



Executive Summary
Information and Communication Technology Master Plan
Of Ministry of Labor and Office of Permanent Secretary (Version 3), 2016-2020

1. Background Information

Ministry of Labor (MOL)'s key roles are to drive Thailand's economic and social development forwardly and robustly and render service to citizens efficiently aiming at progressive employment and fulfilling requirements of both labor forces and business entrepreneurs. Hence, in harnessing and facilitating of efficient and fast services by departmental units under MOL need Information and Communication Technology (ICT) as supporting tools. Continuity of ICT Master Plan of MOL and its Office of Permanent Secretary (OPS) is viability and while the second version of ICT Master Plan, 2009-2013 has been concluded, ICT Bureau of MOL in cooperation with its consultant, King Mongkut Institute of Technology at Ladkrabang have been taking the key role in laying down the new succeeding 5-year ICT Master Plan (version 3), during 2016-2020.

The MOL and OPS ICT Master Plan version 3 follows direction Thailand's ICT 2020 policy framework and the country's Draft ICT Master Plan, 2014-2018 (Version 3) to be in-line with ICT development of the country. In addition, OUTSIDE-IN Analysis was conducted to keep abreast with new policies and at the same time to continue development agenda endorsed in the ICT Master Plan Version 2 where strength still exists in order to respond to changes in labor context and to enter the era of digital economy and society associated with both opportunity and threat. Moreover, efforts to overcome weakness have been defined to build up capacity for units under MOL to utilize ICT in their services rendering to citizens and in their administration efficiently and effectively which will result in citizens' satisfaction under MOL's services domain.



2. Policy and Strategy Context Related to Information and Communication Technology Development

2.1 Key Policy and Strategy Related to Ministry of Labor

1) Change in Demographic Structure

Change of global demographic structure into ageing era begins to affect with less newly young population flows into the employment stream, resulted in higher costs to shoulder aged employees in relation to revenue generation ability. Under the circumstance, government will also face increasing expenses in healthcare and welfare for this aged workers while at the same time the shortage problem of workforces which affects directly to country competitiveness.

Challenge faced by ASEAN community is how to file up this social effect into prioritized development agenda to avoid traps in two folds, human capital limitation and risk over financial bankruptcy due to shouldering of the aged and including the problem of migrant workers across countries in the region.

Migration of workforces among ASEAN nations in the year 2010 as depicted in Figure 1 is categorized into each country importing labor and country exporting labour, revealed that Malasia accounted for 2.4 million headcounts followed by Singapore of 2.0 and Thailand 1.2. The total numbers as reported reflect country’s economic growth i.e. country with higher growth needed higher numbers of workforce and always associated with wage, salary, benefits and career development opportunity.

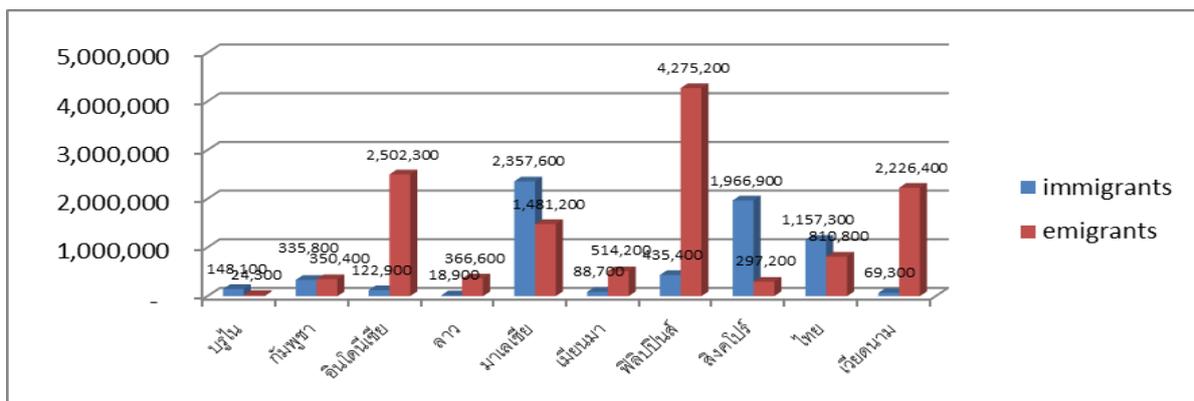


Fig. 1 Number of workforces migration in ASEAN countries in 2010 (No. of Headcounts)

