Thai ICT HR Competency Standard Conceptual Framework for Supporting Sustainable Smart Thailand Towards AEC 2015

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Abstract

This paper presents a Competency Standard Framework for Thai ICT human resource to support a sustainable Smart Thailand policy which will promote Thailand growth to be well balanced in the development of economic, environment and social areas. The Framework will eventually pave the way for Thailand’s journey towards knowledge economy and ASEAN integration.

Keywords: ICT Competency, Smart Thailand, Sustainable Development, AEC2015.

1. Introduction

As a major driving force of regional integration, the ASEAN Economic Community (AEC) 2015 is part of a larger plan for the ASEAN Community, which involves security, economic, and socio-cultural cooperation. AEC 2015 aims to transform ASEAN into a single market and production base, a highly competitive economic region and a region fully integrated into the global economy. To this end, the AEC blueprint focuses on free flow of goods, services, investment, and skilled labor, and freer flows of capital, to help minimize transaction costs and maximize trade gains [1].

At the 13th ASEAN Summit on 20 November 2007, the ASEAN countries aimed to enhance concerted and collective cooperation in building of the Information Society and to increase the region’s connectivity and competitiveness, strengthening on human resource cooperation, particularly on regional standardization of ICT human capital competencies and regional recognition across ASEAN Member States of ICT skills certification to increase knowledgeable and versatile workforce in efforts to build an inclusive knowledge-based ASEAN Community in 2015 [2].

More importantly, after the success of its economy integration in 2015, ASEAN countries will need to address its sustainable development challenges and priorities for the region over the next decade. The ASEAN Vision 2020 provides the long-term sustainable development framework for the sub-region and its sustainable development priorities for ASEAN would be useful for the government, non-government, private, regional and international organizations in the pursuit of developing policies, strategies, and action plans. One of the important prerequisites to the pursuit of the subregion’s sustainable development goals is the Coordination and integration at the Southeast Asian subregional level of economic, social, and environmental initiatives and policies [3].

With the long-term aim towards ASEAN Community level, Thailand has been paving its way to prepare the country for ASEAN Community which knowledgeable and versatile workforce will be required through the Thailand ICT Policy Framework (2001-2010) or IT2010 and ICT2020 Policy Framework aiming to enhance the economy and quality of life of the...
Thai people and lead Thailand towards a knowledge-based economy and society by using ICT as a driving force for creating knowledge, creativity and innovation in goods and services.

Under the ICT 2020 Policy Framework, Thailand envisions for smart development, with a knowledge- and wisdom-based economy and society. The “Smart Thailand 2020” vision as depicted in Fig.1 states that ICT is a key driving force in leading Thai people towards knowledge and wisdom and leading society towards equality, stronger economy and environment sustainability [4].

![Fig.1 Thailand ICT 2020 Framework [4]](image)

Severino [5] noted that an assessment is being undertaken of the needs of ASEAN countries, including Thailand, in terms of human resources for ICT. They are cooperating in the training of their human resources, which is the key to ICT and the knowledge economy, the economy of the twenty-first century. Information and communications technology is thus another critical element in the integration of the ASEAN economy and of the region as a whole.

Since both ICT and ICT human resource are the two major elements to drive Thailand its goals in 2020, particularly on the ICT human resource, hence the national ICT skills framework for human resource will be required and needs to be assessed to possibly help the country achieve sustainable Smart Thailand and ASEAN Economic Community in 2015.

In this paper, the Thai HR ICT Competency Standard Framework for supporting sustainable Smart Thailand will be explored.

2. Theoretical Background

2.1 Defining Sustainability and Sustainable Development

The word “sustain” derives from the Latin “sustenere” [6]. In its primary sense it can be described as survival assurance meaning that an economical, ecological or social system should be preserved for future generations and, thus, necessary resources should only be exploited to a degree where it is possible to restore them within a regeneration cycle. The most common definition from the Brundtland Commission defines sustainability as a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [6], [7]. All definitions of sustainability have the preservation of the economical, ecological and social system for the benefit of future generations in common. These dimensions represent the three main pillars of sustainability and are known as the “triple-bottom-line” concept [6], [8].

