, experienced professionals, or on behalf of an organization that has a direct stake in performing to bring people, society, or agency towards the goal of “Excellence”; which may provide more extensive content and details than what is included in the generic reliable dictionary as each individual or organization possesses different direction of excellence.

#### **2.1 Definition and dimension of quality in the VET sector**

As researched into the following context, it is known that "in other words, quality is an important proportion or is an indicator of the state of excellence". Hence, an attempt to understand the meaning and the dimensions of quality is a matter to closely pay attention on. Certainly, in general, quality is often defined as having a connection with the image of the business, because according to the universal understanding, quality is originated to measure and certify something that is bound to conducting business competition as a genesis. There are many definitions of quality, and people often view it differently because of differences in their roles in the production- marketing- consumption chain and in their expectations for products or services, for example,

Goetsch & Davis (1994)<sup>1</sup> stated that Quality is a dynamic state associated with product, services, people, processes, and environments that meet Customer needs and expectations and help produce superior value.

Uthumporn Charmonman (1999)<sup>2</sup> has provided the meaning of quality as a good characteristic, doing the right thing fitting for purpose, and an accomplish or attainment. *The quality of something can be determined by comparing a set of inherent characteristics with a set of requirements. If those inherent characteristics meet all requirements, high or excellent quality is achieved. If those characteristics do not meet*

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<sup>1</sup> Goetsch, D. & Davis, S. (1995). *Implementing Total Quality*. New Jersey: Prentice-Hall, Inc. p. 4.

<sup>2</sup> Charmonman, U. (1999). *Quality Assurance in the School*. Bangkok: Kurusapa.

*all requirements, a low or poor level of quality is achieved. Quality is always relative to a set of requirements* (Praxiom Research Group Limited, 2017).<sup>3</sup>

Or, if eye the definition of educational organizations, found that UNESCO definition of quality, in higher education, for example, conflates quality with the purposes and mechanisms for measuring quality. It states:

Quality (Academic): Quality in higher education is a multi-dimensional, multilevel, and dynamic concept that relates to the contextual settings of an educational model, to the institutional mission and objectives, as well as to specific standards within a given system, institution, programme, or discipline.

Some opinions still viewed that it is difficult to define the quality of a particular sector because quality often refer to the objectives and goals of the organization, or the work that may be dissimilar. For the vocational education, there is no different. For instance, the Danish Ministry of Education has formulated it as follows in its description of the quality strategy for the VET sector:

“[...] it is not possible to say anything definitive and universal about quality in an education system. It is neither possible nor desirable to authorise one specific concept – be it in regard to methods or objectives and values. This is a basic democratic principle, which takes into consideration the fact that it is possible to achieve the same goals by different routes and with different means and methods (Danish Ministry of Education, 2008)”<sup>4</sup>.

Due to the above, the background scene behind The Danish approach to quality is just specifying an introduction to the basic concepts, and it was formulated as follows:

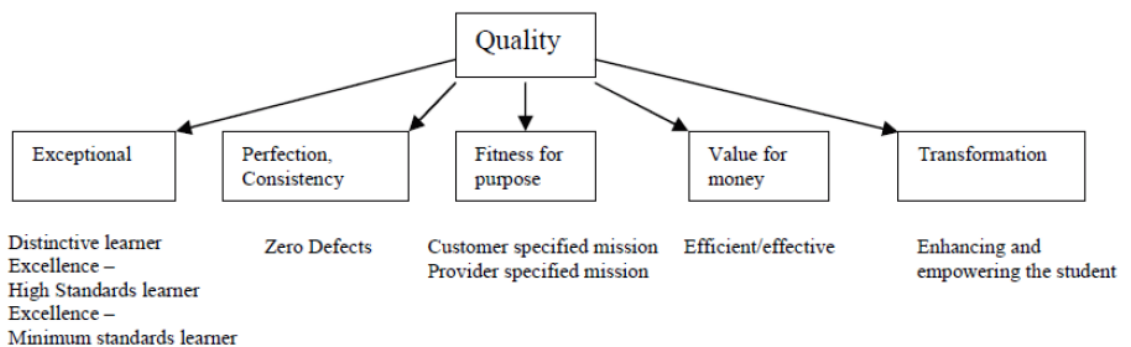
“Quality concerns the processes and the results achieved by an educational institution. In order to establish the basis for “good quality”, it is necessary to define what is valuable to attain, i.e., what does the institution strive for. Only in this way is it possible to decide whether the institution is close to what has been formulated as “good quality” within an area. From such a point of departure, the crucial issue is to formulate objectives and consider methods to attain these objectives. That is why quality is all about deliberate change and development. (Danish Ministry of Education, 2008)”

One of the highly- accepted and cited approach to defining quality following an organization's objectives or goals through classification by “dimension” is "The Harvey and Green model (1993)". It has also been applied for marking out quality in the vocational context in GIZ- accredited reporting documents through 5- dimensional classification as shown in Fig. 2.1.

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<sup>3</sup>Praxiom Research Group Limited (2017). *ISO 9000, 9001, and 9004 Quality management definitions*. <https://www.praxiom.com/iso-definition.htm>

<sup>4</sup>Danish Ministry of Education (2008). *The Danish Approach to Quality in Vocational Education and Training*. <http://static.uvm.dk/publikationer/2008/vetquality2/kap01.html>



**Figure 2.1:** Definitions for quality (Watty, 2003)<sup>5</sup>

Each dimension can be briefly defined as follows:

Dimension of Exception: Distinctive, embodied in excellence, passing a minimum set of standards.

Dimension of Perfection: Zero defects, getting things right the first time (focus on process as opposed to inputs and outputs).

Dimension of Fitness for purpose: Relates quality to a purpose, defined by the provider.

Dimension of Value for money: A focus on efficiency and effectiveness, measuring outputs against inputs. A populist notion of quality (government).

Dimension of Transformation: A qualitative change; education is about doing something to the student as opposed to something for the consumer: includes concepts of enhancing and empowering: democratisation of the process, not just outcomes. (Watty, 2005)<sup>6</sup>

However, Watty (2003) has suggested that the dimension of quality as perfection can be omitted or eliminated if the education does not aim to produce defect-free graduates. The report also states that quality is a multi-dimensional notion, by contrasting with the basic systems theory consisted of input, output, and outcome that may make the interest given in the content of each element vary in each course or institution, e.g.,

*Quality of Input:* teachers, teaching materials, learning environment, physical resources  
*Quality of Processes:* teaching processes, management processes, administration and support processes) and

*Quality of Outcome:* which includes a quantitative dimension such as courses delivered, number of graduates passed and a qualitative aspect as level and usability of competencies acquired.

<sup>5</sup> Watty, K. (2003). *When will Academics Learn about Quality?*. Quality in Higher Education, Vol. 9, No. 3

<sup>6</sup> Watty, K. (2005). *"Quality in accounting education: what say the academics?"*. Quality Assurance in Education, Vol. 13 Iss: 2 pp. 120 - 131

Visser describes quality in VET as being broadly comprised of not only output (that is, successful attainment of course objectives) but also the professional status of teachers, the nature of training institutions and the teaching and learning process, improvement and innovation processes and the attributes of incoming students (Visser, 1994).

Quality is not a new subject in education. Institutions, teachers, administrators and policy makers have always been concerned with quality. Even without adopting a formal ‘quality’ approach, VET providers have needed to develop methods, norms, procedures and standards that allowed them to ensure the quality of their provision. However, the notion of quality has often been ill-defined, defined in a narrow sense, or not defined at all. (Berghe, 1997)<sup>7</sup>

Perceptions of quality in vocational education, one facet is based on the diversity of diverse stakeholders such as employers, instructors, trainers, government, and society, since each stakeholder will appreciate different aspects of quality.

## **2.2 "Quality" an impact factor of excellence in VET**

There are many words that provide different meaning in different context. “Quality” is one of those popular words often means different things to different people. For example, the International Standard ISO 8402:1994 states “quality is defined as the totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs”<sup>8</sup> From industrial perspective, the standard usage of “quality” is defined as a measure of excellence or a state of being free from defects, deficiencies and significant variations.<sup>9</sup> For complementing a person or describing objects or location, Quality is defined as: an inherent or distinguishing characteristic; a property; a personal trait, especially a character trait; superiority of kind or degree or grade of excellence.<sup>10</sup> For education (Bernard, 1999) classically defined it as

“In all aspects of the school and its surrounding education community, the rights of the whole child, and all children, to survival, protection, development and participation are at the centre. This means that the focus is on learning which strengthens the capacities of children to act progressively on their own behalf through the acquisition of relevant

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<sup>7</sup> Berghe, D. V. (1997). *The impacts and success factors of ISO9001 in education: Experiences from Portuguese vocational schools*. International Journal of Quality & Reliability Management, Vol. 29 Iss: 4 pp. 384 – 401.

<sup>8</sup> Australian/New Zealand Standard (1994). *ISO 8402:1994 - Quality management and quality assurance – Vocabulary*. Homebush NSW: Australia. p. 5.

<sup>9</sup> Merriam-Webster (2014). *Quality – Definition*. <https://www.merriam-webster.com/dictionary/quality>.

<sup>10</sup> Free Dictionary (2014). *Quality – Definition of Quality*. <https://www.thefreedictionary.com/quality>.

knowledge, useful skills and appropriate attitudes; and which creates for children, and helps them create for themselves and others, places of safety, security and healthy interaction. (Bernard, 1999)”<sup>11</sup>

If narrowly defined within teaching and studying context, “Quality of education is seen as encompassing access, teaching and learning processes and outcomes in ways that are influenced both by context and by the range and quality of inputs available. It should be remembered that agreement about the objectives and aims of education will frame any discussion of quality and that such agreement embodies moral, political and epistemological issues the determinants of education quality are analysed according to the extent to which variables from different dimensions result in improved human development and change. (Paul, 2014)”<sup>12</sup>

Quality of education is important to the development of Thailand, also indicating the quality of the society. This is because education is the most important source of developing human resource. At the same time, If discussion the relationship between the student and the educational institutions, quality and the image of the educational institutions is also an important deciding factor for the student when choosing the school. The ratio between perspective TVET student and college students is only at 36:64. One of the reason of the ratio is the lack of confidence in educational management and the supports provided to TVET student. These are factors directly related to educational quality, which resulted to the "last choice education" effect for TVET. The high-quality TVET will be a tool to help remove this stigma and leads to a higher status and improved attractiveness of TVET.

Through international understanding, the ability to reach the standard system of quality requires a tool called the standards of Quality Assurance and Quality Control, especially the Quality Assurance which international organization that directly involved in TVET such as UNEVOC (2014) clearly stated that “*Also, high quality TVET programmes guarantee a strong link between what is learn and the needs of the labour market, with*

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<sup>11</sup> Bernard, A. (1999). *The child-friendly school: a summary*. New York: UNICEF.

<sup>12</sup> Paul, S. (2014). *Understanding the Quality Education: A Policy Perspective*. International Journal of Scientific Research, Vol. 3, Iss. 4 pp. 129 - 130.

*the result that graduates are more likely to find suitable employment. Quality assurance is therefore essential at all levels throughout the TVET system.”* UNEVOC also provides benefits and advantages of having the Quality Assurance as following:

Quality assurance in TVET also helps ensure that:

- The education system – and the TVET system, as part of it – is developed in ways that allow enough flexibility for the individual to move from one educational strand to another (“articulation”);
- There is coordination among the Ministries involved with TVET, because responsibilities for TVET are often split between Ministries of Education and Ministries of Labour. This has resulted in the establishment of special TVET Authorities in many countries;
- Standards are set in order to guarantee a minimum quality for every aspect of TVET;
- Quality is monitored both at the institutional level and among the teaching and training staff;
- Curricula are in line with the requirements of the labour market;
- Training institutions interact closely with the world of work;
- The learner benefits from sufficient practical and theoretical elements throughout the training;
- Teaching and training staff are well-qualified, knowledgeable about the world of work, and available in sufficient numbers;
- Facilities correspond with latest requirements and technologies, are well-maintained and available in sufficient numbers;
- The delivery methods allow for a maximum learning effect;
- Vocational guidance is available from the beginning of the learner’s training (the right choice of programme), during the training (learning matters, personal problems, financial difficulties, etc.), and at the end of the training (finding employment).<sup>13</sup>

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<sup>13</sup>UNESCO (1984). *Terminology of Technical and Vocational Education*. Bonn: UNESCO-UNEVOC. pp. 23-24.

Quality Assurance in the European Union subsequent to the Declaration of the European Ministers of Vocational Education and Training, and the European Commission, convened in Copenhagen on 29 and 30 November 2002, on enhanced European cooperation in vocational education and training or the so called “The Copenhagen Declaration”, Europe has developed the Common Quality Assurance Framework (CQAF) in VET together through an effort to increasing transparency and consistency between Member States. It provides a common framework and tools to Member States to improve, monitor and evaluate their quality assurance policies and practices. The CQAF consists of four main components:

- (1) a model;
- (2) a method for assessment and review;
- (3) a monitoring system; and
- (4) a measurement tool.

A set of coherent quality indicators was also developed, which includes input, process, output and outcome measures in VET.<sup>14</sup>

In Asia-Pacific, there are still sporadic discussion related to the work of Asia Pacific Accreditation and Certification Commission (APACC) in ensuring the quality of TVET qualifications in Asia-Pacific. Colombo Plan Staff College for Technician Education is leading the effort.

However, the main obstacle is that almost all member countries has its own quality frameworks, including Thailand where current TVET policies follow goals set out in the National Economic and Social Development Plan and the National Education Plan No.12 (2017 – 2021). For the quality of TVET programs, it is set and monitored by the Quality Assurance and Education Standards Section of the Office of the Vocational Education Commission (OVEC) based on the Vocational Education Act that is consistent with the Ministry of Education’s Announcement on system, criteria, and implementation on educational quality (2010) and related TVET standards set by

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<sup>14</sup>European Commission (2004). *Copenhagen Declaration*. [http://libserver.cedefop.europa.eu/vetelib/eu/pub/commission/dgeac/2004\\_0018\\_en.pdf](http://libserver.cedefop.europa.eu/vetelib/eu/pub/commission/dgeac/2004_0018_en.pdf)

OVEC and MoE, TVET institutions are encouraged to set their own TVET College Standards according to official regulations. Annual self-evaluation and Self-Assessment Reports (SAR) are required for reporting to OVEC in order to help promote the quality of TVET programs. In additions, TVET will receive the internal quality assessment from OVEC every 3 years. The external quality assessment from the Office of the National Education Standards and Quality Assurance (NESQA) is responsible for implementing the assessment once every four years.

### **2.3 Quality approaches: Strategies to improve excellence status**

“Excellence is the factor state of excelling ;superiority; eminence. Comparison or competition is one of the measurement for excellence. However, there is no clear bench mark for excellence. It is comparative. Thus, using standard and quality is necessary. TVET center of excellence need to set a standard criteria and matrices to measure the progress of the excellence center to be able to evaluate whether the excellence center meet all the qualitative requirement. Meeting many matrices and requirement can be translated to higher quality in comparison to other organization using the same matrices. For example, excellence in teaching resource, teaching facility, technology, curriculum and worthiness of tuition paid by students, etc.

Not only in the industrial segment, international standards and quality controls such as ISO, MBNQA or EFQM have matrices for educational institutions to be certified that they met the standards. Such standards lead to a more scientific perspective of excellence such as a more tangible and provable systems and process.

Stability and sustainability of excellence is hard to pin point in practice. Although institutions can be certified to meet certain standards, the standards have its validity period and institutions are required to be recertified. The quality certification for renowned institutions is costly and has other hidden cost.

The institutions or personnel perceive that quality and excellence are troublesome process. To start, and before jumping into a more complicated process, institution should begin with basic infrastructure such as PCDA circuit or other basic process that are appropriate for their entity.”<sup>15</sup> This dissertation will present on Quality approach which is quite necessary to support the initiation of excellence which will discuss the general approach or to the adaptation in the process and in the perspective of education.

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<sup>15</sup> Interview of Prof. Dr. paed. habil. Gisela Wiesner, 25 April 2018



### 2.3.1 The Juran Trilogy: Basic architect of Quality Management

Juran's work linked from Deming's, which has been systematically planned from start to finish through a quality control circle or PCDA-Cycle in one dimension, by focusing particularly on product acquisition, has shifted attention to the dimensions of the human dimension of quality management. The emphasis is on the importance of executive training, as well as on the perception that the key issues of quality are resistance to change and human relations problems. In addition, Juran developed an approach for cross-functional management consisting of 3 activities related to quality management system, which is:



**Figure 2.2:** The Juran Trilogy<sup>16</sup>

Quality Planning: The Process for preparing to meet quality goals.

Quality Control: The process for meeting quality goals during operations. and

Quality Improvement: The process for breaking through to unprecedented levels of performance.<sup>17</sup>

Thus, the methods that will be used for quality improvement by Deming's Quality Circles which composit of four-continuous development process: Plan-Do-Check-Act, is another method that can be selected for this activity.

**Table 2.1:** Examples of activities defining for 3 quality activities (Adapted from: Juran, 1989)<sup>18</sup>

1) Quality Planning: QP, examples of activities:

Establish quality goals
Identify who the customers are
Determine the needs of the customers

<sup>16</sup> <https://www.whatissixsigma.net/jurans-quality-trilogy/>

<sup>17</sup> James R. E. & William M. L. (2008). *Managing for Quality and Performance Excellence (7<sup>th</sup> ed.)*. Mason: South Western Educational. p. 108.

<sup>18</sup> Juran, J. M. (1989). *Juran on Leadership For Quality*. New York: Free Press. p. 22.

Develop product features that respond to customers' needs
Develop processes able to produce the product features
Establish process controls
Transfer the plans to the operating forces
2) Quality Control: QC, examples of activities:
Evaluate actual performance
Compare actual performance with quality goals
Act on the difference
3) Quality Improvement: QI, examples of activities
Prove the need
Establish the infrastructure Identify the improvement projects
Identify the improvement projects
Establish project teams
Provide the teams with resources, training, and motivation to: Diagnose the causes Stimulate remedies
Establish controls to hold the gains

### 2.3.2 Approaches to quality and quality objectives

At this point, it will be notion linked from The Juran Quality Trilogy. Juran was the first to broaden the understanding of quality control, emphasising the importance of the managerial aspect. His first writing was published under the title “Quality Control Handbook” in 1951 which highlights the importance Juran has received for his contribution towards our understanding of TQM (Krüger, 2001)<sup>19</sup>. Juran’s body of knowledge has become the cornerstone and approaches to quality to date.

According to the researcher’s brief investigation, each country establishes quality systems and indicators to strengthen their vocational education systems, which may be different or have a proportion of similarities on the same approach, as it has been demonstrated in the final report of the European Quality Assurance Framework (CQAF) postulates to cover “at the same time ... all the core criteria for promoting quality in VET” and also respects “the different local choices within each Member State (Faurshou, 2003)<sup>20</sup>. ” Thus, it can be said that “System’s choice of quality indicators is the approach that it takes to establishing and implementing frameworks and processes intended to encourage quality (Blom & Meyers, 2003).”<sup>21</sup>

When focusing on the main approach of quality management of the modern age, which encompasses vocational education system as well, besides quality control and quality improvement that often use the principle of total quality management as a significant improvement approaches, quality assurance is also another important aspect that plays a critical role for the quality system in terms of certifying and creating confidence for

<sup>19</sup> Krüger, V. (2001). *Main schools of TQM: “The big five”*. The TQM Magazine, Vol. 13 .No. 3 pp. 146-155.

<sup>20</sup> Faurshou, K. (2003). *Technical Working Group on Quality in VET: A European Common Quality Assurance Framework*. CEDEFOP: European Centre for the Development of Vocational Training. p. 23.

<sup>21</sup> Blom, K. & Meyers, D. (2003). *Quality indicators in vocational education and training: International perspectives*. Adelaide SA: NCVET. p. 3.

stakeholders. There are organizations and individuals providing clarity on these approaches. The details are as follows:

**1) Quality control** measures are typically implemented at the state and institute levels. Initial vocational education and training provision tends to be controlled at the national level in most European countries, but the market ultimately controls much continuing vocational education and training provision. No matter how widely quality control is pursued within institutes or across entire states, Van den Berghe points out that within educational as opposed to industrial contexts, there is one dimension over which providers have no control: “After all, training and education are intangible services, with the customers themselves being partially responsible for the result (Blom & Meyers, 2003)”

**2) Quality assurance** is itself a process that requires standards to be defined, procedures to be monitored, and non-conformance to be analysed and remedied. External processes are applied by external agencies such as auditors or accreditation agencies to determine the organisation’s compliance with externally imposed quality criteria. A system of internal quality assurance is generally assumed to precede the application of an external one (Nielsen & Visser, 1997)<sup>22</sup>. Accreditation, assessment and audit are considered as the approaches to quality assurance that are appropriately applied to the work in different manners.

- *Accreditation:* In the United States accreditation of both programs and institutions is the main quality assurance method (Eaton, 2004)<sup>23</sup>, and is also a method in quality assurance in OECD countries. The purpose of Accreditation is to evaluate through indicators to determine whether or not a vocational institution or a learning program meets quality and standards. The output of an accreditation is a yes / no decision, though graduations are also possible (Woodhouse, 1999)<sup>24</sup>. Mostly, the greatness of the benefit received from Accreditation is that the school will receive a quality label, the label that indicates recognition (recognised) quality seal), which results in creating a positive image of the institution associated with the perception, communication to customers. In Germany, quality labels have been created at national level, but award-winning processes are also taking place also at sector level (as a result of VET providers active in the same branches) or in some parts of the VET system only. , 2009)
- *Assessment:* To raise the question: “How good is your institution’s performance outcome?” seems to be a good answer for the basic meaning and understanding of the assessment process, and the result received will be utilized to indicate or determine the levels of quality. Program and

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<sup>22</sup> Nielsen, S.P. & Visser, K. (1997). *Quality debate in initial vocational education (School-based quality measures at intermediate level: A Danish-Dutch comparison)*. CEDEFOP: Thessaloniki.

<sup>23</sup> Eaton, J. S. (2004). *Accreditation and Recognition of Qualifications in Higher Education: the United States, in Quality and Recognition in Higher Education*. OECD.

<sup>24</sup> Woodhouse, D. (1999). *Quality and Quality Assurance: Quality and Internationalisation in Higher Education*. OECD-IMHE.

institutional assessments are widely used by European QAAs. Program evaluation is one of the most frequently used methods. (Viktoria Kis, 2003).

- Audit: “The process of examining to confirm that the work process is reaching a status or reaching an extent that the vocational institution should be certified whether is of a quality, but an audit will look at processes that lead to effective outcomes rather than look at the outcome alone.” Woodhouse (1999) states that a quality audit checks the extent to which the institution is achieving its own explicit or implicit objectives. For ISO (Standards New Zealand, 1994)<sup>25</sup>, it defines quality audit as a three - part process, from the entire process of checking 1) the suitability of the planned quality procedures in relation to the stated objectives; 2) the conformity of the actual quality activities with the plans; and 3) the effectiveness of the activities in achieving the stated objectives.

**3) Quality improvement** is an organisational strategy and a management approach, underpinned by a philosophical commitment to continuous improvement. It requires the involvement of all employees, and is focused on increasing the organisation’s effectiveness in achieving customer satisfaction by working towards the improvement of those areas and processes which have been identified as needing to be improved. (Blom & Meyers, 2003)

Total quality management (TQM), besides being a brilliant philosophy since 1951 by W. Edwards Deming, and today still maintains the principle of remembrance, like the Deming Prize has long been recognized as an indicator of excellence in business (Walton, 1986)<sup>26</sup>. There are various definitions given to a term TQM, including as the best known of the quality improvement approaches.

Total Quality Management is “*a people-focused management system that aims at continual increase in customer satisfaction at continually lower real cost. Total Quality is a total system approach (not a separate area or program) and an integral part of high-level strategy. It works horizontally across functions and departments, involving all employees, top to bottom, and extends backward and forward to include the supply chain and the customer chain. (Vijayan & Ramakrishnan, 2014)*”<sup>27</sup> Such definition is part of the quote cited by Kenneth McKay Hamburg (2003)<sup>28</sup> in order to lead to the defining based on his perspective, which is, Looking at this definition, one must understand that TQM is a complete approach to management practices and cannot simply be another program an organization implements as a separate measure to supplement other practices.

Even though each organization chooses to use the quality management system, TQM is most likely to develop its own approach to total quality management to suit its

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<sup>25</sup> Australian/New Zealand Standard (1994). *ISO 8402:1994 - Quality management and quality assurance – Vocabulary*. Homebush NSW: Australia.

<sup>26</sup> Walton, M. (1986). *The Deming management method*. New York: Putnum.

<sup>27</sup> Vijayan, V. & Ramakrishnan, H. (2014). *Total Quality Management*. New Delhi: S.Chand. p. 13.

<sup>28</sup> Hamburg, K.M. (2003). *TQM & The Malcolm Baldrige Award*. University of Tennessee Honors: Thesis Projects.

particular culture and management style. However, these applications and deployments must be within the framework of “Total Quality Management Principles”, i. e., The 8 Primary Elements of TQM determined by European Foundation for Quality Management (2001)<sup>29</sup>, is consisted of:

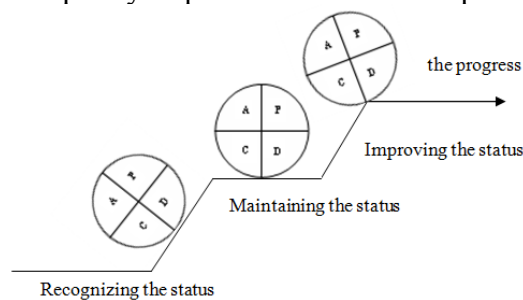
- results orientation
- leadership and constancy of purpose
- management by processes and facts
- people development and involvement
- continuous learning, improvement and innovation.
- customer focus
- partnership development
- public responsibility

Sunthorn (1999)<sup>30</sup> has classifies the meaning of TQM into three contexts;

T (Total): Allowing involvement of everyone in the organization in the establishment and management of quality system, which is directly associated with both external customer and internal customer.

Q (Quality): Creating of customer satisfaction mainly towards utilization of goods and services. In addition, quality is also associated with the systematic approach of management, which is, any systematic actions that continue and follow the original concept of a quality cycle called the PDCA cycle, which is detailed by W. Edwards Deming. From Figure X.xix is a replication of a quality wheel that, if driven continuously in each subset of the organization, will entirely produce a holistic quality system or known as TQM.

M (Management): System of management or quality management of the organization, operated and controlled by top management level, including vision, mission statement, and strategic management, as well as a presence of the leadership that commits to organization’s continuous quality improvement and development.



- P = Plan is analyzing of the current status to plan for the solution.
- D = Do is implementing the planed operation.
- C = Check is assessing the results of implementing the planned operation.
- A = Act is taking corrective action. If does not achieve the target, go through the Deming Cycle (PDCA) again. If the target is achieved, then set as a standard.

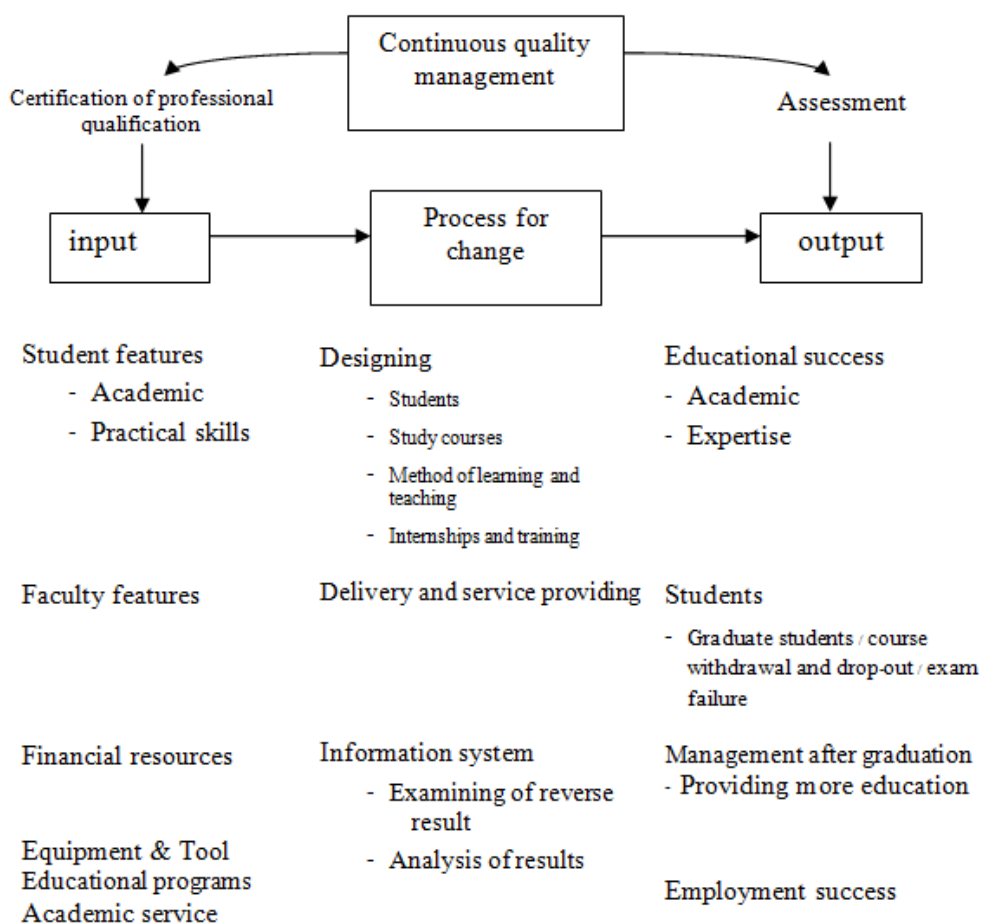
**Figure 2.3:** Quality Cycle called Deming’s PDCA cycle (Sunthorn, 1999).

<sup>29</sup> The European Foundation for Quality Management Excellence Model (2001). <http://www.efqm.org/award.htm>.

<sup>30</sup> Pullpipatana, S. (1999). *TQM application on education sector*. Bangkok: TPA.

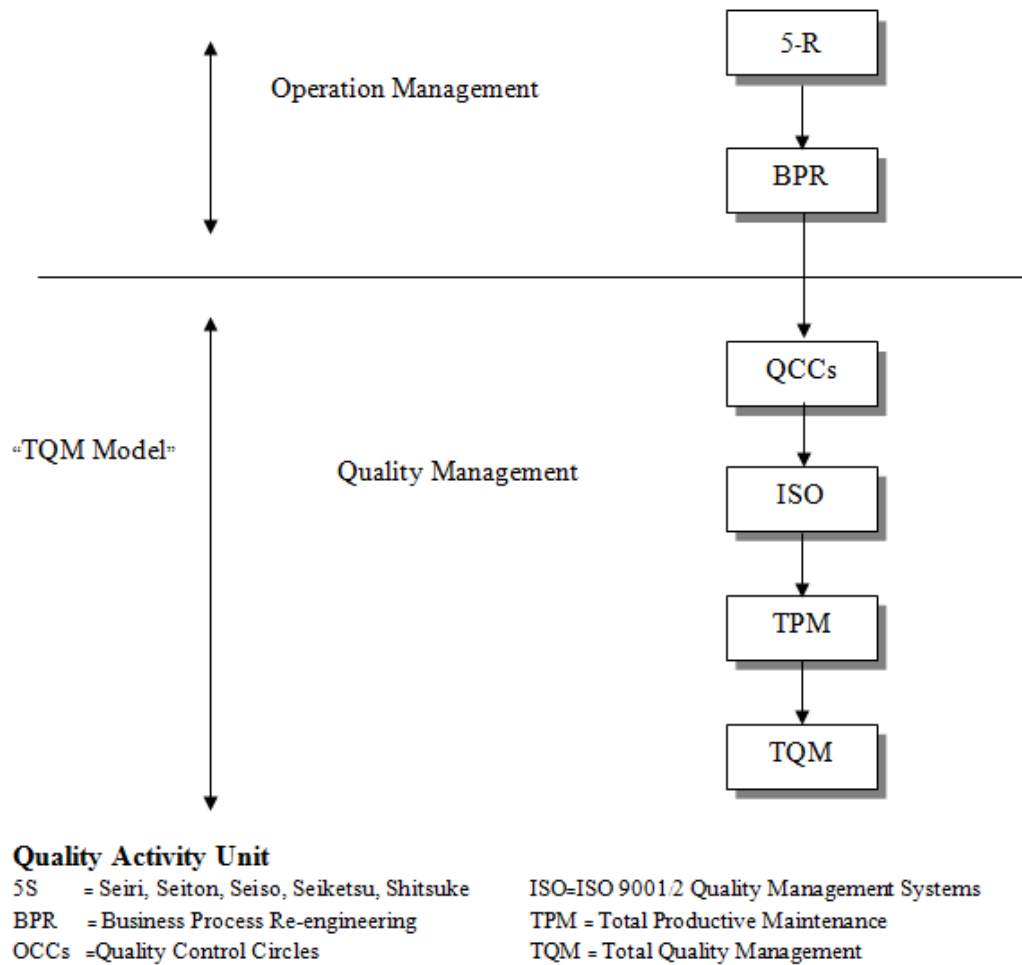
The concept of applying TQM to all type of educational institutions, including vocational schools, may identify basic structure and main components into two characters:

- 1) Systematic approach, which is embedded in system theory, because educational management is a system or an educational system. The system consisted of three basic components: input, processing units and outputs, which may be classified to have the structure as a brief detailed diagram shown in Figure 2.4



**Figure 2.4:** Concept of systematic TQM and the application with TVET institution (Sunthorn, 1999)

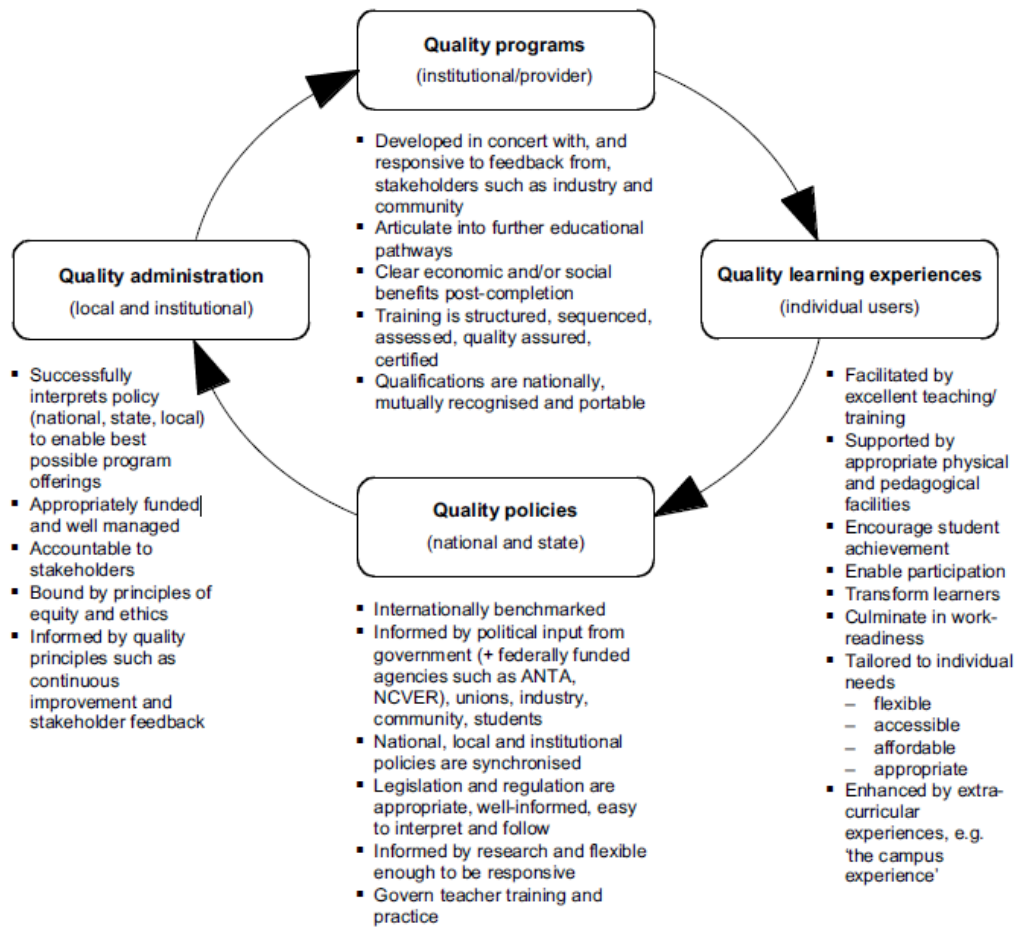
- 2) Basic quality units Approach: Feigenbaum (1991, cited in Sunthorn, 1999) states that an organization consists of a continuous management of core quality activity unit from the beginning level to the highest level. The composition and structure shown in Fig. 2.5.



**Figure 2.5** TQM Model based on basic quality units (Sunthorn, 1999)

It is imperative to go deeper into TQM details than any other approach, because TQM is a must-practice process foundation for agencies that wish to receive ISO certification, as well as self-nomination to the process of Quality award for excellence like Malcolm Baldrige or EFQM.

Quality approaches, when viewed in the VET dimension, no matter the vocational institution and the regulatory organization will choose which approach to use for quality management in education by adopting and adept in alignment with the organization's intent, these quality approaches should cover quality objectives that are consistent with the underlying subsystems of the quality system which Kaaren Blom and David Meyers (2003) have described that Vocational education and training systems may also be thought of as being comprised of four interacting subsystems, the performance of each of which is measured against its own quality criteria. There are four subsystems in which VET systems measure the quality of their performances, namely policies, administration, programs and learning experiences. Occasionally it may appear that subsystems have conflicting performance measures. A diagrammatic representation of these interacting subsystems is shown at figure 2.6



**Figure 2.6:** The four interacting subsystems of quality VET systems  
(Blom & Meyers, 2003)

When considering Figure 2.6, the dimension of the educational quality system can also be distinguished into two categories:

- 1) Dimension of systemic quality (policies and administration), and
- 2) Dimension of quality of training and learning ( programs and learning experiences).



## Chapter 3

### Centre of Vocational Excellence (CoVE)

This chapter offers an essential enlightenment for a better understanding towards the significance to establish the Centre of Vocational Excellence, especially in vocational education. It analyzes and synthesizes the data from the existing academic and commercial sources based on the fact that, in most cases, “excellence” is referred to as a foundation term for competitions. Many entities being recognized as or perceived by target audiences in business conduct as “excellent”, are generally “abstract”. In practice, there are only a few entities actually worthy of a true “excellence” judging by appropriate criteria—having “concrete” evidence of activities and components. Exemplifying an existing Centre of Excellence would promote a better understanding both in terms of definition and characteristics. In addition, it can also create an indication guideline similarly to an “integrated and innovative source tool” that the researcher attempted to innovate after examining existing tools and principles to achieve a practical approach or model to establish the basic state of TVET Centre of Excellence.

#### 3.1 How to understand the characteristics and definition of “Centre of Vocational Excellence (CoVE)” ?

As mentioned in Charter 1 that Excellence comes from the Latin *excellere* "excellent" or *excellentia* "excellence", metonymically "higher position". In conclusion, “Excellence” is referred to as an institution or a person has a higher position or function or in a special field. Chapter 3 will dig deeper into theoretical insight on academic viewpoint of excellence that will be adopted into the process of establishment of centers of excellence in vocational school as well as seek to highlight the existence and evolution of vocational education system in relation to some emerging interpretations of excellence.

The case of England could be one of the most salient examples when it comes to the “Centre of Vocational Excellence: CoVE” as most of the provided definitions are found in a congruent direction as elaborated below:

Centre of Vocational Excellence (CoVE) is a further education (FE) college or other training provider which is judged to provide high-quality specialist work-based learning in a specific vocational area. Thus, an FE college might become a CoVE for Construction and the Built Environment, for example. The programme was launched in 2001 by the Learning and Skills Council with the aim of improving the further education sector's capacity to provide vocational training of a high quality in response to employers' needs.<sup>1</sup>

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<sup>1</sup> *Centre of Vocational Excellence*. Retrieved from:  
<http://www.oxfordreference.com/view/10.1093/oi/authority.20110803095558401>

CoVEs are specialist areas of vocational provision characterised by close links between colleges, other providers, business partners, other employment interests and communities. They aim to produce appropriately qualified and skilled workers with excellent employment and career prospects which meet the needs of the economy. (Learning and Skills Council, 2011)<sup>2</sup>

Centre of Vocational Excellence (CoVE) is a status given to departments in further education colleges (and some third party training companies) in England. It is intended as a kind of quality guarantee for vocational teaching, and is awarded by the Learning and Skills Council if the teaching is of good quality and if the department offers a range of courses with progression routes up to Level 3 or beyond in the National Qualifications Framework.<sup>3</sup> There currently 400 departments given the CoVE status as exemplified in Table 3.1

**Table 3.1:** An example of CoVEs in England<sup>4</sup>

Lead Provider	Partner	Title of CoVE	Sector Skill Council	Area of Learning
Abingdon & Witney College	Henly College	ICT Systems & Support	e-skills	Information/Communication/Technology
Access Training Limited	Gateshead College	Gateshead Business & Management	Skillfast	Business/Admin/Management/Professional
Aylesbury Training Group	ISIS Training Services LTD	Engineering Practice & Productivity	SEMTA	Engineering/Technology/Manufacturing
BAE Systems PLC		Aeronautical Engineering	SEMTA	Engineering/Technology/Manufacturing
Building Crafts College		Traditional Building Craft	ConstructionSkills	Construction
Carshalton College	Bromley College	Electro-Technical	Summitskills	Construction
Central Sussex College	Chichester College	Care & Training in the Workplace	Skills for Care	Health/Social Care/Public Services
City College Brighton & Hove		Digital Design Production	Skillsset/CCI Skills	Visual/Performing Arts/Media
College of West Anglia		Retail Management	Skillsmart Retail Ltd	Retailing/Customer Service/Transport
Cornwall College		ICT Networking Skills	e-skills	Information/Communication/Technology
Croydon College		Building Services Engineering	Summitskills	Construction
Dearne Valley College		Leisure Service Industries	Skills Active	Hospitality/Sports/Leisure/Travel
Derby College		IT	e-skills	Information/Communication/Technology
EAGIT (Engineering) Ltd		Engineering	SEMTA	Engineering/Technology/Manufacturing
EMPOWER		Electrical Energy	Energy & Utility Skills	Engineering/Technology/Manufacturing
Filton College		Gas Installation	Energy & Utility Skills	Construction
Four Counties Training Ltd	Barnet College	The Rail Competence Centre	Go Skills	Engineering/Technology/Manufacturing
Gateshead College		Automotive Technology	Automotive Skills	Engineering/Technology/Manufacturing
Godalming College		Social Care, Adults & Children in Care	Skills for Care	Health/Social Care/Public Services
Grantham College		Multi Skilling & Maintenance	SEMTA	Engineering/Technology/Manufacturing
Greenwich Community College	Tower Hamlets College	Health & Care	Skills for Care/Skills for Health	Health/Social Care/Public Services
Greenwich Community College		Tourism Training for London	People 1st/CCI	Hospitality/Sports/Leisure/Travel
Guildford College		Travel & Tourism	People 1st/Go Skills/CCI	Hospitality/Sports/Leisure/Travel
Guildford College		Accountancy & Finance	Financial Services Skills	Business/Admin/Management/Professional
Harlow College	Barnfield College	Aviation Operation on the Group	Skills for Logistics	Retailing/customer service/Transport
Harpury College	Duchy College	Food & Drink Technology	Improve	Engineering/Technology/Manufacturing
Havering College		Electrical Installation	Summitskills	Construction
Hawk Management (UK) Ltd		Retail	Skillsmart Retail Ltd	Retailing/Customer Service/Transport
Henley College Coventry		Computing & E-Skills Technologies	e-skills	Information/Communication/Technology
Hertford Regional College		Children's Care, Learning & Developm	Children's Workforce Develop	Health/Social Care/Public Services

Table 3.1 shows that in England, CoVEs have been established as a unit of an educational institution. In addition, each unit also functions as a specialized training center in which it is named after its specific expertise or excellence based on the responsible skill council and divided according to an area of learning. According to the aforementioned definition, it seems that “Centre of Vocational Excellence: CoVE” is defined following the way a center offers its training services, knowledge,

<sup>2</sup> Learning and Skills Council, (2001). *Centres of Vocational Excellence*. Coventry: Learning and Skills Council.