Source : The world Bank, The Migration and Remittances Factbook 2011, Reference: Final Report of Project, Preparation for Migration and Remittances of Labor forces toward ASEAN Community, Academic Service Center, Chulalongkorn University, 2012



The above mentioned phenomenon of workforce structure and migration has been inherited in Thailand for a long time in its transition into ageing society forecasting perse during 2020-2040 as quoted by National Economic and Social Development Borad that no. of Thai population amounted to 63.8 million in 2010 and will be rising to 66.4 million in 2026, thereafter will be heading downturn amounted 63.9 million in 2040 as depicted in Figure 2 which reveals further that in 30 years ahead or in 2040 Thai population from 60 years old will be in total 20.5 million or 32.1% of the whole amount while active workforce will be only amount of 35.2 million comparing to 42.9 million in 2014 or reducing 7.8 million while at the same time no. of child population will be declining from 12.0 million to 8.2 in 2040.

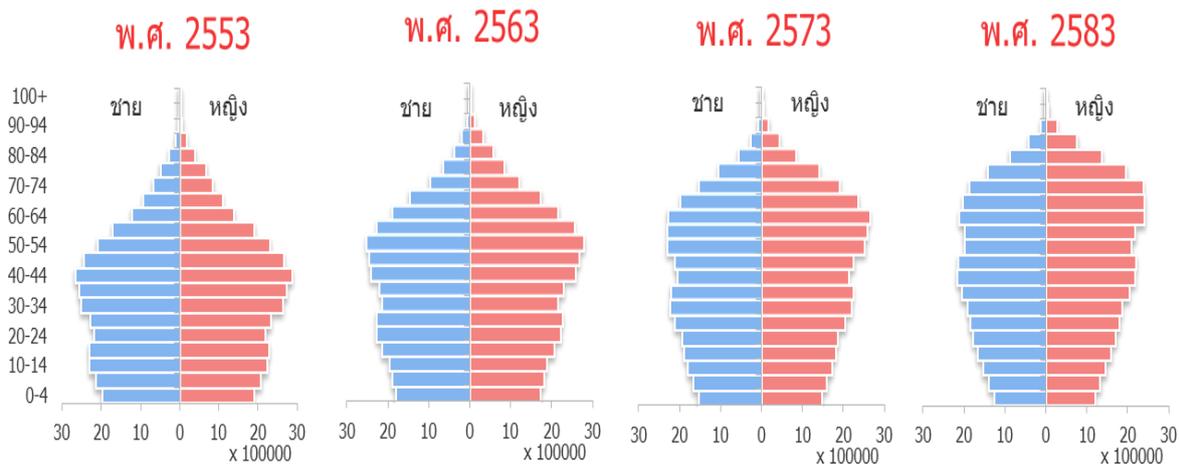


Fig.2 Depicting Pyramid of Change over Thai Population as of Gender.

Source : National Economic and Social Development Borad, June 2015

Therefore Information and Communication Technology is as of importance and as a component for organization management due to as mentioned the structural change and migration of population especially in ASEAN, in application of ICT to support the aged in accessing to public services conveniently and equally, or application of ICT to support the shortage of workforce problem as for good examples herein.



2) National Economic and Social Development 11th Plan, 2012 - 2016

National Economic and Social Development 11th Plan, 2012 – 2016 of Thailand to direct the country development holds key strategic directions in connection to Ministry of Labor in Table 1 as followings:

Table 1 depicting key strategic directions in National Economic and Social Development 11th Plan, 2012 – 2016_in connection to Ministry of Labor

Strategy	Details of Related Strategic Issues
Strategy 1 Creating the just society	1.1 Enhance socio-economic security for all citizens so they are capable of managing risks and creating opportunities in life. 1.1.3) Information technology should be utilized in parallel with improving access to information for career development for utilizing ICT and production technology appropriate to skill and career of workers. This will create options and opportunities for gaining income.
Strategy 2 Developing a lifelong learning society	2.2 Develop human resources aimed at increasing resilience to deal with changes. 2.2.1) The ability of Thais at all ages should be increased. 1) Develop knowledge and competence in accordance with knowledge-based production and service structure and creative economy. 2) Develop the elderly for economic and social sustainability with quality, value and ability to literately adapt to changes in order to be social driving force.
Strategy 3 Strengthening of the agricultural sector and security of food and energy.	3.4 Create job and income security for farmers 3.4.4 Farmers should have a better quality of life while the new generations and skilled labor should be induced to make their careers in agriculture.
Strategy 4 Restructuring the economy toward quality growth and sustainability	4.1 Utilize science, technology, innovation and creativity as fundamental elements in economic restructuring. 4.2 Enhance the country's competitiveness through a competitive environment that is more free and fair.
Strategy 5 Creating regional connectivity for social and economic stability	5.1 Develop investment bases by improving competitiveness in the region 5.2 Create economic regional partnerships regarding human capital development and labor migration, and support provisions for Thai laborers in foreign countries.