The “triple-bottom-line” concept provides a framework to companies to measure and report their performance and organizational success in relation to these pillars. Especially at the business level, sustainability is mainly equated with the economical or financial sustainability [6], [9]. Triple bottom line (TBL) accounting expands the traditional reporting framework to take into account social and environmental performance in addition to financial performance. In 1981, Freer Spreckley first articulated the triple bottom line in a publication called 'Social Audit - A Management Tool for Co-operative Working'. In this work, he argued that enterprises should measure and report on social, environmental and financial performance [10], [11].

Although the definition of sustainable development emerged from an international enquiry into the relationship between environment and development, it is not concerned primarily with the environment but with the sustainability of the overall developmental context. This usually comprises three main elements [12] as the followings:

1. Economic development – reducing and seeking to eradicate income poverty, achieving
higher levels of prosperity and enabling continued gains in economic welfare;

2. Social development – reducing and seeking to eradicate other dimensions of poverty, improving the quality of education, health, housing and other aspects of the welfare of individuals and communities, and enhancing the quality of social interaction, engagement and empowerment;

3. Environmental protection – reducing pollution and other negative impacts on the environment, mitigating the effects of industrialization and human activity, and seeking to achieve sustainable use of resources in the interest of future generations.

This relationship is sometimes illustrated either as a Venn diagram or through pillars as per Fig.2.1 and 2.2 below:

![Fig.2.1 Venn diagram of Sustainable Development](12)

![Fig.2.2 Three Pillars of Sustainable Development](13)

Three pillars or circles of “economic development, social development and environmental protection” as three “interdependent and mutually reinforcing pillars” of sustainable development [12], [13],[14].

2.2 Defining Competency and ICT Competency

2.2.1 Competency Ice Berg Model - Meaning and its Components [15]

The iceberg model for competencies takes the help of an iceberg to explain the concept of competency. An iceberg which has just one-ninth of its volume above water and the rest remains beneath the surface in the sea. Similarly, a competency has some components which are visible like knowledge and skills but other behavioural components like attitude, traits, thinking styles, self-image, organizational fit etc are hidden or beneath the surface.

2.2.2 Ice-Berg Model [15]

The pictorial representation of the Ice-Berg model of competency is as Fig.3 below:

![Fig.4 Components of Competency](15)

Where the different components of the model can be described as Fig.4:

The aspects of competencies which lie below the surface like attitude, traits, thinking styles etc. directly influence the usage of knowledge and skills to complete a job effectively.

Developing the two levels of competencies also takes different routes. The visible
competencies like knowledge and skills can be easily developed through training and skill building exercises however the behavioral competencies are rather difficult to assess and develop. It takes more time and effort intensive exercises, like psychotherapy, counseling, coaching and mentoring, developmental experiences etc.

Besides that, OECD also defined competency as followings:

“A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context. For example, the ability to communicate effectively is a competency that may draw on an individual’s knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating”[16].

2.2.3 ICT Competency

Information technology (IT) competency may refer to many different knowledge areas and skill sets. Most often, the IT competency of a person refers to their own core competence or knowledge in IT systems. For a professional, the IT competency represents his own skill set with information systems and other technology. The professional generally needs to have a firm knowledge of current hardware, software and other technologies such as computer systems as well as the ability to quickly learn and adapt to the constant changes in technology, project management, planning and working within business practices. As such, ICT competency entails much more for a company as a whole than simply understanding current technology. While each individual may not need to have technical skills and knowledge, having enough people staffed to handle technical applications, people management and the business politics is crucial [17].

Hence, with the definition of competency and ICT competency, it could be concluded that the ICT competency could be categorized in the two layers i.e. Layer 1: the skills and knowledge on ICT including other related skills for ICT professional and Layer 2: the behavioural competency components such as attitude, traits, self image and thinking styles towards ICT and the use of ICT.

2.3 ICT Skills Framework

Nuangjamnong et al. [18] also outlined a common definition of skills framework architecture on knowledge, qualifications, skills performance standards and experience requirements against a complete set of roles and standard job specifications as in Fig.5.

Fig.5 Components of Competency [18]

In addition, Nuangjamnong et al. [18] also explained the study of one of the well-recognized standard competency frameworks, which can be applied into real IT environment, on The Skills Framework for the Information Age (SFIA) which is a well-known IT standard skills framework and widely used in United Kingdom (UK). SFIA provides a general reference model, which identifies the skills needed to develop effective Information Systems (IS) making use of Information and Communication Technology (ICT) [19]. The framework integrates technical and academic skills, which are required by all employers and across all industries.