<sup>3</sup> Centre of Vocational Excellence. Retrieved from: [https://en.wikipedia.org/wiki/Centre\\_of\\_Vocational\\_Excellence](https://en.wikipedia.org/wiki/Centre_of_Vocational_Excellence)

<sup>4</sup> *List of colleges with CoVE status*. Retrieved from: <https://web.archive.org/>

and specialization purposely to produce and develop labor or personnel to meet the needs of the labor market following the economic strategy.

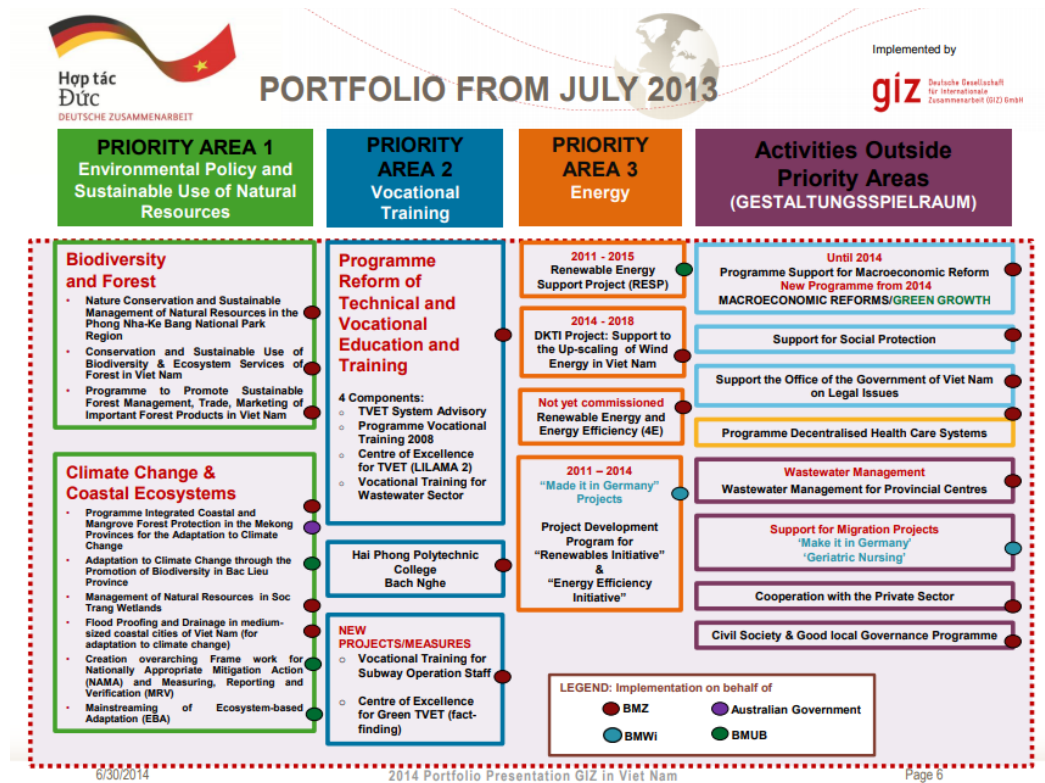


Figure 3.1: GIZ’s projects in Vietnam and “LILAMA 2 centre of excellence”<sup>5</sup>

After conducting some research, a piece of interesting information was found to be comparable to a case study. It is pertaining to the establishments of centers of excellence in various countries of Southeast Asia under a collaboration of the German Federal Ministry for Economic Cooperation and Development (BMZ). According to the study report by the GIZ, it was found that an effort has been made to establish centres of excellence for vocational education under a project named “LILAMA 2 centre of excellence”. This particular effort is part of the reform on technical and vocational education and training in Vietnam. Such arrangement demonstrates that the understanding towards centers of excellence in a congruent direction with England as it was mentioned “The Government of Viet Nam has therefore put vocational skills training and employment promotion at the heart of its development goals. By 2020, the proportion of trained workers should have risen to 55% from its current 30%. At the same time, vocational training should become more closely oriented to the needs of a green economy. The centre of excellence LILAMA 2 is capable of offering needs-

<sup>5</sup>GIZ (2014). *Portfolio Presentation GIZ in Viet Nam*. Retrieved from: [https://www.unescap.org/sites/default/files/Day1%20Session%203\\_%20Andreas%20Schneider%20GIZ%20in%20Viet%20Nam.pdf](https://www.unescap.org/sites/default/files/Day1%20Session%203_%20Andreas%20Schneider%20GIZ%20in%20Viet%20Nam.pdf)

driven vocational education and training and further training in line with international standards.” (Sommer, 2015)<sup>6</sup>

The project sought to establish a developmental network for basic training sessions by employing high-quality curricula and referring to “international standards” when defining or determining the preliminary concept as an initial step towards being a center of excellence. A brief detail as and sequence were stated in TVET Report Vietnam 2015: “Centres of Excellence” in Focus. More in detail as follows:

Concept CoE for TVET in Viet Nam

Function 1 of CoE: Providing high-quality and employment-relevant initial and further training following international standard. The term “High quality of TVET” is defined below:

- TVET according to the occupational standards (international) defined by the industry employers
- Strong workplace-oriented TVET (Cooperation with business community)
- 3-layer approach for workshops in TVET institutes in Vietnam

Function 2 of CoE: Fulfilling additional tasks for the Vietnamese TVET system

- Further training institute for TVET teachers and trainers in the occupational area(s) in which the CoE is specialized
- Hub for national and international networks for TVET;
- Partner institute for TVET innovation and applied TVET research;
- Assessment and certification centre attached to the CoE;
- Information and resource centre for GDVT/MoLISA, TVET institutes across the country and the Vietnamese society at large;
- Advisory institute for management personnel of other TVET providers.

In addition, the general criteria for CoE were developed e.g. 1) Practice- and demand-oriented training concepts and training implementation, 2) Highly competent teaching, training and management staff, 3) Efficient Organizational Set-up, 4) Sufficient financial means and institutional guarantees, and 5) Fulfill TVET System tasks. (Hung, Viet & Thu, 2016)<sup>7</sup>

The excellence of the vocational education can be established based on essential element. The element is distribution of system and responsibility. The founder can gradually begin to manage excellence from each minor element in order to lead to excellence in the entire system or in some aspects if they prefer.

In order to gain a better understanding of this, it would like to make some observations regarding the concept of educational excellence. Because sometimes excellence can be

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<sup>6</sup>Sommer, H. (2015). *Centres of Excellence (CoEs) for Technical and Vocational Education and Training (TVET)*. Hanoi : Labour and Social Publishing House, pp. 13-18.

<sup>7</sup> Hung, V. X., Viet, N. Q. & Thu, P. X. (2016). *Viet Nam Vocational Education and Training Report 2016*. Hanoi: National Institute for Vocational Education and Training.

defined and interpreted differently, Swanson (1984)<sup>8</sup> states that "In thinking about excellence, one's attention becomes attached to some dimensions or categories of excellence that can serve as a taxonomic arrangement ensuring that there is a kind of checklist for determining completeness of coverage. Some of the categories frequently employed are the following:

**Student excellence:** A category typically identified as the ability of students to perform in some distinctive way, usually shown by some proxy indicator of success as agile learners in the present and the promise of continued success in the future.

Because there are students who are slow learners as well as quick learners and because the economically and socially disadvantaged students tend to learn less rapidly. The issue of student excellence is often socially and politically volatile.

**Institutional excellence:** A category ordinarily based on institutional comparisons of some kind, and indicating the ability of an institution to excel in some category of a declared mission. The most well-known attribute of institutional excellence is the ability of an institution to assemble and to retain quick-learning and, thus, academically agile students, or, as a corollary, the ability to assemble and retain students who are highly motivated toward achieving one or more of the institution purposes.

**Institutional program excellence:** A category identified with institutional capacity in certain specified program areas such as the capacity of an institution to prepare, for example, distinguished artisans, scientists, or technicians.

**System excellence:** A category that is ill-defined but of obvious importance to describing the conditions within a state in which there is a carefully designed and functioning educational plan meant to guide the institutions, agencies and organizations in achieving desirable purposes at the highest level of overall system performance."

Swanson (1984) only gave examples in some aspects but there are other dimensions that need to be taken into account. However, there are dimensions of excellence in vocational education that are not so easily categorized or defined. In addition, excellence in the dimension of business, it should be above standard.

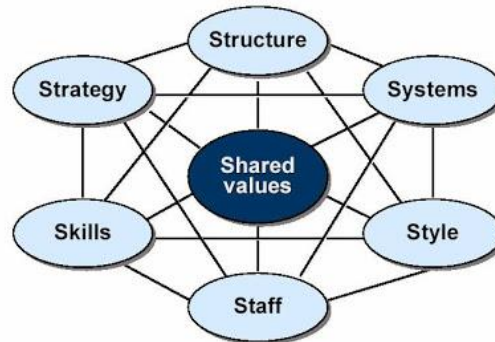
### **3.2 Classic Excellence Approaches**

First, it is essential to look into the accepted basic principles of excellence. By being accepted, the principles have to be recognized as "a classic theory or concept". After conducting some studies, it seems true as introduced earlier that the terms "excellence"

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<sup>8</sup> Swanson, G. I. (1984). *Excellence in Vocational Education: A Policy Perspective*. Ohio: The Ohio State University. p. 14.

should have been studied about and implemented on any action that is perceived to be beneficial to a business. Peters & Waterman (1982) published a comparative study using the same evaluation criteria to examine 62 selected leading American companies. The investigation determined companies' sustainability by tracing back as far into the 20 years of financial records along with some other evaluation on competitive edges. The companies that gained a favor in terms of competitive edges in this evaluation were those with a capacity to innovate and invent solutions. Eventually, only a few companies were determined to be "excellent".



**Figure 3.2:** McKinseys 7-S Framework<sup>9</sup>

The authors created an operational framework as a model of excellence called McKinsey's 7-S Framework. According to Figure 3.2, the models comprise the following seven success criteria for excellence: 1) Strategy, 2) Structure, 3) System, 4) Style, 5) Staff, 6) Skill, and 7) Shared Value, given that all the seven criterion elements are interconnected. In addition, Peters & Waterman<sup>10</sup> formulated the eight attributes of excellence post researching about the most successful companies which are briefly summarized in Table 3.2

**Table 3.2:** Eight characteristics of an excellent organization (adapted from and referenced to ...<sup>11,12</sup>)

Characteristics of excellence	Descriptions
A bias for action	'getting on with it'.
Close to the customer	learning from the people served by the business.
Autonomy and entrepreneurship	fostering innovation and nurturing 'champions'.
Productivity through people	treating rank and file employees as a source of quality.
Hands-on, value-driven	management philosophy that guides everyday practice – management showing its commitment.

<sup>9</sup> McKinseys 7-S Framework. Retrieved from: <http://minkk7.blogspot.com/2011/12/mckinsey-7-s-framework.html>

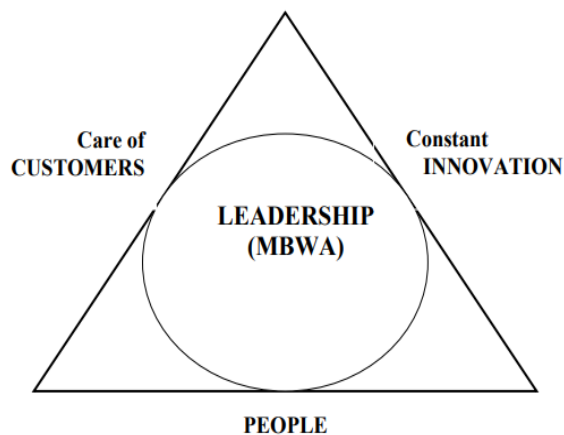
<sup>10</sup> Peters, T. J. & Waterman, R. H. (1982). *In Search of Excellence - Lessons from America's Best-Run Companies*. London: Harper Collins Publishers. pp. 13-16.

<sup>11</sup> *Excellence approach*. Retrieved from: <https://www.slideshare.net/krishi2923/excellence-approach>

<sup>12</sup> Peters, T. J. & Waterman, R. H. (1982). *In Search of Excellence - Lessons from America's Best-Run Companies*. London: Harper Collins Publishers.

Stick to the knitting	Remaining with the business the company knows best.
Simple form, lean staff	-Few administrative layers -Few people at the upper levels -Minimal number of people in Staff Support activities
Simultaneous loose-tight properties	Simultaneously used as a guideline to conduct both centralized and decentralized activities

To simplify the concept, later, Tom Peters and Nancy Austin (1985) developed a model known as “A Simple Model of Excellence” as exhibited in Figure 3.3



**Figure 3.3:** A Simple Model of Excellence (Peters, T. & Austin, N., 1985)<sup>13</sup>

Essentially, there are four of the following key components:

1. People, who practice
2. Care of customers and
3. Constant innovation.
4. Leadership which binds together the first three factors by using MBWA (Management by Wandering Around) at all levels of the organization. (Dahlgaard-Park & Dahlgaard, 2006)<sup>14</sup>

After reviewing both the McKinsey’s 7-S Framework and A Simple Model of Excellence, it was found that the other elements share a common ground or are related to general principles of good corporate governance and quality management system. This is except the “leadership” and “innovation” elements as they are meant to be far superior to simply dealing with quality management and administration. Both elements have the potential road to excellence in any work projects because when “leadership” and “innovation” are utilized together, they are likely to affect the decision to either maintain the status quo, lead a constant change, or innovate a new solution which could possibly make a better difference.

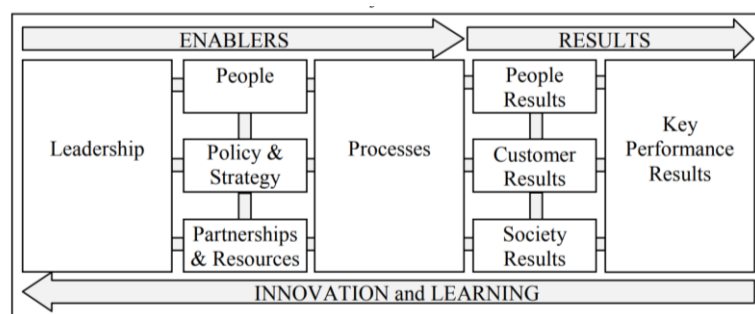
<sup>13</sup> Peters, T. J. & Austin, Nancy (1985), *A Passion for Excellence – The Leadership Difference*. London: Harper Collins Publishers.

<sup>14</sup> Dahlgaard-Park, S.M. & Dahlgaard, J.J. (2006). *In Search of Excellence - Past, Present and Future*. Munich: Carl Hanser Verlag. pp. 57 - 84.

### 3.3 Modern Excellence Approach and Education: EFQM – MBNQ

There are many individuals and organizations that define the definition of excellence in the way of competition, creating a system based on a model or a central requirement to enter an evaluation system of the external regulatory organization by utilizing an award as an indicator of “State of excellence”, for example,

The European Foundation for Quality Management (EFQM) has created the EFQM Excellence Model correspond with the definition, “Excellence is defined as outstanding practices in managing the organization and achieving results, all based on a set of eight fundamental concepts”. Fundamental concepts of excellence mentioned includes: 1) Results orientation 2) Customer focus 3) Leadership and constancy of purpose 4) Management by processes and facts 5) people development and involvement 6) Continuous learning, innovation and improvement 7) partnership development and 8) public responsibility, the Structure and coherence are presented in Fig. 3.4



**Figure 3.4:** The EFQM Excellence Model

(Çetin, F., Şeşen, H. & Basım, H.N., 2012)<sup>15</sup>

The concept of the EFQM Excellence Model is known for its Business excellence models. Although it is applied in the education sector, but may not comparable to the Malcolm Baldrige National Quality Award: MBNQA or the Baldrige Award that Witoon Simachokedee (2002)<sup>16</sup> has cited to define the meaning of Excellence as, "an organization awarded Quality Award with the universally recognized criteria such as National Quality Award called the MBNQA (Malcolm Baldrige National Quality Award) in the United States. There is an observation of Witoon Simachokedee's

<sup>15</sup> Çetin, F., Şeşen, H. & Basım, H.N. (2012). *Exploring the Effects of EFQM Excellence Model on the Process of Intrapreneurship: A Research from Turkey*. International Journal of Contemporary Economics and Administrative Sciences. Vol. 2, Iss: 4, pp. 173-191.

<sup>16</sup> Simachokedee, W. (2002). *Quality is Integration*. Bangkok: Technology Promotion Association (Thailand-Japan).



defining, which is, the defining reflects the objective of Baldrige Award which aims at praising organization with quality and efficiency Excellence. That is:

The Malcolm Baldrige National Quality Award (MBNQA) is presented annually by the President of the United States to organizations that demonstrate quality and performance excellence. Three awards may be given annually in each of six categories:

- 1) Manufacturing
- 2) Service company
- 3) Small business
- 4) Education
- 5) Healthcare
- 6) Nonprofit

In addition, the Baldrige Award is also a model for quality management and excellence for countries around the world, such as

- European Foundation for Quality Management (EFQM) – Used throughout Europe,
- Singapore Quality Award Model – Singapore,
- Japan Quality Award Model – Japan,
- Canadian Business Excellence Model – Canada,
- Australian Business Excellence Framework (ABEF) – Australia<sup>17</sup>

Including Thailand that organizes National Quality Award called the TQA (Thailand Quality Award) following the path of the "Baldrige Award". For Pasu Decharin (2006)<sup>18</sup>, also defined the definition of Excellence as a continuously success organization who delivers outstanding performance recognized in the identical business segment, generates business returns and generates sustainable returns for stakeholders, and possesses distinct capability of creating performance standard of excellence to build and maintain a superior competitiveness.

Although the overall definition, criteria, and key indicators of the EFQM are comprehensive in various scopes of operation similarly, in a sense, to MBNQA, specific Education Criteria for Performance Excellence have been set with key objectives in seven critical areas: 1) Leadership; 2) Strategy; 3) Customers; 4) Measurement, analysis, and knowledge management; 5) Workforce; 6) Operations; and 7) Results. One might be curious why the term “student” or other appropriate educational lexicon

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<sup>17</sup><http://www.businessexcellencetools.com/business-excellence/>

<sup>18</sup> Decharin, P. (2006). *A report on procedure of developing the basic model of high performance organization*. Retrieved from [https://www2.opdc.go.th/oldweb/thai/High\\_Performance\\_Organize/HighPerformanceOrganize.pdf](https://www2.opdc.go.th/oldweb/thai/High_Performance_Organize/HighPerformanceOrganize.pdf)

are not being used instead of “customers”, Brusoni (2014, p.11)<sup>19</sup> explained that “The Criteria view students as key customers and recognise that there may be other customers (e.g., parents).” and “In the Education Criteria, the concept of excellence includes three components:

- a well-conceived and well-executed assessment strategy;
- year-to-year improvement in key measures and indicators of performance, especially student learning; and
- a demonstrated leadership in performance and performance improvement relative to comparable organisations and appropriate benchmarks.”

The Baldrige framework 2017-2018 emphasizes the importance of 11 core values and concepts that represent beliefs and behaviors found in high-performing organizations including 1) Systems perspective, 2) Visionary leadership, 3) Student-centered excellence, 4) Valuing people, 5) Organizational learning and agility, 6) Focus on success, 7) Managing for innovation, 8) Management by fact, 9) Societal responsibility, 10) Ethics and transparency, and 11) Delivering value and results. However, when looking back and compare them to the Simple Model of Excellence by Tom Peters and Nancy Austin (1985)<sup>20</sup>, it is noticeable that “Innovation” still remains a crucial essence of the core values of the Baldrige Criteria for Performance Excellence in Education. It is as the researcher has discussed earlier that “Innovation” is the element that plays the most vital role in transforming and developing an organization towards excellence with utmost efficiency and sustainability.

These demonstrate that; besides the abstract meaning the individual or organization can claim to be the best on, may be for marketing purposes or showing en passant about prominence; achieving the state of Excellence can also be determined as a work plan or strategy that has verifiable references, indicators, and be tangible; however; there may be adjustments of conditions of entry into each level of excellence based on the context of the organization types or competitive relevance factors.

### **3.4 SEM & TVET Excellence Journey: The Singapore Experience**

#### **3.4.1 EFQM- MBNQA: The Foundation of the School Excellence Model**

To speak of the understanding and acceptance on excellent education system, for internationally recognized Southeast Asian nations, it is unlikely to deny Singapore's education system. With the country's land area of only 719.1 km<sup>2</sup> and a total population of 5,607,300 people, surveyed in 2016; nevertheless, the survey results of 2013 "The World Top 20 Education Poll" revealed that Singapore is ranked the third best education system in the world, based on the educational system survey from more than

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<sup>19</sup> Brusoni, M., Damian, R., Sauri, J.G., Jackson, S., Koemuercuegil, H., Malmdy, M., Matveeva O., Motova, G., Pizarz, S., Pol, P., Rostlund, A., Soboleva, E., Tavares, O. & Zobel, L. (2014). *The Concept of Excellence in Higher Education*. Brussels : ENQA AISBL.

<sup>20</sup> Peters, T. J. & Austin, Nancy (1985), *A Passion for Excellence – The Leadership Difference*. London: Harper Collins Publishers.

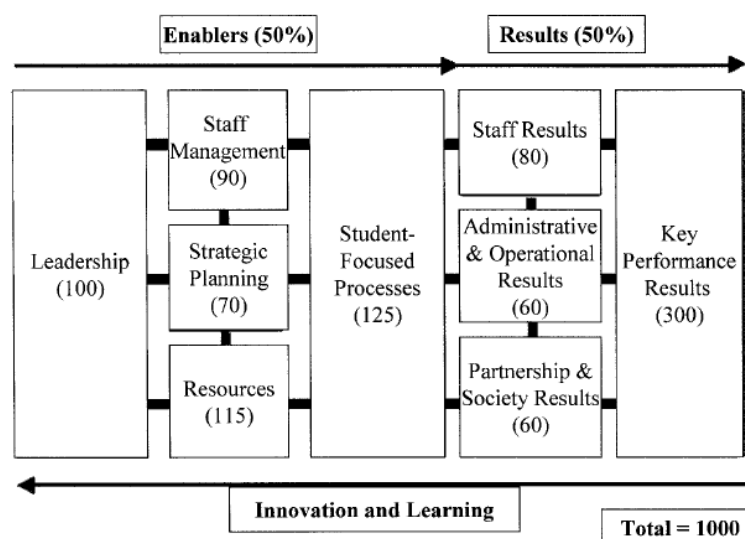
200 countries around the world to improve the educational potential of students aged 3-25 years. This survey is composed of five educational important factors:

1. Early childhood enrollment rates
2. Primary school Math, Science and Reading scores
3. Secondary school Math, Science and Reading scores
4. High School Graduation rates
5. College Graduation rates

The poll is conducted by a compilation of statistical data from 6 international organizations:

Organization for Economic Co-operation and Development: OECD, The Programme for International Student Assessment: PISA, United Nations Educational, Scientific and Cultural Organization: UNESCO, Economist Intelligence Unit: EIU, Trends in International Mathematics and Science Study: TIMSS and Progress in International Reading Literacy Study: PIRLS and afterwards send to each countries Ministry of Education to confirm accuracy of the data.

At present, the Singapore government drives and administers the country under the vision of 'Thinking Schools, Learning Nation' (TSLN). Schools in Singapore have developed themselves into excellent schools. The development has been evident since 2000. To this day, schools in Singapore choose to stay under the new School Excellence Model (SEM), adapted from a business excellence model. The SEM model is a self-assessment model, applied from the model of the European Foundation of Quality Management (EFQM), the foundation of the Singapore Quality Award (SQA) model, and used indicators for the educational context of the education version of the American Malcolm Baldrige National Quality Award Model (MBNQA) to achieve efficiency and suitability of the operation.



**Figure 3.5:** The School Excellence Model (SEM)<sup>21</sup>

<sup>21</sup>Ng, P. T., (2003). *The Singapore School and the School Excellence Model*. Educational Research for Policy and Practice 2. Netherlands : Kluwer Academic. pp. 27–39.

The SEM is driven by a set of core values, which completely defines the purposes and forms of the SEM. The SEM comprises nine quality criteria against which schools can be assessed (Ministry of Education, 2000)<sup>22</sup>, shown in figure 3.5:

- 1) Leadership: How school leaders and the school's leadership system address values and focus on student learning and performance excellence; and how the school addresses its responsibilities towards society.
- 2) Strategic Planning: How the school sets clear stakeholder- focused strategic directions; develops action plans to support its directions, deploys the plans and tracks performance.
- 3) Staff Management: How the school develops and utilizes the full potential of its staff to create an excellent school.
- 4) Resources: How the school manages its internal resources and its external partnerships effectively and efficiently in order to support its strategic planning and the operation of its processes.
- 5) Student-Focused Processes: How the school designs, implements, manages and improves key processes to provide a holistic education and works towards enhancing student well-being.
- 6) Administrative and Operational Results: What the school is achieving in relation to the efficiency and effectiveness of the school.
- 7) Staff Results: What the school is achieving in relation to the training and development, and morale of its staff.
- 8) Partnership and Society Results: What the school is achieving in relation to its partners and the community at large.
- 9) Key Performance Results: What the school is achieving in the holistic development of its students, in particular, the extent to which the school is able to achieve the Desired Outcomes of Education (Wee, 1998)<sup>23</sup>.

Overall, it can be described organizational leadership of the leader, strategic planning, and resource management are systematic factors that will lead to a clearer picture of the practice to the learner, a target audience of the main school work, including effective tracking and management systems. Perfection within the nine quality criteria results in employee and stakeholder satisfaction. Ultimately, society will benefit from the academia's quality output in the form of human resources, which is a reflection implicitly indicating the success and excellence of the educational institution itself.

### **3.4.2 TVET Excellence Journey**

After conducting a thorough study, it must first be mentioned that Singapore is a country that is full of Centers of Excellence on various disciplines. Base on the fact, the researcher would like to personally denominate Singapore as "the land of excellence". Many of these centers seek council from Singapore's leading educational institutions e.g. the National University of Singapore (NUS), Nanyang Technological University

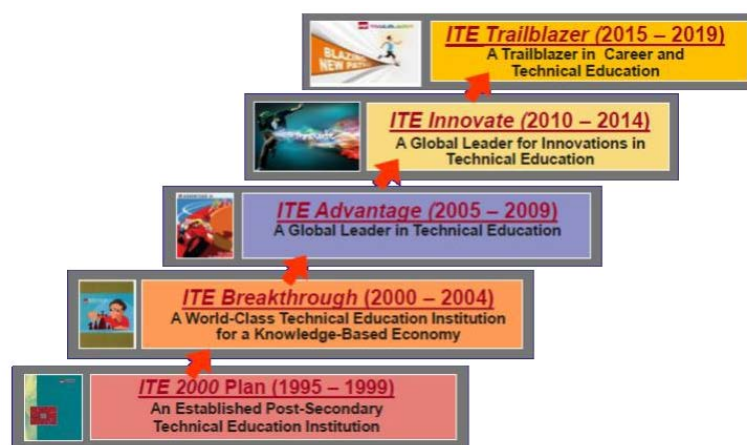
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<sup>22</sup> Ministry of Education, (2000). *"The School Excellence Model: A Guide"*. Singapore: The School Appraisal Branch, Schools Division, Ministry of Education.

<sup>23</sup> Wee, H. T. (1998). *The Desired Outcomes of Education*. Singapore: Ministry of Education.

(NTU), etc. In addition, it is also a nation with strong values in competition. In Singapore, it is quite a habit to commit the organizations into various systems for awards and certifications that demonstrate the state of excellence. Institute of Technical Education (ITE) is an example of an educational institution with such habit. ITE is not a University or a Polytechnic but it has achieved international recognition for its achievements and innovations in vocational and technical education. It has created a unique brand of an ITE College Education for those who are less academically-inclined. Its journey of transformation towards organizational excellence was a response to upgrade the system and change the image of VTE in Singapore (Seng, 2011)<sup>24</sup>. After analyzing the situation, it is found that there are three more values Singapore upholds: 1) planning, 2) setting goals, 3) achieving them within the time limit.

ITE is the principal provider of career and technical education in Singapore and development of occupational skills and standards as a post-secondary educational institution (ITE, 2017)<sup>25</sup>. It was established in 1982 after there was a review of school education and vocational training resulted in a crucial decision by the Ministry of Education in adopting a new policy of a minimum of 10 years of basic general education for all pupils in the school system. It became clear that to meet the skilled manpower needs of Singapore's future economic development, a primary school education was no longer sufficient for those who wished to pursue vocational and technical training. Employers need vocational graduates who have had a secondary education and higher-level NTC-2 skills in responding to the dynamic changes in an increasingly global economy (Seng, 2011). From that point onwards, it has now been over 2.5 decades that ITE has been issuing a roadmap every five years purposely to transform its institution into a leading organization with global excellence on TVET. A brief summary pertaining to this is demonstrated in Figure 3.6



**Figure 3.6:** Five-Yearly Strategic Roadmaps for Transformation (Poh, 2017)<sup>26</sup>

<sup>24</sup> Seng, L. S. (2011). *Case Study on “National Policies Linking TVET with Economic Expansion: Lessons from Singapore”*. The Education for All Global Monitoring Report: UNESCO.

<sup>25</sup> ITE., (2017). *ITE Highlights 2016/2017*. Annual Report. p. 3.

<sup>26</sup> Poh, B., (2017, December). *TVET Excellence Journey - The Singapore Experience*. Paper presented at the 7<sup>th</sup> International Skills Forum, Manila, Philippines.

In 2011, ITE celebrated its “20 years of excellence” and in that year, it was awarded the Singapore Quality Award with Special Commendation. This makes ITE the first Singaporean educational institution to receive such award. The ITE’s management spoke with pride, “this award is a strong endorsement of the systems and processes we have put in place to deliver the best education for our students. (Hai, 2011)<sup>27</sup>” Later on, it was also awarded the top Public Service Premier Award for Organisational Excellence in the Public Sector confirming the level of operational excellence of its personnel towards the public. Following the fourth roadmap, the two employed key indicators were found as its secret recipe to rapidly become successful.

“FY 2011 was a significant year for ITE. Just two years into the launch of our fourth Strategic Plan, ITE Innovate (2010 – 2014), we have made considerable progress towards our vision to be ‘A Global Leader for Innovations in Technical Education’. (Hai, 2011)”

ITE has constantly been trying to commit itself as an organization to both domestic and international systems of evaluation and indication to prove its level of quality and excellence. This is to drive the organization towards the goal i.e. being certified in quality and excellence from the certain systems. It is clear that such efforts are very important as an excerpt of the interview with Prof. Dr. paed. habil. Gisela Wiesner (2018) presented in Chapter 2, “in practice, stability and sustainability of excellence are the type of qualities difficult to be measured. Even if an organization meets the requirements for standard certification, quality certification, award, or any sort of guarantee, when time progresses, experts agree that all of such certifications have a certain time limit following the criteria. They shall expire with an absence of a re-entry for an evaluation and review following the constantly updated conditions and indicators set forth by a certification body”. Table 3.3 provides a partial confirmation that ITE has been trying to remain itself in both the internal and external cycles of assessment.

**Table 3.3:** A timeline showing the ITE’s achievement and maintenance of excellence during 2009 – 2015 (adapted from Poh, 2017)<sup>28</sup>

Year	Award/Certification	Categories
2009	ITE-Quality Assurance Framework	Internal quality assurance
2007	Harvard IBM Innovations Awards	Transforming Government
2011	Public Service Premier Award	Top Organisational Excellence Award in Public Sector
2011	Singapore Quality Award: SQA	Special Commendation for World-Class Business Excellence
	The US League for Innovation	Innovation

Retrieved from : <https://k-learn.adb.org/system/files/materials/2017/12/201712-technical-and-vocational-education-and-training-excellence-journey-singapore-experience.pdf>

<sup>27</sup>Hai, T. B. B., (2011). *ITE Highlights 2011/2012*. Annual Report. p. 7.

<sup>28</sup> Poh, B., (2017, December). *TVET Excellence Journey - The Singapore Experience*. Paper presented at the 7<sup>th</sup> International Skills Forum, Manila, Philippines.

Retrieved from : <https://k-learn.adb.org/system/files/materials/2017/12/201712-technical-and-vocational-education-and-training-excellence-journey-singapore-experience.pdf>

	'Innovation of the Year' Award	
	Best Education Experience Award	"unique and compelling experiences"
	ISO 9001:2008 Certification	Quality Management System for Academic Programmes (Renewal)
2012	ITE-Quality Assurance Framework	Internal quality assurance
2015	ITE-Quality Assurance Framework	Internal quality assurance
2016	The Excellence in Public Service Awards (ExPSA)	Public Service
2016	National Youth Achievement Award (NYAA) Distinguished Partnership Award	In recognition of ITE's commitment and efforts in developing young people
2016	Wenhui (文暉) Award for Educational Innovation	Honourable Commendation
2016	The US League for Innovation 'Innovation of the Year' Award	Innovation

Presently, ITE is in line with the fifth ITE's strategic road map i.e. the ITE Trailblazer (2015 – 2019) and Skills Future whereby "ITE focused on programmes that expanded opportunities for students to build values, master skills and develop holistically, while enhancing organisational and staff capabilities. (ITE, 2017)" The Key Features of ITE System have been analyzed into eight of the following notions:

- 1) Having a Clear Mission: With a clear focus on its "Mission, Vision and Values", ITE has developed an inner spirit of commitment and teamwork in always asking how it can better serve, add value and meet the needs and expectations of students and stakeholders. As an educational institution built upon organizational excellence and best practices, it has nurtured a pervasive culture of care, especially the care and concerns of the staff for the students.
- 2) Addressing Needs of Lower 25% School Cohort: ITE has systematically restructured and transformed a former system of smaller traditional "vocational institutes" and regrouped them into a system of three modern and mega campuses called "ITE Colleges". Operating under a "One ITE, Three Colleges" system of governance, the colleges, each with a full-time student enrolment of 7200 and headed by a Principal, enjoy greater autonomy, economy of scale and flexibility in responding to changing needs. Addressing the needs of the lower 25% of a school cohort who are less academically-inclined, ITE has created alternative pathways, choices and diversity to the robustness of the Singapore education system.
- 3) Created a Unique Brand of an ITE Education: Called "Hands-on, Minds-on and Hearts-on", this is a holistic College education that provides the motivation, assists student learning and nurtures all-rounded graduates. Known for its quality, relevance and values, it produces highly employable and adaptable graduates who are ready to take on the challenges of a modern global economy.
- 4) Modern Campus Infrastructure: ITE's campuses are modern and well-equipped with extensive workshops, an IT-rich web-based environment, student support services and other sports and arts facilities. Purposefully built, it provides a conducive and experiential learning environment for the total development and experience of students. These modern campuses have been an important factor in changing the mindset and perception of the public and image of ITE.

- 5) A Rigorous Curriculum Development Process: Called “Developing A Curriculum” or “DACUM” Process, the skills standards and competencies to be acquired by students are derived directly in consultation with the major sectors of business and industry. To ensure relevance and a strong foundation in technical skills, typically 70% of curriculum time is allocated to practical and 30% theory.
- 6) A Process-Oriented Pedagogic Model: Called “Plan, Explore, Practise and Perform” or “PEPP” Model, the aim is to develop “thinking doers”, ie graduates who can apply what they have learned and put them into practice. The focus is on acquiring the three key competencies, ie technical, methodological and social in an experiential learning environment.
- 7) Close Partnership With Industry: Built on the mutual needs and benefits since the early days of Singapore’s efforts in industrialization, this partnership has further strengthened in terms of levels and quality of engagements. Leveraging on the knowledge, expertise and skills of industry technology leaders, established linkages with private industry includes Industry-based Training (IBT) Schemes, ITE Board representation, curriculum development committees, college advisory committees and Joint Centres of Technologies.
- 8) Branding – a New ITE image: The effort to communicate and rebrand the ITE Image was an integral part of its journey of transformation. Supported by a comprehensive marketing and rebranding programme, there was gradual turnaround in its public perception and image. Over a period of nine years, from 1997 to 2006, the image of ITE had significantly improved by 76%. (Seng, 2011, pp. 8-9)<sup>29</sup>

Apart from emphasizing organizational, systematic, and personnel excellence, ITE has also been trying to work on its students and has achieved a certain extent of success. An evidence of this notion was when it sent the students to WorldSkills Competition, a globally famous competition venue many nations are eager to send the representatives with professional excellence to. Although the venue emphasizes on the types of excellence on individual expertise, skills, and talents, to the eye of educational institutions, the attained achievements would create both direct and indirect beneficial effects anyway.

The researcher personally believes that what fundamentally matters and what helps ITE maintain its excellence are the efforts of committing itself to diverse systems of excellence full of criteria and indicators. To the very least, the Singapore Business Excellence Framework or SQA was a clear evidence for the notion as ITE has confirmed upon receiving the second Excellence in Public Service Awards (ExPSA) in 2016 that “true to our value of 'Excellence' and in our continual quest to seek new and better ways to create new and better value for our customers, students and stakeholders, we will be re-applying the SQA with Special Commendation award next year, in 2017. This will be another exciting journey ahead for all of us. (Poh, 2017)<sup>30</sup>” Nonetheless, by saying “to the very least” when mentioning the ITE’s attempt to operate under the

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<sup>29</sup> Seng, L. S. (2011). *Case Study on “National Policies Linking TVET with Economic Expansion: Lessons from Singapore”*. The Education for All Global Monitoring Report: UNESCO. pp. 8-9.

<sup>30</sup> Poh, B. (2017). Retrieved from : <https://www.facebook.com/ITESpore/posts/1067536936618734:0>



SQA Framework, the researcher believes that ITE was sending an important message with significant importance that ITE will stand firm as an organization of excellence because SQA is a sprout of both roots: EFQM that is recognized in Europe and MBNQA of the United States which is the precursor of the Nation Quality Approach with international applications and references as partially exemplified earlier. The ITE's firm position in TVET excellence has been well recognized until there emerged another type of mission i.e. ITE Education Services: ITEES producing operational results e.g. consultancy services to various TVET projects covering 27 countries in Asia, Africa, Middle East, and Latin America; training sessions to over 3,500 TVET organizational leaders; and professional development training to approximately 8,700 TVET trainers (Poh, 2017). This success on an international-scale collaboration expansion, working together, and reaching mutual benefits occurred based on an ITE's effort to convince that "perception equals reality" i.e. if an organization can practice, it is likely to be practical and realistically perceivable to the public.

## Chapter 4

### Conceptual Innovation: The Basic Approach to Establishing TVET-CoE Using Benchmarking<sup>1</sup>UPS<sup>1</sup>

In the previous chapter, the researcher clarified points of information including the perception, access, and maintenance of excellence. This chapter will discuss the classification of all globally existing centers of excellence which is based on perception, presentation, and public understanding.

1. **Uncertified Center of Excellence:** This type of center is commonly found in developing countries and having been established or transformed following a decision of an organization. Such center has either been newly founded or gone through a process of organizational change into a “center of excellence” or “other names of similar nature”. There are two subcategory of uncertified center of excellence:
  - 1.1 *Founded Center from Existing Facilities:* This type of center of excellence has either been newly established or gone through a process of organizational change based on a justified perception that such institution is “the most ready”, “superior in competition”, “well united”, and “well renowned” e.g. having had specialized human resource, modern technology and innovation, or adequately positive historical record or outcome to earn the public’s approval.
  - 1.2 *Founded Center in Name Only:* This type of center of excellence has either been newly established or gone through a process of organizational change based on no evidence of superiority nor that it meets any criteria of excellence. It has been founded in name only following the trend purposely to impress the public and obtain a certain expected benefit.
2. **Center of Excellence with Specific Certification:** The reason behind calling this type of center with “specific certification” is that there are many types of certifications and certifying bodies. Initially, statuses of certification can be classified based on the certifying bodies as follow:
  - 2.1 *Certifications from Specialized Bodies:* This refers to the centers of excellence that have gone through a meticulous certification process with clear measures of evaluation and high competition. Such certification might not directly address the terms “excellence” but rather provide a proof of passing certain criteria and qualification requirements that indirectly indicate, to a certain extent, a certain hard-earned quality of excellence. The examples of the specialized certifying bodies include

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<sup>1</sup> Unique Selling Proposition

ISO, EFQM, MBNQA, as well as other national-level certifications in the NQA family.

**2.2 Certifications and Special Awards from Special Bodies:** This refers to the centers of excellence that have earned a certain certification or received an award from a certification body that did not actually has an assessment system in place but rather a basic evaluation conduct incomparable to certification measures from specialized certifying bodies. An example includes a center receiving an award, certification, or national ministerial status upgrade. In most cases, it was given simply to celebrate a certain accomplishment; to signify that such center has been perceived having a sufficient expertise or outstanding outcome deserving the entitlement of such status; to offer a token of appreciation for outstanding business outcome; or to recognize its social contribution. Nonetheless, it does not indicate that such center with such earning is entitled to being a certified center of excellence. This matter must be further evaluated on a case-by-case basis.

**3. Center of Excellence with Excellence Affiliation:** This type of center may or may not have been certified with the status of excellence but it is somewhat unique. The researcher elected to mainly employ the characteristics and methods of operation based on this type of center and, in this paper, a proposition of the adapted guideline and model are going to be further presented. This unique category of CoE can be classified into two sub-sections, provided that a center could either employ the characteristics of one or both sub-sections in its operation.

**3.1 Center of Excellence with Internal Affiliation:** The researcher would like to call this type of center, “a subcenter or a center under organizational supervision”. It means that the subcenter is operated under a control of its commanding unit which could be a center or organization certified or recognized with the status of excellence. This type of center automatically inherit the status of excellence for sharing the systematic ecosystem or implicitly recognized with such status at least in terms of the public image. An establishment of CoE through this mean is a top-down strategy which adopts the advantages from its superior body and expand further.

**3.2 Center of Excellence with External Affiliation:** It is the case where a center seeks a collaboration from an external organization or center of excellence to enhance its very state of excellence. There are three objective directions for this type of collaboration to occur:

1) A Rapid Enhancement of Excellence: this is actually useful to an organization or center that is newly founded and aiming to develop itself into the state of excellence by relying on resources from a collaboration with another party with the state of excellence. The new organization would call this an affiliation of excellence and implicitly claim that its organization is or in a process of achieving the state of excellence as well. The examples of this collaboration include CoE for Tourism Training in Udai, Rajasthan, India or Vietnam-Singapore Vocational College which collaborate with ITEES

2) Excellent Strengthening: The reason why a center of excellence might collaborate with the other is that each center might have different advantages that they can use to complement one another both in terms of public image and other environmental factors which help promote an even better state of excellence.

3) Potential Expansion and Knowledge Exchange: Some types of center of excellence can hardly remain non-progressive. This is especially true when it comes to the fields of technology and innovation as they are so unpredictably prone to competitions. All bodies of knowledge, modern elements, and capacities to respond to the needs of the target groups are extremely crucial to the competition in providing a service satisfaction. The utilization of such collaboration usually serves both centers of excellence well by providing some essential competitive edges.