Strategy	Details of Related Strategic Issues
	5.3. Contribute to the international community's efforts to improve the quality of life by fighting against terrorism, international crimes, drug trafficking, natural disasters and epidemics. 5.4. Strengthen domestic development partners at the community level.

In real terms, the 11th national plan has objectively addressed the use of ICT or implied in every strategy for example, strategy 1: Information technology should be utilized in parallel with improving access to information for career development for utilizing ICT and production technology appropriate to skill and career of workers, eventually will create options and opportunities for gaining income.

3) Thai Public Sector Development Strategic Plan, B.E. 2556 - 2561

The Cabinet approved Thai Public Sector Development Strategic Plan (B.E. 2556-2561) following the suggestion of the Office of Public Sector Development Commission (OPDC) and assigned all public agencies and government organizations to adopt the Thai Public Sector Development Strategic Plan (B.E. 2556-2561) as framework for their operations.

List of Thai Public Sector Development Strategic Plan, B.E. 2556-2561 is as following:

- (1) Building of excellence in people servicing by deploying citizen centric approach.
- (2) Development for high level and modern organizational efficiency and professional officials
- (3) Enhancement of government sector's property management efficiency
- (4) Integrated public administrations
- (5) Encouragement of cooperative governance between the public/government sector and the people
- (6) Promotion of transparency and trust in public administration



(7) Preparation of Thai public administration for the realization of ASEAN Community

Topic (2) specified the use of modern ICT for supporting operational works, reduction of duplication, improvement of workflow and increase capability of public organization.

2.2 Policy and strategy related to ICT Development of the country

1) ICT Policy Framework 2011-2017 (ICT 2020)

In organizing MOL and OPS ICT Master Plans version 3, incorporation of ICT Policy Framework 2011-2017 (ICT 2020) was essential and strategies identified in ICT 2020 are as followings:

Strategy 1: Universal and secure ICT and broadband infrastructure i.e. high speed/ broadband internet covering throughout the country.

Strategy 2: ICT human resources and ICT competent workforce toward certain literacy level in accordance with international standard.

Strategy 3: ICT industry competitiveness and ASEAN integration: Leverage competitiveness of ICT industry to add value to economy and generate revenue by exploiting opportunities from regionalization and free trade area.

Strategy 4: Smart government: Utilize ICT for efficient government service innovation and good governance including ICT security.

Strategy 5: Strengthening manufacturing sector for self sustain and higher competitiveness in sectors of agriculture, service and creative for increasing service sector in overall economic structure.

Strategy 6: Develop ICT to reduce economic and social divide by building up equitable opportunity in accessing public resources and services for every group of people especially basic services as needed for healthy life.

Strategy 7: Develop and apply ICT for supporting economic and social development friendly to environment.



2) ASEAN ICT Masterplan 2015

ASEAN ICT Masterplan 2015 identified 6 strategic thrusts as follows:

Strategy 1: Economic Transformation: ASEAN will utilize ICT for driving for reform in other sector development by building up environment attractive to promote business, investment and promoting new ICT start-up businesses.

Strategy 2: People Empowerment & Engagement: ASEAN will deploy affordable and justified ICT for increasing quality of life

Strategy 3: Innovation: ASEAN will support ICT – creative industry with innovation and environmental friendly

Strategy 4: Infrastructure Development: ASEAN will develop ICT infrastructure for rendering services to ASEAN people

Strategy 5: Human Capital Development: ASEAN will develop ICT competency and skill for supporting ICT industry and impact to other sectors reform.