The main characteristics of SFIA in Human Resource (HR) activities are: skill audit (assessment / assignment / recruitment / external or internal). It can also be used for planning future skill requirement (skills gap analysis, and management of the corporate competency profiles); development of training courses (developing and maintaining a business-oriented ontology); standardisation of job titles and functions as well as resources allocation. The SFIA standard is intended to be used as an IT skills management tool, which may help data centres in Thailand to recruit suitable IT staff.
2.4 Skills Framework for the Information Age (SFIA)

The Skills Framework for the Information Age (SFIA) is a model for describing and managing competencies for ICT professionals for the 21st century, and is intended to help match the skills of the workforce to the needs of the business. It maps out the range of skills as a two-dimensional table, by tagging each skill with a category and responsibility level.

These categories are divided into six main areas: Strategy and planning; Business change; Solutions development and implementation; Service management; Procurement and management support; and Client interface. While on the second dimension, level of responsibility, there are seven levels, in ascending order: Follow; Assist; Apply; Enable; Ensure and advise; Initiate and influence; and Set strategy, inspire and mobilize. Each of these responsibility levels has a generic description showing the level of autonomy, influence, complexity, and business skills required [20].

SFIA’s aim is to provide a management tool to help those who are the definitions provide precise statements of the various levels of skill required. The IT industry contains a wealth of information, formal and informal, supporting each skill. This covers many complex aspects, processes and methods that may relate to the skill. SFIA’s purpose is not to include that information, but to provide a management tool that helps managers make sense of the complexity. SFIA’s descriptors are not, in general, described in terms of technologies or products [21].

2.5 Skills for the 21st Century

Success in the 21st century requires the ability to access, synthesize, and communicate information; to work collaboratively across differences to solve complex problems; and to create new knowledge through the innovative use of multiple technologies. To meet demands of the new global economy, particularly towards ASEAN Integration and ASEAN Community, one could leverage the 21st century Life and Career Skills assist in synthesizing information, working effectively in diverse teams, managing complex projects, and demonstrating responsibility to the community and environment. The review of the literature on 21st Century Skills suggests that education must be upgraded for learners to thrive in the new global economy. In short, 21st Century Skills are more than technological literacy, instead they include proficiency in critical thinking, problem solving, communication, and teamwork [22].

2.6 The Thai government policy on Sustainable Smart Thailand

As per the speech of Minister of ICT of Thailand in December 2012 in the “CIO 16 Annual Conference: ICT Sustainability for Smart Thailand”, the vision of Smart Thailand 2020 coincides and supports the ASEAN ICT Master Plan 2015 and ASEAN 2020 vision [23].

With the “Smart Thailand 2020” vision which states that ICT is a key driving force in leading Thai people towards knowledge and wisdom and leading society towards equality and sustainable economy, “the ICT Sustainability for Smart Thailand”, as noted by the minister, will be aimed to drive for sustainable development in the balanced of the three areas, i.e. economy, social and environment. On the economy, ICT will be served as an essential tool to better the living condition of citizens and eradicate poverty. On the environment, ICT will be applied to help conserve and be friendly to environment. On the social aspect, the use of ICT needs to comply with the rules and regulations and be well accepted by society and will help connect people in different regions and support borderless trading.

The essence of ICT Sustainability for Smart Thailand is the ability to utilize ICT in balance for the growth of economy, the conservation of environment and the enhancement of quality of life, social interaction, engagement and empowerment of people in society.

2.7 Proposed model for Thai HR ICT Competency Standard Framework

With the ICT competency, the Skills Framework for the Information Age (SFIA) and the Skills for the 21st Century to support the new generation of competency including the previous interviews with the focused groups of the ICT Subject Matter Experts from industry,
business, academic and government sectors from various countries in ASEAN such as Thailand, Vietnam, Malaysia and Singapore, particularly in Thailand and Vietnam which the studies has been done through the key government officials such as Ministry of ICT, Ministry of Science and Technology, Ministry of Education and Training, key ICT industry associations both local and foreign associations and major academic institutes, the model for Thai ICT Competency Standard Framework for Supporting Sustainable Smart Thailand Towards AEC 2015 could be structured as in Fig.6.