**4.1 Level Analysis - Policy Examining: First Things to be Aware and Considered**

As selected as the topic and objectives of the study, the establishment of TVET CoE shall be based on the needs of Thailand. Conducting a level analysis to sequence and stratify the matters on the excellence of vocational education in Thailand in policy, administrative, and operational levels would produce crystallized knowledge crucial to determine the correct research scope and direction before proceeding to other processes. This principle of "Level of Analysis" may be required to help ensure a consistent understanding of the social conditions of this dissertation.

**Table 4.1:** A policy, administrative, and operational stratification for the excellence of TVET in Thailand<sup>2</sup>

<b>Level</b> <b>Factor</b>	<b>Macro-level</b> (A larger system that influences clients, such as policies, administration of entitlement programs, and culture.)	<b>Meso-level</b> (Relationships among the systems in an environment.)	<b>Micro-level</b> (The system closest to the client.)
Organization	Thai Government: Ministry of Education, Office of the Vocational Education Commission	-Regional Vocational Institutions -Technological Universities that offer vocational education	-Vocational Institutions -The school or college affiliated to the university.
Framework	National strategies 20 policies (2017 – 2036)	-Management plans and policies of regional education sectors in line with the Macro-level - Act., Plans and policy in educational management technological university with Macro-level	-Plans, policies and programs of education that conforms to a particular school in Macro-level and Meso- level. -Plans, policies and programs of education
	The Twelfth National Economic and Social Development Plan (2017 - 2021)		
	The twelfth Education Development plan of		

<sup>2</sup> Adapted from: National Strategy Secretariat Office (2017). *The National Strategy (2018-2037)*. National Strategy Secretariat Office: Office of the National Economic and Social Development Board.

	Ministry of Education ( 2017-2021)		that conforms to a particular school in Macro-level and Meso-level.
	Policies, goals and strategies of manpower production in vocational education and development to international levels. ( 2012 – 2026)		

The Constitution of the Kingdom of Thailand, through the recent referendum held on August 7, 2016 has been designated a national strategy for the first 20 years of the constitution to put long-term goals for developing countries.

However, to resolve the issue according to the cabinet approval of the resolution proposed by the Cabinet Secretariat with a view to conclude that the development of the country in the past has often interrupted or terminated upon a change of government and cabinet or when there is a change of the national economic and social development plan "The emerge of the 20 years plan National Strategy 2017 to 2036 is to be used to propel the country into a "stable, prosperous and sustainable" and the incoming new government will be obliged by the constitution to drive this national strategy.

"The government prepared a national strategy that includes the goal for achieving sustainable development by good governance in order to provides a framework of plans. The strategies are created to be consistent and integrated together to achieve a common driving force towards these goals "(Article 65, Constitution of the Kingdom of Thailand. (Interim) Act 2014 Amendment (No. 4) 2517).

Considering the 20-year strategic plan in which arranged in the Macro-Level, the Twelfth National Economic and Social Development Plan (2017 - 2021) will need to provide same vision as National strategies 20-year policy

The Twelfth National Economic and Social Development Plan (2017 - 2021) has included country development strategies in part 4 of the plan and has given the strategy to strengthen and develop human capital as the first priority.

Vocational education sector concern most about the increase of student’s enrollment in vocational colleges. The ratio of enrollment in vocational colleges to general education in 2015 was 36:64 (National Strategy Secretariat Office, 2017, p.42)<sup>3</sup>

One of the major goals of this strategic plan was to provide Thai people with highest quality of education and consistent self-learning approaches. In the view of Excellence, guidelines were given as follows:

"Expanding the academic collaboration between vocational institutions, higher education, private institutions and experts both in the country and abroad. Developing

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<sup>3</sup> National Strategy Secretariat Office (2017). *The 12<sup>th</sup> National Economic and Social Development Plan*. National Strategy Secretariat Office: Office of the National Economic and Social Development Board.

specialized programs and research innovation as well as expanding competency base curriculum".

Moreover, vocational education is connected with strategy 9 in term of the development of urban areas and economic sectors according to infrastructure development, economic, social and environmental standards to improve the quality of life of citizens and supporting the economic development of the eastern porch by improving quality of vocational education, engineering and technology. The quality of vocational education will produce quality of manpower that meet the economic requirement in each aspect.

These policies must be transferred within Macro-level until it meets the reaction of TOP – DOWN – TOP which would considered successful.

Excellence in vocational training is one of the responses to the government policy of Ministry of Education by the Office of the Vocational Education Commission has scheduled a public power projects continue to raise the quality of the profession (Competitive Workforce), which is directly related to vocational education. "Excellence" is one of the four priorities (Quick Win) 4 there are:

- Re-branding to attract students in the secondary schools to realize the importance of vocational and more interested in vocational education.
- Excellence Model School determines the meaning and scope of good model of vocational institutions.
- Database (Demand and Supply) prepare the manpower requirement from industrial sector and manpower production quantity and capacity from the Office of Vocational Education Commission (VEC) in order to plan and distribute people according to demand of industries.
- Standard and Certification Center create common standards to form acceptable quality in vocational education and that can be implemented widely in public and private sectors. It also promotes professional compensation standards for the workforce.

## **4.2 Benchmarking: Learn from other sources, seek Best Practices, and adapt for excellence**

### **4.2.1 Popularity and Definition**

Techniques or tools used for constructing or improving an organization toward excellent are diverse, but the key is– they must be selected according to the appropriateness of their purpose of use and applicability that is consistent with things the organization wants to accomplish or the desired outcomes. Benchmarking is one of the top 10 management tools that continuously gains popularity and acceptance in terms of an increase in organization's competitive advantage. Figure 4.1 is the data of Bain & Company, a leading business management consultancy company, revealed the most popular 10 tools from its Management Tools and Trends Survey for 2011. This year the most popular tool to improve business performance was Benchmarking. Benchmarking has consistently been in the top 5 tools since 1993 and no. 1 tool since 2008. APQC<sup>4</sup> conducted a survey to learn reasons for selecting this tool of the sample

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<sup>4</sup>APQC: American Productivity & Quality Center

organizations around the world and reported the result in the State of Benchmarking 2009 Report, which is summarized in Table: 4.2

**Top 10 Management Tools**

1993	2000	2006	2008	2010
① Mission and Vision Statements	① Strategic Planning	① Strategic Planning	① Benchmarking	① Benchmarking
② Customer Satisfaction	② Mission and Vision Statements	② CRM	② Strategic Planning	② Strategic Planning
③ TQM	③ Benchmarking	③ Customer Segmentation	③ Mission and Vision Statements	③ Mission and Vision Statements
④ Competitor Profiling	④ Outsourcing	④ Benchmarking	④ CRM	④ CRM
⑤ Benchmarking	⑤ Customer Satisfaction	⑤ Mission and Vision Statements	⑤ Outsourcing	⑤ Outsourcing
⑥ Pay-for-Performance	⑥ Growth Strategies	⑥ Core Competencies	⑥ Balanced Scorecard	⑥ Balanced Scorecard
⑦ Reengineering	⑦ Strategic Alliances	⑦ Outsourcing	⑦ Customer Segmentation	⑦ Core Competencies
⑧ Strategic Alliances	⑧ Pay-for-Performance	⑧ Business Process Reengineering	⑧ Business Process Reengineering	⑧ Change Management Programs
⑨ Cycle Time Reduction	⑨ Customer Segmentation	⑨ Scenario and Contingency Planning	⑨ Core Competencies	⑨ Strategic Alliances
⑩ Self-Directed Teams	⑩ Core Competencies	⑩ Knowledge Management	⑩ Mergers and Acquisitions	⑩ Customer Segmentation

**Figure 4.1:** Management Tools & Trends 1993 – 2010<sup>5</sup>

**Table 4.2:** Reasons the organizations worldwide use Benchmarking as no.1 Management tools (2009)<sup>6</sup>

Proportion (%)	Opinion on using
73 %	As a tool for comparing with other organizations.
69%	As a tool to make a frog-leap and sustainable improvement
46 %	Can set challenging goals
39 %	Prepare to deal with problems and business changes

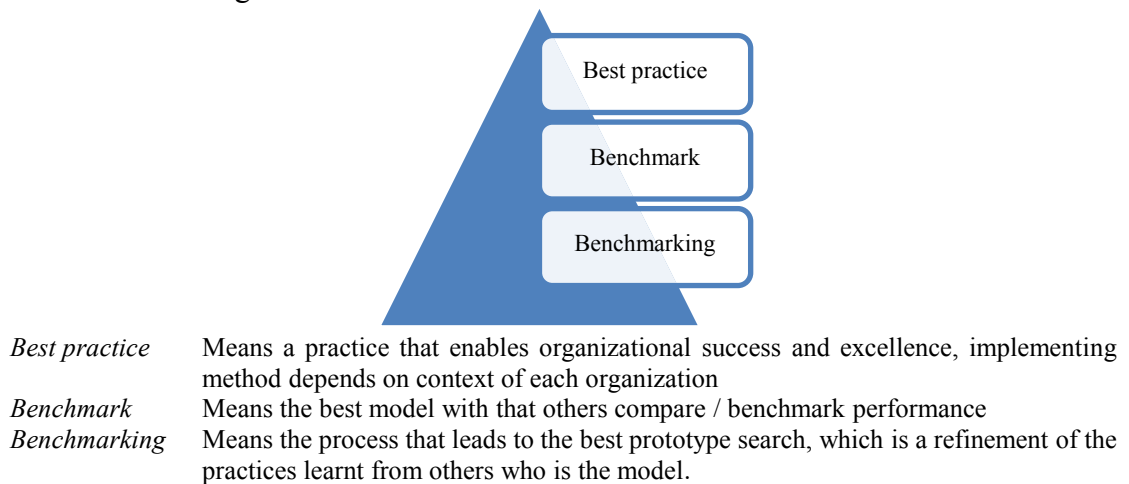
Benchmarking is both a lesson learnt and a result of great efforts before Xerox Corp., the most powerful business company of Japan, is about to collapse and a tool to revitalize the organization back to potential again. “Modern benchmarking was started by Xerox Corp. in the late 1970s. The largest copier manufacturer then initiated an effort to compare itself to competitors in terms of unit manufacturing costs and copier features. Such effort revealed that Xerox was lagging behind its Japanese competitors to a large degree in many areas. Xerox then implemented a strategy called “leadership through quality” to recapture its leading position in the market.” (Ou & Kleiner, 2015)<sup>7</sup>

<sup>5</sup>Bain&Company's global Management Tools and Trends Survey 2009. <http://www.bain.com>

<sup>6</sup>Thailand Productivity Institute (9 June 2013). <https://www.youtube.com/watch?v=uJIRnFP4W5M>.

<sup>7</sup>Ou, O. & Kleiner, H. B. (2015). *Excellence in Benchmarking*. Industrial Management: Institute of Industrial Engineers, Vol. 57. pp. 20-24.

Definition to promote understanding of Benchmarking was given in various views, for example, Vermeulen (2003)<sup>8</sup> indicated that benchmarking is the process of identifying, understanding and adapting best practices from inside the company or other business to help improve performance. Moreover, benchmarking is viewed as a continuous process used to measure performance gaps, to establish where “best practices” are and to introduce change capable of closing identified gaps (Rohlfer, 2004)<sup>9</sup>, which is compatible with David T. Kearns, the former CEO of Xerox Corporation who defined Benchmarking as “Continuous process of measuring products, services, and practices against the toughest competitors or those companies recognized as industry leaders.”<sup>10</sup> While Boondee Boonyakit and Kamolwan Siripanich (2005)<sup>11</sup> have studied and compiled the definition of Benchmarking by mentioning more about the relationship with other processes. That is, “Benchmarking refers to the point or position measured against the underlying model that has greater competency or is better, and then the comparison result is used for self-improvement to excellence. Benchmarking process using benchmark will lead to best practice and organizational improvement or development.” The relationship between Benchmarking, Benchmark, and Best Practice is illustrated in Figure 4.2



**Figure 4.2:** Hierarchical relationship between Benchmarking, Benchmark and Best practice

It can be concluded that Benchmarking is a tool that enhance greater use of the competitiveness to create a quantum leap improvement (breakthrough improvement), which the study found that it is used as a benchmark to identify potentialities of the quality awarding organizations, such as Malcom Baldrige National Quality Award (MBNQA), Thailand Quality Award (TQA) and Public Sector Management Quality Award (PMQA). The benefits of Benchmarking are: First, enables the organization find, from benchmarking, a point to be improved in order to elevate the performance of the

<sup>8</sup>Vermeulen, W. (2006). *The extent of benchmarking in the South African financial sector*. South African Journal of Economic and Management Sciences. Vol. 9. p. 315.

<sup>9</sup>Rohlfer, S. (2004). *Benchmarking concepts in the UK and Germany: A shared understanding among key players?*. Benchmarking: An International Journal. Vol. 11. pp. 521-539.

<sup>10</sup><http://www.pearl advisorygroup.com>

<sup>11</sup>Boonyakit, B. & Siripanich, K. (2005). *Benchmarking the best way to business excellence*. Bangkok: FTPI.



process. Follows by, seeking out the method and learn from those who are better than the Best Practices in order to create a leap- frog improvement to get at the best. Furthermore, helps to find key strategic issues through learning from other organizations. In addition, creates Benchmark reference points to be set as your organization goals as well as encourage employees' learning and motivate changes and improvement in the organization efficiently.

#### 4.2.2 Type and scope

Basically, benchmarking is classified into three major types, internal benchmarking, external benchmarking and best practice benchmarking (Zairi & Youssef 1996)<sup>12</sup>. However, according to the study by Bhutta, & Huq, (1999)<sup>13</sup> and Ou & Kleiner, (2015)<sup>14</sup>, totally it is classified into seven subcategories:

1. Performance Benchmarking or Industry benchmarking, it refers to the comparison focusing mainly on organizational performance to determine how the particular organization's performance is when comparing against other organizations.
2. Process Benchmarking, is a feature of comparing the methods and / or process in order to streamline the processes within a company.
3. Strategic Benchmarking, this type of benchmarking is intended to change the direction of corporate strategy defining including compare the strategies of other organizations.
4. Internal Benchmarking, is the characteristic of performance comparison among units within the same organization.
5. Competitive Benchmarking, is a performance comparison, especially with a major competing company / organization.
6. Functional Benchmarking, is a comparison of technological capabilities or processes between organizations in the similar industry.
7. Generic Benchmarking, is a feature of comparison to the organizations that achieved excellence in a particular process and are not necessary to be in the same industry.

Ou, & Kleiner, (2015) had briefly summarized the content in table 4.3

**Table 4.3:** Classification of benchmarking types

Classification	Type	Definition
Comparison target	Internal benchmarking	Comparing within one organization
	Competitor benchmarking	Comparing with competitors
	Industry benchmarking	Comparing with firms in the same industry
	Generic benchmarking	Comparing with companies regardless of industry
Content for comparison	Process benchmarking	Focus on work processes
	Functional benchmarking	Compare specific business functions
	Strategic benchmarking	Focus on strategic and not operational choices

<sup>12</sup> Zairi, M. & Youssef, A. M. 1996. *A review of key publications on benchmarking: part II*, Benchmarking for Quality Management & Technology. Vol. 3. pp. 45-49.

<sup>13</sup> Bhutta, K.S. & Huq, F. (1999). *Benchmarking - best practices: an integrated approach*. Benchmarking: An International Journal. Vol. 6 No. 3, pp. 254-268.

<sup>14</sup> Ou, O. & Kleiner, H. B. (2015). *Excellence in Benchmarking*. Industrial Management: Institute of Industrial Engineers, Vol. 57. pp. 20-24.

As benchmarking is a tool that can be further adapted to suit any type of organization's competitive environment, Australian universities such as The University of Adelaide has additionally classified types and limit of this instrument to have feature that facilitates more to academic work than purely emphasis on business sectors. They are 3 types:

**International Benchmarking**

Involves strategic, performance, functional and process benchmarking with comparator institutions overseas. International benchmarking widens the University's focus and helps to ensure international competitiveness.

**Quantitative Benchmarking**

Looks at quantifiable outputs of an operation. The benchmarks are hard measures. Measurement is critical to help the University monitor its current performance relative to that of best practice institutions.

**Qualitative Benchmarking**

Looks at the systems and processes that deliver the results. The qualitative benchmarks are generally attributes of best practices in a functional area and these benchmarks could be simply a checklist of essential attributes constituting best practice.<sup>15</sup>

**4.2.3 The benchmarking process: The Xerox way**

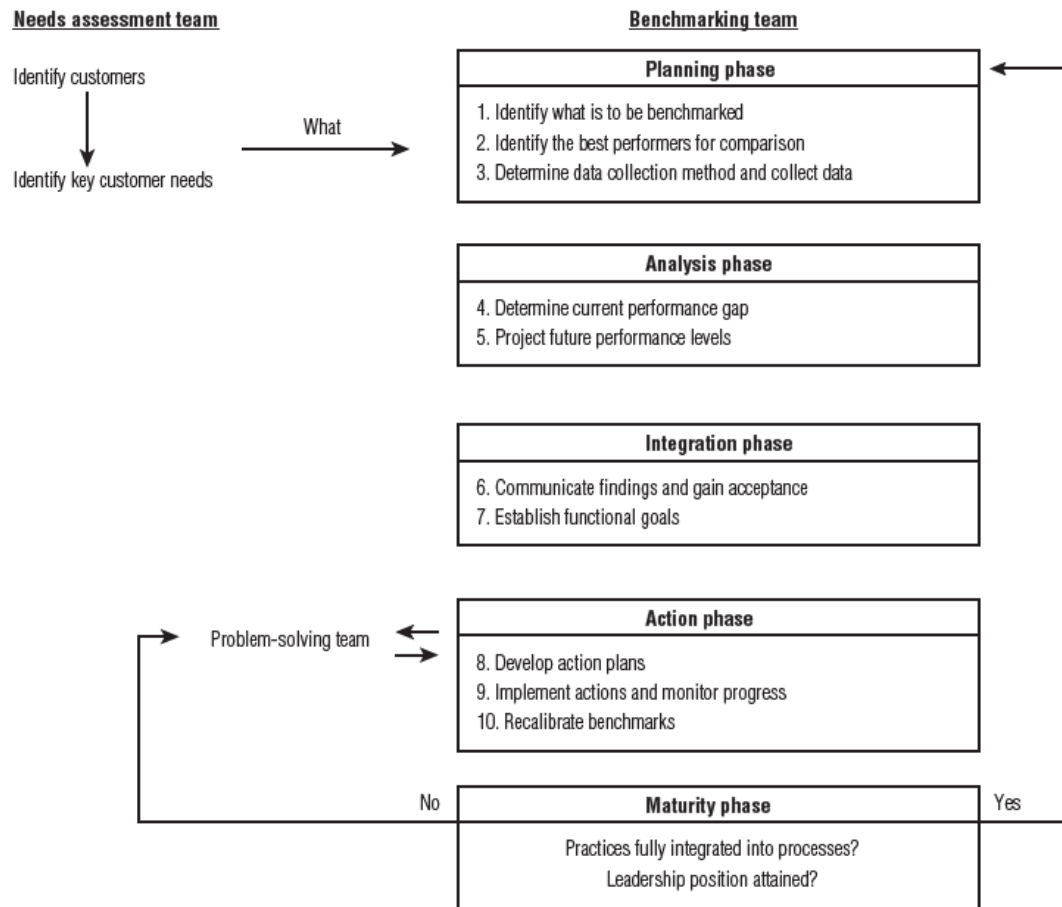
Not far different from the idea that has been demonstrated at the end of the topic of classification and limit of benchmarking, many organizations have applied an implementation process model to fit their organizations or to be up-to-date with time and direction of dynamic competitive development, but the popular basic process of Benchmarking that should be inevitably mentioned to honor is of the Xerox Corp.

The executives at Xerox realized the severity of the issue and dedicated a large amount of resources in developing Xerox's own benchmarking model, which included five stages (details are quoted by Ou, & Kleiner, 2015) and 10 steps (details are quoted by Unaromlert, T., Onsampant, S., Polpanthin, Y. & P. Supannopaph, 2013)<sup>16</sup>. Figure 4.3 shows the details of the Xerox benchmarking model, which are explained below:

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<sup>15</sup>*Benchmarking at the University of Adelaide*. Retrieved from <https://www.adelaide.edu.au/learning/reviews/benchmarking/>

<sup>16</sup>Unaromlert, T., Onsampant, S., Polpanthin, Y. & P. Supannopaph (2013). *Quality Assurance Administration System Development of the Faculty of Education, Silpakorn University*. Nakhon Pathom: Faculty of Education.



**Figure 4.3:** Xerox's benchmarking model has five phases and 10 steps.<sup>17</sup>

**Planning:** This phase involves identifying the process to be benchmarked, finding the competitor or internal department that holds the best practice for the particular process, determining data indicators and method for data collection, and collecting data.

- Identify what is to be benchmarked: This step should start with self-analysis of what should be improved. Organizational analysis can be conducted from two viewpoints, from the internal perspective which is the essential issues of the organization (Internal standpoint of productivity) and from the external perspective that comes from customer (external standpoint of productivity) in order to understand selves and customer expectations. Then select the process expected to most affect the success of responsiveness to customer needs.
- Identify the best performers for comparison: This step involves selecting partner to whom we will compare data, or called Benching Partner. It begins with making the list of organizations to be benchmarked and then make selection of the organization by considering size, industrial group,

<sup>17</sup>Fong, S.W., Cheng E.W.L. & Ho. D.C.K. (1998). *Benchmarking: a general reading for management practitioners*. Management Decision. Vol. 36 No. 6, pp. 407-418.

organizational structure, technological level, product/ services/features, customer needs, success factors, awards / recognition, and location.

- Determine data collection method and collect data: This step commences with process analysis, called Process Mapping, to identify current circumstance, strength, weakness, and success factors of those particular processes. These will lead to creating questions that will be asked the benchmarked organizations. And then creates a questionnaire for data gathering. Data collection method derived data from 2 sources: primary data, is the data obtained from data exchange or make a direct request to our exchanging partners, and secondary data, is the data received from the other sources which is not the direct exchanging partners.

**Analysis:** This phase involves identifying performance gaps between the organization and the benchmarking target and forecasting future performance levels for both companies.

- Determine current performance gap or Gap Analysis: This step will identify to what distance our performance or capabilities fall behind the compared partners. Data compared could be quantitative or qualitative, depends upon appropriateness. Quantitative data, different categories of data can be compared using bar graphs, or spider / radar graph to show distinct differences in individual issues, or comparison tables. For qualitative data, comparison can be done with comparative tables. However, when comparing data of individual organization, we must take into account the suitability of features compared whether they are comparable, especially, comparing data from dissimilar industries or organizations including consideration of the size, location, environment, and economic conditions. If they are incomparable, it is necessary to adjust the data through the normalizing data process, for which does not have a fixed formula, depending on case by case.

Karlof & Ostblom (1993, cited in Unaromlert, T., Onsampant, S., Polpanthin, Y. & P. Supannopaph, 2013) have distinguished incomparable organization's differences, which are: 1) Differences in operative content 2) Differences in scope of operation 3) Differences in market conditions and 4) Differences in cost position.

Calculating size of the gap can be carried out from the formula:

$$\text{Gap} = (\text{benchmarked organization} - \text{ourselves}) / \text{benchmarked organization} \times 100$$

If the Gap is negative (-), it means that the lesser the indicator value, the better, such as percentage of waste, customer complaints, errors occurred in various work.

If the Gap is positive (+), it means that the indicator showing the higher the value, the better, such as percentage of goods that have passed the sales check, sale amount, and profit.

The tools that can be used to analyze differences are: 7 QC Tools, PDCA, Brainstorming, Criteria Testing Matrix, Tree Diagram, Trend Chart, Z Chart, etc.

- Project future performance levels Integration: Prediction of future differences with comparing partners, the future gap could be calculated within the range of next 3-5 year or so. It can be determined, from the process that we are analyzing, how fast it changes. Anticipation of the future gap require sample information and experiences.

**Integration:** During this phase the benchmark team should present and communicate the findings to management to commit resources to improvement projects and set goals for these projects. (Ou, & Kleiner, 2015)

- Communicate findings and gain acceptance: The benchmark team should screen and organize the data, and then communicate the results to the executive group, relevant managers / processes, team members, customers, suppliers, and employees via those people's appropriate channel, such as reporting the results of data analysis, internal records, monthly meetings, corporate journal, bulletin board display/ brochures, and internal seminars.
- Establish functional goals: At this step, the results of the benchmarking are used for establishing current organizational goals to be close and appropriate to the circumstances.

**Action:** This phase entails developing action steps for the improvement projects, carrying out the action items, reviewing results, and adjusting the improvement process if goals are not met. (Ou, & Kleiner, 2015)

- Develop action plans: This step involves gathering the results of the data analysis to prepare an action plan which could be divided into short and long-term plans based on the data analysis results, policies, and procedures derived from management. The action plan must identify the person in charge, objectives, goals, implementors, budget and timeline.
- Implement actions and monitor progress: Controlling and monitoring to get the result as planned is the step of putting the planned action plan into action, which should be piloted in the pilot area before expanding to departments and entire organization, and then following-up to ensure the planned results are met by specifying the monitoring method and frequency. Monitoring can be conducted through various channels, such as follow-up meetings and so on.
- Recalibrate benchmarks: This step involves reviewing the results by comparing with the benchmarking partner of the best or the benchmarking partner, by examining the results in terms of whether or not the goals are met, Benchmark is improved? Need the goal to be reviewed? Should looking for additional benchmarking partners? What is the learning getting from this Benchmarking? And what are the weaknesses and area for improvement? This review is an evaluation by comparing to the Benchmarks value of the benchmarking partner, and also is an assessment

of own performance to be further used as a guideline for development of Benchmarking model that is appropriate to the organization.

**Maturity:** In this phase the benchmarking team reviews the results from the process that underwent benchmarking and re-evaluates the company's position versus its competitors. If the desired industry leader position is acquired, benchmarking efforts can be started on a different process. Otherwise, the team should go back to the action phase and adjust the improvement program. (Ou, & Kleiner, 2015)

#### **4.3 Innovative concept: Establishing TVET CoE based on excellence using Benchmarking+USP**

##### **4.3.1 Benchmarking and Vocational Development**

Initially, the implementation of Benchmarking of the international organization like the OECD is an overview of every education sector at all levels, which sometimes are problematic, such as in Australia. "The experience gained in developing the indicators in Education at a glance has highlighted a number of key practical issues which have emerged and which need to be considered in developing education benchmarks (particularly in a cross-national context), including problems of definition, data availability, and data quality. There are clearly significant gaps in international data sets at this time in regard to VET. The most serious of these is that the OECD data classifications do not have a separate category for VET. (Wyatt, 2004)<sup>18</sup>". Later on, there appears to have a report on International benchmarking of vocational education and training been prepared and published in Australia. The purpose of the project is to present a number of issues in relation to benchmarking the performance of the Australian vocational education and training (VET) system against that of other countries. It is not a project which attempts to provide benchmark data, but inform about the benchmarking process. The report critically examines two approaches to benchmarking VET. The first of these approaches is that offered by the collection and publication of performance indicator data; the second approach is that represented by comparative case studies. Thereafter, Benchmarking is one of the tools used in the education sector. For TVET, Benchmarking helps in linking the internal processes to external expectations, to develop appropriate internal mechanisms for the enhancement of TVET quality and effectiveness, respectively to compare the results with good practices elsewhere or with national goals (Inter-Agency Working Group on TVET Indicators, 2012)<sup>19</sup>. The OECD (2008)<sup>20</sup> has named it as "Benchmarking is innovation in VET systems." This tool has been used to document many of the reports involved in national or international vocational quality development; for instance, Expanding Quality assurance in VET (Benchmarking Tool, published in 2013, or Benchmarking of qualifications frameworks: A report on potential comparability between the

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<sup>18</sup> Wyatt, T. (2004). *International benchmarking of vocational education and training*. South Australia: NCVER, p. 9.

<sup>19</sup> Inter-Agency Working Group on TVET Indicators (2012). *Proposed Indicators for Assessing Technical and Vocational Education and Training*. p. 9.

<sup>20</sup> OECD (2008). *Benchmarking innovation in VET systems*. presented at OECD/CERI International Conference on Learning in the 21<sup>st</sup> Century: Research, Innovation and Policy, Paris, France. Retrieved from: <http://www.oecd.org/education/ceri/40249794.pdf>

Bangladesh technical and vocational qualifications framework and qualifications frameworks of other countries of origin and destination of migrant workers in 2015, and so forth.

In implementing Benchmarking, the indicator is one of the essential elements. Therefore, the Centre for Educational Research and Innovation: CERI (2008), the OECD support agency, has introduced some examples of possible indicators for TVET, as shown in Table 4.4

**Table 4.4:** Examples of possible indicators for an application of Benchmarking in TVET sector (adapted from OECD,2008)<sup>21</sup>

<p><b>•Environment:</b></p> <ul style="list-style-type: none"> <li>–Regulatory framework</li> <li>–Support programmes(for teachers)</li> <li>–Incentives for innovation (to institutions)</li> <li>–...</li> </ul>	<p><b>•Inputs:</b></p> <ul style="list-style-type: none"> <li>–Funding for innovation,</li> <li>–Funding for research on VET</li> <li>–Training of teachers</li> <li>–...</li> </ul>
<p><b>•Processes:</b></p> <ul style="list-style-type: none"> <li>–Teacher time not allocated to teaching</li> <li>–Networking opportunities</li> <li>–Institutional policy for innovation</li> <li>–...</li> </ul>	<p><b>•Outputs(innovations accounted for):</b></p> <ul style="list-style-type: none"> <li>–Innovations in institutional management</li> <li>–Innovations in teaching and learning</li> <li>– Innovations in the interface with the labour market</li> <li>–...</li> </ul>

It also advises the members to understand the steps in each sequencing phase for implementing benchmarking such as setting up a group of national VET experts in the corresponding countries and to commission three papers on the following topics:

- A refined version of the analytical framework for benchmarking innovation;
- An initial set of innovation indicators in VET systems; and
- A preliminary version of the questionnaire for institutions.etc.

From the above, it is expected to adequately illustrate complete integration of the tool for leapfrogging to success as Benchmarking on the direction of vocational education development toward excellent based on comparative learning with other organizations and commencement of viewing internal performance to reflect on the effectiveness of the organization.

#### 4.3.2 Input, process and output/outcome: Benchmarking indicators

For Xerox, Benchmarking is one of its three pillars in quality management. The other two pillars are the participation from employee and quality management process. These three elements bring Xerox to its international excellence status. Setting indicators is important. Indicators are signs that are evidence of the presence or absence of particular qualities. While they may be qualitative or quantitative in form, it is the latter which are more generally applied in the reporting of system outcomes and outputs (Blom &

<sup>21</sup> OECD (2008). *Benchmarking innovation in VET systems*. presented at OECD/CERI International Conference on Learning in the 21<sup>st</sup> Century: Research, Innovation and Policy, Paris, France. Retrieved from: <http://www.oecd.org/education/ceri/40249794.pdf>

Meyers, 2003)<sup>22</sup>. Any processes, both qualitative and excellence, require referencing to fundamental theory to be able to have a clear process of setting up indicators for evaluating the quality. Therefore, setting up “indicators” is very important for benchmarking because it is a process that focus on comparing to arrive at excellence. Example of “indicator” for comparing the generic quality of organization management and that of TVET are:

- demands for accountability, accompanying growth of public administration
- rise of quality management approaches
- globalization
- increasing sophistication of information and communication technologies, enabling the collection and comparison of data.

(Van den Berghe, 1997)<sup>23</sup>

Seyfried suggests that the quality of vocational training be determined by assessing the quality of its:

- structure (the national and regional conditions under which vocational training takes place)
- process (all the aspects which directly affect the training process)
- outcome (the product and the expected result of the vocational training).

(Seyfried, Kohlmeyer & Futh-Riedesser, 1999)<sup>24</sup>

Is focusing on Benchmarking by comparing inputs, processes and outputs/outcomes of TVET CoEs or other comparable institutions and referencing indicators of educational quality. Each indicator and the selection of indicators for benchmarking requires 4 elements: 1) explanatory benefit 2) monetary benefits 3) comparative benefits 4) analyzing benefits for best practice of each institutions.

**Table 4.5:** Definition and example of benchmarking indicators in TVET CoE’s perspective

Indicators	Definition and example
Inputs	<p>are important for management purposes as they provide a picture of the resources available for the achievement of strategic goals and objectives, but in order to use them for the benchmarking purposes certain standards need to be established.</p> <p>Example: Resources within TVET CoE for training:</p> <ol style="list-style-type: none"> <li>1. Human resource: numbers and qualification of management, the number of staff, staff qualification, number and qualification of specialist</li> <li>2. Training in resource: Training facility, special laboratory, IT and network</li> </ol>

<sup>22</sup>Blom, K. and Meyers, D. (2003). *Quality indicators in vocational education and training: International perspectives*. Adelaide SA: NCVER, p. 14-15.

<sup>23</sup> Van den Berghe, W. (1997). *Indicators in perspective: The use of quality indicators in vocational education and training*, Thessaloniki: CEDEFOP.

<sup>24</sup> Seyfried, E., Kohlmeyer, K. & Futh-Riedesser, R. (1999). *Supporting quality in vocational training through networking*. Thessaloniki: CEDEFOP.



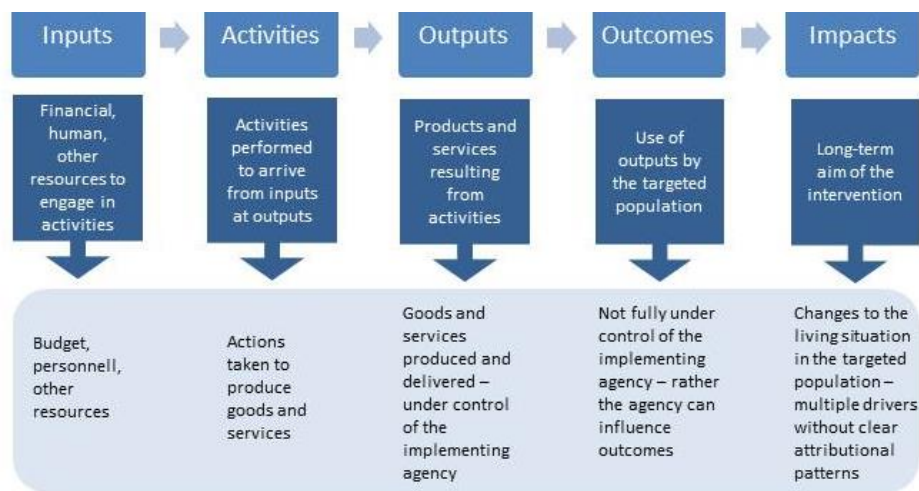
	3. Otehr resource: Qualitative and qualitative database of participants. (such as Statistic of past participants in previous trainings) ,curriculum that is internationally certified, Special partnership, Certification on quality, etc.
Processes	describe objective and important characteristics of the educational process which can affect its quality.
	Example: time management, program and curriculum, convenience of the participant, format and technique of the training, measurement systems, speaker qualification, process and development in other areas that will bring TVET CoE to excellence.
outputs/outcomes	provide information about the effectiveness of the activities.
	Example: development of competency and specialization, participation, measurement by standardize test, international certifications, etc.

User of benchmarking need to know and perform the following:

- identify organization and initiate the partnership
- understand the detail and structure of the organization as identified above
- identify scope, topic, and procedure that are important for the study.

Although there is no set rules on setting up indicators and there is no guarantee for the precision of Benchmarking, in the evaluation and quality assurance world “indicator” is important and has many benefits for all process.

#### 4.3.3 Outputs, outcomes and impacts: “The results chain in modern system”



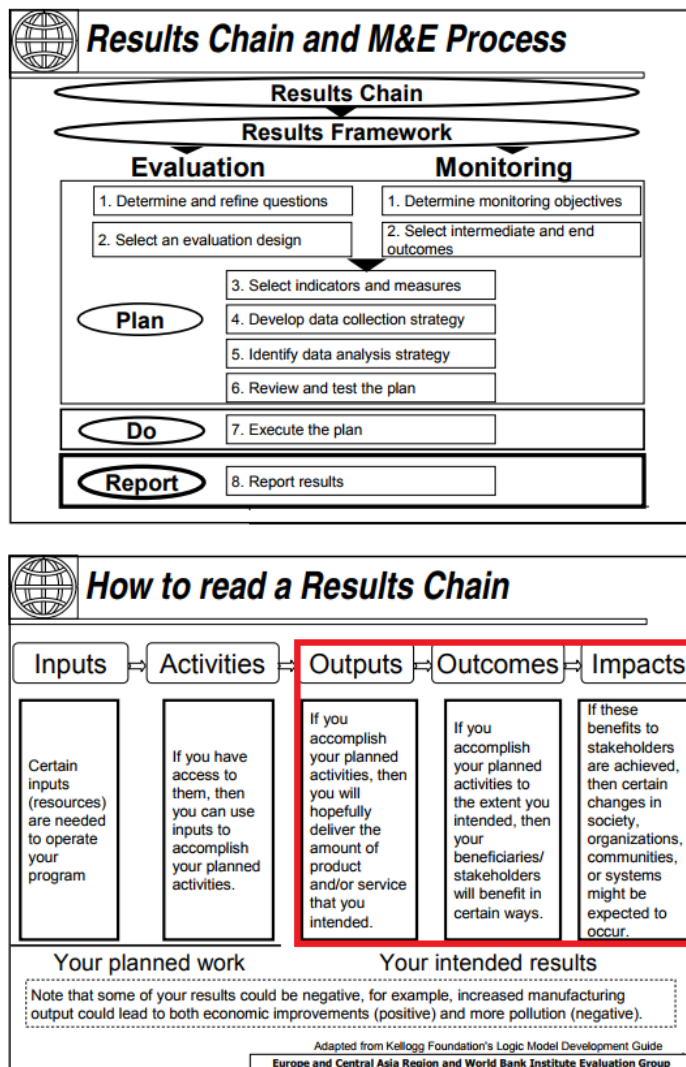
**Figure 4.4:** Example of Results chain and explanations<sup>25</sup>

A system starts with input which are human resource, budget, material, or other resources. Once input is processed, an output is created. IN modern systems there are 3 output: output, outcome and impact. The order is called the results chain, which in practice or in theory the user may or may not care whether the output is positive or negative.

The results chain is the core starting point for monitoring and evaluation (M&E) project, followed by results framework. The results framework is defined as the program logic that explains how the development objective is to be achieved, including

<sup>25</sup>An exemplary results chain. Retrieved from: [https://energypedia.info/wiki/Millennium\\_Development\\_Goals\\_\(MDGs\)\\_and\\_Result\\_Chains](https://energypedia.info/wiki/Millennium_Development_Goals_(MDGs)_and_Result_Chains)

causal relationships and underlying assumptions (OECD, 2010)<sup>26</sup>. Figure 4.5 is the example of implementation of the results chain with M&E by World Bank (2007, p.4)



**Figure 4.5:** Example of Results Chain and M&E<sup>27</sup>

The results chain is the causal sequence for a development intervention that stipulates the necessary sequence to achieve desired objectives beginning with inputs, moving through activities and outputs, and culminating in outcomes, impacts, and feedback. (OECD, 2010).

<sup>26</sup> OECD (2010). *Glossary of Key Terms in Evaluations and Results Based Management*. OECD.

<sup>27</sup>World Bank Group (2007). *Results Chain*. Retrieved from <http://siteresources.worldbank.org/INTUKRAINE/Resources/328335-1212401346836/Module2ResultsChainEng.pdf>

**Table 4.6:** Explanations of Output, Outcome and Impact in project documents (adapted from World Bank Group, 2007)<sup>28</sup>

<b>Outputs</b>	<b>Outcomes</b>	<b>Impacts</b>
<b>Health Project</b> Provided preventive health services to underserved Patients	Increased visits to regular health facilities by underserved patients Reduced emergency room visits by underserved patients	Reduced health costs for underserved patients
<b>Road Project</b> Completed repairs of main and secondary roads Improved road condition quality	Increased use of main and secondary roads, decreased journey time Increased access to markets and sale of products, short term improvements in household welfare	Trade activities and economic development improved, increased employment, increased household income
<b>Water Supply Project</b> Rehabilitated water system to increase production of potable Water	Increased availability and use of potable water by households Reduced consumption of unsafe water	Reduced water-related illnesses, healthier citizens, reduced health costs

Outputs are defined as the products, capital goods and services which result from a development intervention. They may also include changes resulting from the intervention which are relevant to the achievement of outcomes (OECD, 2010). According to Wanna Chaijaroenkul (n.d.)<sup>29</sup>, an output is product or service produced by an organization through activities under the organization’s control such as standards on quality management and quality assurance certification (ISO 9000), environmental management standards certification (ISO 14000), Thai Safety certificate (TIS.18000) energy management certification (ISO 50001).

Outcomes are the likely or achieved short-term and medium-term effects of an intervention’s outputs (OECD, 2010). The outcome is from output. Outcome or output from projects will cause change to the users. For example, once business obtained the

<sup>28</sup>The World Bank Group (2007). *Results Chain*. Retrieved from <http://siteresources.worldbank.org/INTUKRAINE/Resources/328335-1212401346836/Module2ResultsChainEng.pdf>

<sup>29</sup> Chaijaroenkul, W. (n.d.). *Smart Project*. Bureau of Macro Industrial Policy: Office of Industrial Economics. Retrieved from: [http://www2.oie.go.th/sites/default/files/attachments/article/smart\\_project.pdf](http://www2.oie.go.th/sites/default/files/attachments/article/smart_project.pdf)

above mentioned certificates, they can use those certificate to help drive the sales of their product high lease to increased revenue. (Chaijaroenkul, n.d.)

Impacts are the...“Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended. (OECD, 2010)” In another word, Impact the Ultimate Outcome such as when the residence has more income living quality is also improved. As a result, gap in income is narrower (Chaijaroenkul, n.d.). In present, projects may also consider social and environmental impact. Social impact considers the “value” of “benefits” which are consistent with the need of the target group and organization mission.

In conclusion, for system to operate effectively, measurable indicators for the users are needed to be established for output, outcome, and impacts. If the organization need to produce outcome that affect multiple target group, the organization may need to conduct activities in the amount that are consistent with the group of stakeholders who benefit or not benefit from the outcome. Not all output lead to expected Outcome. Therefore, organization need to have appropriate indicators for output and outcome.

#### **4.3.4 Combining UPS and Benchmarking for TVET CoE under Blue Ocean**

According to Benchmarking, result will be Best Practices, which is obtaining of knowledge, technique and process which lead to the adaptation an improvement of the organization. The important factor that will lead to the success of Benchmarking is the participation and sharing of information of the comparative organization. Knowing of its own strength and weakness and the need of the target group is as important as learning from other institutions.“Unique Selling Proposition: USP” is one of the marketing tool for Branding. It utilize identifying strength and was defined by Rosser Reevesin1960 through his best selling book “Reality in Advertising” as:

1. Each advertisement must make a proposition to the consumer. Not just words, not just product puffery, not just show-window advertising. Each advertisement must say to each reader: "Buy this product, and you will get this specific benefit."
2. The proposition must be one that the competition either cannot, or does not, offer. It must be unique-either a uniqueness of the brand or a claim not otherwise made in that particular field of advertising.
3. The proposition must be so strong that it can move the mass millions, i.e., pull over new customers to your product. (Rosser Reeves, 1961)<sup>30</sup>

Currently, many innovative thinkers try to search for and present USP. There are 4 classical adaptation by Trout & Rivkin (2011)<sup>31</sup>, Differentiate or die: Survival in our era of killer competition, as following:

1. Make Sense in the Context of the Category: Arguments are never made in vacuum. Your numerous competitors are trying to make arguments on their own. Your message has to start with what the marketplace has heard and registered from your

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<sup>30</sup>Reeves, R. (1961). *Reality in Advertising*. New York: Alfred A. Knopf.

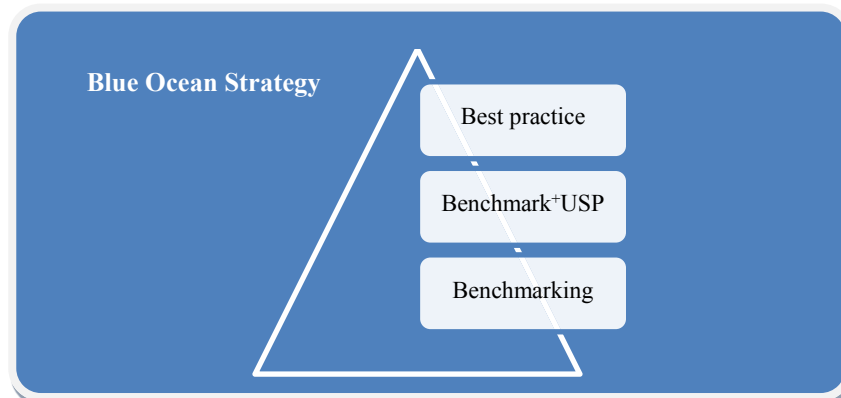
<sup>31</sup>Trout, J. & Rivkin, S. (2011). *Differentiate or Die: Survival in Our Era of Killer Competition*. New Jersey: John Wiley & Sons.

competition – get a quick snapshot of the perceptions that exist in mind, not deep thoughts. Focus on the perceptual strengths and weaknesses of you and your competitors as they exist in the minds of the target group of customers. The timing for your differentiating idea should be right – if you are too early or too late you'll go nowhere.

2. Find the Differentiating Idea: There many ways to set your company, product, or service apart. Your differentness does not have to be product related – it can be anything that separates you from your competitors. The trick is to find that difference and then use it to set up a benefit for your customer.

3. Have the Credentials: Claims of difference without proof are just claims. Consumers are skeptical. You must have the credentials to support your differentiating idea if you wish to build a logical argument for your difference. It's like being in the court of public opinion. If you have a product/service difference, you should be able to demonstrate that difference, which in turn, becomes your credentials.

4. Communicate Your Difference: Marketing is a battle of perceptions, not products. "Better products don't win. Better perceptions tend to be winners. Truth will not out unless it has some help along the way. You cannot over communicate your difference – every aspect of your communication should reflect it. A real differentiating idea is also a powerful motivational tool.



*Benchmark+USP*: Means the best model with that others compare / benchmark performance. Using USP as a supplemental tool to identify difference and uniqueness of the organization to identify a “best in class” organization

**Figure 4.6:** Model development for adaptation of Benchmarking+USP Under Blue Ocean Strategy

In addition to Benchmarking and USP, the researcher wishes to develop models or suggestions for the establishment of center for TVET CoE under the Blue Ocean Strategy: BOS by Kim, W.C. & Mauborgne, R. (2005).<sup>32</sup> BOS does not focus on response to the need of the market but rather create a new demand (Demand Creation) through Innovation. BOS does not focus on old competitors. It creates new type of need for the target group for CoE. The target group will receive benefits that is different from other similar institutions.

<sup>32</sup>Kim, W.C. & Mauborgne, R. (2005). *Blue Ocean Strategy*. Harvard Business School.

Benchmarking, USP and BOS are tools that is not complicated but effective. They are proved and accepted internationally and widely used, although they are not mentioned in the education sector. The next chapter will be discussing how to adapt these tools in education sector, which is one of the reasons the researcher select these tools. They have similar objective which is focusing on comparison, differentiation and creating excellence in innovation.

## Chapter 5

### Comparative case studies via adaptation of benchmarking technique to identify excellence based on scientific approach

#### 5.1 Introduction: Principles of Case Studies Consideration

In this preliminary step, clarification is required, on the effort in exploring the establishment of TVET project or center of excellence in Thailand, to obtain case study appropriate to the research. According to the latest data from 2015, the researcher found examples of vocational institutions that if considering the basic information, could be classified into category of “center of excellence with specific certification” and are covered in two subgroups of this particular category:

1) *Certifications from Specialized Bodies*: These vocational institutions have submitted application for an assessment based on the procedures and criteria of the Office of the Vocational Education Commission: OVEC, an agency under supervision of the Ministry of Education. The assessment will be judged on an annual basis. Those vocational schools will be assessed on inputs, process, and outputs, totally 6 aspects<sup>1</sup>: 1) student quality; 2) curriculum management and academic work; 3) management; 4) relationship between educational institutions, parents, and community; 5) personnel and personnel management; 6) Outstanding aspects of the institution. There are also many minor details and evaluation/judgment criterion which will not be referred to. In 2017, 33 of the 910 vocational education institutions (426<sup>2</sup> state vocational education schools and 484<sup>3</sup> private institutions under the supervision of the Bureau of Private Vocational Education Administration) received the "Royal Academy Award" from HRH Princess Maha Chakri Sirindhorn. They are divided into 12 small, 10 medium and 10 large vocational education institutions. This award is not relevant to the general education quality assessment.

2) *Certifications and Special Awards from Special Bodies*: Is a group of vocational education institutions having been certified or given an outstanding status, having excellence in a specialized field in order to promote as a model and the main force in creating, preparing specialized manpower in line with national development policies and the needs of the labor market in the Southeast Asia region. An example of their categorization is as shown in Table 5.1

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<sup>1</sup>Office of the Vocational Education Commission (n.d.). *A guide to vocational education assessment for the royal award*. Office of the Vocational Education Commission: Ministry of Education (Thailand).

<sup>2</sup>Retrieved from: <http://www.vec.go.th/>

<sup>3</sup>Retrieved from: <http://vecp.vec.go.th/>

**Table 5.1:** Examples of Thailand vocational education institutions with excellence or distinctive specialized field.<sup>4</sup>

Cluster	Excellence	Institutions/Centres
Transportation	Maritime	Nakhon Si Thammarat Seaboard Industrial College
	Rail transport	Thai-Austrian Technical College
Chemical and Petrochemical	Petrochemical	Map Ta Phut Technical College
	Petroleum	Hatyai Technical College
Food	Food Safety Technology	Phayao College of Agriculture and Technology
	Food Safety Technology	Suphanburi College of Agriculture and Technology
Molds and Auto parts	Molding Technique	Samutsongkhram Technical College
	Automotive Parts	Chachoengsao Technical College
Tourism	Hotel and Tourism	Chiang Rai Vocational College
	Hotel and Tourism	Ubonratchathani Vocational College
Electrical and Electronics	Electric Power	Mae Moh EGAT The College of Technology and Management
	Electronic Power	Nakornnayok Technical College

**Analyzes:** The above are examples of Thai vocational education institutions that have been given the status of excellence in the forms described in a brief manner. However, if these vocational education institutions are used as a case study for data analyzing, synthesizing in different dimensions, the researcher has determined that there are several disadvantages, ranging from the definition and the nature of excellence having been reviewed, to public benefit provided by the research, for example:

1. For Royal Award winning vocational education institution, there are 33 schools of excellence of the same nature using the same judging criteria, which is differ with the definition of excellence that only one should be outstanding or superior.

2. Criteria and evaluation of excellence still lack of interesting issues challenging universality, collaboration, recognition, and international competition.

3. The vocational institutions mentioned above, in the category having been certified by the royal prize, are overall accredited, not specify expertise or excellence in specific field, i.e. there is too extensive data.

4. Vocational education institutions described above; in the categories certified, selected by the Thai government; demonstrate some limitations on the attainment of the status of excellence as well as may have reluctance to be awarded that status or may have need for action to achieve direction of excellence in accordance with government policy. This might imply that the status of excellence is yet to accomplish but is going to be developed or built in the future.

<sup>4</sup> Adapted from Chapter 1



5. Access to governmental information, particularly the judging results and the deliberations, is quite a complicated process expected to affect the completeness of the information to be used, published openly.

Thus, for academic autonomy, consistency with the definition, and other challenges such as competition, recognition, universality, current, newness, as well as current interest of the researcher, the case study of the Excellence Project under the main supervision and co-operation of the German-Thai Chamber of Commerce (GTCC) and German International Cooperation (GIZ) under the project title "German-Thai Dual Excellence Education (GTDEE)" will be selected. It is generally acknowledged that Thailand is trying to adopt the dual system of education, which is a highly-international accepted vocational education management system and has a prototype from Germany. Such efforts have been genuinely used in practice, but in the form of modification, not the entire system used due to legal restrictions, supporting regulations, including there is no any legal obligation for Thai vocational education sector, Industry Federation, the Chamber of Commerce, and industrial sector or establishments to completely commit to the entire dual system of education similar to Germany. But the above reasons, in the matters of incompleteness of the regulation, Laws, or legal ties between related sectors, also make the researcher suspicious, as in fact, the dual education system has been officially started for more than 60 years. "In 1959, there was an establishment of the "Thai-German Technical School" (now is King Mongkut's University of Technology North Bangkok: KMUTNB), with the assistance of the Federal Government of Germany in both economic and academic matters. It is regarded as the beginning the dual system of education was used to train Thai mechanic students for the first time (Sawaengsak, 1999, p. 39)<sup>5</sup> But, why the readiness is unavailable till these days? Therefore, the comparative study of "Thai-German Technical School" and "German-Thai Dual Excellence Education (GTDEE)" project should be a challenging topic which is a good comparative and responds to the objectives of this research most.

## **5.2 Analysis: Dual system, a new issue in Thailand - Why GTDEE?**

### **5.2.1 Agricultural era and the advent of "Dual system"**

Thailand in A.D. 1959 was still an agricultural country with only old-fashioned farming knowledge, not having a status of Argo-industry, while the period of the industrial revolution of Germany appeared between A.D. 1815–1914 (Kiesewetter, 1989)<sup>6</sup> or some sources dating from A.D. 1800 - 1914 (Henning, F. W. 1973, p. 111)<sup>7</sup> Despite various developments; especially, new methods of production lagged behind the leaders in industrial development (Britain, France and Belgium) because the country was divided up into so many small states<sup>8</sup>; and being busy itself with national

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<sup>5</sup> Sawangsak, T. (1999). *Strategies for success in vocational education administration*. Bangkok: Srinakharinwirot University. p. 39.

<sup>6</sup> Kiesewetter, H. (1989). *Industrielle Revolution in Deutschland 1815–1914*. Frankfurt am Main: Suhrkamp.

<sup>7</sup> Henning, F. W. (1973). *Die Industrialisierung in Deutschland 1800 bis 1914*, Paderborn: Schöningh. p. 111.

<sup>8</sup> *The Industrial Revolution in Europe*. Retrieved from: <https://www.erih.net/how-it-started/the-industrial-revolution-in-europe/>

unification until 1871<sup>9</sup> too. However, the country had considerable assets: a highly skilled labor force, a good educational system, a strong work ethic, good standards of living and a sound protectionist strategy based on the Zollverein (Geiss, 2013)<sup>10</sup>. Such things were the impetus for Germany to completely take pace and was one of the leaders in the world of industrialization along with Britain and the United States in 1900.<sup>11</sup> The difference of the eras between agriculture and industry is one of the reasons Thailand is unable to thoroughly adopt the Dual System like other Southeast Asian countries that have been encouraged to use the system despite having some difference in the access time.

In addition, Thailand also has always been facing the situation of "Diversity of vocational education system", although it sometimes seems like a good opportunity to learn from the differences, but sometimes it is like a blindfold too. If study the development of vocational education in Thailand including the Southeast Asian member states, will find that they receive cooperation, assistance, and various supports from the group of industrialized nations, including the importing of diverse vocational education systems. If classified only after the German "Dual System" was introduced into Thailand in 1959 and counted in the period of about 10 years later, it would be seen that the introduction of foreign vocational education system into Thailand is not lower than 3, as shown in Table 5.2

**Table 5.2:** Examples of countries bringing in vocational education to Thailand between 1959 - 1969.

Year	Country of origin, vocational education system	Educational Institution in Thailand at the moment. (current status)
1959	Germany	Thai-German Technical School (King Mongkut's University of Technology North Bangkok)
1960	Japan	Nonthaburi Telecommunication Training Center (King Mongkut's Institute of Technology Ladkrabang)
1963	Germany	KhonKaen Technical College (Rajamangala University of Technology ISAN Khonkaen Campus)
1969	Austria	Thai-Austrian Technical College or Sattahip Technical College)

The diversity of these systems suggests the researcher that there are many more to be brought in any manner, including from foreign direct imports, as well as the Thai government has sent people to study at a higher level, or study visit, seeking foreign cooperation, then return to propose or push the agency related to Thai vocational education. This factor is similar to an obstacle for purely having the "Dual system" in the Thai vocational sector.

<sup>9</sup>Unification of Germany. Retrieved from: [https://en.wikipedia.org/wiki/Unification\\_of\\_Germany](https://en.wikipedia.org/wiki/Unification_of_Germany)

<sup>10</sup>Geiss, I. (2013). *The Question of German Unification: 1806-1996*. New York: Routledge. pp. 32–34.

<sup>11</sup>Intro Books (2017). *History of Germany*. Can Akdeniz.

### **5.2.2 “Factory in school”<sup>12</sup>, Utilizing as a makeshift until deep-rooted and falling off from the ideal**

In the past 60 years, Thailand has no modern technological, innovative, industrial know-how similar to Germany who has developed a “Dual system” of education. The readiness regarding the industrial establishment also has not been existed, similar to that of the teaching staff, trainers. It is about starting all over again on the unreadiness, however, it has to be done in order to make something “begin”. This resulted in emerging the feature of the “factory in school” system in Thailand by creating a “factory or virtual workshop” within the school, and with the support of the German government, various mechanical devices were installed at “Thai-German Technical School” ( now is King Mongkut's University of Technology North Bangkok: KMUTNB). The assistance of the Federal Government of Germany in both economic and academic matters is regarded as the beginning of importing the dual system education to train Thai mechanic students for the first time.

Moreover, since 1959, the teams of specialists from Germany have been dispatched to the “Thai-German Technical School”. Those German teams of experts are responsible for joint-management education and performing as a trainer to produce technicians on the "Dual system" approach that may be required for accommodating future changes and developments in Thailand. There are a number of learners who have been developed by getting a higher level of education to later on become trainers, instructors till manpower for this sector increased. But it consumes time so long before the Thai government and related agencies to agree upon or do things more in concrete.

Until 1984, the Cabinet had approved the Ministry of Education to conduct the training of professional technicians in the field of industrial technics under the cooperation program between the Department of Vocational Education, the Federation of Thai Industries, and the enterprises in order to organize "School in factory" system for technicians training.

In 1989, the opening for student admission under this partnership was first experimented at Taluang Technical College in the field of industrial maintenance technician for 30 persons with the support from the government of the Federal Republic of Germany. It appears that this vocational training system provides satisfactory outcome and gain more interested people. As a result, more fields of professional have been offered, and later on the Department of Vocational Education has developed a

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<sup>12</sup>*In the case study of this research, only the issue of "factory in school"; which is the term used for technician, Industrial technician training programs; will be raised. For the commercial programs may be called "Establishments in school", but will not mentioned here.*

policy to further extend this professional education system to other fields too. (Sawangsak, 1999, p. 68)<sup>13</sup>

Thailand engrossed in long-standing efforts to reform and develop the management of vocational education system, as well as the "Dual system" education that experiences problem of unreadiness since the beginning. Many vocational institutes adopted the policy, but incapable to action to gain development toward the status of the original "German". In other words, with the- have to begin with-setting up the "factory in school" educational institutions, this particular education model then, was identically transferred throughout nation, whether or not, the curriculum, procurement, employment, importing of machine, equipment, and etc. Majority of the educational management styles are school-based. That is, there has been insufficient number or quality of establishments, industrial companies, to the level that none is available for some provinces in the regions, to accommodate the "dual system" ideal, as a consequence, the instruction for both theory and practice have to be delivered within the school.

### **5.2.3 Subsequent problems of practice that falls off the frame**

After the beginning of the development of old agriculture to Argo-industry; there has been an increase in the appearance and expansion of the industry sector; the increase in the number of department stores including various types of the establishments, companies, stores, shops due to the economic development of the country; then, out-of-school setting-education management for the practical sessions is able to gradually start to be developed on the principle of "Dual system"; but entire system cannot be implemented as Thailand's growth is relatively an inequality growth in each province and region. It results in dividing main model of vocational education in Thailand into 2 categories.

1) The normal course: organizing only school-based learning for delivering of the theory and the practice, or may have the apprenticeship included, depending on the course and the field of study (another term is "factory in the school" for program of technicians and Industrialist or "establishments in school" for commercial program)

2) Dual system: Learn the theory - the basic practice in the school, and later practice in the workplace (another term is "school in the factory" for program of technicians, Industrialist, or "school in the enterprise" for program of commercial)

In the past, Thailand had the number of people studying in the first type of vocational education school more than the second. It led to the problem of the "Labor productivity is not in line with the Demand site, which is, not responding to the needs of the labor market, both in terms of qualifications and skills." This is a problem of quality, not

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<sup>13</sup>Sawangsak, T. (1999). *Strategies for success in vocational education administration*. Bangkok: Srinakharinwirot University. p. 68.

quantity. The problem in managing normal-course vocational education is classified in 3 dimensions: inconsistent, scarcity, and quality system, as shown in table 5.3

**Table 5.3:** Problems of “Normal course” vocational training (Summarized and applied from Rukkeatwong, 2016)<sup>14</sup>

<b>1. The content is inconsistent with the skills needed for the profession.</b>
1.1 Vocational curriculum designed does not suit the students’ readiness and ignore the basic knowledge skills.
1.2 Course content is not linked to the skills required in the real work world. 1.2.1) The school does not offer programs that meet the needs of the establishment. - Vocational education College can choose to teach any fields without considering the needs of the establishment. - The lack of a labor market database system that can be used to help plan manpower production. 1.2.2) Even in the case that the right course is offered but the course content does not match the knowledge / skills required by the employer. - The curriculum content design system is mainly determined by the instructors in the vocational college. - Nearly all faculty members do not have private sector work experience. - There is no guarantee whether the instructors graduating from the production system of Thai vocational education teacher have an expertise in technician skills. 1.2.3) Although the course teaches the skills / knowledge that employers need, but the learners still lack the expertise to properly handling the tasks. - Many mechanic skill sets rely heavily on skill expertise, basic knowledge which Thai vocational students still absence, and the vocational curriculum does not address this weakness.
<b>2. Resource shortage in vocational education system</b>
2.1 Thai vocational education system has inadequate teachers. - Vocational education of the Thai government sector has 4 teachers /100 students <sup>15</sup>
2.2 The Thai vocational education system has insufficient materials. 2.2.1 Thai vocational education has not been sufficiently invested in materials. 2.2.2 Thai vocational education has insufficient material budget for the practice.
<b>3. There are shortcomings in the quality assurance system of vocational education colleges.</b>
3.1 Internal quality assurance is lack of effectiveness because of using a self-assessment mechanism.
3.2 External quality assurance systems have no effectiveness because they focus on indicators that are not directly relevant to learning- teaching quality. Moreover, they do not help to improve the quality of vocational colleges, but add burden to, causing actual quality issues were not discovered and unresolved.

From the reason of inequality, differences on the development in each province and region in Thailand basically having quite large gap, as well as lack of awareness of the principle of converting the "Dual system" ideal into actual practice to reach the right and effective target of this particular education system has brought about the problem

<sup>14</sup>Rukkeatwong, N. (2013). *Vocational Reform in Thailand*. Bangkok: TDRI.

<sup>15</sup>Information Technology and vocational manpower (2013). *VET Statistic*. Retrieved from: <http://techno.vec.go.th/default.aspx>

of education management under the framework of "Dual system" in the context of Thailand, as described in Table 5.4

**Table 5.4:** Problems of Vocational education Training, “Dual system” version (Summarized and applied from Rukkeatwong, 2016)<sup>16</sup>

<b>1. Current dual system promotion measures cannot prevent scrambling the person receiving training investment from the participating establishments, or the so-called "Free-riding"</b>
<b>2. lack of quality assurance system in dual vocational training</b>
2.1 Quality assurance of the curriculum by processing the curriculum development or certification based on professional skills standards.
2.2 Quality Assurance of Establishments by Inspection and Certification of Establishments delivering standardized instruction.
2.3 Quality Assurance of Graduates through Competency-Based assessment based on professional skills standard and provide certificate to the successful test taker.
<b>3. Lack of intermediary organizations to assist in the management of dual vocational training systems.</b>
3.1 Absence a coordinating center for job placement between learners and businesses.
3.2 Lack of a set of professional skills standards to serve as a framework for defining dual vocational training content and as a framework for quality assurance.

The data in Table 5.4; although, is a research report from a credible research organization, the Thailand Development Research Institute: TDRI, and may be used at the government level to create national development plan in various dimensions; but problem analysis is still lacking in viewing into or referencing to the proper structure of "Dual System" education that deserve to be extracted lessons learned from Germany to compare with what the Thai vocational sector is missing in order to fulfill the system to more complete.

#### **5.2.4 What GTDEE show? - Pull the consciousness of the Thai vocational to look at the original "Dual system"**

“... Now dual vocational education is on the national agenda as one of the strategies for Thailand economic growth. What we found out during our work and would like to put forward is that the understandings about what dual vocational system actually is, still need to be expanded. More importantly, Thailand needs to focus on the quality development of the trainers and teachers in order to head to success.

GTDEE will continue our good work and strive to be sustainable with the aspiration to contribute to the overall improvements in Thai dual vocational education sector.” (GTDEE, 2017)<sup>17</sup>

The above statement from the Executive Director of the German-Thai Chamber of Commerce is quite clear about the purpose of the vocational education excellence project such as “German-Thai Dual Excellence Education: GTDEE” that wants to

<sup>16</sup>Rukkeatwong, N. (2013). *Vocational Reform in Thailand*. Bangkok: TDRI.

<sup>17</sup>GTDEE (2017). *Culminating Report 2013-2016*. Bangkok: German-Thai Chamber of Commerce.

demonstrate a full-fledged educational management on the foundation of the "Dual system" and a successful implementation that can be accomplished, especially in the matter of quality, and that relied on referencing to excellence of the leading industry, company, and establishments which are the partnership in education. If preliminary consider, this particular section will be consistent with the definition and type of "Center of Excellence with External Affiliation"<sup>18</sup> that has been previously defined and classified by the researcher. Roland Wein's suggestion suggests that he and his team see the problem of "Dual System" in Thailand, but do not elaborate on the issues they clearly saw, but show commitment in the way that "Will persist in building up understanding about what dual vocational system actually is" under a very well study on the direction of future Thailand's development, the vocational sector will have a very important role as stated in the plans of the nation, which is so true, especially in the matter of promoting the use of "Dual system" for the education management in vocational institutions all over the country. The policy information, particularly only relevant issues, will be raised here as an example to confirm that the implementation of GTDEE is truly in line with the direction of the Thailand development plan, education section, namely, in 2016 the issue of vocational reform has been proposed to the Thai government by the National Reform Steering Assembly: NRSA on the development of the dual vocational model that

“... There are currently around 100 colleges in the country that implement vocational dual system education. Some colleges offer dual vocational training for all programs whilst some colleges only offer for some programs.

The reform issue began by emphasizing the 100 colleges, which already have dual vocational education in place, to develop as a model for further extension in the rest of the college with targeting time frame of 18 months of operation.

... The development of such prototype covers the development of teachers, extension of Curriculum and programs, Public relations ... When the development of the prototype, has been completed, expansion will be carried out to 200 colleges in the next 3 years and 400 in the next 5 years, respectively ...” (National Reform Steering Assembly, 2016: P.3)<sup>19</sup>

These days, this project is a subset of the project set up in 2013 by the Ministry of Education and Research (BMBF) of Germany, called “The Vocational Education and Training Network: VETnet” and coordinated by the Association of German Chambers of Industry and Commerce (DIHK). VETnet stands for German Chambers worldwide network for cooperative work-based Vocational Education and Training and promotes

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<sup>18</sup>Center of Excellence with External Affiliation: It is the case where a center seeks a collaboration from an external organization or center of excellence to enhance its very state of excellence. There are three objective directions for this type of collaboration to occur:

- 1) A Rapid Enhancement of Excellence
- 2) Excellent Strengthening
- 3) Potential Expansion and Knowledge Exchange (see Chapter 4)

<sup>19</sup>National Reform Steering Assembly (2016). *Driving the reform of vocational education into dual vocational Training*. p. 3.

pilot projects in the field of dual vocational training.<sup>20</sup>VETnet has 11 partner countries: Greece, Italy, Latvia, Portugal, Slovakia, Spain, Brazil, China, India, Russia and Thailand. However, the true foundation of the initiative and the GTDEE establishment plan have commenced since 2012 by “the German-Thai Chamber of Commerce (GTCC) and German International Cooperation (GIZ) brought it to Thailand in co-operation with founding company partners B. Grimm, BMW (Thailand) and Robert Bosch.”<sup>21</sup> The co-founding agencies wish to bring the "Dual Vocation" concept, developed by the German government, to apply widely with the strength - the learners must work and study at the same time- which will result in personnel and manpower created from this educational system having qualification, potential and readiness to respond to current labor market needs. The co-founding agencies wish to bring the "Dual System" concept; developed by the German, and applied widely with the strength - the learners must work and study at the same time - that will result in personnel and manpower created from this educational system having qualification, potential, and readiness to respond to the current labor market needs; into practice as a pilot example to the Thai vocational sector of "how the process of the dual system that is close to the German's ideal or prototype looks" and also expect to contribute to the production of human resources through the education of such system to German companies or industrials in the first place, and then this will lead to other expansions in the future.

“From the beginning, the Ministry of Education in Thailand has shown strong support for promoting dual vocational education in Thailand ...

... GTDEE has grown rapidly since starting out with its three founding members in 2013. I am particularly pleased that the interest in the programmes is not only from German companies, but that an increasing number of Thai companies are also showing interest in joining our programme, recognising the benefits of vocational training in colleges combined with on-the-job training.” Phongsakdi Chakshujej said as the President of German-Thai Chamber of Commerce<sup>22</sup>

In 2014, GTDEE committees were set up to carry out various relevant tasks, including drafting the Ordinance of Vocational Education, the development and arrangement of concepts of appropriate operating procedures for enterprises and education institutions, planning the student selection process, development of an examiner handbook, practical seminars to build good relationships between the personnel of the enterprises and the target educational institution respectively.

Until October 2014, the pilot PAL examination with apprentices in Bosch Mechatronics Apprenticeship Programme (BMAP1) was held, which is regarded as an experiment for an actual operation from the results obtained, thus leading to a proposing the signing of the major MOUs signed with Office of Vocational Education Commission (OVEC) Ministry of Education, Department of Skill Development (DSD) Ministry of Labour, Federation of Thai Industries (FTI), Thai Chamber of Commerce Major MOUs signed

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<sup>20</sup>VETnet. Retrieved from: <http://thailand.ahk.de/berufsbildung/about-vetnet/>

<sup>21</sup>GTDEE Programme. Retrieved from: <http://thailand.ahk.de/en/vocational-education/about-the-gtdee-programme/>

<sup>22</sup>GTDEE (2017). *Culminating Report 2013-2016*. Bangkok: German-Thai Chamber of Commerce.



with Office of Vocational Education Commission (OVEC), Ministry of Education, Department of Skill Development (DSD), Ministry of Labour, Federation of Thai Industries (FTI), Thai Chamber of Commerce and Board of Trade of Thailand (BOT), and numbers of new companies partners. For further development of other aspects from 2015 to 2018, they have been methodically arranged in a hierarchical fashion similar to education planning, although at some phase involve activities related to collaboration seeking through interaction, including supporting activities of the relevant agencies, but it is an essence of finding the answer of the ready-made and efficient formula for GTDEE project implementation, which can be summarized as shown in table 5.5

**Table 5.5:** Development and activities of the GTDEE between 2015 – 2018<sup>23</sup>

<b>Duration</b>	<b>Development and Activities</b>
<b>2015: TRAINING AND DEVELOPMENT</b>	
January	Launched Cyber University web based e-learning platform for college partners
May	Curricular adjustments for new professions; added Mechanics, Industrial Electronics, Agricultural mechanics, and Plant sciences
June	Organized ‘Train the Trainers in Business’ course for company partners
July	Implemented School Development-Quality Assessment (DVQD). Developed concept for college observation and online survey; 3 main characters to be observed are management, infrastructure, and methods of teaching
October	Organized Teach the Teachers ‘Project-based teaching method’ for college partners, in cooperation with King Mongkut University of Technology North Bangkok
	Started VETnet phrase 2
<b>2016: EXAMINATIONS</b>	
March	Organized final examination in Electrics Power for B.Grimm apprentices
April	Signed MOU with KMUTNB for the implementation of a Thai-German Meister programme
	Organized centralised examination in Automotive Mechatronics for Mercedes Benz and BMW apprentices
	Developed mini projects as part of project-based learning; based on the holistic-learning approach
July	Organized centralised final examinations in Mechatronics and Mechanics for Bosch (BMAP2) and Grohe Siam apprentices
August	Introduced game-based learning to stimulate interplay between trainers and teachers on mobile application
<b>2017: IMPROVEMENTS</b>	
April	Planned examinations in Automotive Mechatronics, Mechanics, Electrics Power, Agricultural Mechanics, and Plant sciences
<b>2018: SUSTAINABILITY</b>	
September	Finish of VETnet phrase 2

From all the tables, if considered by taking the original German Dual system as a main focus, organizing the first centralized final examinations in the 4 programs: Automotive Mechatronics, Electrics Power, Mechatronics, and Mechanics for their company partners must be regarded as a vital step in the standardization of the

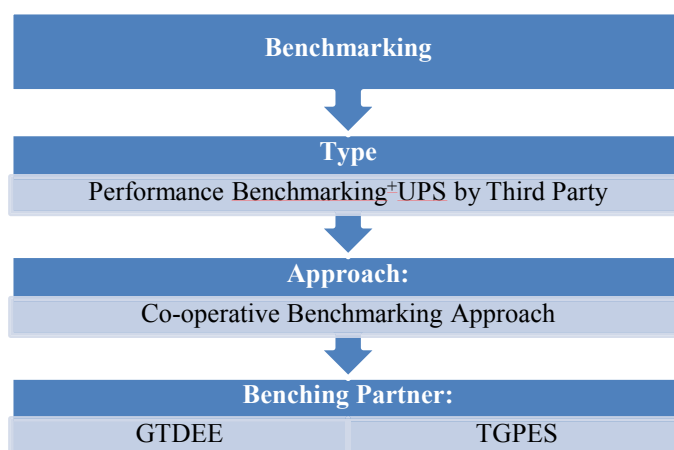
<sup>23</sup>GTDEE (2017). *Culminating Report 2013-2016*. Bangkok: German-Thai Chamber of Commerce.

education and training process. The examination will be a key part that will illustrate the measurement results to every relevant agencies that whether or not the projects of GTDEE successfully accomplish the purposes, and how? According to the plan, the operation up to the present is still be under the framework of VETnet phrase 2 until September 2018.

### 5.3 The application of Benchmarking<sup>+</sup>UPS techniques to pursue unique excellence between GTDEE and TGPEs<sup>24</sup>

#### 5.3.1 Scope and Basic norms of conducting the study

Since the next topic will be the process of comparative case studies that relies on the application of the development of Benchmarking Techniques that has chapter 4 as a reference base, the scope and the basic norms used as a key framework are proposed as follows:



**Figure 5.1:** Scope and basic norms of conducting the study

- 1) Benching Partner: German-Thai Dual Excellence Education: GTDEE and Thai-German Pre-Engineering School: TGPEs
- 2) Type: Performance Benchmarking<sup>+</sup>UPS by a third party
- 3) Reasons for using and designating “Performance Benchmarking<sup>+</sup>UPS by a third party”

3.1) The researcher aims to study the efficiency components of comparative performance between Benching Partner, which corresponds with the definition of Performance Benchmarking that affects measuring status of excellence of Benching Partner that covers various dimensions stated by Hatry (1999)<sup>25</sup>, namely “*Performance measures for public program assessments are generally identified as input, process, output, and outcome.*”, which is expected that the lesson learned can be extracted and some of the results will be applied to jointly 1) prove the hypothesis of the research, 2) answer the research question and 3) respond to the objectives of the research in the

<sup>24</sup>Thai-German Pre-Engineering School: TGPEs (The abbreviation was established by the researcher to be easy to use for this research only.)

<sup>25</sup> Hatry, H.P. (1999). *Performance Measurement: Getting Results*. Washington: Urban Institute Press.

relevant part. They will also bring about educational benefits or further expansion in other dimensions.

3.2) The researcher has a purpose to pursue unique excellence (unique-oriented excellence), then the concept (conceptual framework) of unique selling proposition is used for directing in order to emphasize - best in class- status of the Benching Partner. In addition, Benchmarking exercising in this research’s case study is a third-party’s demand, which is different from core practice or general theories of implementing benchmarking, namely, it is not based on the wishes of the "organization" involved or having interest in the affairs of the organization, but, is the requirement of a "third party or outsider" who want to study data. The researcher proposes to call this process of work “Performance Benchmarking<sup>+</sup>UPS by a third party”

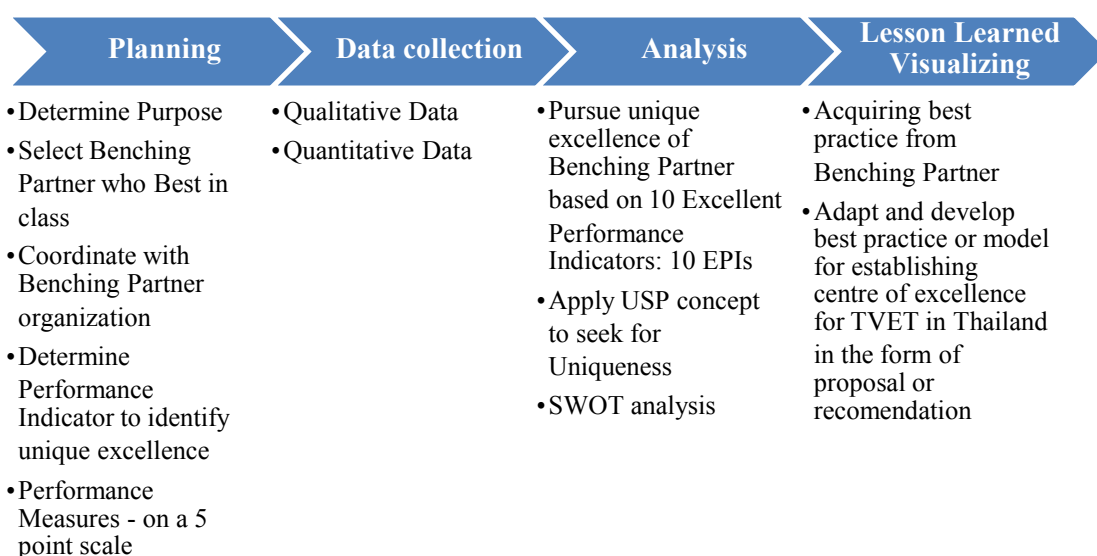
3.3) By being an outsider, the work that is based on Performance Benchmarking is the optimal process to overcome many limitations, such as tampering with internal data, confidential information that may not be authorized by the organization that was planned and selected as a Benching Partner, etc.

#### 4) Approach: Cooperative Benchmarking Approach

The Benching Partner is under the leading non-direct competitor organization’s supervision and support, coupled with Benchmarking exercise of the researcher is carrying on in the form of -asking for cooperation- to study and extract knowledge, which match with the characteristics defined by the definition of Cooperative Benchmarking Approach, which is not expected to have any confidentiality issues during benchmarking exercise since the researcher will be the sole recipient of the data from both organizations.

### 5.3.2 Enter the process of Benchmarking<sup>+</sup>USP

World experience of benchmarking shows that benchmarking technique is usually reduced to determining the number of consecutive steps that should lead to the desired result. Number of steps can be different, because the process can be broken down into smaller steps.



**Figure 5.2:** Benchmarking<sup>+</sup>USP process adapted from Deming Cycle and Xerox’s Model

For example, the IBM has 15-stage model (Goncharuk, Lazareva & Alsharf, 2015)<sup>26</sup> or the Xerox's model has 5 phases or 12 steps (Fig. 4.3), the other companies may have less stages. In this case, the researcher has adapted and applied the process and elements of conducting Benchmarking, the followings are noted:

1) Refer to and develop a set of process elements from the Deming Cycle, but not conducting in the form of a cycle, because this Benchmarking is a requirement of a third party that only wishes a result in terms of seeking "being best in class", "approach of best practice", and "unique Excellence", in order that the results received will be extracted for the knowledge and developed as a recommendation on an establishment of a TVET Excellence Center in Thailand.

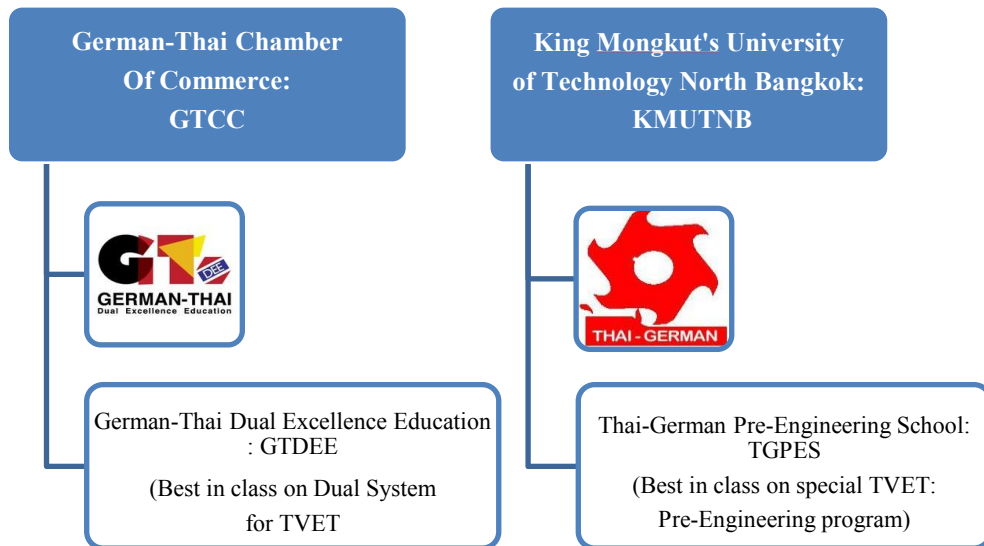
2) Apply and selectively use some Xerox model steps (see Figure 4.3) as appropriate and necessary based upon several reasons, for example: considering the Benching Partner, although comparative studies have been conducted, the comparison is for finding the factors that result in both being -Best in Class- status in their own field, then, there are no factors to be considered in conducting Gaps analysis. Generally, Gaps analysis is used to find "Superior Performance" to bring the results to the competition or to the development of their organization, but this research is aimed at drawing the knowledge of excellence from the Benching Partner who already has Superior Performance.

**Table 5.6:** The process of Benchmarking<sup>+</sup>USP

<b>1) Planning phase</b>
<b>1.1) Identify what is to be benchmarked(Purpose):</b>
1.1.1) To pursue unique performance excellence between Benching Partner as an organization that participates in the TVET education and have unique organizational identity.
1.1.2) To analyze factors and efficiency elements of Benching Partner based on Excellent performance indicators: 10 EPIs determined, along with strengths, weaknesses, opportunities and obstacles through various dimensions that are affected or affect input, process and output/outcome; as well as the potential components, acceptance conditions that will support entry into or remaining in the status "Centre of Excellence for TVET" based on Thailand's needs, to answer the hypothesis, questions, and objectives of this research.
1.1.3) To extract the performance lesson learnt from the Benching Partner that may be in a unique, "Best in class" status on the concept of UPS that is able to identify the best practices as well as environmental factors and the possibility of acquiring models or approaches that may be useful for creating new knowledge, providing some suggestions, and having role for some proportion of the valuable research conclusions for setting up the Center of Excellence for TVET in Thailand.
<b>1.2) Identify the best performers for comparison:</b>
The comparability of GTDEE and TGPES is based on the following basic framework:

<sup>26</sup>Goncharuk A.G., Lazareva N.O. and Alsharf I.A.M. (2015). *Benchmarking as a performance management method*. Polish Journal of Management Studies. Vol. 11, No. 2, pp. 27-36.

- Is an organization participating in the TVET education with unique identity and relatively clear prototype characteristics.
- Is a recognized organization in Thailand. Get support or cooperation from the Thai government by attempting to implement the education in line with the government policy.
- Is an organization with history, background, and the present involving cooperation, support from the Federal Republic of Germany.



**Figure 5.3:** Benchmarking Partner: GTDEE and TGPES

GTDEE and TGPES are among the organizations involving in TVET education in Thailand, and have different special characteristics compared to those (with the operational status) in the same context in the aspects of the detailed background, being a prototype, and being an agency of initiative. There are several important points of interest, such as changes in terms of the development and operating goals of TGPES that differ from the original, as well as having some of the fine linkages between the two organizations, hence, they are best to be a Benchmarking Partner. The background information, the reasons for a thorough analysis of the case study consideration has already been discussed in section 5.1 - 5.2. In this section, the best performers for comparison of the two organizations will be additionally defined in a concise manner.

#### 1.2.1) German-Thai Dual Excellence Education : GTDEE

Is a very distinctive project with a clearly defined purpose- to promote the use of the Dual System educational management to get close to the original German the most, which is the ultimate and best practice of an internationally recognized TVET system. Moreover, the project also gets well supported from the Thai government and the German government, has progress, has development of cooperation from high quality industrial sectors, can accommodate management of practical education in the form that many Thai or international vocational institutes cannot afford to have it. The researcher, after considering information from several reliable sources, found that currently, there are Thai vocational institutes gradually develop cooperation with the GTDEE project, and the educational program has received a lot of attention from the

students, this leads the project to have a remarkable expansion in terms of success and excellence which is very useful for the research.

#### 1.2.2) Thai-German Pre-Engineering School: TGPES

Based on the fact, TGPES is the school under directing of King Mongkut's University of Technology North Bangkok (KMUTNB), which is the KMUTNB growing from the Thai-German Technical School before gradually elevating to the current status of the university. According to the history of Thai education, while the Thai-German Technical School was in its original status, it must be considered as the original of implementing the Germany's Dual System, but in the form of a "factory in school" because of Thailand's several unreadiness at that time, however, that made the Thai-German Technical School is the only one and is known as the archetype of dual-system vocational education administered by the Thai and German administrators in parallel with the full support of the German government till it has been a chapter of diplomatic relations between the two countries to date.

Before the establishment of TGPES in 2007, the Diploma course called the "pre-engineering program" has been administered by the College of Industrial Technology since 1981 until the establishment of such school via the support of the Thai government to especially accommodate the "pre-engineering" Program. Retaining the name of "Thai-German" reflects the efforts to preserve the reputation, history, uniqueness, and connections. Even though today TGPES does not have a purpose of producing personnel to directly enter the labor sector as it did previously and changes to produce learners, prepare them ready for higher education, particularly, a bachelor's degree in engineering; it is still the first place and the prototype of the "pre-engineering" course in Thailand and other countries in the region.

Graduates of the TGPES' program continue to receive the vocational certificate similar to that from other vocational institutes. Therefore; TGPES is still considered one of TVET institutions; still has the condition of "factory in school" the same as many vocational schools, but more in the field of mathematics, science, and English that has much higher concentration; combined with seemingly leapfrogging technical knowledge and technology that are in readiness more than the educational institutions at the same level in the country; it is regarded as a special course, an outstanding educational management that well suits the framework and definition of the excellence discussed earlier.