Hence, the SFIA used as a foundation of ICT skills framework while the ICT skills (and knowledge) for sustainable development will include the ability to apply ICT to drive the economy growth – reducing and seeking to eradicate income poverty, achieving higher levels of prosperity etc.; the social development – improving the quality of education, health, housing and enhancing the quality of social interaction, engagement and empowerment etc.; the environmental protection – reducing pollution and other negative impacts on the environment, mitigating the effects of industrialization and human activity, and seeking to achieve sustainable use of resources in the interest of future generations.

However, the more important component of the competency is the one beyond Skills and Knowledge Competency which is the Behavioral Competency, i.e. Layer 2, such as Attitude, Traits, Thinking Styles and Motives towards ICT and ICT usage towards sustainable development which will be the driver to use ICT properly to achieve sustainable development with balance of economy, social and environment.

2.8 On-going studies on the Thai HRD ICT Competency Standard Framework

The on-going research on the Thai HRD ICT Competency Standard Framework for Supporting Sustainable Smart Thailand Towards AEC 2015 will be focusing on the study of gap analysis of the current competency standard of ICT skills and knowledge of ICT workforce in Thailand as compared to ones of SFIA under the survey from the targeted ICT workforce groups in each sector consisting of academic, ICT industry, business, particularly in the areas such as Logistics, Healthcare and Tourism sectors, and government sectors while the other studies from the targeted groups such as the ability and know-how to apply and use ICT to help enable the implementation of sustainable development in economy growth, social equality and environment conservation including the necessary skills for effective work in profession and carrier such as proficiency in critical thinking, problem solving, communication, and teamwork will also be done.

Fig.6 Components of ICT Competency

In, Layer 1, the HR ICT Competency Standard Framework for Supporting Sustainable Smart Thailand Towards AEC 2015 will consist of the ICT skills and knowledge for managers and professionals defined by SFIA, ICT skills and knowledge for sustainable development i.e. economy development, social development and environment protection and the Skills for the 21st Century.
The study above will be implemented by the arrangement of the focused group interview through Delphi method which is designed to overcome biases from follow-the-leader tendencies and a reluctance to abandon previously stated views by allowing a group of experts to reach consensus through anonymous discussion. The study process will be done with the selected group of ICT workforce and the group of Subject Matter Experts, Policy Makers, authorities and key stakeholders from the academic, ICT industry, business and government sectors, on their views on the required ICT competencies which could be shown in a matrix of relationship between ICT competency types and job types to support the sustainable development objectives of the country.

On the second layer which is the Behavioral Competency, the study will also be done through Delphi process on the required ICT behavioral group of competencies such as attitude, self-image, traits and motives towards ICT and the application of ICT for sustainable development in their organizations and societies.

Besides the preliminary study outcomes on ICT HR competency standard conceptual framework, with the well designed data collection, interviews process, strong evaluation techniques and good statistics analysis, the research could also be represented in a mathematical model on relationship between the required ICT competencies and job type for sustainable development which could be further used and applied at the country and regional level.

The results from this study could then also be referred as a guideline for the improvement of the current the Thai ICT HRD Competency Standard and could be implemented at the policy level such as Ministry of ICT and the competency framework level such as Thailand Professional Qualifications Institute (TPQI) to assure on the successful ICT HR competency development for Smart People under the Smart Thailand policy.

In addition, for the completion of the study, the analysis on the ICT competency standard in the region and worldwide in the sustainable development area could also be used as reference on the gap bridging for the competency framework for the ICT Human Resource Development in Thailand as well.

3. Conclusions

As Thailand aims to be an integral part of the AEC 2015 as well as the potential ICT Hub and capital for ASEAN, the country has been preparing to enter the ASEAN Community with its goal to be a knowledge-based economy through the Smart Thailand 2020, particularly on the sustainable development aspect. In doing so, Thailand will need to have the right human resource with the right competencies to support the mission. The way to build up this human resource capacity for the sustainable development is to set up the framework for ICT competency standard for the workforce and study for the gap of competency between the nation’s current status and the world standard one. This also includes the improvement on the competency beyond skills and knowledge such as attitude, traits, self-image and motives toward ICT and the ICT applications to support sustainable development for Thailand.

4. Suggests for further works

The research could then bring to further potential studies on the overall Thai ICT HR competencies, the strategy for ICT HRD, the ICT competencies development model, the benchmarking on ICT HR competency among ASEAN nations, the HR ICT competency development for ASEAN and other related topics concerning ICT HRD which could be used as a tool to prepare for the ICT HR to support a successful Smart People towards Smart Thailand and ASEAN Community.

References