#### 1.3) Determine Excellent Performance Indicators<sup>+</sup>USP

The researcher has determined indicators that will help to identify excellence in a total of 10 categories, 34 subitems, as shown in Table 5.7, and designated as Excellent Performance Indicators<sup>+</sup>USP: EPIs<sup>+</sup>USP. Such determination is considered and based on the foundation of:

- 1.The definitions of both excellence and education perspectives, which are summarized and referenced from Chapter 2.
- 2.Implementation guidelines of the Center of Excellence for TVET discussed in Chapter 3, consist of Singapore, English and Vietnamese.
- 3.Covered 7 categories of The Baldrige Criteria for Performance Excellence, which is the model and approach for the consideration of Thailand Quality Award as well as in other countries as discussed in Chapters 2 and 3, and which blankets the

following aspects:1) Leadership 2) Strategy 3) Customers 4) Measurement, analysis, and knowledge management5) Workforce6) Operations 7) Results

4.The advantages of classification of excellence correspond to the definition defined by the researcher in Chapter 4, based on USP unique framework added.

5.Agreed with the principle of Hatry (1999)<sup>27</sup> that stated “Performance measures for public program assessments are generally identified as input, process, output, and outcome.”

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<sup>27</sup> Hatry, H.P. (1999). *Performance Measurement: Getting Results*. Washington: Urban Institute Press.

**Table 5.7:** 10 Excellent Performance Indicators<sup>+UPS</sup>: 10 EPIs<sup>+USP</sup>

<b>Excellent Performance Indicators<sup>+USP</sup>: EPIs<sup>+USP</sup></b>				
<b>Area</b>	<b>Input indicators</b>	<b>Process indicators</b>	<b>Output indicators</b>	<b>Outcome indicators</b>
<b>1. An overview of organizational efficiency</b>				
1.1 Qualifications, experiences of the executives	✓	✗	✗	✗
1.2 Executives' leadership and Good Governance	✓	✗	✗	✗
1.3 Availability of personnel	✓	✗	✗	✗
1.4 Budget availability and security	✓	✗	✗	✗
<b>2. Policy coherence with country development and stakeholder's needs</b>				
2.1 Policies and curriculums that will develop learners to have qualification consistent with the country's development policy or direction.	✓	✗	✗	✗
2.2 Policies and curriculum that will develop students' qualifications to respond to the needs of stakeholder.	✓	✗	✗	✗
<b>3. Availability of teaching and learning management and resources</b>				
3.1 Qualifications of instructors or trainers	✓	✗	✗	✗
3.2 Support staff (registration, finance, academic, etc.)	✓	✗	✗	✗
3.3 Certified education System, Education Program/ curriculum	✗	✓	✗	✗
3.4 Laboratories / shops / establishments	✓	✗	✗	✗
3.5 Information technology system	✓	✗	✗	✗



<b>Excellent Performance Indicators+USP: EPIs+USP (Cont. I)</b>				
<b>Area</b>	<b>Input indicators</b>	<b>Process indicators</b>	<b>Output indicators</b>	<b>Outcome indicators</b>
<b>4. student services /welfare services/student aid</b>				
4.1 Health and accident insurance	✓	✗	✗	✗
4.2 Scholarships, Earnings during education, Emergency financial assistance	✓	✗	✗	✗
4.3 Guidance and counselling on further education / career	✗	✓	✗	✗
<b>5. Quality system and accreditation of excellence</b>				
5.1 Student selection process	✗	✓	✗	✗
5.2 Education quality assurance and educational development	✗	✓	✗	✗
5.3 National Awards or certifications	✗	✗	✓	✓
5.4 International Award or Certifications	✗	✗	✓	✓
5.5 Having a job or continuing education at a higher level of graduates	✗	✗	✗	✓
<b>6. Uniqueness: Under USP concept</b>				
6.1 Unique curriculum / learning program.	✓	✗	✗	✗
6.2 Unique system and process of teaching and learning.	✗	✓	✗	✗
6.3 Leadership, being an original, follow perception of the society.	✗	✗	✗	✓
6.4 Unique characteristics, capability of Graduates, qualification and certification	✗	✗	✗	✓
<b>7. Cooperation, Coordination, Collaboration with Stockholder</b>				
7.1 Planning, exchange of student development approaches with Stakeholder groups.	✓	✗	✗	✗
7.2 Opportunities / Quotas for higher education or working with Stakeholder.	✗	✗	✗	✓

<b>Excellent Performance Indicators<sup>+</sup>USP: EPIs<sup>+</sup>USP(Cont. II)</b>				
<b>Area</b>	<b>Input indicators</b>	<b>Process indicators</b>	<b>Output indicators</b>	<b>Outcome indicators</b>
<b>8. Universality</b>				
8.1 Collaboration with foreign agencies or organizations	✓	✗	✗	✗
8.2 International academic programs or courses	✗	✓	✗	✗
8.3 International or internationally recognized education management style.	✗	✓	✗	✗
8.4 Exchange programs or opportunities for training session, apprenticeship, and study visit with foreign organizations for personnel and learner	✗	✓	✗	✗
8.5 Foreign specialists, instructors, trainers or graduated from abroad.	✓	✗	✗	✗
<b>9. Perception of, acceptance of, and satisfaction with status of quality, qualification and excellence, attitude of the society - Expert – Stakeholder</b>				
9.1 Perception; attitude; and recognized reputation, quality, and excellence in learner development that Society /expert/stakeholder has toward organization	✗	✗	✗	✓
9.2 Perception; attitude; and recognized excellence in qualification, potentiality, competence, and proficiency that Society /expert/stakeholder has toward graduates	✗	✗	✗	✓
<b>10. Innovative Management for creating sustainable unique excellence: Under the USP concept</b>				
10.1 Knowledge management system within the organization.	✓	✗	✗	✗
10.2 Policy, strategic plan, long term strategy to increase the competitiveness limit for future changes.	✓	✗	✗	✗
10.3 Promoting innovation in various dimensions such as management innovation, new model of education management, innovative production of personnel or students, Participation in skill or excellence competition, and etc.	✗	✓	✗	✗

<b>1.4 Develop Benchmarking+USP templates</b>
1.4.1) Elaborate on all 10 categories, 34 subitems of EPIs+USP: in a form of question in order to be able to implement Benchmarking in each area defined by filling in the Benchmarking+USP templates for carrying on Benchmarking activities in the next steps.
1.4.2) Performance Measures - on a 5-point scale and other kinds of assessment scale: 1. For the statements, or a matrix in the case of an indicator with more than one component, represent progress toward good practice as represented by an indicator. The researchers found from other academic reference sources that a five-point scale is the most popularly selected and is the most efficient for the assessment, comparison in Benchmarking process as it can provide clear information with adequacy, not too redundant and not too small, useful for both statistical analysis as well as qualitative interpretation. 2. In conducting benchmarking, some categories with questions that seek answer-yes / no - ever / never –number %- or percentage or need for respondents to specify the data, there will be an adjustment of the method appropriate to the characteristics of the information required. 3. To be easy to understand and use, the researcher will set the criteria, concise and indictable meaning of the measurement level to fill in the Benchmarking+USP templates for implementing the next steps of Benchmarking activities.
1.4.3) Fill the templates with compositions, details to make them be readily available (see Appendix I).
<b>1.5) Determine data collection method and collect data</b>
The data collection method and gather data section of Benchmarking process will be elaborately defined in Benchmarking+USP templates (see Annex I), which consist of 2 types of basic data:
1.5.1) Qualitative Data
Is the data that will bring about the concept, the information that will be used for interpretations that is based on understanding via an induction approach analysis and a holistic perspective summary. It is classified into 2 groups according to the source: - Primary source, obtained through interviews with executives / responsible persons / relevant persons through direct site visit or remote interviews, as appropriate, etc. - Secondary source, derived from the search, research reports, other information resources and relevant on-line databases, and so on.
1.5.2) Quantitative Data
This research; based on a scientific approach; is intended to be scientifically directed to help control the reliability of research and to reduce cognitive bias, an individual's feeling, which is a disadvantage of the Qualitative Data; therefore; the quantitative data acquisition done through the use of questionnaires to ask the executives / responsible persons/ representatives / relevant persons / stakeholders / experts / target group; to collect data for processing and analyzing by using statistical methods to certify is so imperative.

## Chapter 6

### **Benchmarking+USP results conducted through information and views from executives of Benching Partner**

Content contained in this chapter is a continuation from the goal selection; objectives determination, including format, scope, methodology and indicators; and Benchmarking+USP templates and data collection methods designing that has been systematically, concisely structured in Chapter 5. Therefore, the researcher would like to present the result of Benchmarking+USP on the efficiency of management to excellence in TVET, which was a comparative study through the perspectives and information giving directly from the management of GTDEE and TGPEs, or from now on will be referred to as "Benching Partner". However, before leading to the results of Benchmarking+USP, the researcher had added an interview questionnaire set --to obtain basic information and to get opinions about "Center of excellence in TVET" --into the first part of the designed Benchmarking + USP templates4 issues as follows:

- Section 1: Personal information and basic information
- Section 2: Basic understanding of Excellence and Centres of Excellence
- Section 3: Awareness, experience, perspective and understanding of Centres of Excellence for TVET
- Section 4: Suggestions and others

These are for searching for the most complete and accurate information which can be taken or selectively used for further analysis of data.

#### **6.1 Preliminary data and comments of Benching Partner about "TVET Excellence"**

##### **6.1.1 Personal information of the representatives of Benching Partner**

Whether adhering to other comparative statistical principles or by the methodology of Benchmarking + USP, one of the most concerns is, having comparable qualifications between variables or benchmarking partners to bring about acceptableness in the comparison. Therefore, in order to allow any actions-- both in responding to the interview questionnaires and in conducting Benchmarking+USP on the efficiency of organizational management towards excellence in TVET according to the proposition previously established--to achieve perfect results; selection of the participant who would contribute in the information and opinions from the Benching Partner is a so crucial matter. Table 6.1 greatly helps to demonstrate and confirm the awareness of the researcher.

**Table 6.1:** Basic personal information of GTDEE and TGPES executives

<b>Data</b>	<b>GTDEE</b>	<b>TGPES</b>
Prefix - Name-Surname	Dr. Kamolsak Suradom	Assist. Prof. Dr. SaowakhonKhunnawut
Genders	Male	Female
Age	46	45
Position	Senior Manager of GTDEE Project	Director of Thai-German Pre-Engineering School
Affiliation	German-Thai Chamber of Commerce	King Mongkut's University of Technology North Bangkok
Work experience after completing PhD.	More than 6 years	More than 6 years

When considering the quality, qualifications and suitability of data acquisition in various dimensions from the executives of both the GTDEE and TGPES who had accepted to provide information, share an opinion and participate Benchmarking<sup>USP</sup> exercise with the researcher; it was found that both parties which were comparable individuals would excellently create recognition of the information of the comparison results.

### 6.1.2 Basic understanding of Excellence and Centres of Excellence

Representatives from the Benching Partner have delivered very interesting answers to the questions from the interview questionnaire. In this regard, the author will present both question and answer sections in table 6.2

**Table 6.2:** Exhibits basic understanding of Excellence and CoE of the representatives from Benching Partner

<b>GTDEE</b>	<b>TGPES</b>
<b>Question:</b> Please define “Excellence”	
Answer from the viewpoint of education excellence -After graduation, >95 % of graduates are employed. - Offers a teaching on and have learnt about matters that can solve social problems such as global warming - Having accountable consciousness	The uttermost, to be superior to standards, transcend general-quality
<b>Question:</b> Please specify at least 5 basic factors that lead to “Excellence”	
-Quality -Efficiency -Environment -Safety 100% -Responsibility to social	-Quality -Standards -Innovation, Technology -Acceptance -Respond to the needs of the target group

<b>Question: Please define, characterize and identify components of “Centres of Excellence”</b>	
-Transparency working in all process -Transmissibility -Responsibility -Capability -Cooperative with stakeholders	Is a center that is equipped with knowledge, people, innovation, and technology in the particular area
<b>Question: Please name Centers of excellence that has been appeared in Thailand</b>	
-Centres of Medical Excellence -Centres of Excellence in Education -Center for Skincare Excellence -Centre of Excellence for Science and Innovation Studies	-Centres of Medical Excellence -Centres of Excellence in Education -Center for Skincare Excellence -Centres of Excellence for TVET -Center of Excellence for Speech and Language Development

### 6.1.3 Awareness, experience, perspective and understanding of Centres of Excellence for TVET

Based on a belief that the representatives from the Benchmarking Partner all have experience as well as fine qualifications and maturity, the researcher therefore wishes to assess the perception and understanding of the Centres of Excellence for TVET through the closed-ended questions from the views of the two individuals, which have the results been compiled and are presented in Table 6.3

**Table 6.3:** Show Awareness, experience, perspective and understanding of CoE for TVET of the representatives from Benchmarking Partner

<b>GTDEE</b>	<b>TGPES</b>
<b>Question: Do you have CoE (or similar organization) in your country?</b>	
Yes, we do have the Centres of Excellence for TT in our country	Yes, we do have the Centres of Excellence for TVET in our country
<b>Question: In your opinion, why are organizations called CoE for TVET? (<i>Please use an * mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.</i>)</b>	
<b><u>Reasons at an importance level 5</u></b> 2) Received quality and standard certification from international organizations 3) Received awards and honors from domestic organizations 4) Received awards and honors from international organizations 5) Received cooperation from domestic organizations 6) Received cooperation from international organizations	<b><u>Reasons at an importance level 5</u></b> 1) Received quality and standard certification from domestic organizations 2) Received quality and standard certification from international organizations 3) Received awards and honors from domestic organizations 4) Received awards and honors from international organizations 5) Received cooperation from domestic organizations

<p>7) Having innovation breakthrough, specialization 8) Having differentiation, distinction in certain area</p> <p><b><u>Reasons at an importance level 4</u></b> 9) Having reputation and acknowledgement from the public 10) Having plan, policy, strategy and leadership</p> <p><b><u>Reasons at an importance level 3</u></b> 1) Received quality and standard certification from domestic organizations 11) The organization is self established with no certifications but do have potential to be excellence Reasons at an importance level 2 3) Received awards and honors from domestic organizations</p> <p><b><u>Reasons at an importance level 1</u></b> 12) The organization is self established with no certifications just for marketing purpose. The potential to be excellence is questionable.</p>	<p>6) Received cooperation from international organizations 7) Having innovation breakthrough, specialization 8) Having differentiation, distinction in certain area 9) Having reputation and acknowledgement from the public 10) Having plan, policy, strategy and leadership</p> <p><b><u>Reasons at an importance level 2</u></b> 11) The organization is self established with no certifications but do have potential to be excellence 12) The organization is self established with no certifications just for marketing purpose. The potential to be excellence is questionable.</p>
<p><b>Question:</b> Are you familiar with the following models/tools/ management systems/ awards relating to quality, standard and excellence that could be adapted in the establishment of CoE for TVET?</p>	
<p>-European Quality Award (EQA) -Total Quality Management (TQM)</p>	<p>-Singapore Quality Award (SQA) -Benchmarking - EFQM Excellence Award(EFQM) - Total Quality Management (TQM) - Unique Selling Proposition (USP) - International Organization for Standardization (ISO) - Malcolm Baldrige National Quality Award (MBNQA)</p>
<p><b>Question:</b> Which center of excellence has already been existed in Thailand</p>	
<p>-Centres of Medical Excellence -Centres of Excellence in Education -Centres for Skincare Excellence -Centres of Excellence for Science and Innovation Studies</p>	<p>-Centres of Medical Excellence -Centres of Excellence in Education -Centres for Skincare Excellence -Centres of Excellence for TVET -Centres of Excellence for Speech and Language Development</p>

### 6.1.4 Suggestions and others

This is the final important part that the researchers expect to acknowledge the additional recommendations, needs or perspectives that the representatives of the 2 organizations have toward Centres of Excellence for TVET through both closed-ended and open-ended questions, of which have been compiled the results and are presented in the table 6.4

**Table 6.4:** Displays recommendations and other comments of the representatives from the Benching Partner

<b>GTDEE</b>	<b>TGPES</b>
<p><b>Question:</b> If your organization would like to abruptly change to the gain excellence, what are the importance of the following factors or procedures? (<i>Please use an ✖ mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.</i>)</p>	
<p><b><u>Reasons at an importance level 5</u></b>            5) Received cooperation from domestic organizations            6) Received cooperation from international organizations            9) Having reputation and acknowledgement from the public            10) Having plan, policy, strategy and leadership            11) Having multiple services / multiple training</p> <p><b><u>Reasons at an importance level 4</u></b>            2) Received quality and standard certification from international organizations            3) Received awards and honors from domestic organizations            4) Received awards and honors from international organizations            7) Having innovation breakthrough, specialization            8) Having differentiation, distinction in certain area</p> <p><b><u>Reasons at an importance level 3</u></b>            1) Received quality and standard certification from domestic organizations</p>	<p><b><u>Reasons at an importance level 5</u></b>            1) Received quality and standard certification from domestic organizations            2) Received quality and standard certification from international organizations            3) Received awards and honors from domestic organizations            4) Received awards and honors from international organizations            5) Received cooperation from domestic organizations            6) Received cooperation from international organizations            7) Having innovation breakthrough, specialization            8) Having differentiation, distinction in certain area            9) Having reputation and acknowledgement from the public            10) Having plan, policy, strategy and leadership</p> <p><b><u>Reasons at an importance level 4</u></b>            11) Having multiple services / multiple training</p>
<p><b>Question:</b> In your opinion, what are missions of CoE for TVET? Please provide 3 to 5 missions</p>	



<ul style="list-style-type: none"> <li>-Work for young generation to certify worker.</li> <li>-Develop people linked to responsible about global warming issue.</li> <li>-Transparency working</li> </ul>	<p>A commitment to unremitting development to develop organization, develop human resource, develop capability as well as readiness for excellence in creating and producing /learners to have competence/talented learner who,/until after graduation or the training is completed, appear to have specific expertise skills at a level recognized outstandingly well by the labor market.</p>
<p><b>Question:</b> Which program of CoE for TVET is necessary or might receive the most interest in your country?</p>	
<ul style="list-style-type: none"> <li>-Teacher development</li> <li>-Trainer development</li> <li>-Cooperative skills</li> </ul>	<p>CoE related to government development policy, such as automatic control systems, logistics, artificial intelligence (AI), new entrepreneur development</p>

Similarities noted from the perspectives of Benchmarking Partner representatives; both sides agreed that the mission of the Centers of Excellence for TVET is; constructing competences, potentials, knowledge and expertise; or developing learners, trainers to be capable of meeting the issues or needs of the labor market; on which the representatives of GTDEE have expanded that "Thailand needs to have Centers of Excellence for TVET that provides teachers or trainers development services which are considered the most important upstream unit for capacity building for the TVET education sector." Moreover; the TGPES party also pointed out that at present, Thailand; a production base following the investment of the world's leading industrial products of many companies; has a policy to drive the country via the reform of vocational education to be able to produce labor in harmony with the needs of the industrial sector on grounds of changes that began to appear these days and are likely to reoccur in the near future, which is, labor must have familiarity, have expertise that is close with modern technology, automatic control system, artificial intelligence; and accompanying with Thailand itself being considered a major transportation hub of Southeast Asia; then creating workers with knowledge of logistic sector or transportation system is an interesting key point; and moreover, when learners or trainees have the potential great enough; becoming a new entrepreneur is also one of the mission areas of the center.

## 6.2 Results of exercising Benchmarking<sup>+</sup>USP based on the designed templates

As discussed at the end of Chapter 5, the researcher has determined indicators that will help to identify excellence in a total of 10 categories, 34 subitems (see Table 5.7 in Chapter 5). The establishment of these indicators has been adapted from academic studies as well as quality and excellence measurement systems- recognized globally and regionally, including leading industrial countries- which have been used as a reference source for this research. Only parts of the most relevant key points were drawn to use for specifying the status of Centers of Excellence for TVET.

In addition, due to the conducting of this designed Benchmarking + USP requires a total of 34-table templates from 10 categories of Excellent Performance Indicators+UPS: EPIs+USP (see Appendix 1, Table 5.7), each table then contains a lot of specific information; hence, to create understanding benefits to readers or those studying this research, the researcher therefore, needs to briefly present the data via a summary table, by dividing into 10 tables according to the main data sets of the clusters of Excellent Performance Indicators+UPS: EPIs+USP classified; but still be able to completely display the significant information obtained from both Benching Partner representatives; GTDEE and TGPES, as shown in the following section:

**Table 6.5:** EPIs+USP - An overview of organizational efficiency

<b>Benchmark: Area no.1 - Scoping statement no. 1.1</b>			
Scoping statement:	Qualifications, experiences of the executives		
Best Practice Statement:	Executive of the organization “has appropriateness” of work experience and educational qualifications to lead the organization “the most”		
Performance Indicators	The executive of the organization has experiences and educational qualification appropriate to lead the organization.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Very appropriate	Very appropriate	
<b>Benchmark: Area no.1 - Scoping statement no. 1.2</b>			
Scoping statement:	Executives’ leadership and Good Governance		
Best Practice Statement:	The executive of the organization “extremely” "has" organizational leadership and commits to management that applies the principle of good governance		
Performance Indicators	The executive of the organization has organizational leadership and commits to the management that applies the principle of good governance.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Extremely have	Extremely have	
<b>Benchmark: Area no.1 - Scoping statement no. 1.3</b>			
Scoping statement:	Availability of personnel		
Best Practice Statement:	The organization has “extremely high” availability of personnel to support the operation of the organization in all dimensions.		
Performance Indicators	The organization has availability of personnel to support the operation of the organization in all dimensions.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Highly available	Highly available	
<b>Benchmark: Area no.1 - Scoping statement no. 1.4</b>			
Scoping statement:	Budget availability and security		
Best Practice Statement:	Have “extremely high” availability and security of budget for mobilizing the organization to achieve the goal.		
Performance Indicators	Have availability and security of budget for mobilizing the organization to achieve the goal.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Moderately available and secure	Moderately available and secure	

**Table 6.6:** EPIs+USP - Policy coherence with country development and stakeholder's needs

<b>Benchmark: Area no. 2 - Scoping statement no. 2.1</b>			
Scoping statement:	Policies and curriculums that will develop learners to have qualifications consistent with the country's development policy or direction.		
Best Practice Statement:	The organization has policies and curriculums that aim to develop students to have qualifications "consistent" with Thailand's development policies and direction "the most".		
Performance Indicators	The organization has policies and curriculums that aim to develop learners to have qualifications consistent with development policies or direction of Thailand.		
Levels and keywords	GTDEE	TGPES	เหมาะสมที่สุด
	Very consistent	Very consistent	
<b>Benchmark: Area no.2 - Scoping statement no. 2.2</b>			
Scoping statement:	Policies and curriculum that will develop students' qualifications to respond to the needs of stakeholder.		
Best Practice Statement:	The organization has policies and curriculums that aim to develop students' qualifications to "extremely respond" to the needs of the stakeholder.		
Performance Indicators	The organization has policies and curriculums that aim to develop students' qualifications to respond to the needs of stakeholder.		
Levels and keywords	GTDEE	TGPES	เหมาะสมที่สุด
	At a good level respond	At a good level respond	

**Table 6.7:** EPIs+USP - Availability of teaching and learning management and resources

<b>Benchmark: Area no. 3 - Scoping statement no. 3.1</b>			
Scoping statement:	Qualifications / characteristics of instructors or trainers		
Best Practice Statement:	Teachers or trainers as a whole have qualification "extremely appropriate" to organize teaching and learning in each field.		
Performance Indicators	Teachers or trainers as a whole have educational qualification "appropriate" to organize teaching and learning in each field		
Levels and keywords	GTDEE	TGPES	เหมาะสมที่สุด
	Extremely appropriate qualifications	Extremely appropriate qualifications	
<b>Benchmark: Area no. 3 - Scoping statement no. 3.2</b>			
Scoping statement:	Support staff (registration, finance, academic, etc.)		
Best Practice Statement:	Organization has "extremely high" "availability" of support staff that can accommodate operation and services in all dimensions, both quantitative and qualitative.		
Performance Indicators	Organization has availability of support staff that can accommodate operation and services in all dimensions, both quantitative and qualitative.		
Levels and keywords	GTDEE	TGPES	เหมาะสมที่สุด
	Highly available	Highly available	
<b>Benchmark: Area no. 3 - Scoping statement no. 3.3</b>			
Scoping statement:	Education System, certified Education Program/ curriculum		
Best Practice Statement:	The organization has an education system, education program / curriculum that are "all accredited" by the regulator.		
Performance Indicators	The organization has an education system, education program / curriculum that are accredited.		
Levels and keywords	GTDEE	TGPES	เหมาะสมที่สุด
	In about 80% accredited, but not reach 100%	In about 80% accredited, but not reach 100%	
<b>Benchmark: Area no. 3 - Scoping statement no. 3.4</b>			
Scoping statement:	Laboratories / shops / establishments		

Best Practice Statement:	Overall, the organization provides “extremely” "adequate" laboratories / shops/ apprenticeship locations that are appropriate for both quantitative and qualitative education management.		
Performance Indicators	Overall, the organization provides adequate laboratories / shops/ apprenticeship locations that are appropriate for both quantitative and qualitative education management.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Very adequate	Very adequate	
<b>Benchmark: Area no. 3 - Scoping statement no. 3.5</b>			
Scoping statement:	Information technology system		
Best Practice Statement:	The organization provides information technology systems “most sufficiently appropriate”, both quantitative and qualitative, to service learners - trainees / teachers - trainers, and other personnel		
Performance Indicators	The organization provides information technology systems sufficiently appropriate, both quantitative and qualitative, to service learners –trainees / teachers - trainers, and other personnel		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Moderately sufficient and appropriate	Moderately sufficient and appropriate	

**Table 6.8:** EPIs<sup>+</sup>USP - Student services /welfare services/student aid

<b>Benchmark: Area no. 4 - Scoping statement no. 4.1</b>			
Scoping statement:	Health and accident insurance		
Best Practice Statement:	The organization has made “excellent” "preparation" about the health insurance and accident insurance systems for students / trainers.		
Performance Indicators	The organization has made preparation about health insurance and accident insurance systems for students / trainers.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Has extreme preparation	Has extreme preparation	
<b>Benchmark: Area no. 4 - Scoping statement no. 4.2</b>			
Scoping statement:	Scholarships, Earnings during education, Emergency financial assistance		
Best Practice Statement:	The organization has shown readiness to extremely "support" various types of scholarships, emergency grants, as well as to "encourage" students who lack of fund or wish to earn a living can earn income during education.		
Performance Indicators	The organization has shown readiness to support various types of scholarships, emergency grants, as well as to "encourage" students who lack of fund or wish to earn a living can earn income during education.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Very support or encourage	Very support or encourage	
<b>Benchmark: Area no. 4 - Scoping statement no. 4.3</b>			
Scoping statement:	- Guidance and counselling on further study / careers - Further study / careers guidance		
Best Practice Statement:	The organization also “gives priority” “absolute highest” to further study / career guidance and counselling service after graduation (is one among others that are given absolute highest priority).		
Performance Indicators	The organization also gives priority to further study / career guidance and counselling service after graduation. (is one among others that are given priority).		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Give an absolute highest priority	Give an absolute highest priority	

**Table 6.9: EPIs+USP - Quality system and accreditation of excellence**

<b>Benchmark: Area no. 5 - Scoping statement no. 5.1</b>			
Scoping statement:	Student selection process		
Best Practice Statement:	Organization also “very highly” "considers" the creation of a mechanism to support the selection process for obtaining students with high-quality or who have potential to be systematic successfully developed according to the goals based on creation of educational equality. (is one among others that are consider very highly)		
Performance Indicators	The organization also considers the creation of a mechanism to support the selection process for obtaining students with high-quality or who have potential to be systematic successfully developed according to the goals based on creation of educational equality. (is one among others that are very highly considered)		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Highly considered	Highly considered	
<b>Benchmark: Area no. 5 - Scoping statement no. 5.2</b>			
Scoping statement:	Education quality assurance and educational development		
Best Practice Statement:	The organization is under a quality assurance system of education, have been assessed, to ensure the quality of education both internal and external by nationally or internationally recognized agency, with the result shown that “has extremely excellent quality (or wording that provides meaning in the same direction).”		
Performance Indicators	The organization is assessed through internal and external quality assurance systems that are recognized nationally or internationally.		
Levels and keywords	GTDEE	TGPES	หมายเหตุ
	Have extremely excellent quality	Have extremely excellent quality	
<b>Benchmark: Area no. 5 - Scoping statement no. 5.3</b>			
Scoping statement:	National Awards or certifications		
Best Practice Statement:	Organization / Executives / Learners / Instructors have "ever received" awards or accreditation for quality / excellence / other national internal competitions.		
Performance Indicators	Organization / Executives / Learners / Instructors have ever received awards or accreditation for quality / excellence / other national internal competitions.		
Answers(★)	GTDEE	TGPES	
	<b>Ever</b>	<b>Ever</b>	
Details:	Title of the Awards or Accreditations:QA, Independent curriculum Granting / accreditation body: GTDEE Year Received:2019 Levels: ..... Received: .....	Title of the Awards or Accreditations:QA, Independent curriculum Granting / accreditation body: GTDEE Year Received:2019 Levels: ..... Received: .....	
<b>Benchmark: Area no. 5 - Scoping statement no. 5.4</b>			
Scoping statement:	International Award or Certifications		
Best Practice Statement:	Organization / Executives / Learners / Instructors have "ever received" awards or accreditation for quality / excellence / other national internal competitions.		
Performance Indicators	Organization / Executives / Learners / Instructors have ever received awards or accreditation for quality / excellence / other national internal competitions.		
Answers (★)	GTDEE	TGPES	
	<b>Ever</b>	<b>Ever</b>	
Details:	Title of the Awards or Accreditations: ..... Granting / accreditation body: ..... Year Received:2019 (unofficial).	Title of the Awards or Accreditations: ..... Granting / accreditation body: ..... Year Received:2019 (uncertified).	

	Levels: .....	Levels: .....
	Received: .....	Received: .....
<b>Benchmark: Area no. 5 - Scoping statement no. 5.5</b>		
Scoping statement:	Having a job or continuing education at a higher level of graduates	
Best Practice Statement:	The % or percentage of employment or continuing education in a higher level of the graduates is very high.	
Performance Indicators	The % or percentage of employment or continuing education in a higher level of the graduates.	
Answers	GTDEE	TGPES
	<b>2018</b>	<b>2017</b>
	>80	>90
	GTDEE	TGPES
	>80	>90
		หมายเหตุ

**Table 6.10:** EPIs<sup>+</sup>USP - Uniqueness: Under USP concept

<b>Benchmark: Area no. 6 - Scoping statement no. 6.1</b>		
Scoping statement:	Unique curriculum / learning program	
Best Practice Statement:	The organization has unique curriculum / learning program by being the owner, the original / the prototype / the origin / the leader of those curriculums / learning programs.	
Performance Indicators	The organization has a unique curriculum / learning program.	
Answers (✖)	GTDEE	TGPES
	Yes	No
<b>Benchmark: Area no. 6 - Scoping statement no. 6.2</b>		
Scoping statement:	Unique system and process of teaching and learning.	
Best Practice Statement:	The organization has specific unique system / process of teaching and learning by being the owner /the original / the template / the origin / the leader in implementing those system / process of teaching and learning.	
Performance Indicators	The organization has a specific unique system / process of teaching and learning.	
Answer (✖)	GTDEE	TGPES
	Yes	Yes
Details	System / process title..... Year started .....	Certification.....
<b>Benchmark: Area no. 6 - Scoping statement no. 6.3</b>		
Scoping statement:	Leadership, being an original, follow perception of the society.	
Best Practice Statement:	Society has “extreme” collective "perception and recognition" that the organization has prominent leadership / originality in the educational management or education system that is implementing.	
Performance Indicators	Society has perception and recognition that the organization has leadership / originality in the educational management or the education system that is ongoing.	
Levels and keywords	GTDEE	TGPES
	At a good level perceived and recognized	At a good level perceived and recognized
		comment
<b>Benchmark: Area no. 6 - Scoping statement no. 6.4</b>		
Scoping statement:	Unique in qualification, capability of Graduates, academic qualification and certification	
Best Practice Statement:	Graduates “have unique” outstanding qualification / performance or have “extremely exceptional” different academic qualifications and certifications.	
Performance Indicators	Graduates have unique outstanding qualification or have exceptional different educational qualifications and certifications.	
Answers (✖)	GTDEE	TGPES
	Yes	Yes

Details	- Title of academic qualification / Certification.....DIK..... - Capability / qualification difference.....	
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**Table 6.11: EPIs<sup>+</sup>USP - Cooperation, Coordination, Collaboration with Stakeholder**

<b>Benchmark: Area no. 7 - Scoping statement no. 7.1</b>					
Scoping statement:	Planning, exchange of student development approaches with Stakeholder groups.				
Best Practice Statement:	The organization has “extremely” "outstanding" work performance / coordination / collaboration with the Stakeholder Groups in terms of quantity and quality.				
Performance Indicators	The organization has “extreme” work performance / coordination / collaboration with the stakeholder groups in terms of both quantity and quality.				
Levels and keywords	GTDEE		TGPES		comment
	Moderately outstanding		Moderately outstanding		
<b>Benchmark: Area no. 7 - Scoping statement no. 7.2</b>					
Scoping statement:	Opportunities / Quotas for higher education or working with Stakeholder.				
Best Practice Statement:	Stakeholder has confidence in the production process, the education system of the organization, and the quality of the students, then “allocates quota or gives opportunity”, as an “extremely exceptional” case, to students for continuing study at a higher level or working with stakeholder.				
Performance Indicators	Confidence of stakeholder in the production process, the education system of the organization, and the quality of the students by allocating quota or giving opportunity to students for continuing study at a higher level or continuing work with stakeholder.				
GTDEE: Details % of graduates	<b>Year2018</b>	<b>Year2017</b>	<b>Year 2016</b>	<b>Year 2015</b>	<b>Year 2014</b>
	On average 97%				
TGPES: Details % of graduates	<b>Year2018</b>	<b>Year2017</b>	<b>Year 2016</b>	<b>Year 2015</b>	<b>Year 2014</b>
	On average 99%				

**Table 6.12: EPIs<sup>+</sup>USP – Universality**

<b>Benchmark: Area no. 8 - Scoping statement no. 8.1</b>					
Scoping statement:	Collaboration with foreign agencies or organizations				
Best Practice Statement:	Organization has established collaboration with foreign agencies or organizations, including foreign organizations that has branches or offices in Thailand, in order to support, to benefit implementation of teaching and learning management.				
Performance Indicators	- Number of MoU, projects, or other types of contract that the organization has established cooperation with foreign agencies or organizations.				
Answers (✖)	GTDEE		TGPES		
	Have		Have		
<b>Benchmark: Area no. 8 - Scoping statement no. 8.2</b>					
Scoping statement:	International academic programs or courses				
Best Practice Statement:	The organization offers education programs taught in English or other languages to response to the world of education and the world of work in the age of globalization.				
Performance Indicators:	Number of education programs taught in English or foreign languages				
Answers (✖)	GTDEE		TGPES		
	Have		Have		
<b>Benchmark: Area no. 8 - Scoping statement no. 8.3</b>					
Scoping statement:	International or internationally recognized education management style.				
Best Practice Statement:	The organization uses an international and internationally accepted education management style or system.				

Performance Indicators	The organization uses an international and internationally accepted education management style or system.		
Answers (✖)	GTDEE	TGPES	
	Use	Use	
<b>Benchmark: Area no. 8 - Scoping statement no. 8.4</b>			
Scoping statement:	Exchange programs or opportunities for training session, apprenticeship, and study visit with foreign organizations for personnel and learner		
Best Practice Statement:	Organizations also “have and gives priority” extremely to exchange programs or opportunities for training session, apprenticeship, study visit, and oversea skills competitions for the development of personnel and learners		
Performance Indicators	Organization has and gives priority to exchange programs or opportunities for training session, apprenticeship, study visit, and oversea skills competitions for the development of personnel and learners		
Levels and keywords	GTDEE	TGPES	comment
	Have and gives slight priority		
<b>Benchmark: Area no. 8 - Scoping statement no. 8.5</b>			
Scoping statement:	Foreign specialists, instructors, trainers or graduated from abroad.		
Best Practice Statement:	The organization has a number of foreign or overseas graduated specialists, instructors, and trainer in a proportion that well strengthens the capacity and image to the organization		
Performance Indicators	Number of foreign or overseas graduated specialists, instructors, and trainers that work in the organization		
Answers (✖)	GTDEE	TGPES	
	None	Have	

**Table 6.13:** EPIs+USP - Perception of, acceptance of, and satisfaction with status of quality, qualification and excellence, attitude of the society - Expert – Stakeholder

<b>Benchmark: Area no. 9 - Scoping statement no. 9.1</b>			
Scoping statement:	Perception; attitude; and recognized reputation, quality, and excellence in learner development that Society /expert/stakeholder has toward organization		
Best Practice Statement:	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition to the reputation, quality, and excellence in student development at the level of "extremely excellent and outstanding"		
Performance Indicators	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards the organization of reputation, quality, and excellence in student development		
Levels and keywords	GTDEE	TGPES	comment
	Very excellent and outstanding	Very excellent and outstanding	
<b>Benchmark: Area no. 9 - Scoping statement no. 9.2</b>			
Scoping statement:	Perception; attitude; and recognized excellence in qualification, potentiality, competence, and proficiency that Society /expert/stakeholder has toward graduates		
Best Practice Statement:	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards organization’s graduates of qualification, potentiality, competence, and proficiency at the level of “extremely excellent and outstanding”		
Performance Indicators	- General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards organization’s graduates of qualification, potentiality, competence, and proficiency.		
Levels and keywords	GTDEE	TGPES	comment
	Very excellent and outstanding	Very excellent and outstanding	



**Table 6.14:** EPIs+USP - Innovative Management for creating sustainable unique excellence: Under the USP concept

<b>Benchmark: Area no. 10 - Scoping statement no. 10.1</b>			
Scoping statement:	Knowledge management system within the organization.		
Best Practice Statement:	The organization also gives “extreme” "priority" to the knowledge management system within the organization, such as KM, training, and human resources development.		
Performance Indicators	The organization has knowledge management system within the organization, such as KM, training, human resource development, etc.		
Levels and keywords	GTDEE	TGPES	comment
	Gives absolute highest priority	Gives absolute highest priority	
<b>Benchmark: Area no. 10 - Scoping statement no. 10.2</b>			
Scoping statement:	Policy, strategic plan, long term strategy to increase the competitiveness limit for future changes		
Best Practice Statement:	Organization also “extremely” "gives priority" to establishment of policy, strategic plan, and long-term strategy in order to increase the competitiveness limit for accommodating future changes.		
Performance Indicators	The organization has determined a policy, strategic plan, and long-term strategy in order to increase the competitiveness limit for accommodating future changes.		
Levels and keywords	GTDEE	TGPES	comment
	Gives absolute highest priority	Gives absolute highest priority	
<b>Benchmark: Area no. 10 - Scoping statement no. 10.3</b>			
Scoping statement:	Promoting innovation in various dimensions such as management innovation, new model of education management, innovative production of personnel or students, Participation in skill or excellence competition, and etc.		
Best Practice Statement:	Organization also “extremely” "values and promotes" the creation of innovation in various dimensions, such as management innovation, new model of education management, innovative production of personnel or students, participation in a skill or professional excellence competition.		
Performance Indicators	Organization promotes the creation of innovation in various dimensions, such as management innovation, new model of education management, innovative production of personnel or students, participation in a skill or "professional excellence" competition for always promoting and flourishing an image of excellence.		
Levels and keywords	GTDEE	TGPES	comment
	Highly value and promote	Highly value and promote	

It must be acknowledged that it is a good opportunity for having the top executives of both GTDEE and TGPES to honor and give cooperation, as well as take time to answer the questions in all templates, or when counting in the number of tables, totaling was 34. But because carrying out benchmarking activities has a profound and very detailed nature and takes time; hence the researcher was considerate towards the time inconvenience of the executives from both institutions. Therefore, aside from using the already designed templates, interviewing to expand on the findings, and requesting additional documented information would be what that made this benchmarking endeavor got the results that led to a more complete analysis. Regarding the analysis, the researcher chose to use SWOT analysis techniques and principles to help identifying strengths, weaknesses, opportunities, and threats related to excellence in operational efficiency of the two institutions, as shown in the following topic.

### **6.3 SWOT analysis: a summary of the results of Benchmarking<sup>+</sup>USP to pursue excellence**

In order to make complete, multi-dimensional information to appear SWOT analysis is used to benefit summary interpretation of the results of Benchmarking<sup>+</sup>USP conducted between the "Benching Partner": GTDEE and TGPEs; such analysis is not only able to reflect the causations of achieving excellent status as a TVET services providing institution; but also is able to present an analysis of other challenging factors; such as strengths, weaknesses, opportunities, and threats that will lead to more learning or further expansions that may be valuable to both "Benching Partner" institutions, as well as useful for those interested in studying the results of this research disseminated; thus, the researcher would like to present a summary analysis result, from executing of all 10 categories of the Benchmarking<sup>+</sup>USP through the data obtained from the templates as shown in topic 6.2, and then combine with interviewing data from the interviews and data from the other documents obtained to consolidate as the result of data analysis according to SWOT analysis guidelines as follows:

#### **6.3.1 Strengths**

##### **GTDEE**

- 1) *The executive has a high level of education, with work experience in 'pursuing cooperation'.*
- 2) *As an organization under the German agencies, it, then, is well-known for its transparency and, has received strong support from high-level support units in the matters of carrying out operations.*
- 3) *Projects implementing is in tune with the needs and developments of Thailand following government policy and may even advance in terms of concepts and practices*
- 4) *The existing curriculum coupled with collaboration with the quality companies, establishments; is what all groups of stakeholders are extremely satisfied with.*
- 5) *Since it is a collaborative project, it is possible to thoroughly select collaborative partners that are readily equipped with personnel, equipment, facilities, and other educational management factors.*
- 6) *Provide supports of scholarship, insurance system, and accident insurance; continuing education guidance; or a preparation for entering job market to the students.*
- 7) *Have a quite intensive screening process for those interested in continuing education but is carried in an opportunity-giving manner*
- 8) *Use performance benchmarks of leading companies to assess the quality of learners*
- 9) *More than 80% of graduates are employed or be able to continue their education at a higher level.*
- 10) *New courses have been created with a purpose of being a leader of the TVET program in each field, and try to create --being the only one-- through collaboration with production bases of German leading industrial companies.*
- 11) *Award certification or assurance of the study programs, including graduates with a document issued and stamped by DIHK - Deutscher Industrie- und Handelskammertag*

- 12) *Efforts and actual circumstance on the principles of TVET institutions educational co-operation according to the German model, as well as working with the leading German industries, establishments operating in Thailand can contribute to a more international status and image.*
- 13) *In the aspect of internationalization and excellence; working with leading companies, leading industries from German have greatly promoted such status and qualification.*
- 14) *There is a promotion among learners to participate in specific professional skills competitions on a regular basis, both on a national and international stage.*

### **TGPES**

- 1) *The executive has a high level of education, with experience working under educational institution that provides TVET programs too.*
- 2) *Is a bureau under an educational institution which has been continuously praised for good governance by the government, and being a unit that is the strength of the institution, hence special attention and support has been obviously given to.*
- 3) *The study program has gained confidence from all sectors for a long time.*
- 4) *Have advantages in terms of location, premises, and complete educational equipment as specified in the curriculum, as well as sufficient budgets.*
- 5) *Provide support of scholarships, insurance system, accident insurance and further education guidance*
- 6) *Have a quite intensive screening process for those interested in continuing their study, but performing in an opportunities-giving style.*
- 7) *Have its own internal quality assurance system*
- 8) *More than 99% of graduates can enter a higher level of education*
- 9) *Is an institution that for years owns pre-engineering course which has been developing steadily in order to rank first in TVET education, but allows the learners to excellently have readiness and be prepared to enter the bachelor degree education or enter the labor market with basic engineering knowledge tied up.*
- 10) *Currently, there are courses taught in English or international program and, the structure of STEM education model has been added in. These demonstrated continuous development to catch up with the current world.*
- 11) *-Skills and professional expertise trainings are organized into a factory in school model, that is, have self-completeness and readiness*
- 12) *Reputation and rationale of the establishment, as well as being an educational institution under the cooperation between Thai-German has taken part in helping to create a more international status and image.*
- 13) *In the aspect of excellence and universality, experts with professional experience both Thais who graduated abroad and the foreigners are invited to deliver instruction to the students as well.*
- 14) *Regularly encouraging learners to participate in professional skill competitions on both national and international stages.*
- 15) *There is promotion of research, invention, and innovation for both teachers and learners*

### 6.3.2 Opportunities

#### GTDEE

- 1) *Functioning under the organization that is capable to win trust, beliefs; is widely known; and has a high potential for bargaining and building co-operation.*
- 2) *The curriculum and conditions organized under the program are a novelty on modernity. If managed well, the project can still grow and receive more welcome from many more stakeholders.*
- 3) *Still can seek partners to provide a variety of education with other organizations and institutions in different regions, including a great increment of students or target groups that will participate in the program*
- 4) *Organizing curriculum for students to be awarded certificates or credentials from various leading companies is an incentive for educational institutions to be very interested in providing cooperation, including the number of those wishing to participate in the course too.*
- 5) *-There are external agencies that are private sectors, companies, and establishments interested in supporting various scholarships and projects.*
- 6) *Owing to the large number of people interested in participating in the project, an opportunity to select quality student input is made to occur.*
- 7) *Since the learners enter the assessment system where an appraisal is made by leading companies, a lot of credibility in terms of the quality of both the program and the learners is enhanced, as well as requesting for other assessments from either public organization or relevant agencies under supervision of the Thai government can be made.*
- 8) *At further stages if there is more recognition and acknowledgement from society, it is believed that the graduates from this program will gain popularity from the companies and establishments for employment more.*
- 9) *In the long term, the project also can be expanded, carried out to request budgets again from Thai government, German government; including be extended to other countries; or be a center, a prototype for TVET education in a different identity style that focuses on practical learning with leading German enterprises.*
- 10) *Graduates with good academic performance and skills have a lot of opportunities to get work with leading establishments that provided them with practical learning or apprenticeships as ;in the meantime, the establishment is able to be aware of the student's potential*

#### TGPES

- 1) *Operating under an organization that is able to win credence, trust; is widely known; and has a high potential for bargaining and building up cooperation.*
- 2) *Have a combination of an ordinary education type that focuses on science and a TVET type; therefore, students are allowed to be an innovator --a more innovative builder-- rather than a practitioner or a technology user alone, which is in line with the government policies.*

- 3) *Due to the reputation and history of the institute, operational opportunities either in the original style or development of new things can still be proceeded either at normal levels or giving rise to phenomena.*
- 4) *Still be able to seek partners to provide a variety of education with other organizations and institutions in different regions, including adding a lot more students or target groups to participate in the program*
- 5) *There are external agencies that are private sectors, companies, and establishments interested in supporting various scholarships.*
- 6) *Due to the large number of people interested in participating in the project, an opportunity to select input, a quality student, is made available.*
- 7) *Able to request other assessments from both public organizations or relevant agencies under supervision of Thai government*
- 8) *Graduates from here are often given higher education opportunities in engineering in a form of special quota, or having special knowledge other than those graduating from other institutions, which resulted in having better opportunity to further their study*
- 9) *In the long run, the institution can extended its English-taught program to recruit more youth, at least starting from the Asian region or from China to study.*
- 10) *Graduates from this institution are widely recognized to be selected to study at the Bachelor degree level for both Science and Arts.*
- 11) *If increase more cooperation with the industrial sector, the private sector in term of practical teaching ; institutional selling points will be increased and professional skills for learners will be highly developed.*

### **6.3.3 Weaknesses**

#### **GTDEE**

- 1) *In the perception of the society of organizations or projects, it is still a characteristic of an experimental pilot.*
- 2) *The operation of the project may not yet have laws or regulations of the Thai government to certify thoroughly.*
- 3) *The selling point in the part of educational management based on the German standard still cannot be organized to perfectly visible.*
- 4) *As not being a direct educational organization, the performance hence is only as a supporter, coordinator, and co-author of educational plans.*
- 5) *-There is no adoption of national and international excellence measurement system, as well as the utilization may be hardly to meet achievement because the positions of the organization and the project are not obvious yet.*

#### **TGPES**

- 1) *There is a complexity of being an organization under the Thai bureaucratic system which quite has a variety of problems such as delay, system complexity, be connected with politics, and so on; the operation is thus not as flexible as it should be*

- 2) *As the program is a combination courses between general-science and TVET, students may not be ready to enter the labor market right after graduation, that is, there is a need for continuing their education before then.*
- 3) *Advanced educational tools is very expensive, lacking of ---- adjustment in order to organize education with the establishments or external companies that have readiness to support ---- is unquestioning a limitation on the potential development of the institution and students*
- 4) *Subject in some courses are lagging behind*
- 5) *Sometimes, screening of the learners still involving patronage system and aid, therefore an opportunity for those wishing to join the study and being capable enough is terminated implicitly.*
- 6) *-Having only an internal quality assessment system may be at risk of not being developed, improved as it should be, which is counted as an opportunity loss.*
- 7) *Selected applicants for further education may not have a direct intent to enter the labor market.*
- 8) *Since the practical part is organized in the form of factory in school, keeping pace with industrial sector and establishment trends in the dimension of new knowledge, technology, and innovation are therefore weak.*
- 9) *No attempt has been made to implement a system of national and international excellence measurements.*

#### **6.3.4 Threats**

##### **GTDEE**

- 1) *Is a small organization that has to drive large-scale projects and has to mainly rely on cooperation with external educational institutions.*
- 2) *Policy implementation is quite unilateral, lacking affirmation from the Thai government despite having a sign of concurrence. Problems usually arise from instability of the Thai government.*
- 3) *Is not possible to unilaterally give a valid education certificate to a student because it is not an educational institution but a collaborative part for providing education only.*
- 4) *Although the courses offered are quite so good, but does not obtain accreditation of Thai authorities, then, cannot be called absolute perfection. And joint development of the courses with other institutions requires time, personnel, and going through fairly complex procedures.*
- 5) *An attempt to provide graduates with German qualifications is still an issue that cannot be accomplished.*
- 6) *The project is good but the perception of the society is still narrow.*

##### **TGPES**

- 1) *There is a complexity of being an organization under the Thai bureaucratic system which has quite a variety of problems such as delay, system complexity, a connection with politics, and so on.*

- 2) *Modifying regulations or courses to have modernity is rather complicated, takes a long time, and need to pass through the system according to a number of procedures.*
- 3) *Specialized practical professional qualifications may be equivalent to those graduating from general TVET institutions.*

In terms of excellence; it does not mean that an organization or institution that has qualifications, has state or status of excellence will have no obstacles, no weaknesses exist; but at this conclusion stage, the researcher has used the information in Table 6.15, which is a summarization of the "best practice" elements that have made Benchmarking-Partner: GTDEE and TGPE the status of TVET excellence, by rely on synthesizing the content only from the strengths section from conducting the SWOT. When considering the overview of issues that are common points that makes Benchmarking - Partner both appear status of excellence on the path approaching -- being the only one or having unique identity---; that are, being a prototype, the course ownership, being the initiator, being an innovator; for example; GTDEE brings the educational management model, German guideline for course development to combine with establishment of the specialized cooperation with the German leading industrial companies. For TGPE. is almost no different because it is a prototype, the origins of TVET education in accordance with the German guidelines and currently is the institution that owns the curriculum "Pre-engineering" that is hardly to be duplicated by other TVET institutions.

**Table 6.15:** The summarization of the “best practice” elements that have made Benchmarking-Partner the status of TVET excellence

GTDEE		TGPE	
1	The executive has a high level of education and experiences.	1	The executive has a high level of education and experiences working under educational institutions that provide TVET education.
2	Is an organization under the agency of German, therefore is well-known for transparency	2	Is an organization under the institution that has been constantly praised for good governance
3	Received strong support from the supporting units	3	Be given special attention and support from the government
4	The project is consistent with the needs of the Thai government and has been made to have advances in methods, concepts, and practices.	4	Has gained confidence from society for a long time
5	Collaborative courses with leading companies create uniqueness, novelty, and acceptance from all groups of stakeholders.	5	Outstanding in terms of location, facilities, and being fully equipped with educational equipment
6	Relying on excellence from leading companies in technology and innovation, and personnel to greatly support and fulfil the project success.	6	Support of scholarships, insurance system, accident insurance, further education guidance
7	There is support for scholarships. graduates have a high degree of readiness to enter the labor market.	7	There is a quite intensive screening process for those interested in continuing their study.

8	There is an intense screening process for a person who wishes to continue to study.	8	Have an internal quality assurance system
9	Use performance benchmarks of leading companies to assess the quality of learners	9	More than 99% of graduates can enter a higher-level education
10	More than 80% of graduates have a job or study at a higher level.	10	Be the course owner of pre-engineering
11	Ownership of re-created curriculum and leadership of TVET course management.	11	Is ‘the one’ among the educational management in TVET to equip students readily for continuing study in engineering study
12	Accreditation or Quality Assurance by DIHK - Deutscher Industrie- und Handelskammertag	12	Is ‘the one’ among TVET education management who prepares students to enter the labor market with basic engineering knowledge
13	Create universality through formats and structure of the curriculum, educational management based on German standards	13	Outstanding in English-taught courses
14	Achieve internationalization and excellence through collaboration with leading companies, leading German industry	14	Have a structure of STEM education management model.
15	There is encouragement for learners to participate in skills competitions on both stages, national and international.	15	Be a factory in the school, which is, self-completeness and readiness
		16	According to the reputation and cooperation between Thai-German, international image is enhanced
		17	There are Thai and foreign experts to deliver teaching to learners.
		18	Encourage learners to participate in professional skills competition on the national and international stages
		19	Promote research, invention, and creation of innovation of teachers and learners
		20	Executive has a high level of education and experiences working under educational institution that also provides TVET education.
		21	Is an organization under the institution that has been continuously praised for good governance.

In addition, the budget-support and finance-support agencies, especially the government, has also contributed significantly to maintain both institutions in the status of being considered to be socially well-regarded as an excellent, outstanding TVET education manager because their activities comply with government policies and the needs of the industrial sector that are ones of the main items that drive the country’s economy. For universality or international recognition, Benchmarking – Partners both, rely on the social awareness of education standards, operation system, and cooperation derived from Germany clearly as a leading flag, unless TGPES seems to have the advantage of having additional English-taught courses as a selling point for a globalized era in which students should be able to more widely communicate and work with the world after graduation, which is counted as a huge opportunity for both, the institute and the students.



That TGPES may be hardly able to catch up with GTDEE, probably in the matter of cooperation with leading German industries that have production bases in Thailand, in order to allow students to get close to, be able to touch learning experience which is considered as – having been able to bring the world of students' dreams into the real world; while TGPES is superior in the matter of research promotion, creation of inventions and innovations for both learners and instructors, which are portions that cannot bring into comparison because the goals of the education management, organizational model, and products that Benchmarking-Partner currently have and wish to carry on are different, even having the same aim: to achieve excellence in TVET.

## Chapter 7

### **Understanding and demands for the CoE for TVET in Thailand: *A case study from a sample group of 102 stakeholders***

#### **7.1 Introduction**

In order to achieve completeness of the content of this dissertation; therefore, it should be more than theories in various universal contexts that have been employed already to introduce, reference, and support; investigations to gain an understanding of the real demands of stakeholders regarding the TVET Center of Excellence in Thailand context is no less important than knowledge from other sources; the researcher thus developed a questionnaire to examine and request opinions concerning "Center of technical and vocational excellence in the outlook or perception of the stakeholders".

The questionnaire has 4 sections as following:

Section 1: Personal information and basic information (12 questions)

Section 2: Basic understanding of Excellence and CoE (5 questions)

Section 3: Awareness, experience, perspective and understanding of CoE for TVET (4 questions)

Section 4: Suggestions and others (3 questions)

Questionnaire respondents consisted of 3 groups of people; all of whom were stakeholders; i.e. student's parents; students; and professors, experts, and entrepreneurs; initially a total number of more than 50 people was targeted. For the benefit of statistical analysis and for information obtained be able to answer the question about context of the needs of Thailand; the researcher, hence has organized operations related to this questionnaire based on the principles of "The King's wisdom (King Rama IX's wisdom)" of His Majesty the late King Bhumibol Adulyadej of Thailand who was regarded internationally as the most successful king in human resource development under the three principles: "Understanding – Connecting -Developing". King Rama IX's wisdom was the valuable approaches to improve the Thai peoples' ways of life to meet good occupations, powerful education, achieved country development and overall sustainability. This is therefore; a framework that will help to promote the appearance of significant statistical data and analysis of data that will lead to the establishment or development of the Center of TVET excellence in Thailand depending on consideration of whether there is a need of use of those involved in the next phase.

The variables used in quantitative studies were specified as follows:

The independent variables are types of respondents group;

X1 is a group of parents of students,

X2 is a group of students and

X3 is a group of professors, experts and entrepreneurs.

The dependent variables are the average scores of opinions towards factors leading to excellence;

Y1 is a perspective on the factors that influence excellence,

Y2 is a viewpoint on factors affecting technical and vocational excellence and

Y3 is an opinion towards the factors that dramatically impact on excellence.

By having research hypothesis as follows:

1. *The mean score of opinions on factors affecting excellence of the 3 groups were not different.*

Statistical hypothesis:

H<sub>0</sub> :  $\mu_1 = \mu_2 = \mu_3$  (The mean values of all 3 groups are not different);

H<sub>1</sub> :  $\mu_1 \neq \mu_2 \neq \mu_3$  (The average values of the 3 groups is different, or at least 1 pair is different)

$\mu_1$  = average score of opinion of student's parent group on factors influencing the excellence

$\mu_2$  = Mean score of opinion of students group on factors affecting the excellence

$\mu_3$  = Mean score of opinion of the group of professors, experts and entrepreneurs on factors affecting the excellence

2. *The mean score of opinions on factors affecting technical and vocational excellence of all 3 groups were not different.*

Statistical hypothesis:

H<sub>0</sub> :  $\mu_4 = \mu_5 = \mu_6$  (The mean values of all 3 groups are not different)

H<sub>1</sub> :  $\mu_4 \neq \mu_5 \neq \mu_6$  (The mean values of all 3 groups are not equal, or at least 1 pair is different)

$\mu_4$  = average score of opinions of the student's parent group on factors affecting the technical and vocational excellence

$\mu_5$  = mean score of opinions of students group on factors affecting technical and vocational excellence

$\mu_6$  = average score of opinions of a group of instructors, experts and entrepreneurs on factors affecting technical and vocational excellence

3. The mean scores of the opinions of the 3 sample groups on the factors drastically affecting the excellent have no differences.

Statistical hypothesis:

H<sub>0</sub> :  $\mu_7 = \mu_8 = \mu_9$  (The mean values of all 3 groups have no differences)

H<sub>1</sub> :  $\mu_7 \neq \mu_8 \neq \mu_9$  (The mean values of all 3 groups are unequal, or at least 1 pair is different)

$\mu_7$  = average score of opinion of student's parent group on the factors tremendously affecting the excellence

$\mu_8$  = mean score of opinion of the student group on factors affecting excellence by leaps and bounds

$\mu_9$  = average score of opinion of the group of professors, experts and entrepreneurs on the factors affecting the excellence in one giant leap

## 7.2 The statistics used in the research and testing of the hypothesis

### 1. Basic statistics used in the research

1.1 Arithmetic mean  $\bar{x}$  = can be calculated from the formula  $\bar{x} = \frac{\sum x}{n}$

Where  $\bar{x}$  is the arithmetic mean,  
 $\sum x$  is the sum of all data values and  
 $n$  is the total number of data.

The data obtained from the questionnaire; there is an interpretation of the mean score into the level of 5 from the rating scale data

Level	Meaning
4.51 - 5.00	Extremely important
3.51 - 4.50	Very important
2.51 - 3.50	Moderately important
1.51 - 2.50	Slightly important
1.00 - 1.50	Low importance

### 1.2 Value of P% or percentage

$$P\% = \frac{\text{Desired amount}}{\text{Total amount}} \times 100$$

1.3 Analysis of Variance: Anova is an analysis technique used to test a hypothesis for comparing the mean of more than 2 groups, while independent variables are clustered variables and dependent variables are quantitative variables.

- Tested at a statistical significance level of 0.5, means only 5% of the error is allowed in the hypothesis testing ( $\alpha = 0.5$ ) If sig  $< \alpha$  the hypothesis H<sub>0</sub> will be rejected

- ANOVA statistics value used in the test F (critical value) =  $\frac{MSB}{MSW}$

**Table 7.1:** Analysis of variance (ANOVA)<sup>1</sup>

Source of Variance	Degree of Freedom (df)	Sum Square (SS)	Mean Square (MS)	F-ratio
Between Groups (Treatment)	k-1	$SSB = \sum_{j=1}^k \left( \frac{T_j^2}{n_j} \right) - \frac{T^2}{n}$ $SSB = \sum_{j=1}^k n_j (\bar{X}_j - \bar{X}_t)^2$	$MSB = \frac{SSB}{k-1}$	$F = \frac{MSB}{MSW}$
Within Groups (Error)	n-k	$SSW = \sum_{j=1}^k \sum_{i=1}^n X_{ij}^2 - \sum_{j=1}^k \left( \frac{T_j^2}{n_j} \right)$  $SSW = \sum_{j=1}^k \sum_{i=1}^n (X_{ij} - \bar{X}_j)^2$	$MSW = \frac{SSW}{n-k}$	
Total	n-1	$SST = \sum_{j=1}^k \sum_{i=1}^n X_{ij}^2 - \frac{T^2}{n}$ $SST = \sum_{j=1}^k \sum_{i=1}^n (X_{ij} - \bar{X}_t)^2$		

Variable Description:

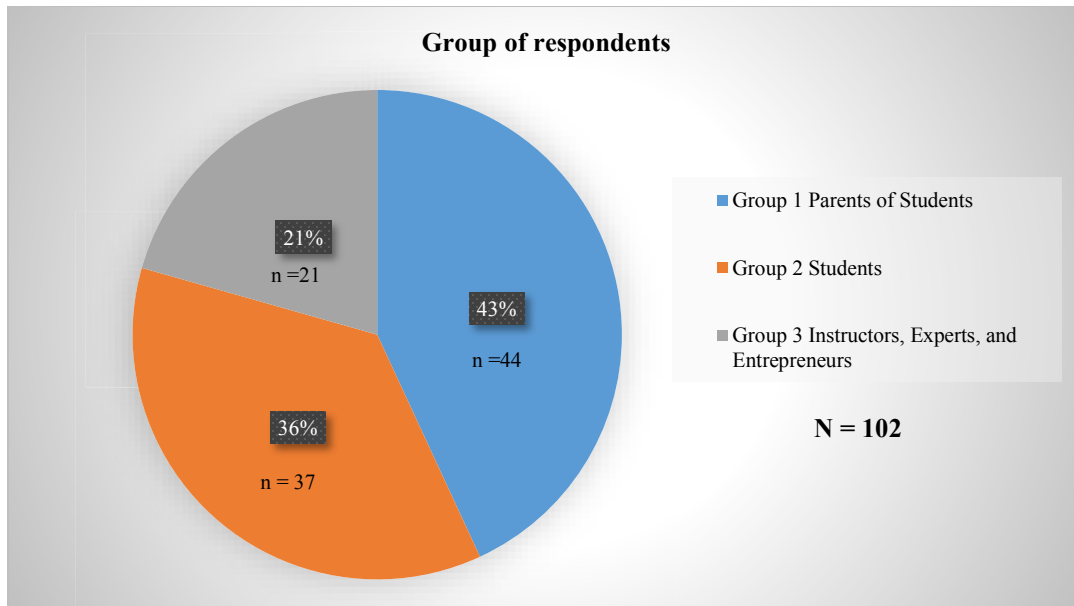
- SST = calculate the Sum of Squares Total
- SSB = calculate the Sum of Squares Between Groups
- SSW = calculate the Sum of Squares Within Groups
- MSB = calculate the Mean Squares Between
- MSW = calculate the Mean Squares Within
- T<sub>j</sub> = the sum of n points values in each group
- T = the sum of all points
- n<sub>j</sub> = number of data in each group
- k = number of groups
- X<sub>ij</sub> = data for individual i (row) in group j (column)
- $\bar{X}_j$  = mean value of groups j
- $\bar{X}_t$  = total mean value

### 7.3 Personal information and basic information

The respondent population (N) used in the study were a total of 102 people, classified into 3 sample groups (n):

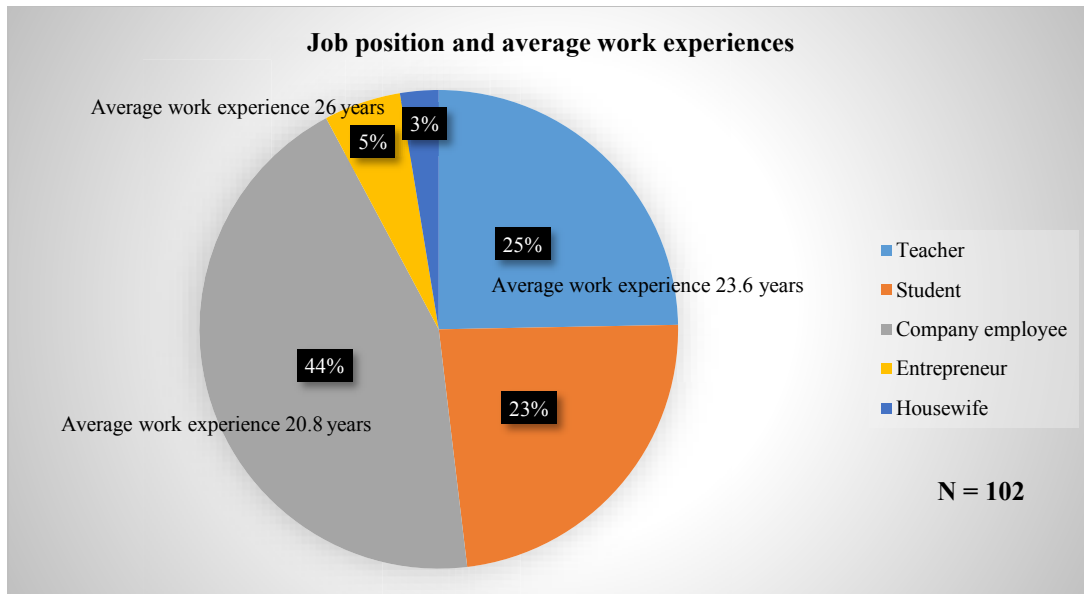
- Group 1) 44 student’s parents, or n = 44, with an average age of 47 years,
- Group 2) 37 students, or n = 37, with an average age of 23 and
- Group 3) 21 instructors, experts, and entrepreneurs, or n = 21, with an average age of 47 years.

<sup>1</sup> How to Perform Analysis of Variance (ANOVA). Retrieved from: <https://kindsonthegenius.com/blog/2018/03/how-to-perform-analysis-of-variance-anova-step-by-step-procedure.html>



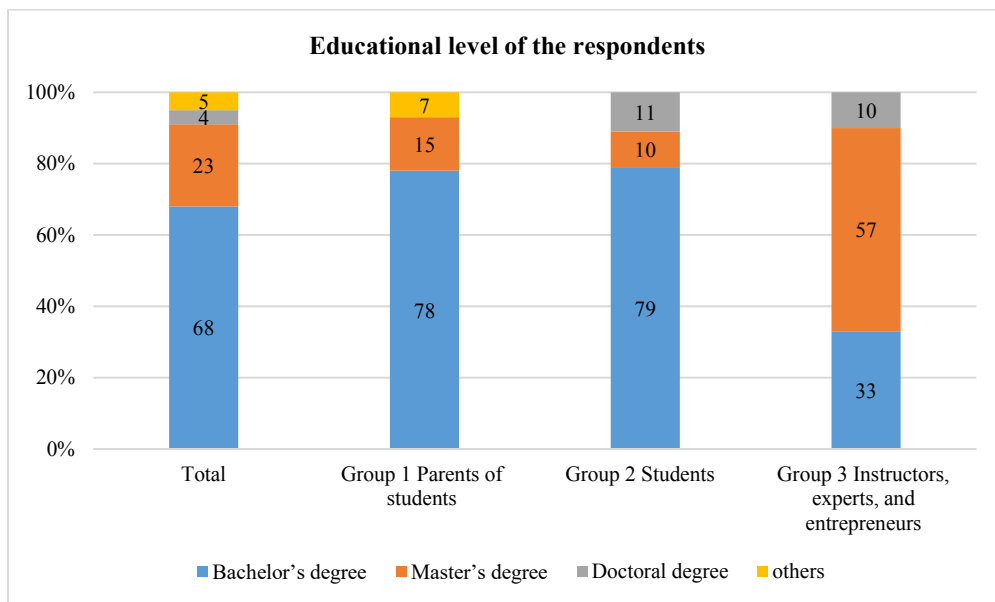
**Figure 7.1:** Graph showing number of respondents by sample group

The respondents, all live in Thailand, had perceptions of the following question: “Your country has strength in (or known for), select all that apply)” that Thailand is outstanding in the matter of Agriculture and craft, up to 81%, followed by tourism and culture, 73%, industrial, 30%, and the second lowest was 7%. For the aspect of Technology and innovation which seems to be connected to the sectors of education -that the respondent population had an opinion on the same direction may indicate a lack of confidence in the country’s competition limits in education; hence, the opinions agreed on this matter was only 6%, which was the smallest value for the query in this regard. Besides, for the benefit of the consideration on being a stakeholder, being a target group that was linked to the purpose of the questionnaire, as well as the quality and qualifications of the respondents; the researcher therefore set out questions regarding their work experience and education qualification in the questionnaire, as from Figure 7.2; which provided information about job positions and the average work experience of the sample groups; had illustrated information certifying that "The teacher sample group has an average work experience of 23.6 years, an entrepreneurs group has an average experience of 26 years, and yet classified into another number of company or organization’s employee group, with an average work experience of 20.8. years; when calculating from 100%, there were only 3% housewives and the remaining 23% was a group of students.



**Figure 7.2:** The graph shows the job position and average work experience of the sample groups

When it comes to the quality and qualifications of the participants, the researcher views it as a relatively important issue for the research, this is because the Center of Excellence in TVET is a specific study topic with sensitive issues that need to be very careful for the analysis and interpretation.



**Figure 7.3:** Graph shows education level of the respondents

But, when examining Figure 7.3 which provided information about the level of education of respondents, found that it corresponded to the needs of the researchers that were originally intended, viz., the respondents should have knowledge or are studying in at least a bachelor's level. In the big picture, 68% of the respondents were either an educated or currently studying for bachelor's degree; and furthermore, there was another 27% in total were university graduates or postgraduates, namely master's and doctoral degrees; therefore, this made the research's sample groups had the quality and qualifications that the investigator greatly desired.

#### 7.4 Basic understanding of Excellence and Centres of Excellence

With an open mind, the respondents had expressed their views and basic understanding through diversely and interestingly defining the definition of the term "excellence". The researcher would like to raise "Issues that are an influential part of the answering sentence to present", which, when these issues have been well interpreted and synthesized, the brief definitions of excellence according to the points of view and basic understanding of the respondents were able to be summarized into a total of 10 Categories as shown in Table 7.2

**Table 7.2:** Summary of the definition of excellence defined by the sample group: open-ended question

What does excellence mean to you?	Total N = 102	Group 1 n = 44	Group 2 n = 37	Group 3 n = 21
1. Have special expertise in that area	*39%	*49%	*40%	15%
2. Being a leader superior to other organizations in that particular area	*20%	9%	*34%	*20%
3. Be able to apply knowledge and ability in that specific area to be useful	*13%	7%	6%	10%
4. Have acceptable standards both domestically and internationally	11%	7%	3%	*20%
5. The best thing, the most excellent thing.	10%	7%	3%	15%
6. Outstanding achievements Is widely recognized	7%	7%	3%	5%
7. The highest investment worthiness	5%	5%	3%	-
8. Have a goal, take action, and continuously develop.	4%	2%	6%	10%
9. Have EQ and IQ for achieving the best performance	3%	5%	3%	*15%
10. Have perfect readiness in various fields	1%	2%	3%	-

Interesting information is that the groups of parents (n = 44) and students (n = 37) both expressed opinions focusing into definitional direction that "Excellence is, person or organization having special expertise in some particular area. This, thus, resulted in occupying the highest proportion of viewpoint and basic understanding based on this query's context of 39%, followed by another 20% of the overall that viewed "excellence is, to be superior to other organizations in that specific area". While, when comparing only the group of professors, experts, and entrepreneurs (n = 21) among the rest, it seems to be



the only group who perceived that "Excellence is, having standards that are accepted both domestically and internationally", with a relatively high level of significance; and this group also viewed the image of excellence as an individual subject, which can be noted from the table 7.1, point. 9 which stated that "excellence is, have EQ and IQ in their work for achieving the best performance."

At this point; it can clearly analyze that "the group of teachers, experts, and entrepreneurs (N = 21); which was the group with the highest academic qualifications compared to other groups; had different opinions which were more diverse than the other 2 group about the definition of excellence". But overall, if considering only the survey results concerning views and basic understanding of excellence when compared with various academic references, the researcher agreed that all 3 groups could define the meaning through interpretation of the "word" satisfactorily until be able to preliminary hypothesized at this point that "Excellence" is not something that Thai people are not aware of; and especially when endorsing with the answering to open-ended questions, confidence in this grew more because the sample groups had cooperated by expressing their thoughts based on intelligence, co-identified, and co-specified the basic factors that can promote or create an excellent status. Similarly, the researcher would like to summarize only the important statements that should be considered and distributed as shown in Table 7.3

**Table 7.3:** Summary of the fundamental factors that will lead to an excellent status: open-ended questionnaire

<b>Basic factors that will lead to an excellent status.</b>	<b>N = 102</b>	<b>Group 1 n = 44</b>	<b>Group 2 n = 37</b>	<b>Group 3 n = 21</b>
1. Be determined, dedicated, diligent and patient	*43%	*40%	*57%	19%
2. Be knowledgeable, well educated	*30%	*48%	14%	19%
3. Be creative, imaginative	*23%	20%	*24%	24%
4. Have good organizational system	*20%	16%	14%	*43%
5. Have people to provide help and support.	19%	*57%	*49%	*52%
6. knowledge transfer to the general public.	17%	11%	11%	*38%
7. Have an innovation, technology and body of knowledge that nobody can catch up with.	17%	18%	9%	*33%
8. Have funds and budgets	16%	20%	11%	19%
9. Have clear goals and continuous operation to achieve the goal	15%	7%	11%	38%
10. locations, environment, and resources are conducive to excellence.	14%	25%	3%	10%
11. Well cooperated of people in the organization, Have a good team work	13%	9%	3%	38%
12. Have qualified personnel.	12%	*27%	-	-
13. Have experience in operating	11%	11%	3%	24%
14. Have good communication and public relations for the organization to be known to public	11%	16%	9%	5%
15. Obtained domestic and international standards	11%	7%	11%	19%
16. Be up to date	8%	2%	14%	10%

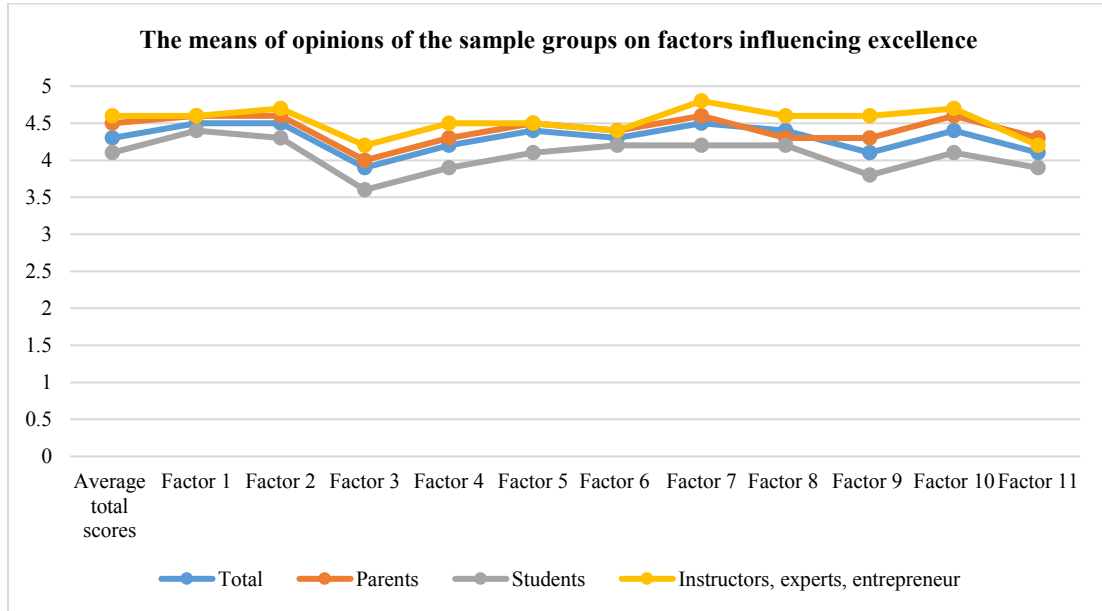
17. Provide specialized teaching and learning in that particular area.	9%	7%	9%	14%
18. Have capability and a talent	7%	2%	*14%	-

The researcher must first classify that practice or creation to accomplish the status of excellence is depended on 2 features: 1) The practice or the creation of the excellence status to emerge to the "organization" and 2) The practice or the formation of the excellent status to occur to the "person". In Table 7.2, the analysis showed the explanation that the group of professors, experts, and entrepreneurs (n = 21) was the only group that perceived the image of excellence as a personal matter because the views on EQ and IQ were given out, but in this table 7.3, they were groups of student's parents (n = 44) and students (n = 37) instead who viewed the status of excellence as a matter that should appear to "people". As this can be examined from pointing out or presenting the top 3 factors that can promote and make an excellent status to happen or appear: 1) Be determined, dedicated, diligent and patient. 2) Be knowledgeable, well educated, and 3) Be creative and imaginative; whilst a group of professors, experts and entrepreneurs (n = 21) focused on the "organization" by considering from Table 7.3. point 4., over 43% agreed that "having a good organizational system management concept" was a factor of achieving the state of excellence; or point 6., 9 and 11 that all agreed that "Transferring of knowledge to the public; Having clear goals; and Having good cooperation from people in the organization, have a good teamwork " were the factors of getting into an excellent status at the level of 38% equally and respectively. Therefore, however, the group of instructors, experts and entrepreneurs (n = 21) still be a group that was most aware of the significance of "Having innovation Technology and body of knowledge that nobody can keep up with" which is one of the key factors for achieving the status of excellence. Although there were many different and diverse perspectives, but these statistical data were adequate to point out that the group of professors, experts, and entrepreneurs (n = 21) was a group of people who understood and connected to the context of excellence better than the other 2. In addition, the data obtained from Table 7.2 and 7.3 were qualitative data which could help to reveal the sample groups' understanding issue before leading further into information-giving in the next issue.

Aside from the information that was a comment made from the perspective and personal understanding of the sample groups to the open-ended questions, the researcher was necessary to draw the academic framework from various reference sources based-on researching to compose the closed-ended questions. This section would present information on the means from opinions of the sample groups, as shown in the table 7.4 and figure 7.4., towards the question of whether "How much did these factors affect excellence in the opinion of the respondents?" In this regard, the researcher had classified the factors into a total of 11 dimensions, then allowed the sample group to rate the following factors affecting "Excellence" using an ✖ mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.

**Table 7.4:** Mean score of opinions of the sample groups on factors affecting excellence

Factors affecting “Excellence”	N = 102	Group 1 n = 44	Group 2 n = 37	Group 3 n = 21
1) Management system, tools and Quality Certifications	4.5	4.6	4.3	*4.7
2) Management system, tools and Standard Certifications	4.5	4.1	4.6	4.3
3) Award, honor or domestic excellence certifications	3.9	4.0	3.6	*4.2
4) Award, honor or international excellence certifications	4.2	4.3	3.9	*4.5
5) Cooperation from domestic organizations	4.4	4.5	4.1	4.5
6) Cooperation from international organizations	4.3	4.4	4.2	4.4
7) Innovation breakthrough, specialization	4.5	4.6	4.2	*4.8
8) Differentiation, distinction in certain area	4.4	4.3	4.2	*4.6
9) Reputation and acknowledgement from the public	4.1	4.3	3.8	*4.6
10) Plan, policy, strategy and leadership	4.4	4.6	4.1	4.7
11) Size, headcount, specialist and performance of management	4.1	4.3	3.9	4.2
Total mean score	4.3	4.5	4.6	4.1



**Figure 7.4:** Graph exhibits mean values of the opinions of the sample groups on the factors affecting the excellence

The table showed that, in sum, each sample group valued the importance of each factor at a very high level -- the highest, in every group; especially a group of professors, experts, and entrepreneurs (n = 21) giving the highest priority to the factor: Innovation breakthrough, specialization, with a mean of up to 4.8, the level of extremely importance; followed by the factor: Management system, tools and Quality Certifications, with a mean of up to 4.7, the highest level of importance; moreover, the factor: Differentiation, distinction in certain area, and Reputation and acknowledgement from the public, also with a mean of 4.6., the level of the greatest important.

**Table 7.5:** Comparison of the means of the opinions of each sample group towards factors affecting excellence with ANOVA statistics

ANOVA						
Variable	Source of variant	Sum of Squares	df	Mean Square	F	Sig.
X <sub>1</sub>	Between Groups	4.025	2	2.012	9.060	.000
	Within Groups	20.433	92	.222		
	Total	24.457	94			

\* Statistical significance level of 0.05

The above was a hypothesis test that;

$$H_0 : \mu_1 = \mu_2 = \mu_3$$

$H_1 : \mu_1 \neq \mu_2 \neq \mu_3$ , or with at least 1 unequal  $\mu$  value

It was found that the statistical values  $F = 9.060$ ,  $sig = 0.000$  ( $< 0.05$ ) meant reject  $H_0$  accept  $H_1$  which indicated that  $H_1 : \mu_1 \neq \mu_2 \neq \mu_3$ , or had at least 1 pair of unequal  $\mu$  values. It thus could be concluded that the mean value of the opinions towards the factors affecting the excellence among the 3 sample groups was found had a statistically significant difference at the level of 0.05

When considering the data presented in Table 7.4 and Figure 7.4, it is clear that all 3 groups had opinion consistent with the direction of the academic references; that is, the 11-dimension factors quoted by the researchers are all important and can influence a status of excellence to occur; although there might be only a group of students (n = 37) who perceived that achieving awards, honors, or national and international accreditation of excellence, including good reputations and recognition from the general community were the least prime factors that drove the status of excellence to exist when compared to the

other groups. In the viewpoint of the researcher, it might be seen as a result of differences of experience, as yet not entering into a state of work that must join collaborative efforts to lead the organization into the field of competition to compete for being the ultimate in that specific operations or business.

After evaluating the sample group's viewpoints and understanding of the word "Excellence", then comes to a perspective and the understanding toward "Center of Excellence". As the first section was an open-ended inquiry in which the researcher allowed the sample groups to have a freedom of thought to answer the question that says: "What are the definitions, characteristics and composition of the center of excellence?". The researcher still adhered to the same practice used in the other questions above, i.e., synthesizing and scrutinizing comments, then summarize into categories for ease of statistical analysis results display and usage of data in pointing out direction from the opinion of the sample group as shown in Table 7.6

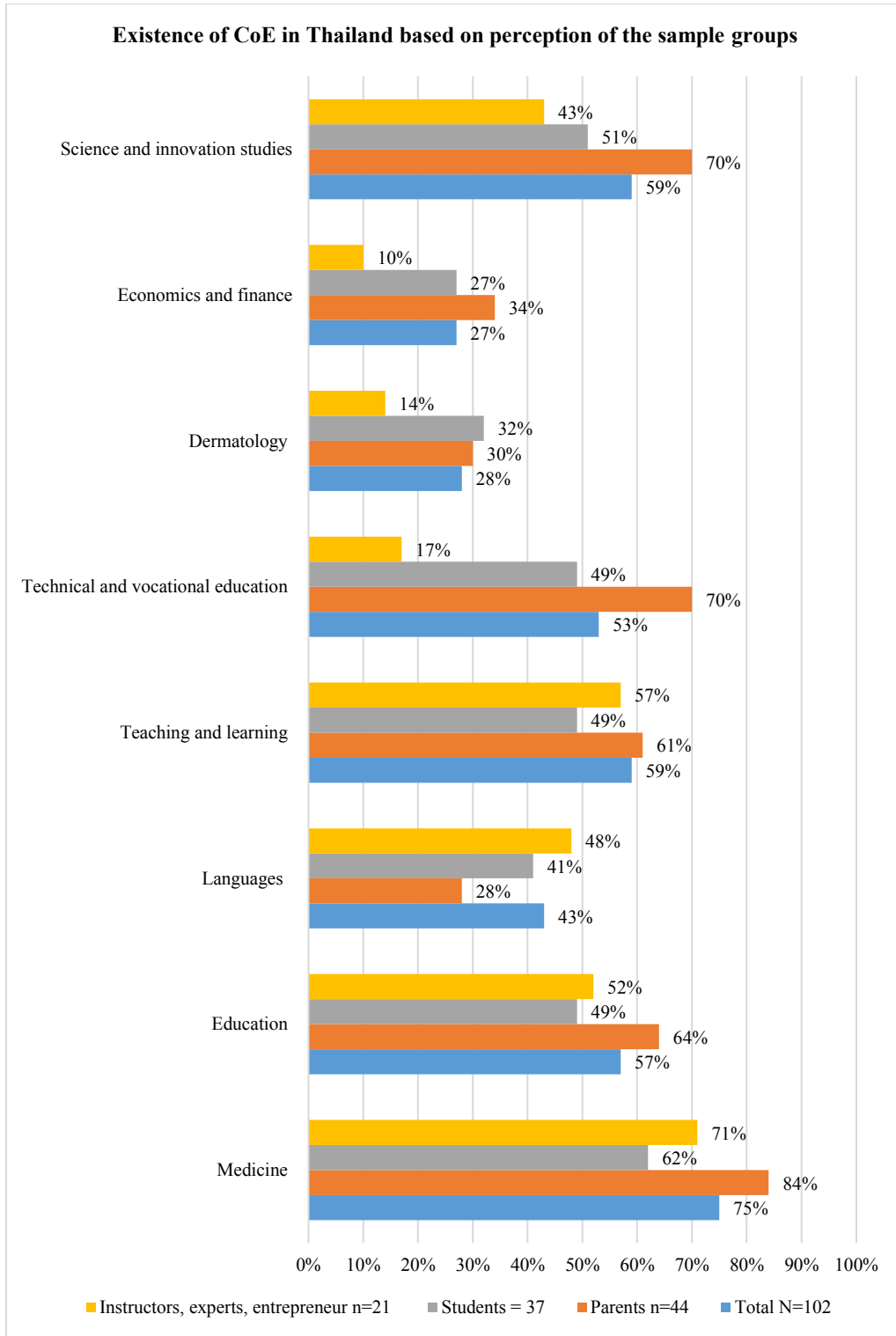
**Table 7.6:** Meanings, characteristics, and components of the CoE from the outlook and understanding of the sample groups

<b>Definition, characteristics and composition of the center of excellence</b>	<b>Total N = 102</b>	<b>Group 1 n = 44</b>	<b>Group 2 n = 37</b>	<b>Group 3 n = 21</b>
1. Is a place to gather quality personnel who has the concept of new technological development and innovations	*27%	16%	*41%	*29%
2. Have uniqueness, more specialized in that particular fields than other places	*27%	16%	*32%	*43%
3. Is a reliable learning source that is accepted nationwide and abroad	*20%	*18%	16%	*33%
4. Have research study, creative invention, and innovations that are beneficial to public, society, and the nation	*19%	14%	14%	*38%
5. Have readiness to cover all aspects including personnel, tools, premises, funds, and have standards	*18%	*34%	8%	19%
6. Have modern tools	15%	9%	14%	*24%
7. Meet universal and international standards	7%	5%	8%	14%
8. Have morality, honesty, transparency and accountability	4%	2%	5%	5%
9. Have an on-going operation, an organizational development to get ahead of others, and be up to date	4%	5%	-	10%
10. Diligent, dedicated, determined and patient	2%	2%	3%	-

In the sense that "The center of excellence should be a premise for producing research, inventions, innovations and be a source of learning that is accepted nationally and internationally", which was considered as one of the most important elements and characteristics of the center of excellence; the group of professors, experts, and entrepreneurs (n = 21) still showed understanding of the importance of these matters the most; another level closer to the point was, the group of students (n = 37) whose direction of understanding came in crowds that "The Center of Excellence was a place to gather quality personnel with concepts of technology development and new innovations"; while the parents group (n = 44) focused on the framework of "Having readiness in all areas, including personnel, instruments, places, funds, and having standards".

But, when considering across-the-board, all 3 groups did not ignore the issues of "Distinctiveness and specialized expertise that is superior to other competitors". Therefore, it was relatively clear that the three sample groups had good understanding of the Center of Excellence, and aside from understanding; familiarity and acquaintanceship that the samples groups had with the Center of Excellence in Thailand was something that should be considered in order to be informed about; so it was the origin of the closed-ended question in the next set: "Does your country have these centers of excellence appear?", which its summary results as shown in Figure 7.5.

From the graph presented in Figure 7.5, at least had demonstrated that every sample group was aware that Thailand had already set up different types of the centers of excellence. The most obvious were the Centres of Medical Excellence. The parents group (n = 44) focused the acquaintanceship issue on the Center of Excellence for Science and Innovation Studies, Centers of Excellence in Education and Centers of Excellence for TVET, which is the common nature of this group that will seek the best, the unexcelled for their children, while the other groups also expressed their views in harmony with this direction, but decreasing in quantity only. For the least known or seen centers of excellence, they were Center for Skincare Excellence and Centre of Excellence for Economics and Finance

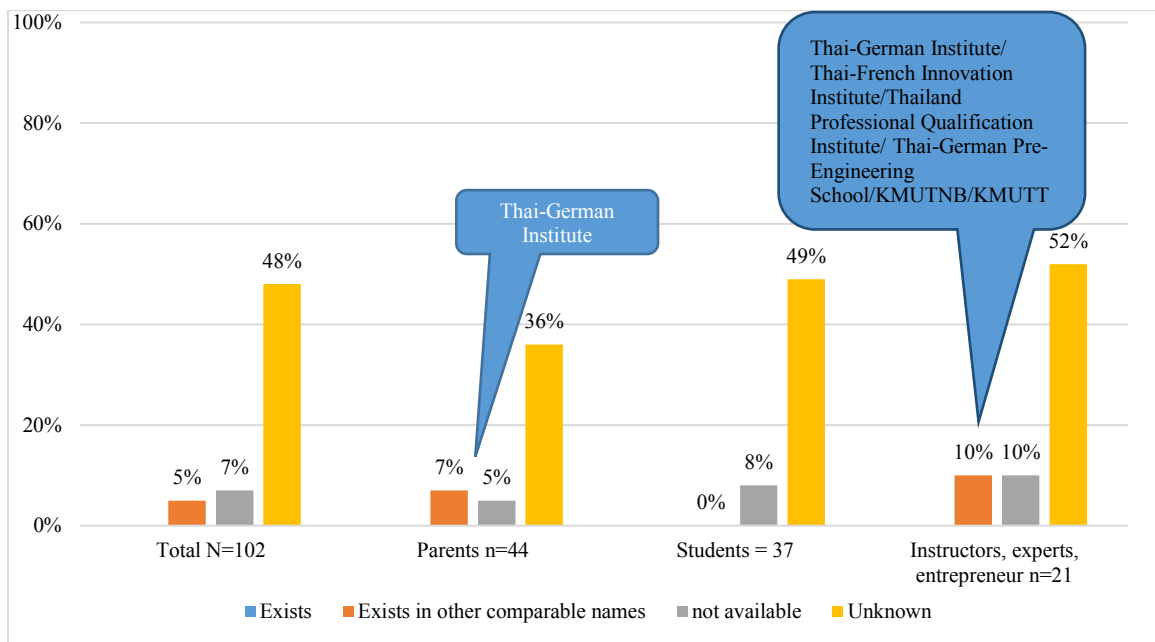


**Figure 7.5:** Graph shows the sample groups' perception of the existence of the Center of Excellence in Thailand

## 7.5 Awareness, experience, perspective and understanding of CoE for TVET

After gradually progressing and guiding the sample groups into the world of carefully responding the questionnaire step by step, which was an intention of the researcher because the researcher knew very well that this set of questionnaires designed by the researcher himself was a quite detailed one, so the sample groups needed to pay their attention as well as taking time to answer various questions until complete;

the next contents would take part in helping the researcher to solve doubts on how much and in what direction was it? regarding perception and understanding that Thai society had towards the Centers of Excellence for TVET. Hence, the next step was begun with the following question “Do you have Centres of Excellence for TVET (or similar organization) in your country?” which was a mixed method question, began with closed-ended question, after that allowed to provide known information independently with the open-ended.



**Figure 7.6:** Graph shows the sample groups' perception of the TVET – CoE in Thailand

The presentation of the results in the figure. 7.6 should brought about great clarity of the information. More than 50 percent of the group of professors, experts, and entrepreneurs (n = 21) and student group (n = 37) did not know whether these centers exist or not in Thailand. "The word -unknown- is -do not know if it exists-"; and a small number of not more than 10 percent of each sample group confirmed that "Not available in Thailand". The parent group (n = 44), which was a group of key stakeholders, viewed that yet "There is a TVET excellence center" in Thailand, and most of which understood that the center of



excellence was a good or reputable school. Furthermore, there were additional interesting comments from the example given by the sample groups about "Centers or organizations that are comparable to TVET excellence centers; which were: Thai-German Institute, Thai-French Innovation Institute, Thailand Professional Qualification Institute"

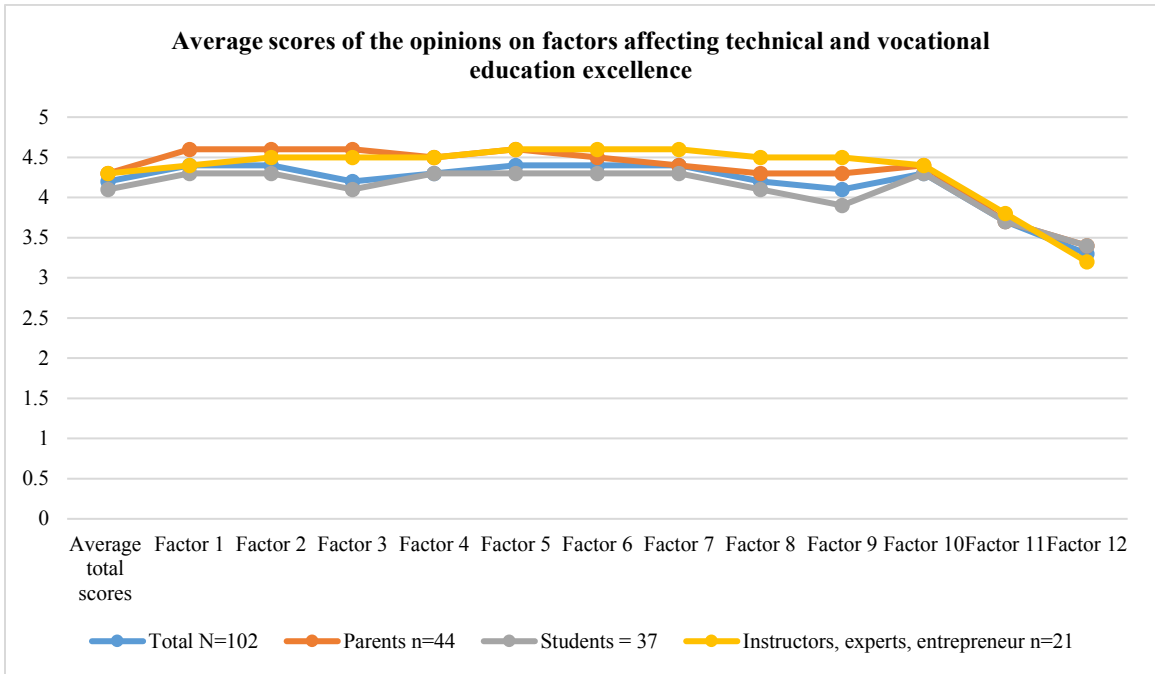
The following closed-ended question was another sequence to complement the expression of awareness and understanding of the sample groups, "In your opinion, why are organizations called Centers of Excellence for TVET?". The sample groups exhibited the importance via scoring the 12-dimensional factors that the researcher extracted the knowledge and summarized from the theories and the academic principles depending on the chosen references used in the research, of which lead to the results shown in Table 7.7 which contained interesting information when considering factors in dimensions 11 and 12 that all groups somewhat considered "The status of excellence cannot be established without certification or cannot be self-established for the purpose of marketing or other competitive benefits, whether or not they really have the potential for excellence. "

That is to say, the sample groups were quite convinced that "Excellence status" must be a certified thing and, especially when combined with the mean scores of factors in the dimensions 1 - 10, it was outstandingly confirmed that all the sample groups agreed that the Center of Excellence for TVET should be based on national and international recognition, including the presence of technology, modern innovation, academic cooperation with external organizations, plans, policies, strategies, and leadership of the organization's leader, were all the important factors in enabling TVET center to accomplish a state of excellence.

**Table 7.7:** Mean scores exhibiting the importance that the sample groups had about the factors affecting excellence

<b>Factors related to excellence</b>	<b>N = 102</b>	<b>Group 1 n = 44</b>	<b>Group2 n = 37</b>	<b>Group3 n = 21</b>
1) Received quality and standard certification from domestic organizations	4.4	4.6	4.3	4.4
2) Received quality and standard certification from international organizations	4.4	4.6	4.3	4.5
3) Received awards and honors from domestic organizations	4.2	4.6	4.1	4.5
4) Received awards and honors from international organizations	4.3	4.5	4.3	4.5
5) Received cooperation from domestic organizations	4.4	4.6	4.3	4.6
6) Received cooperation from international organizations	4.4	4.5	4.3	4.6
7) Having innovation breakthrough, specialization	4.4	4.4	4.3	*4.6
8) Having differentiation, distinction in certain area	4.2	4.3	4.1	4.5
9) Having reputation and acknowledgement from the public	4.1	4.3	3.9	4.5
10) Having plan, policy, strategy and leadership	4.3	4.4	4.3	4.4

11) The organization is self established with no certifications but do have potential to be excellence	3.7	3.7	3.7	3.8
12) The organization is self established with no certifications just for marketing purpose. The potential to be excellence is questionable.	3.3	3.4	3.4	3.2
Total means score	4.2	4.3	4.1	4.3



**Figure 7.7:** Graph of the importance means that the sample groups had towards factors affecting Technical and vocational education excellence

From the table showed that each sample group had average score of opinions on the factors that was vital and affected technical and vocational excellence, overall, at the level of moderate to high. But; the factor, - Having innovation breakthrough, specialization-; the sample group of professors, experts and entrepreneurs instead agreed that was the most powerful; -with the mean as high as 4.6. For the factors: -The organization is self - established with no certifications just for marketing purpose. The potential to be excellence is questionable-; the opinions expressed among all sample groups were at a moderate level only; with a total mean of 3.3

**Table 7.8:** Comparison of means of opinions on factors affecting technical and vocational education excellence among each sample group with ANOVA statistics

ANOVA					
Variables variance source	Sum of Squares	df	Mean Square	F	Sig.
X <sub>2</sub> Between Groups	1.012	2	.506	1.501	.228
Within Groups	29.661	88	.337		
Total	30.674	90			

\*Statistical significance level of 0.05

The above is a hypothesis test that;

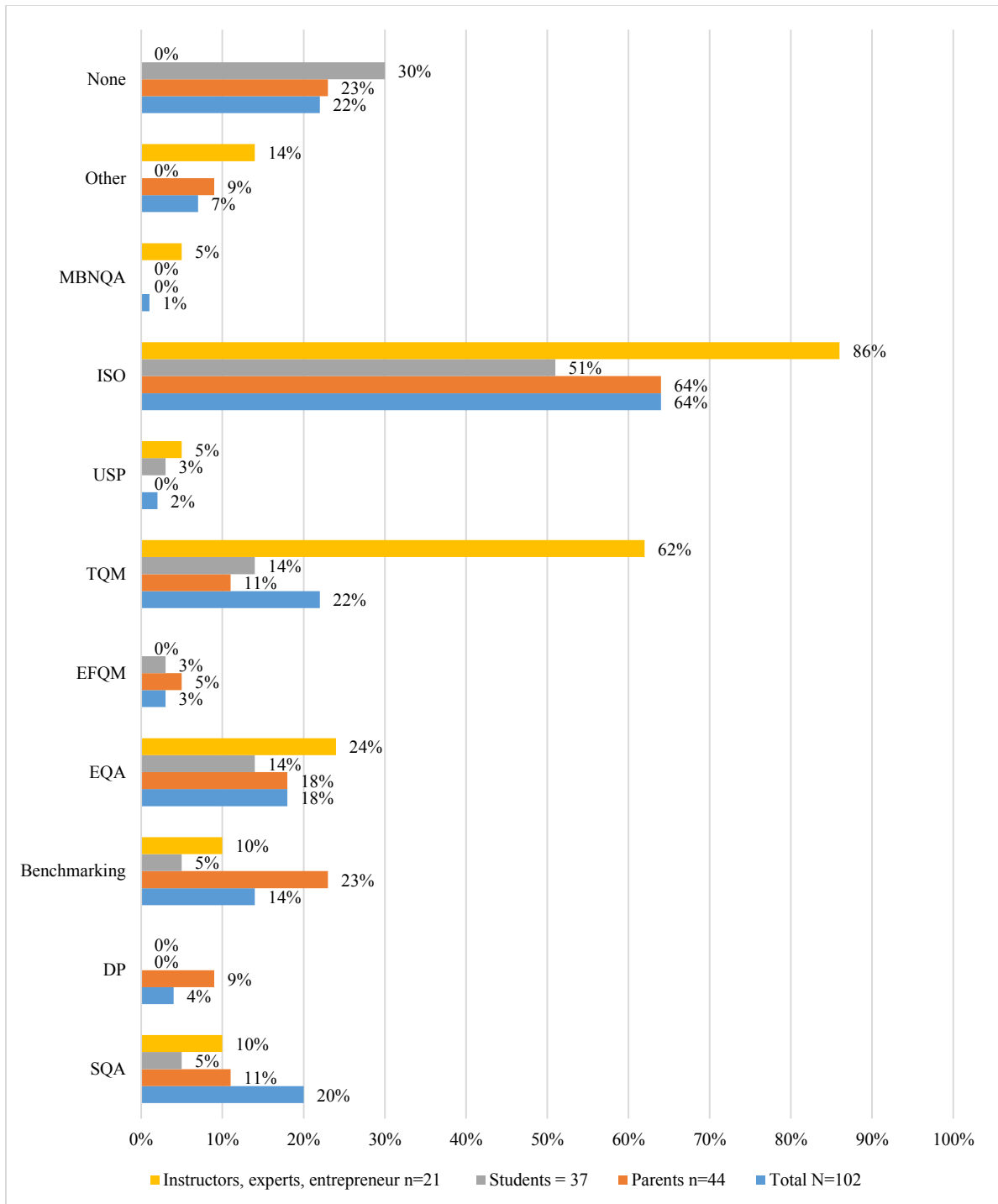
$$H_0 : \mu_4 = \mu_5 = \mu_6$$

$H_1 : \mu_4 \neq \mu_5 \neq \mu_6$ , or at least have 1 pair of unequal  $\mu$  value.

It is found that the statistical values  $F = 1.501$ ,  $\text{sig} = 0.228 (>0.05)$  meant accept  $H_0$  reject  $H_1$  which demonstrated that  $H_0 : \mu_4 = \mu_5 = \mu_6$

Therefore, it could be concluded that the mean score of opinions on factors affecting technical and vocational education excellence among all three groups found was no statistically significant difference at the level of 0.05. When examining the information in Table 7.7 and Figure 7.7, it clearly showed that the opinions of the 3 sample groups were consistent with the direction of the academic references; that is to say, the 12-dimensional factors quoted by the researchers are all important and contributing to the presence of the status of technical and vocational education excellence, as these 3 groups expressed opinion in the same direction.

Moreover; to provide a clearer picture about understanding framework, perception framework of the samples groups for tools, the management system, including the competition system that will lead or measure TVET center into a state of excellence, and will also help to promote the appearance of the state of recognition at both national and international levels; therefore, the following question: “Are you familiar with the following models/tools/ management systems/ awards relating to quality, standard and excellence that could be adapted in the establishment of Centres of Excellence for TVET?”; when considering together with Figure 7.8, would find that:



**Figure 7.8:** Graph shows the perception of the sample groups towards model / tools / systems that may be applied to the development or establishment of the Center for TVET Excellence

- 1) International Organization for Standardization (ISO) was seen and understood as a tool / management system that could lead TVET center to the status of excellence the most, or could point out that this tool / system was well-known the most among all samples groups, with a total score of 64%
- 2) Total Quality Management (TQM); the basic tool in almost every quality management system, standard management, and the cornerstone of excellence were ranked second; be accepted, be well-known among group of lecturers, experts, and entrepreneurs (n = 21) at specific group score level of 62%, considered high when compared to the other sample groups
- 3) Benchmarking, a tool used for calibrating and extracting body of knowledge for learning from excellence, was known and accepted with a fair score among the group of parents (n = 44)
- 4) Singapore Quality Award (SQA) and European Quality Award (EQA) ); the quality assurance award used as an indicator of excellence, recognized internationally and globally; were also in the interests and perceptions of the parents group (n = 44), a group of professors, experts, and entrepreneurs (n = 21) with a relatively specific score of no more than 20%.
- 5) Regarding Deming Prize (DP), EFQM Excellence Award(EFQM), Unique Selling Proposition (USP), and Baldrige Performance Excellence/Malcolm Baldrige National Quality Award (MBNQA) they were considered as having very low to unknown perceived score.

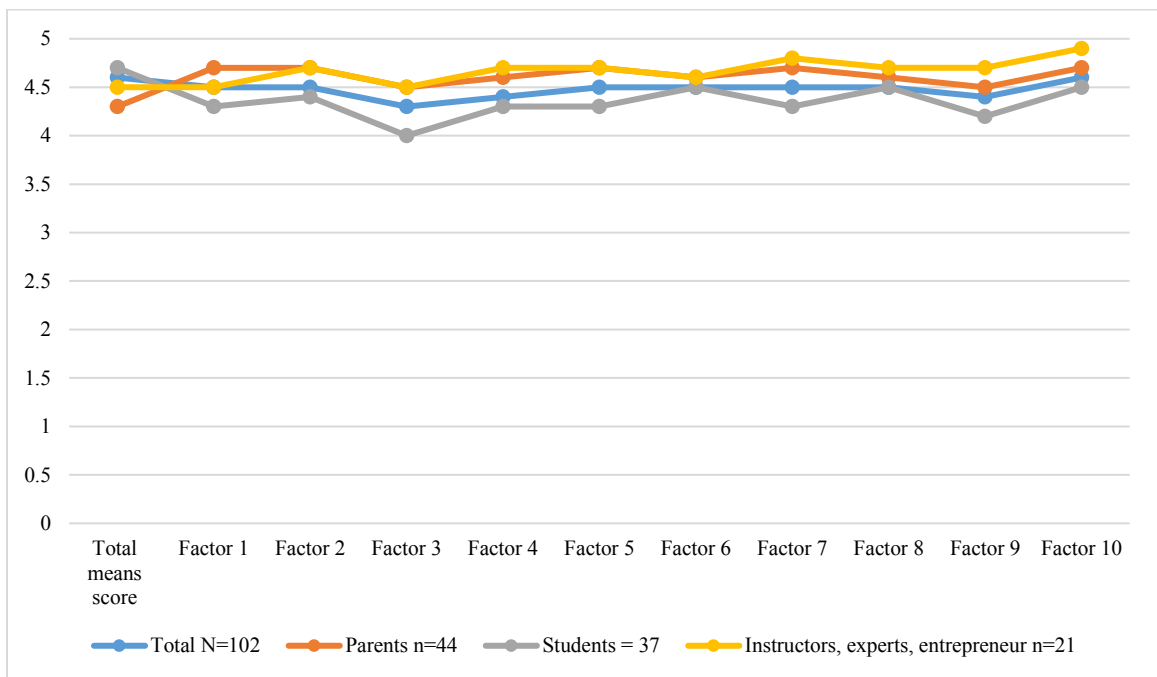
## 7.6 Suggestions and others

Regarding the sample groups' viewpoint on the closed-ended question, “ If your organization would like to abruptly change to the gain excellence, what are the importance of the following factors or procedures?”, the mean value obtained from the opinions revealed by the sample groups, overall were in a consistent direction and various values could be considered based on the 10-dimensions factor that the researcher had filtered out, as presented in Table 7.9

**Table 7.9:** Mean score of opinions on the factors influencing excellence in a quantum leap

Factors related to a drastic improvement of excellence	N = 102	Group 1 n = 44	Group 2 n = 37	Group3 n = 21
1) Received quality and standard certification from domestic organizations	4.5	*4.7	4.3	4.5
2) Received quality and standard certification from international organizations	4.5	*4.7	4.4	*4.7
3) Received awards and honors from domestic organizations	4.3	4.5	4.0	4.5
4) Received awards and honors from international organizations	4.4	4.6	4.3	4.7

5) Received cooperation from domestic organizations	4.5	*4.7	4.3	*4.7
6) Received cooperation from international organizations	4.5	4.6	4.5	4.6
7) Having innovation breakthrough, specialization	4.5	4.7	4.3	*4.8
8) Having differentiation, distinction in certain area	4.5	4.6	4.5	4.7
9) Having reputation and acknowledgement from the public	4.4	4.5	4.2	*4.7
10) Having plan, policy, strategy and leadership	4.6	4.7	4.5	*4.9
Total means score	4.6	4.3	4.7	4.5



**Figure 7.9:** Graph shows the mean score of opinions on the factors dramatically influencing the excellence

**Table 7.10:** Compares the mean score of opinions among each sample groups on factors that make a great impact to the excellence with ANOVA statistics

ANOVA						
Variables	Variance source	Sum of Squares	df	Mean Square	F	Sig.
X <sub>3</sub>	Between Groups	1.894	2	.947	3.822	.026
	Within Groups	21.812	88	.248		
	Total	23.707	90			

\*Statistical significant level of 0.05

The above was a hypothesis test that;

$$H_0 : \mu_7 = \mu_8 = \mu_9$$

$H_1 : \mu_7 \neq \mu_8 \neq \mu_9$ , or have at least 1 pair unequal  $\mu$  value.

It was found that the statistical values  $F = 3.822$ ,  $\text{sig} = 0.026$  ( $<0.05$ ) meant reject  $H_0$  accept  $H_1$ , which showed that  $H_1 : \mu_7 \neq \mu_8 \neq \mu_9$  or had at least 1 pair of unequal  $\mu$  value. From the table showed that the mean score of opinions of the 3 sample groups on the factors making a great impact on the excellence, generally were in high to highest level, with the mean value between 4.3-4.6; especially the group of professors, experts and entrepreneurs giving priority on each factor at the highest level in many dimensions such as Having plan, policy, strategy and leadership, with a mean of 4.9, the most important level; followed by -Having innovation breakthrough, specialization-, with an average score of 4.8, the greatest important level

Therefore, it could be concluded that the mean scores of opinions on the factors affecting the excellence by leaps by bounds among all 3 groups of samples found were differences at the statistical significance level of 0.05.

When considering the information in Table 7.9 and Figure 7.9, it was clear that the 3 sample groups expressed opinions in the same direction as the academic references; that is, the 10-dimensional factors that the researchers had quoted were all important and resulting in the appearance of the status of excellence promptly. A group of professors, experts and entrepreneurs ( $n = 21$ ) had opinions differ from the other groups nearly every dimensions, such as taking a quantum leap towards the status of excellence must be an organization that was advanced in culture, had specialized expertise or a complete range of diversity, and had a plan, policy, strategy, and leadership of the leader that nurtured the excellence status.

Subsequently, all 3 groups of participants independently shared views concerning duties or mission of the TVET Center of Excellence that it should be in various directions, which could be summarized into 10 substantial points shown in Table 7.11

**Table 7.11:** Sample groups' opinion towards duties / missions of the TVET Center of Excellence

Duties or mission of the CoE on TVET	N = 102	Group 1 n = 44	Group 2 n = 37	Group 3 n = 21
1. Be a source for learning, transferring and giving advice on innovations	27%	20%	*35%	29%
2. Specializing in developing inventions, innovations and various tools	22%	14%	*27%	24%
3. Have innovations or new knowledge	21%	*25%	19%	14%
4. Meet acceptable standards	17%	7%	16%	*38%
5. Have quality personnel	16%	9%	5%	*29%
6. Have an effective plan, strategy and operation	16%	18%	3%	*24%
7. Knowledge service to society	15%	16%	14%	*24%
8. Specializing in vocational research	13%	7%	11%	*29%

9. Create new technology to keep up with the times	12%	14%	14%	10%
10. Take lead in an operation and continuously develop.	12%	5%	11%	10%
11. Elevate international cooperation with foreign countries	12%	7%	11%	14%
12. Have funds	3%	9%	-	-
13. Good leaders with leadership and vision	2%	5%	-	-
14. University support	1%	-	-	*24%

In general; all groups agreed together- by having 1 “key word” - “Innovation”- that was viewed as directly related to duties / mission of the Center of Excellence in TVET, such center should be both a source of learning, providing consultation and a source of expertise in creating or having new innovative tools; and when looking at an individual group, it was an expectation of the student group (n = 37) the most. Whilst the teachers, experts, and entrepreneurs (n = 21) would take a deeper look into obtaining recognition about standards, creating or having quality personnel, including creating specialized research expertise; and was the only group viewing that need to be supported by academic bodies such as universities, and so on. When the sample groups were given an opportunity to freely express opinions or needs under open-ended questions which was the last query of the questionnaire: “which program of Centers of Excellence for TVET is necessary or might receive the most interest in Thailand?” The respondents expressed a variety of opinions, but the majority were in the category of TVET Center of Excellence in relation to modern technology, besides those were medicine, agriculture, languages, architecture, etc., as shown in table 7.12

**Table 7.12:** Opinions of the sample groups on programs or courses of the TVET Excellence Center that is essential for Thailand

Programs or courses at TVET Center of Excellence	N = 102	Group 1 n = 44	Group 2 n = 37	Group 3 n = 21
1. Training of various techniques, Training of technological knowledge	*14%	*14%	11%	*24%
2. Industry	*13%	9%	11%	*24%
3. AI (artificial intelligence)	*12%	3%	5%	*14%
4. Engineering	*12%	*16%	3%	5%
5. Development of innovations, inventions, tools, and technology	9%	8%	11%	-
6. Computer	9%	5%	5%	10%
7. Agriculture	9%	7%	*14%	14%



8. Science	9%	11%	*14%	10%
9. Bilingual courses	4%	3%	5%	-
10. Thinking design /Teaching of Creative thinking	4%	-	3%	5%
11. Medicine	4%	-	5%	5%
12. Architecture	3%	7%	-	5%
13. Modern teaching media	2%	-	5%	-
14. Varieties of applications	1%	-	3%	-

Concisely, it was found that 14 percent of the student's parents group (n = 44) expressed the opinion that Thailand should have a TVET excellence center that provided services on various technical trainings, technological knowledge training, which was the highest, similarly to the group of professors, experts, and entrepreneurs (n = 21) that over 24 percent agreed to this need, by having the same proportion agreed upon the need of -having a center of TVET excellence that can support the development of the country on industry-; while 14 percent of the group of students (n = 37), on the other hand, focus on agriculture and science instead.

## Chapter 8

### Summary of body of knowledge and Suggestions

Within this chapter consisted of an essential overview; is a summary of what have been obtained, what are the results appeared from studying, ascertaining, and researching that the author has tried to proceed along, according to such pathways of the research to the best of his ability until arriving at the appropriate distance to bring about crystallization of the body of knowledge; and is where its content will be presented with clarity, organized into categories and in a sequential order to indicate that how the researcher has learned, discovered, and answered to the research question that has been established as the objective intended by the researcher to whether is for the benefit of the researcher himself, whether may be the intellectual growth that the researcher wishes to leave with the world as a viewpoint from an individual, or may be of great benefit to the masses who wish to ascertain, study, reference, or open a search for knowledge in the context of "The pursuit of excellence in TVET".

#### 8.1 Understanding Excellence, CoE and CoE in TVET

In the first part is a brief summary of the essence of chapters 2-3 - which is a quite essential step for the researcher to accomplish a fundamental understanding at the level of upstream and midstream to open the door towards the origin, meaning, elements, and characteristics of excellence clearly before leading to the crucial milestone of achieving the goal of the research. Therefore, the researcher has dedicated to studying, ascertaining by focuses on conducting comparative research that combines with qualitative and case studies, with an important goal of acquiring "new definition, new knowledge and specialized practical guidelines related to the CoE for TVET", and to invent a set of practices that will lead to answering of these key questions:

- What is "CoE for TVET"?
- What approaches should be taken to promote a better understanding of definitions, classification, and operations of "a COE in TVET?"

There are neither much studies in the world which clearly proposed the definition; the identification and the demonstration of the applied practical guidelines nor in the dimension of excellence of TVET education management because all that exists are the context of excellence in business and nor in education sector that are often referred particularly to the level of Higher Education and that the basic education cannot be applied to TVET because of its being of different context.

##### 8.1.1 Definition of excellence and CoE

Excellence comes from the Latin excellere "excellent" or excellentia "excellence", metonymically "higher position". The bottom line is that the "Excellence" is referred

to an institution or a person who has a higher position or higher function or working in a special field. This research will dig deeper into theoretical insights on academic viewpoint of excellence that will be adopted into the process of establishment of centres of excellence in TVET institution as well as shall seek to highlight the existence and evolution of vocational education system in relation to some emerging interpretations of excellence.

Historically and traditionally, quality assurance (QA) system in TVET institutions have had two functions: the enhancement of the quality of institutions and programmes and the accountability of the results of teaching and learning. The enhancement function has been executed primarily in systems of high trust, whereas the accountability function has been developed to prevent bad quality of institutions and programs, and thus to protect the beneficiaries i.e. students and society.

Modern education circles in about the past 10 years, politicians, educators, and quality assurance or standardization organizations have discovered the concept of excellence for education sector. They established it, as a result of which a comparative competition that exceeds the limit of the words “Having general-level standards and quality” occurred through setting rules, conditions, systematic indicators, which are often evaluated, then ranked to determine the status of excellence. The concept of excellence will be transformed into educational value by having been gradually spread to all regions of the world. It also significantly impacted all levels of education, including TVET system that the government emphasizes on "Building Professional Excellence" for the benefits of national development by making efforts to reform the educational system of TVET. That is rather lagging behind to the way of failure, lack of development of competence to produce human or labor resources that can respond to the needs of the industrial sector and other stockholder groups in the modern world.

The case of England could be one of the most appropriate examples when it comes to the “Center of Vocational Excellence: CoVE” as most of the provided definitions are found in a congruent direction as elaborated below:

Center of Vocational Excellence (CoVE) is a further education (FE) college or other training provider which is judged to provide high-quality work-based specialist learning in a specific vocational area.

CoVEs are specialist areas of vocational provision characterised by close links between colleges, other providers, business partners, other employment interests and communities. They aim to produce appropriately qualified and skilled workers with excellent employment and career prospects which meet the needs of the economy.

Center of Vocational Excellence (CoVE) is a status given to departments in further education colleges (and some third party training companies) in England. It is intended as a kind of quality guarantee for vocational teaching, and is awarded by the Learning and Skills Council if the teaching is of good quality and if the department offers a range

of courses with progression routes up to Level 3 or beyond in the National Qualifications Framework.

After conducting some research, a piece of interesting information was found to be comparable to a case study. It is pertaining to the establishments of centers of excellence in various countries of Southeast Asia under a collaboration of the German Federal Ministry for Economic Cooperation and Development (BMZ). According to the study report by the GIZ, it was found that an effort has been made to establish centers of excellence for vocational education under a project named “LILAMA 2 center of excellence”. The project sought to establish a developmental network for basic training sessions by employing high-quality curricula and referring to “international standards” when defining or determining the preliminary concept as an initial step towards being a center of excellence.

### **8.1.2 SEM & TVET Excellence Journey: The Singapore Experience**

#### ***1. EFQM- MBNQA: The Foundation of the School Excellence Model (SEM)***

At present, the Singapore government drives and administers the country under the vision of “Thinking Schools, Learning Nation (TSLN)”. Schools in Singapore have developed themselves into excellent schools. The development has been evident since 2000. To this day, schools in Singapore choose to stay under the new School Excellence Model (SEM), adapted from a business excellence model. The SEM model is a self-assessment model, applied from the model of the European Foundation of Quality Management (EFQM), the foundation of the Singapore Quality Award (SQA) model, and used indicators for the educational context of the education version of the American Malcolm Baldrige National Quality Award Model (MBNQA) to achieve efficiency and suitability of the operation.

Overall, it can be described organizational leadership of the leader, strategic planning, and resource management are systematic factors that will lead to a clearer picture of the practice to the learner, a target audience of the main school work, including effective tracking and management systems. Perfection within the nine quality criteria results in employee and stakeholder’s satisfaction. Ultimately, society will benefit from the academia’s quality output in the form of human resources, which is a reflection implicitly indicating the success and excellence of the educational institution itself.

#### ***2. TVET Excellence Journey***

In Singapore, it is quite a habit to commit the organizations into various systems for awards and certifications that demonstrate the state of excellence. Institute of Technical Education (ITE) is an example of an educational institution with such habit. ITE is not a University or a Polytechnic but it has achieved international recognition for its achievements and innovations in vocational and technical education. It has created a unique brand of an ITE College Education for those who are less academically-inclined. Its journey of transformation towards organizational excellence was a response to

upgrade the system and change the image of VTE in Singapore. ITE is the principal provider of career and technical education in Singapore and development of occupational skills and standards as a post-secondary educational institution. It was established in 1982 after there was a review of school education and vocational training resulted in a crucial decision by the Ministry of Education in adopting a new policy of a minimum of 10 years of basic general education for all pupils in the school system. It became clear that to meet the skilled manpower needs of Singapore's future economic development, a primary school education was no longer sufficient for those who wished to pursue vocational and technical training. Employers need vocational graduates who have had a secondary education and higher-level NTC-2 skills in responding to the dynamic changes in an increasingly global economy. From that point onwards, it has now been over 2.5 decades that ITE has been issuing a roadmap every five years purposely to transform its institution into a leading organization with global excellence on TVET.

Presently, ITE is in line with the fifth ITE's strategic roadmap i.e. the ITE Trailblazer (2015 – 2019) and Skills Future whereby "ITE focused on programmes that expanded opportunities for students to build values, master skills and develop holistically, while enhancing organisational and staff capabilities". The Key Features of ITE System have been analyzed into eight of the following notions: 1) Having a Clear Mission 2) Modern Campus Infrastructure 3) A Rigorous Curriculum Development Process 4) A Process-Oriented Pedagogic Model 5) Close Partnership With Industry 6) Branding – a New ITE image.

The ITE's firm position in TVET excellence has been well recognized until there emerged another type of mission i.e. ITE Education Services: ITEES producing operational results e.g. consultancy services to various TVET projects covering 27 countries in Asia, Africa, Middle East, and Latin America; training sessions to over 3,500 TVET organizational leaders; and professional development training to approximately 8,700 TVET trainers. This success on an international-scale collaboration expansion, working together, and reaping mutual benefits occurred based on an ITE's effort to convince that "perception equals reality" i.e. if an organization can practice, it is likely to be practical and realistically perceivable to the public.

## **8.2 Classification of definition by type and characteristics of "CoE for TVET"**

From the summarized examples of the study results in section 8.1, actually, there still be many more details from various case studies that the researcher has considered to bring for the analysis, synthesize of the information related to the operations of CoF in TVET or other comparable organizations in order to answer the research questions:

- What is "CoE for TVET"? How many types are they of?
- How is it currently recognized for the "CoE in TVET"?

The researchers are incredibly ambitious to see the contents and findings of this study produce both in-depth and broad academic benefits. All the examined, discussed, and exemplified case studies of TVET's centers of excellence above are the fundamental

indicators and sources of new visions and bodies of knowledge that can contribute the answers to the descriptive-research questions and findings. Since the beginning, the objectives were concisely established to define “TVET center of excellence” and classify these centers based on specific identities and characteristics. Note that the existing centers in the world could either possess unique or blended operating characteristics. As a result, this study gave definitions and created a classification based on the centers’ socially recognized and perceived public presentations and attributes of excellence. Globally existing CoEs for TVET can be classified into three main types with more subtypes as elaborated in Table 8.1

**Table 8.1:** Classification of CoEs for TVET

<b>1.Uncertified Center of Excellence:</b>	
1.1 Founded Center from Existing Facilities:	This type of center of excellence has either been newly established or gone through a process of organizational change based on a justified perception that such an institution is “the readiest”, “superior in competition”, “well united”, and “well renowned” e.g. having had specialized human resource, modern technology and innovation, or adequately positive historical record or outcome to earn the public’s approval.
1.2 Founded Center in Name Only:	This type of center of excellence has either been newly established or gone through a process of organizational change based on no evidence of superiority nor that it meets any criteria of excellence. It has been founded in name only following the trend purposely to impress the public and obtain a certain expected benefit.
<b>2.Center of Excellence with Specific Certification:</b>	
2.1 Certifications from Specialized Bodies:	This refers to the centers of excellence that have gone through a meticulous certification process with clear measures of evaluation and high competition. Such certification might not directly address the terms “excellence” but rather provide proof of passing certain criteria and qualification requirements that indirectly indicate, to a certain extent, a certain hard-earned quality of excellence.
2.2 Certifications and Special Awards from Special Bodies:	This refers to the centers of excellence that have earned a certain certification or received an award from a certification body that did not actually has an assessment system in place but rather a basic evaluation conduct incomparable to certification measures from specialized certifying bodies.
<b>3.Center of Excellence with Excellence Affiliation:</b>	
3.1 Center of Excellence with Internal Affiliation:	The researcher would like to call this type of center, “a subcenter or a center under organizational supervision”. It means that the subcenter is operated under control of its commanding unit which could be a center or organization certified or recognized with the status of excellence.
3.2 Center of Excellence with External Affiliation:	It is the case where a center seeks a collaboration from an external organization or center of excellence to enhance its very state of excellence. There are three objective directions for this type of collaboration to occur: 1) A Rapid Enhancement of Excellence 2) Excellent Strengthening 3) Potential Expansion and Knowledge Exchange

It is believed that the classification and characterization of CoEs for TVET that the researcher concluded have not been used in any academic textbook or study before.

This body of knowledge was crystalized after the globally existing cases of CoEs for TVET were examined and the knowledge was filtered out using a layer for academic and public purposes. The findings can be further applied in various sectors such as higher education, basic education, business, and industry.

### **8.3 Utilization Techniques and Guidelines for Benchmarking<sup>+</sup>USP within BOS in Identifying Distinct Excellence for CoEs in TVET**

The researchers employed a combined framework that is consistent with the research aim to develop and present the application guidelines for “Benchmarking,” a widely popular and extensively renowned tool for the comparison and identification of organizational success and excellence. Generally, the combined framework should deal with qualitative and quantitative data analysis and synthesis and suit organizations aiming to achieve or reviewing benchmarks for the CoE status for TVET (Center of Excellence for Technical Vocational Education and Training). As a result, the development of the techniques and guidelines were based on a combined framework of a marketing concept known as Unique Selling Proposition which is used to seek distinct excellence for specific and well-rounded CoEs in TVET; and a strategic framework known as Blue Ocean Strategy which is used to confirm excellence statuses amid innovative differences and tactics. The rationale behind such a decision was to answer the following research questions:

- What are the example processes, techniques, and guidelines that could help indicate, identify, or review the CoE status for TVET among TVET providers?
- What approaches should be taken to identify guidelines and techniques to adopt Benchmarking as an indicator, identifier, and reviewer of the CoE status for TVET provided that the focus should be on unique distinctions of innovations that set these providers apart rather than the conventional Benchmarking which compares success and excellence?

#### ***1. Techniques and guidelines in determining specific Benchmarking indicators***

In implementing Benchmarking, the indicator is one of the essential elements. Therefore, the Centre for Educational Research and Innovation: CERI, the OECD support agency, has introduced some examples of possible indicators for TVET, as shown in Table 8.2

**Table 8.2:** Examples of possible indicators for an application of Benchmarking in TVET CoE’s perspective

<b>Indicators</b>	<b>Example</b>
I/P	are important for management purposes as they provide a picture of the resources available for the achievement of strategic goals and objectives, but in order to use them for the benchmarking purposes certain standards need to be established.
Processes	describe objective and important characteristics of the educational process which can affect its quality.
O/P - O/C	provide information about the effectiveness of the activities.

From the above, it is expected to adequately illustrate a complete integration of the tool for leapfrogging to success as Benchmarking on the direction of vocational education development toward excellent based on comparative learning with other organizations and commencement of viewing internal performance to reflect on the effectiveness of the organization. Is focusing on Benchmarking by comparing inputs, processes and outputs/outcomes of TVET CoEs or other comparable institutions and referencing indicators of educational quality. Each indicator and the selection of indicators for benchmarking requires 4 elements: 1) explanatory benefit 2) monetary benefits 3) comparative benefits 4) analyzing benefits for best practice of each institutions. User of benchmarking need to know and perform the following:

- identify organization and initiate the partnership
- understand the detail and structure of the organization as identified above
- identify scope, topic, and procedure that are important for the study.

Although there is no set rules on setting up indicators and there is no guarantee for the precision of Benchmarking, in the evaluation and quality assurance world “indicator” is important and has many benefits for all process.

## **2. Innovative concept: Combining USP and Benchmarking for TVET CoE within BOS**

According to Benchmarking, result will be Best Practices, which is obtaining of knowledge, technique and process which lead to the adaptation an improvement of the organization. The important factor that will lead to the success of Benchmarking is the participation and sharing of information of the comparative organization. Knowing of its own strength and weakness and the need of the target group is as important as learning from other institutions. “Unique Selling Proposition: USP” is one of the marketing tool for Branding. It utilize identifying strength and was defined by Rosser Reeves in1961 through his best selling book “Reality in Advertising” as:

- Each advertisement must make a proposition to the consumer. Not just words, not just product puffery, not just show-window advertising. Each advertisement must say to each reader: "Buy this product, and you will get this specific benefit."

- The proposition must be one that the competition either cannot, or does not, offer. It must be unique-either a uniqueness of the brand or a claim not otherwise made in that particular field of advertising.

- The proposition must be so strong that it can move the mass millions, i.e., pull over new customers to your product.

In addition to Benchmarking and USP, the researcher wishes to develop models or suggestions for the establishment of center for TVET CoE under the Blue Ocean Strategy: BOS by W. Chan Kim and Renee Mauborgne. BOS does not focus on response to the need of the market but rather create a new demand (Demand Creation) through Innovation. BOS does not focus on old competitors. It creates new type of need for the target group for CoE. The target group will receive benefits that is different from other similar institutions. Benchmarking, USP and BOS are tools that is not complicated but effective.

Consistent with the key questions of the study, the knowledge investigations and discoveries, especially the rationalization and “possible knowledge acquisitions of



social facts,” in this paper are conducted in conjunction with the principles of epistemology, a branch of philosophy within the theory of knowledge. These reflect the researchers’ efforts to seek approaches to make the existing presumption, i.e., “the CoE status for TVET” socially realistic which mainly refers to better tangibility and measurability based on the following epistemological criteria:

- 1) Transforming perceived-true beliefs into knowledge: In this case, it means to employ the Benchmarking process within the USP conceptual framework and the BOS strategic framework so that approaches and processes that can be formulated and implemented to seek or assess the excellence status for technical and vocational institutions or TVET providers. Hence, idealistic or abstract qualifications become more concrete assured by and based on a set of reasons and bodies of knowledge.
- 2) What the researchers account as acceptable knowledge: The researchers believe that incorporating the Benchmarking process into the USP conceptual framework and the BOS strategic framework are acceptable as these tool, concept, and strategy are widely popular and have been employed in various disciplines in the society, especially in management and marketing. Once they are combined through a knowledge-gathering process, a new body of knowledge on principles and methods emerges, and it will be beneficial to the search or identify an excellence status for technical and vocational institutions or TVET providers with more unambiguous identities and better consistency with epistemological approaches which value the importance of a “theoretical development.”

With the title of “Utilization Techniques and Guidelines for Benchmarking<sup>+</sup>USP within BOS in Identifying Distinct Excellence for CoEs in TVET,” it is reflective that the researchers have spotted some instrumental and methodological problems in assessing or indicating an excellence status for TVET providers. Even though there might have been some existing approaches out there, they are mostly and overly designed for business competitiveness. For that, these approaches lack the specialized indicators for academic appraisal that the TVET education requires. Hence, this study was conducted based on such dire needs. Also, it would not be unexpected that this study will further face a unanimity issue in approving and disapproving its proposed results on elements such as definitions, structures, models, methods, approaches, and components. Whichever the agreement, it all provides productive progress for the TVET development.

Apparently, the most important step of Benchmarking<sup>+</sup>USP within BOS is creating and determining indicators which must simultaneously be consistent with the USP concept and BOS strategic framework. A decision made within this step will impact the performance of the next steps in Benchmarking. For instance, the step to create Benchmarking<sup>+</sup>USP templates will be affected. According to the examples in Appendix I, the 33 subitems of EPIS<sup>+</sup>USP in all 10 categories must be determined in the form of questions so that each area of the Benchmarking are defined and filled out in the Benchmarking<sup>+</sup>USP templates which help smoothening other following Benchmarking activities. Similarly, selecting the method for data collection must also be elaborated in the Benchmarking<sup>+</sup>USP templates and two possible options for basic data are

qualitative and quantitative. Since Benchmarking refers to the point or position measured against the underlying model that has greater competency or is better, and then the comparison result is used for self-improvement to excellence. Benchmarking process using benchmark will lead to best practice and organizational improvement or development. It can be concluded that Benchmarking is a tool that enhance greater use of the competitiveness to create a quantum leap improvement, which the study found that it is used as a benchmark to identify potentialities of the quality awarding organizations, such as Malcom Baldrige National Quality Award (MBNQA), Singapore Quality Award (SQA) and Public Sector Management Quality Award (PMQA). The benefits of Benchmarking are: First, enables the organization find, from benchmarking, a point to be improved in order to elevate the performance of the process. Follows by, seeking out the method and learn from those who are better than the Best Practices in order to create a leap-frog improvement to get at the best. Furthermore, helps to find key strategic issues through learning from other organizations. In addition, creates Benchmark reference points to be set as your organization goals as well as encourage employees' learning and motivate changes and improvement in the organization efficiently. Therefore, when scoped with the combined framework of USP and BOS, the developed tools, techniques, and guidelines to identify an excellence status for TVET Providers can yield better efficiency. In the next study, these techniques and guidelines will be applied and experimented in actual practices.

#### 8.4 Examples of characteristics of excellence of the TVET CoE in Thailand

This information is an example of results summarization of Benchmarking<sup>+</sup>USP exercise between the "Benching Partner": GTDEE and TGPES, then the principles of SWOT analysis was used to analyze, refine only for the elements and characteristics the institutions wishing to move forward to the state of excellence in TVET at least are supposed to have.

**Table 8.3:** Examples of elements and characteristics – that at least are required -- of TVET CoE

No.	Required composition and characteristics
1	The executives have specific education levels and experiences.
2	Be recognized for good governance on a continuous basis
3	Funded or with strong financial stability
4	Gaining significant confidence in society regarding time, reputation and acceptance.
5	Operations, policies that are in line with social needs and may be made to advance in methods, concepts, practices
6	There are courses and collaborations from leading external agencies that help to enhance uniqueness of the identity
7	Readiness of facilities, teaching-learning equipment
8	There are intensive screening processes for recruiting instructors and learners.
9	There are a scholarship support system; insurance, accident insurance systems; guidance system for learners on learning and working
10	Creating employment opportunities with quality organizations after graduation
11	There is a quality assurance system or certification at the levels of organizational, national and international.
12	There is promotion of research, inventions, and innovations, as well as skills competition at both national and international levels.

## 8.5 Recommendations on the demand for TVET CoEs in Thailand

This final summary is a compilation of the recommendations on the demand for TVET CoE in Thailand. As for the research results, the researcher had made an interpretation from the closed-end and open-ended questionnaires used with the 3 groups of people; all of whom were stakeholders; i.e. student’s parents; students; and professors, experts, and entrepreneurs; initially a total number of more than 50 people was targeted. For the benefit of the statistical result analysis and for information obtained be able to answer the question about context of the needs of Thailand; the researcher had organized operations related to this questionnaire based on the principles of "The King’s wisdom (King Rama IX's wisdom)" of His Majesty the late King Bhumibol Adulyadej of Thailand who was regarded internationally as the most successful king in human resource development under the three principles: “Understanding – Connecting - Developing” , and in this regard would like to present from the question section 3 key issues identified as follows:

### 8.5.1 Factors making contribution to enhance journey toward organizational excellence

Regarding the sample groups’ viewpoints on the closed-ended question,“ If your organization would like to abruptly change to the gain excellence, what are the importance of the following factors or procedures?”,the mean value obtained from the opinions revealed by the sample groups, overall were in a consistent direction, and various values could be examined based on the 10-dimension factors that the researcher had filtered, as presented in Table 8.3

**Table 8.3:** Mean score of opinions on the factors influencing excellence in a quantum leap

Factors related to a drastic improvement of excellence	N = 102	Group 1 n = 44	Group 2 n = 37	Ggroup3 n = 21
1) Received quality and standard certification from domestic organizations	4.5	*4.7	4.3	4.5
2) Received quality and standard certification from international organizations	4.5	*4.7	4.4	*4.7
3) Received awards and honors from domestic organizations	4.3	4.5	4.0	4.5
4) Received awards and honors from international organizations	4.4	4.6	4.3	4.7
5) Received cooperation from domestic organizations	4.5	*4.7	4.3	*4.7
6) Received cooperation from international organizations	4.5	4.6	4.5	4.6
7) Having innovation breakthrough, specialization	4.5	4.7	4.3	*4.8
8) Having differentiation, distinction in certain area	4.5	4.6	4.5	4.7

9) Having reputation and acknowledgement from the public	4.4	4.5	4.2	*4.7
10) Having plan, policy, strategy and leadership	4.6	4.7	4.5	*4.9
<b>Total average</b>	4.6	4.3	4.7	4.5

From the table showed that the mean score of opinions of the 3 sample groups on the factors making a great impact on the excellence, generally were in high to highest level, with the mean value between 4.3-4.6; especially the group of professors, experts and entrepreneurs giving priority on each factor at the highest level in many dimensions such as Having plan, policy, strategy and leadership, with a mean of 4.9, the most important level; followed by -Having innovation breakthrough, specialization-, with an average score of 4.8, the greatest level of importance.

When considering the information in Table 8.3, it was clear that the 3 sample groups expressed opinions in the same direction as the academic references; that is, the 10-dimensional factors quoted by the researchers were all important and resulting in the appearance of the status of excellence promptly. A group of professors, experts and entrepreneurs (n = 21) had opinions differ from the other groups nearly every dimensions, such as taking a quantum leap towards the status of excellence must be an organization that was advanced in culture, had specialized expertise or a complete range of diversity, and had a plan, policy, strategy, and leadership of the leader that nurtured the excellence status.

### 8.5.2 Perspectives on the mission of CoF for TVET

Subsequently, all 3 groups of participants independently shared views concerning duties or mission of the TVET Center of Excellence that it should be in various directions, which could be summarized into 10 substantial points shown in Table 8.4

**Table 8.4:** Sample groups' opinion towards duties / missions of the TVET Center of Excellence

Duties or mission of the Center of Excellence on TVET	N = 102	Group 1 n = 44	Group2 n = 37	Group 3 n = 21
1. Be a source for learning, transferring and giving advice on innovations	27%	20%	*35%	29%
2. Specializing in developing inventions, innovations and various tools	22%	14%	*27%	24%
3. Have innovations or new knowledge	21%	*25%	19%	14%
4. Meet acceptable standards	17%	7%	16%	*38%
5. Have quality personnel	16%	9%	5%	*29%
6. Have an effective plan, strategy and operation	16%	18%	3%	*24%
7. Knowledge service to society	15%	16%	14%	*24%
8. Specializing in vocational research	13%	7%	11%	*29%
9. Create new technology to keep up with the times	12%	14%	14%	10%

10. Take lead in an operation and continuously develop.	12%	5%	11%	10%
11. Elevate international cooperation with foreign countries	12%	7%	11%	14%
12. Have funds	3%	9%	-	-
13. Good leaders with leadership and vision	2%	5%	-	-
14. University support	1%	-	-	*24%

In general; all groups agreed together- by having 1 “key word” - “Innovation”- that was viewed was directly related to duties / mission of the Center of Excellence in TVET, such center should be both a source of learning, providing consultation and a source of expertise in creating or having new innovative tools; and when looking at an individual group, it was an expectation of the student group (n = 37) the most. Whilst the teachers, experts, and entrepreneurs (n = 21) would take a deeper look into obtaining recognition about standards, creating or having quality personnel, including creating specialized research expertise, and was the only group viewing that need to be supported by academic bodies such as universities, and so on.

### 8.5.3 Demand for CoE of TVET in Thailand based-on the opinions of the sample groups

When the sample groups were given an opportunity to freely express opinions or needs under open-ended questions which was the last query of the questionnaire: “which program of Centers of Excellence for TVET is necessary or might receive the most interest in Thailand?” The respondents expressed a variety of opinions, but the majority were in the category of TVET Center of Excellence in relation to modern technology, besides that, were medicine, agriculture, languages, architecture, etc., as shown in table 8.5

**Table 8.5:** Opinions of the sample groups on programs or courses of the TVET Excellence Center that is essential for Thailand

Programs or courses at TVET Center of Excellence	N = 102	Group 1 n = 44	Group 2 n = 37	Group 3 n = 21
1. Training of various techniques, Training of technological knowledge	*14%	*14%	11%	*24%
2. Industry	*13%	9%	11%	*24%
3. AI (artificial intelligence)	*12%	3%	5%	*14%
4. Engineering	*12%	*16%	3%	5%
5. Development of innovations, inventions, tools, and technology	9%	8%	11%	-
6. Computer	9%	5%	5%	10%
7. Agriculture	9%	7%	*14%	14%

8. Science	9%	11%	*14%	10%
9. Bilingual courses	4%	3%	5%	-
10. Thinking design /Teaching of Creative thinking	4%	-	3%	5%
11. Medicine	4%	-	5%	5%
12. Architecture	3%	7%	-	5%
13. Modern teaching media	2%	-	5%	-
14. Varieties of applications	1%	-	3%	-

Concisely, it was found that 14 percent of the student's parents group (n = 44) expressed the opinion that Thailand should have a TVET excellence center that provided services onvarious technical trainings, technological knowledge training, which was the highest, similarly to the group of professors, experts, and entrepreneurs (n = 21) that over 24 percent agreed to this need, by having the same proportion greed upon the need of- having a center of TVET excellence that can support the development of the country on industry-; while 14 percent of the group of students (n = 37),on the other hand, focused on agriculture and science instead.

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**Appendix I**  
**Benchmarking<sup>+</sup>USP templates**



**Benchmark: Area no. 1**  
*An overview of organizational efficiency*

<b>Benchmark: Area no.1 - Scoping statement no. 1.1</b>					
Area:	An overview of organizational efficiency				
Scoping statement:	Qualifications, experiences of the executives				
Best Practice Statement:	Executive of the organization “has appropriateness” of work experience and educational qualifications to lead the organization “the most”				
Source of data:	Highest-level executive /Chief -				
Performance Indicators	The executive of the organization has experiences and educational qualification appropriate to lead the organization.				
Levels and keywords	1	2	3	4	5
	Inappropriate	Slightly appropriate	Moderately appropriate	Very appropriate	Extremely appropriate
How do you rate (★)?:					
<b>Benchmark I: Area no.1 - Scoping statement no. 1.2</b>					
Area:	An overview of organizational efficiency				
Scoping statement:	Executives’ leadership and Good Governance				
Best Practice Statement:	The executive of the organization “extremely” "has" organizational leadership and commits to management that applies the principle of good governance				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The executive of the organization has organizational leadership and commits to the management that applies the principle of good governance.				
Levels and keywords	1	2	3	4	5
	Not at all have	Slightly have	Moderately have	At a good level have	Extremely have
How do you rate (★)?:					
<b>Benchmark I: Area no.1 - Scoping statement no. 1.3</b>					
Area:	An overview of organizational efficiency				
Scoping statement:	Availability of personnel				
Best Practice Statement:	The organization has “extremely high” availability of personnel to support the operation of the organization in all dimensions.				
Source of data:	<ul style="list-style-type: none"> <li>- Self-assessment of the executive</li> <li>- 3 internal operational-level staff</li> <li>- 30 learners / trainers</li> </ul>				
Performance Indicators	The organization has availability of personnel to support the operation of the organization in all dimensions.				
Levels and keywords	1	2	3	4	5
	Not at all available	Slightly available	Moderately available	Highly available	Most highly available
How do you rate (★)?:					

<b>Benchmark I: Area no.1 - Scoping statement no. 1.4</b>					
Area:	An overview of organizational efficiency				
Scoping statement:	Budget availability and security				
Best Practice Statement:	Have “extremely high” availability and security of budget for mobilizing the organization to achieve the goal.				
Source of data:	<ul style="list-style-type: none"> <li>- Self-assessment of the executives</li> <li>- 3 internal operational-level staff</li> <li>- 30 learners / trainers</li> </ul>				
Performance Indicators	Have availability and security of budget for mobilizing the organization to achieve the goal.				
Levels and keywords	1	2	3	4	5
	Unavailable and insecure	Slightly available and secure	Moderately available and secure	Highly available and secure	Most highly available and secure
How do you rate (★)?:					

**Benchmark: Area no. 2**  
*Policy coherence with country development and stakeholder's needs*

<b>Benchmark: Area no. 2 - Scoping statement no. 2.1</b>					
Area:	Policy coherence with country development and stakeholder's needs				
Scoping statement:	Policies and curriculums that will develop learners to have qualifications consistent with the country's development policy or direction.				
Best Practice Statement:	The organization has policies and curriculums that aim to develop students to have qualifications "consistent" with Thailand's development policies and direction "the most".				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has policies and curriculums that aim to develop learners to have qualifications consistent with development policies or direction of Thailand.				
Levels and keywords	1	2	3	4	5
	Inconsistent	Slightly consistent	Moderately consistent	Very consistent	Extremely consistent
How do you rate (✖)?:					
<b>Benchmark II: Area no.2 - Scoping statement no. 2.2</b>					
Area:	Policy coherence with country development and stakeholder's needs				
Scoping statement:	Policies and curriculum that will develop students' qualifications to respond to the needs of stakeholder.				
Best Practice Statement:	The organization has policies and curriculums that aim to develop students' qualifications to "extremely respond" to the needs of the stakeholder.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has policies and curriculums that aim to develop students' qualifications to respond to the needs of stakeholder.				
Levels and keywords	1	2	3	4	5
	Not at all response	Slightly respond	Moderately respond	At a good level respond	Extremely respond
How do you rate (✖)?:					

**Benchmark: Area no. 3**  
*Availability of teaching and learning management and resources*

<b>Benchmark: Area no. 3 - Scoping statement no. 3.1</b>					
Area:	Availability of teaching and learning management and resources				
Scoping statement:	Qualifications / characteristics of instructors or trainers				
Best Practice Statement:	Teachers or trainers as a whole have qualification “extremely appropriate” to organize teaching and learning in each field.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Teachers or trainers as a whole have educational qualification “appropriate” to organize teaching and learning in each field				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Inappropriate qualification	Slightly appropriate qualifications	Moderately appropriate qualifications	Very appropriate qualifications	Extremely appropriate qualifications
How do you rate (★)?:					
<b>Benchmark: Area no. 3 - Scoping statement no. 3.2</b>					
Area:	Availability of teaching and learning management and resources				
Scoping statement:	Support staff (registration, finance, academic, etc.)				
Best Practice Statement:	Organization has “extremely high” “availability” of support staff that can accommodate operation and services in all dimensions, both quantitative and qualitative.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Organization has availability of support staff that can accommodate operation and services in all dimensions, both quantitative and qualitative.				
Levels and keywords	1	2	3	4	5
	Not at all available	Slightly available	Moderately available	Highly available	Most highly available
How do you rate (★)?:					
<b>Benchmark: Area no. 3 - Scoping statement no. 3.3</b>					
Area:	Availability of teaching and learning management and resources				
Scoping statement:	Education System, certified Education Program/ curriculum				
Best Practice Statement:	The organization has an education system, education program / curriculum that are “all accredited” by the regulator.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has an education system, education program / curriculum that are accredited.				
Levels and keywords	1	2	3	4	5
	Not at all accredited	In less than 50% accredited	In about 50 % accredited, but not reach 80%	In about 80% accredited, but not reach 100%	All are accredited
How do you rate (★)?:					

<b>Benchmark: Area no. 3 - Scoping statement no. 3.4</b>					
Area:	Availability of teaching and learning management and resources				
Scoping statement:	Laboratories / shops / establishments				
Best Practice Statement:	Overall, the organization provides “extremely” "adequate" laboratories / shops/ apprenticeship locations that are appropriate for both quantitative and qualitative education management.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Overall, the organization provides adequate laboratories / shops/ apprenticeship locations that are appropriate for both quantitative and qualitative education management.				
Levels and keywords	1	2	3	4	5
	Inadequate	Slightly adequate	Moderately adequate	Very adequate	Extremely adequate
How do you rate (✖) ?:					
<b>Benchmark: Area no. 3 - Scoping statement no. 3.5</b>					
Area:	Availability of teaching and learning management and resources				
Scoping statement:	Information technology system				
Best Practice Statement:	The organization provides information technology systems “most sufficiently appropriate”, both quantitative and qualitative, to service learners - trainees / teachers - trainers, and other personnel				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization provides information technology systems sufficiently appropriate, both quantitative and qualitative, to service learners –trainees / teachers - trainers, and other personnel				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Insufficient and inappropriate	Slightly sufficient and appropriate	Moderately sufficient and appropriate	Very sufficient and appropriate	Extremely sufficient and appropriate
How do you rate (✖) ?:					

**Benchmark: Area no. 4**  
*Student services /welfare services/student aid*

<b>Benchmark: Area no. 4 - Scoping statement no. 4.1</b>					
Area:	Student services /welfare services/student aid				
Scoping statement:	Health and accident insurance				
Best Practice Statement:	The organization has made “excellent” "preparation" about the health insurance and accident insurance systems for students / trainers.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has made preparation about health insurance and accident insurance systems for students / trainers.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all preparation	Has slight preparation	Has moderate preparation	Has good preparation	Has extreme preparation
How do you rate (✖) ?:					
<b>Benchmark: Area no. 4 - Scoping statement no. 4.2</b>					
Area:	Student services /welfare services/student aid				
Scoping statement:	Scholarships, Earnings during education, Emergency financial assistance				
Best Practice Statement:	The organization has shown readiness to extremely "support" various types of scholarships, emergency grants, as well as to "encourage" students who lack of fund or wish to earn a living can earn income during education.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has shown readiness to support various types of scholarships, emergency grants, as well as to "encourage" students who lack of fund or wish to earn a living can earn income during education.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all support or encourage	Slightly support or encourage	Moderately support or encourage	Very support or encourage	Extremely support or encourage
How do you rate (✖) ?:					
<b>Benchmark: Area no. 4 - Scoping statement no. 4.3</b>					
Area:	Student services /welfare services/student aid				
Scoping statement:	- Guidance and counselling on further study / careers - Further study / careers guidance				
Best Practice Statement:	The organization also “gives priority” “absolute highest” to further study / career guidance and counselling service after graduation (is one among others that are given absolute highest priority).				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization also gives priority to further study / career guidance and counselling service after graduation. (is one among others that are given priority).				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not a priority at all	Give a slight priority	Give a moderate priority	Give a high priority	Give an absolute highest priority
How do you rate (✖) ?:					

**Benchmark: Area no. 5**  
*Quality system and accreditation of excellence*

<b>Benchmark: Area no. 5 - Scoping statement no. 5.1</b>					
Area:	Quality system and accreditation of excellence				
Scoping statement:	Student selection process				
Best Practice Statement:	Organization also “very highly” "considers" the creation of a mechanism to support the selection process for obtaining students with high-quality or who have potential to be systematic successfully developed according to the goals based on creation of educational equality. (is one among others that are consider very highly)				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization also considers the creation of a mechanism to support the selection process for obtaining students with high-quality or who have potential to be systematic successfully developed according to the goals based on creation of educational equality. (is one among others that are very highly considered)				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all considered	Slightly considered	Moderately considered	Highly considered	Very highly considered
How do you rate (✱)?:					
<b>Benchmark: Area no. 5 - Scoping statement no. 5.2</b>					
Area:	Quality system and accreditation of excellence				
Scoping statement:	Education quality assurance and educational development				
Best Practice Statement:	The organization is under a quality assurance system of education, have been assessed, to ensure the quality of education both internal and external by nationally or internationally recognized agency, with the result shown that “has extremely excellent quality (or wording that provides meaning in the same direction).”				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization is assessed through internal and external quality assurance systems that are recognized nationally or internationally.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Have no quality at all	Have slight quality	Have moderate quality	Have good quality	Have extremely excellent quality
How do you rate (✱)?:					
<b>Benchmark: Area no. 5 - Scoping statement no. 5.3</b>					
Area:	Quality system and accreditation of excellence				
Scoping statement:	National Awards or certifications				
Best Practice Statement:	Organization / Executives / Learners / Instructors have "ever received" awards or accreditation for quality / excellence / other national internal competitions.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Organization / Executives / Learners / Instructors have ever received awards or accreditation for quality / excellence / other national internal competitions.				
Answers(✱)	<b>Ever</b>			<b>Never</b>	
Details:	Title of the Awards or Accreditations: ..... Granting / accreditation body: ..... Year Received: ..... Levels: ..... Received: .....				

<b>Benchmark: Area no. 5 - Scoping statement no. 5.4</b>					
Area:	Quality system and accreditation of excellence				
Scoping statement:	International Award or Certifications				
Best Practice Statement:	Organization / Executives / Learners / Instructors have "ever received" awards or accreditation for quality / excellence / other national internal competitions.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Organization / Executives / Learners / Instructors have ever received awards or accreditation for quality / excellence / other national competitions.				
Answers (✖)	<b>Ever</b>		<b>Never</b>		
Details:	Title of the Awards or Accreditations: ..... Granting / accreditation body: ..... Year Received: ..... Levels: ..... Received: .....				
<b>Benchmark: Area no. 5 - Scoping statement no. 5.5</b>					
Area:	Quality system and accreditation of excellence				
Scoping statement:	Having a job or continuing education at a higher level of graduates				
Best Practice Statement:	The % or percentage of employment or continuing education in a higher level of the graduates is very high.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The % or percentage of employment or continuing education in a higher level of the graduates.				
Answers	<b>Year2018</b>	<b>Year2017</b>	<b>Year2016</b>	<b>Year2015</b>	<b>Year2014</b>
	%	%	%	%	%



**Benchmark: Area no. 6**  
***Uniqueness: Under USP concept***

<b>Benchmark: Area no. 6 - Scoping statement no. 6.1</b>					
Area:	Uniqueness: Under USP concept				
Scoping statement:	Unique curriculum / learning program				
Best Practice Statement:	The organization has unique curriculum / learning program by being the owner, the original / the prototype / the origin / the leader of those curriculums / learning programs.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has a unique curriculum / learning program.				
Answers (✖)	<b>Yes</b>		<b>No</b>		
Details	Course / Learning program title ..... Year started .....				
	Certification .....				
<b>Benchmark: Area no. 6 - Scoping statement no. 6.2</b>					
Area:	Uniqueness: Under USP concept				
Scoping statement:	Unique system and process of teaching and learning.				
Best Practice Statement:	The organization has specific unique system / process of teaching and learning by being the owner /the original / the template / the origin / the leader in implementing those system / process of teaching and learning.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has a specific unique system / process of teaching and learning.				
Answer (✖)	Yes		No		
Details	System / process title..... Year started .....				
	Certification.....				
<b>Benchmark: Area no. 6 - Scoping statement no. 6.3</b>					
Area:	Uniqueness: Under USP concept				
Scoping statement:	Leadership, being an original, follow perception of the society.				
Best Practice Statement:	Society has “extreme” collective "perception and recognition" that the organization has prominent leadership / originality in the educational management or education system that is implementing.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Society has perception and recognition that the organization has leadership / originality in the educational management or the education system that is ongoing.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not perceived and recognized at all	Slightly perceived and recognized	Moderately perceived and recognized	At a good level perceived and recognized	Extremely perceived and recognized
How do you rate (✖) ?:					

<b>Benchmark: Area no. 6 - Scoping statement no. 6.4</b>		
Area:	Uniqueness: Under USP concept	
Scoping statement:	Unique in qualification, capability of Graduates, academic qualification and certification	
Best Practice Statement:	Graduates “have unique” outstanding qualification / performance or have “extremely exceptional” different academic qualifications and certifications.	
Source of data:	Highest-level executive /Chief	
Performance Indicators	Graduates have unique outstanding qualification or have exceptional different educational qualifications and certifications.	
Answers (✖)	<b>Yes</b>	<b>No</b>
Details	<ul style="list-style-type: none"> <li>- Title of academic qualification / Certification.....</li> <li>- Capability / qualification difference.....</li> </ul>	

**Benchmark: Area no. 7**  
***Cooperation, Coordination, Collaboration with Stakeholder***

<b>Benchmark: Area no. 7 - Scoping statement no. 7.1</b>					
Area:	Cooperation, Coordination, Collaboration with Stakeholder				
Scoping statement:	Planning, exchange of student development approaches with Stakeholder groups.				
Best Practice Statement:	The organization has “extremely” "outstanding" work performance / coordination / collaboration with the Stakeholder Groups in terms of quantity and quality.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has “extreme” work performance / coordination / collaboration with the stakeholder groups in terms of both quantity and quality.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all outstanding	Slightly outstanding	Moderately outstanding	Very outstanding	Extremely outstanding
How do you rate (★) ?:					
<b>Benchmark: Area no. 7 - Scoping statement no. 7.2</b>					
Area:	Cooperation, Coordination, Collaboration with Stockholder				
Scoping statement:	Opportunities / Quotas for higher education or working with Stakeholder.				
Best Practice Statement:	Stakeholder has confidence in the production process, the education system of the organization, and the quality of the students, then “allocates quota or gives opportunity”, as an “extremely exceptional” case, to students for continuing study at a higher level or working with stakeholder.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Confidence of stakeholder in the production process, the education system of the organization, and the quality of the students byallocating quota or giving opportunity to students for continuing study at a higher level or continuing work with stakeholder.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not allocating quota or giving opportunity at all	Slightly allocated quota or gave opportunity	Moderately allocated quota or gave opportunity	At a good level allocated quota or gave opportunity	Extremely special quota allocation or opportunity giving
How do you rate (★) ?:					
Details	<b>Year2018</b>	<b>Year2017</b>	<b>Year 2016</b>	<b>Year 2015</b>	<b>Year 2014</b>
% of graduates					

## Benchmark: Area no. 8

### Universality

<b>Benchmark: Area no. 8 - Scoping statement no. 8.1</b>			
Area:	Universality		
Scoping statement:	Collaboration with foreign agencies or organizations		
Best Practice Statement:	Organization has established collaboration with foreign agencies or organizations, including foreign organizations that has branches or offices in Thailand, in order to support, to benefit implementation of teaching and learning management.		
Source of data:	Highest-level executive /Chief		
Performance Indicators	Number of MoU, projects, or other types of contract that the organization has established cooperation with foreign agencies or organizations.		
Answers (✖)	<b>Have</b>		<b>None</b>
Details	Number of MoUs	..... MoU (s)	
	Number of projects	.....Project (s)	
Organization and project name	1.		
<b>Benchmark: Area no. 8 - Scoping statement no. 8.2</b>			
Area:	Universality		
Scoping statement:	International academic programs or courses		
Best Practice Statement:	The organization offers education programs taught in English or other languages to response to the world of education and the world of work in the age of globalization.		
Source of data:	Highest-level executive /Chief		
Performance Indicators:	Number of education programs taught in English or foreign languages		
Answers (✖)	<b>Have</b>		<b>None</b>
Details	Number of programs taught in English	..... Program (s)	
Other annotations:	.....		
<b>Benchmark: Area no. 8 - Scoping statement no. 8.3</b>			
Area:	Universality		
Scoping statement:	International or internationally recognized education management style.		
Best Practice Statement:	The organization uses an international and internationally accepted education management style or system.		
Source of data:	Highest-level executive /Chief		
Performance Indicators	The organization uses an international and internationally accepted education management style or system.		
Answers (✖)	<b>Use</b>		<b>Does not use</b>
Details	Style / System .....		
Other annotations:	.....		

<b>Benchmark: Area no. 8 - Scoping statement no. 8.4</b>					
Area:	Universality				
Scoping statement:	Exchange programs or opportunities for training session, apprenticeship, and study visit with foreign organizations for personnel and learner				
Best Practice Statement:	Organizations also "have and gives priority" extremely to exchange programs or opportunities for training session, apprenticeship, study visit, and oversea skills competitions for the development of personnel and learners				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Organization has and gives priority to exchange programs or opportunities for training session, apprenticeship, study visit, and oversea skills competitions for the development of personnel and learners				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Do not have and not a priority	Have and gives slight priority	Have and gives moderate priority	Have and give high priority	Have and gives absolute highest priority
How do you rate (★)?:					
<b>Benchmark: Area no. 8 - Scoping statement no. 8.5</b>					
Area:	Universality				
Scoping statement:	Foreign specialists, instructors, trainers or graduated from abroad.				
Best Practice Statement:	The organization has a number of foreign or overseas graduated specialists, instructors, and trainer in a proportion that well strengthens the capacity and image to the organization				
Source of data:	<ul style="list-style-type: none"> <li>- Self-assessment of the executives</li> <li>- Relevantoperational-level staff</li> <li>-</li> </ul>				
Performance Indicators	Number of foreign or overseas graduated specialists, instructors, and trainers that work in the organization				
Answers (★)	<b>Have</b>			<b>None</b>	
Details	Number ..... person				
	Position .....				
	Graduated from .....				
Other annotations	.....				

**Benchmark: Area no. 9**

***Perception of, acceptance of, and satisfaction with status of quality, qualification and excellence, attitude of the society - Expert – Stakeholder***

<b>Benchmark: Area no. 9 - Scoping statement no. 9.1</b>					
Area:	Perception of, acceptance of, and satisfaction with status of quality, qualification and excellence, attitude of the society - Expert – Stakeholder				
Scoping statement:	Perception; attitude; and recognized reputation, quality, and excellence in learner development that Society /expert/stakeholder has toward organization				
Best Practice Statement:	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition to the reputation, quality, and excellence in student development at the level of "extremely excellent and outstanding"				
Source of data:	Highest-level executive /Chief				
Performance Indicators	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards the organization of reputation, quality, and excellence in student development				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all excellent and outstanding	Slightly excellent and outstanding	Moderately excellent and outstanding	Very excellent and outstanding	Extremely excellent and outstanding
How do you rate (★)?:					
<b>Benchmark: Area no. 9 - Scoping statement no. 9.2</b>					
Area:	Perception of, acceptance of, and satisfaction with status of quality, qualification and excellence, attitude of the society - Expert – Stakeholder				
Scoping statement:	Perception; attitude; and recognized excellence in qualification, potentiality, competence, and proficiency that Society /expert/stakeholder has toward graduates				
Best Practice Statement:	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards organization's graduates of qualification, potentiality, competence, and proficiency at the level of "extremely excellent and outstanding"				
Source of data:	Highest-level executive /Chief				
Performance Indicators	General society / TVET expert / Stakeholder has perception; has positive attitude; and gives recognition towards organization's graduates of qualification, potentiality, competence, and proficiency.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not at all excellent and outstanding	Slightly excellent and outstanding	Moderately excellent and outstanding	Very excellent and outstanding	Extremely excellent and outstanding
How do you rate (★)?:					

**Benchmark: Area no. 10**  
***Innovative Management for creating sustainable unique excellence:***  
***Under the USP concept***

<b>Benchmark: Area no. 10 - Scoping statement no. 10.1</b>					
Area:	Innovative Management for creating sustainable unique excellence: Under the USP concept				
Scoping statement:	Knowledge management system within the organization.				
Best Practice Statement:	The organization also gives “extreme” "priority" to the knowledge management system within the organization, such as KM, training, and human resources development.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has knowledge management system within the organization, such as KM, training, human resource development, etc.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not a priority at all	Gives slight priority	Gives moderate priority	Gives high priority	Gives absolute highest priority
How do you rate (★)?:					
<b>Benchmark: Area no. 10 - Scoping statement no. 10.2</b>					
Area:	Innovative Management for creating sustainable unique excellence: Under the USP concept				
Scoping statement:	Policy, strategic plan, long term strategy to increase the competitiveness limit for future changes				
Best Practice Statement:	Organization also “extremely” "gives priority" to establishment of policy, strategic plan, and long-term strategy in order to increase the competitiveness limit for accommodating future changes.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	The organization has determined a policy, strategic plan, and long-term strategy in order to increase the competitiveness limit for accommodating future changes.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Not a priority at all	Gives slight priority	Gives moderate priority	Give high priority	Give absolute highest priority
How do you rate (★)?:					

<b>Benchmark: Area no. 10 - Scoping statement no. 10.3</b>					
Area:	Innovative Management for creating sustainable unique excellence: Under the USP concept				
Scoping statement:	Promoting innovation in various dimensions such as management innovation, new model of education management, innovative production of personnel or students, Participation in skill or excellence competition, and etc.				
Best Practice Statement:	Organization also “extremely” "values and promotes" the creation of innovation in various dimensions, such as management innovation, new model of education management, innovative production of personnel or students, participation in a skill or professional excellence competition.				
Source of data:	Highest-level executive /Chief				
Performance Indicators	Organization promotes the creation of innovation in various dimensions, such as management innovation, new model of education management, innovative production of personnel or students, participation in a skill or "professional excellence" competition for always promoting and flourishing an image of excellence.				
Levels and keywords	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Do not value and do not promote	Slightly value and promote	Moderately value and promote	Highly value and promote	Extremely value and promote
How do you rate (✖)?:					



**Appendix II**  
**Questionnaire**

## Questionnaire

**To obtain opinion related to *Centres of Excellence for Technical and Vocational Education and Training (TVET) in the perspective of all stakeholders in Thailand***

This questionnaire has 4 sections as following:

**Section 1:** Personal information and basic information (12 questions)

**Section 2:** Basic understanding of Excellence and Centres of Excellence (5 questions)

**Section 3:** Awareness, experience, perspective and understanding of Centres of Excellence for TVET (4 questions)

**Section 4:** Suggestions and others (3 questions)

**Questionnaire respondents** are all stakeholders incl. expert, specialist and scholar in technical and vocational school (..... respondents)

This questionnaire will benefit a research study under the topic of “*A comparative study on scientific approaches for Center of Excellence in Technical and Vocational Education and Training (TVET) sector under the scientific aspect of the demands in Thai Education System*” The study aim to promote the understanding of, support, and provide information related to the establishment of Centres of Excellence for TVET. This will provide a distinctive information for the evaluation and analyses using scientific and Social Science tools. Your response is greatly appreciated. Please complete all questions herein based on fact. Your response will be used only for the study herein and will not be shared with other studies or institution.

Please return the completed questionnaire to Mr. Adisorn Ode-sri

Sincerely Yours,  
Mr. Adisorn Ode-sri  
E-mail: [adisorn.odesri@gmail.com](mailto:adisorn.odesri@gmail.com)

**Section 1: Personal information and basic information (12 questions)**

**Please fill in the blank space and put an ✖ mark in  accordingly**

1. Firstname..... Lastname .....

2. Gender  1) Male  2) Female

3. Age ..... year

4. Nationality ..... Race .....

5. Country ..... Continent/region .....

6. Your country has strenght in (or known for), select all that apply

- |   |   |
|---|---|
| <input type="checkbox"/> 1) Industrial                  | <input type="checkbox"/> 2) Production base           |
| <input type="checkbox"/> 3) Agriculture and craft       | <input type="checkbox"/> 4) Tourism and culture       |
| <input type="checkbox"/> 5) Education                   | <input type="checkbox"/> 6) Hub or port               |
| <input type="checkbox"/> 7) Investment and Economy      | <input type="checkbox"/> 8) Technology and innovation |
| <input type="checkbox"/> 9) Other (please specify)..... |   |

7. Occuation/Title .....

8. Organization .....

9. Highest education

- |   |  |
|---|--|
| <input type="checkbox"/> 1) Bachelor degree         | <input type="checkbox"/> 2) Master degree          |
| <input type="checkbox"/> 3) Doctoral degree (Ph.D.) | <input type="checkbox"/> 4) Other (please specify) |

.....

10. Academic position

- |   |   |
|---|---|
| <input type="checkbox"/> 1) Asst. Prof. | <input type="checkbox"/> 2) Assoc. Prof.  |
| <input type="checkbox"/> 3) Prof.       | <input type="checkbox"/> 4) Other (please |

specify).....

11. Experience .....years

12. Email .....

**Section 2: Basic understanding of Excellence and Centres of Excellence (5 questions)**

**Please fill in the blank space and put an ✖ mark in □ accordingly**

**1. Please define “Excellence”**

.....

.....

.....

.....

.....

**2. Please specify at least 5 basic factors that lead to “Excellence”**

- 1) .....
- 2) .....
- 3) .....

**3. Please rate the following factors affecting “Excellence” using an ✖ mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.**

<b>Factors affecting “Excellence”</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1) Management system, tools and Quality Certifications					
2) Management system, tools and Standard Certifications					
3) Award, honor or domestic excellence certifications					
4) Award, honor or international excellence certifications					
5) Cooperation from domestic organizations					
6) Cooperation from international organizations					
7) Innovation breakthrough, specialization					
8) Differentiation, distinction in certain area					
9) Reputation and acknowledgement from the public					
10) Plan, policy, strategy and leadership					
11) Size, headcount, specialist and performance of management					

**4. Please define, characterize and identify components of “Centres of Excellence”**

.....

.....

.....

**5. Please put an ✖ mark for center of excellence (or similar organization) that exists in your country**

Type of “Centres of Excellence”	Exist	Do not exist	I don’t know
1) Centres of Medical Excellence			
2) Centres of Excellence in Education			
3) The Center of Excellence for Speech and Language Development			
4) Centres for Excellence in Teaching and Learning			
5) Centres of Excellence for TVET			
6) Center for Skincare Excellence			
7) Centre of Excellence for Economics and Finance			
8) Centre of Excellence for Science and Innovation Studies			

**Section 3: Awareness, experience, perspective and understanding of Centres of Excellence for TVET (4 questions)**

**1. Do you have Centres of Excellence for TVET (or similar organization) in your country?**

***Please fill in the blank space and put an ✖ mark in  accordingly***

- Yes, we do have the Centres of Excellence for TVET in our country
- Yes, we do have organization similar to the Centres of Excellence for TVET in our country such as
  - 1) .....
  - 2) .....
  - 3) .....
- No we do not have the Centres of Excellence for TVET in our country
- I don’t know

**2. In your opinion, why are organizations called Centres of Excellence for TVET?**

**Please use an \* mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.**

<b>Factors related to excellence</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1) Received quality and standard certification from domestic organizations					
2) Received quality and standard certification from international organizations					
3) Received awards and honors from domestic organizations					
4) Received awards and honors from international organizations					
5) Received cooperation from domestic organizations					
6) Received cooperation from international organizations					
7) Having innovation breakthrough, specialization					
8) Having differentiation, distinction in certain area					
9) Having reputation and acknowledgement from the public					
10) Having plan, policy, strategy and leadership					
11) The organization is self established with no certifications but do have potential to be excellence					
12) The organization is self established with no certifications just for marketing purpose. The potential to be excellence is questionable.					

**3. Are you familiar with the following models / tools / management systems / awards relating to quality, standard and excellence that could be adapted in the establishment of Centres of Excellence for TVET?**

**Please fill in the blank space and put an \* mark in  or specify in the space provided**

- Singapore Quality Award (SQA)
- Deming Prize (DP)  Benchmarking
- European Quality Award (EQA)
- EFQM Excellence Award (EFQM)
- Total Quality Management (TQM)
- Unique Selling Proposition (USP)
- International Organization for Standardization (ISO)
- Baldrige Performance Excellence/Malcolm Baldrige National Quality Award (MBNQA)
- Others, please specify .....

**Section 4: Suggestions and others (3 questions)**

**1. If your organization would like to abruptly change to the gain excellence, what are the importance of the following factors or procedures?**

**Please use an ✖ mark, on a scale from 1 to 5, where 1 means the least important and 5 means the most important.**

<b>Factors related to a drastic improvement of excellence</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1) Received quality and standard certification from domestic organizations					
2) Received quality and standard certification from international organizations					
3) Received awards and honors from domestic organizations					
4) Received awards and honors from international organizations					
5) Received cooperation from domestic organizations					
6) Received cooperation from international organizations					
7) Having innovation breakthrough, specialization					
8) Having differentiation, distinction in certain area					
9) Having reputation and acknowledgement from the public					
10) Having plan, policy, strategy and leadership					
11) Having multiple services / multiple training					

**2. In your opinion, what are missions of Centres of Excellence for TVET?  
Please provide 3 to 5 missions**

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....

**3. Which program of Centres of Excellence for TVET is necessary or might receive the most interest in your country?**

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....