Strategy 6: Bridging The Digital Divide: ASEAN will pay attention to differences of development and usage of ICT

3) (Draft) Thailand Information and Communication Technology Master Plan (Version 3) 2014-2018

Ministry of Labor and Office of Permanent Secretary in inducing external factors into the 3rd ICT Master Plan, the (Draft) Thailand Information and Communication Technology Master Plan (Version 3) 2014-2018 was referred among prioritized country direction on ICT development and derived into development strategies under the 3rd ICT Master Plan of the country as followings:

Strategy 1: Participatory People: Develop human capital in ICT accessibility and literacy for livelihood and profession in sustainable manner

Strategy 2: Optimal Infrastructure: Develop efficient and optimized ICT infrastructure

Strategy 3: Smart Government: To leverage e-Service for community and local entity participation via service innovation under security domestically and regionally



Strategy 4: Vibrant Business: To promote and develop ICT business and industry in vibrant growth and competitive in regional and international levels especially creative industry and utilizing ICT in business and SME

4) (Draft) Thailand e-Transaction Master Plan B.E. 2556-2560

e-Transaction Acts B.E. 2544 defined the following terms:

“transaction” means any act relating to a civil and commercial activity or carrying out of the affairs of the State as prescribed in Chapter 4.

“electronics” means an application of an electron means, an electrical means, an electromagnetic means or any other means of a similar nature including an application of an optical means, a magnetic means or a device in connection with an application of any of the aforesaid means;

“electronic transaction” means a transaction in which an electronic means is used in whole or in part;

Categories of e-Transaction are divided into 5 types consisting of

- 1 e-Trading and Service which are transacted for commercial purpose.
- 2 e-Payment is meant to transfer money through electronic channel of either the whole or partial amount of the transfer.
- 3 e-Filing is to file request or document through electronic or online channel expecting to receive service by available file to download online as practiced to date.
- 4 e-Certificate is to endorse right or permit to use right as provided under certain conditions such as issuing certificate or license as examples.
- 5 e-Medical Record is to collect patient data by hospital or healthcare center in e-Form including linkages for sharing data among these places to benefit upon services rendering.



The draft master plan comprises 7 strategies as follows:

Strategy 1: To promote Physical Infrastructure ready for e-Transactions requirement

Strategy 2: To specify Logical Infrastructure with standard, rules and security for e-Transactions

Strategy 3: To promote and support extensively for more e-Transactions in business sector.

Strategy 4: To integrate services and linking data under e-Government uniquely.

Strategy 5: To drive organizing of medical and healthcare services via e-Channels for better quality of citizens' lives.

Strategy 6: To support measures and standards for increasing volume of e-Payment

Strategy 7: To leverage potentials of MOL, its personnels and citizens to increase capabilities for performing e-Transaction in the era of transitioning from analog to digital helm.

5) Policy Direction in Driving Digital Economy¹ as in Digital Economy Directives, 2015-2019

Committee on Preparation for National Digital Economy is to issue policy for implementation agency to be settled as Ministry of Digital for Economic and Social Development, perse under strategy framework consisting of 5 pillars as followings:

1 Hard Infrastructure such as National Broadband Network, Data Center, international communication connection and etc.

2 Service Infrastructure such as Digital Government, Service Platform information service innovation and etc.

¹ Concluded and rearranged from presentation "Direction of Ministry of Digital Economy and Public Sector's Roles to adapt" presented by

- Dr. Kasitorn Pooparadai, Senior Director, National Science and Technology Development Agency, April 29, 2015, at Century Park Hotel, Bangkok
- Dr. Panita Pongpaibool, National Science and Technology Development Agency, May 11, 2015, at Century Park Hotel, Bangkok



3 Soft Infrastructure such as facilitation, information security and legal framework and etc.

4 Digital Economy Promotion such as promotion of commerce via digital commerce, digital business start-up promotion, digital innovation and etc.

5 Digital Society such as life-long learning, dital library, media literacy and etc.

Other references for the 3rd ICT Master Plan of MOL and OPS included IT 2020 policy framework, ASEAN ICT Master Plan (AIM 2015), Draft Thailand ICT Master Plan Version 3, Draft e-Transaction Master Plan and Framework of Digital Economy and Society Strategies as followings and details in Table 2:

- 1) Information and Data Integration
- 2) Information Infrastructure
- 3) Human Resource Development
- 4) Management (Laws/policy/process/standard/public relation)



Table 2 Depicting public policies and strategies related to ICT development which are coincided to each other in the areas such as Information System and Data Integration, Information Infrastructure, Human Resource Development and Management

Area of IT Development	Thailand ICT Policy Framework B.E. 2554-2567 (IT 2020)	ASEAN ICT Master Plan 2015	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	(Draft) Thailand e-Transaction Master Plan B.E. 2556 - 2560	Draft MOL ICT Master Plan B.E. 2559 - 2563
Information System and Data Integration	4. Utilize ICT for creating public service innovation in catering service to citizen and businesses in all sectors efficiently, under security and governance conforming.	3. Creation of Innovation	3. Leverage public e-Service with community and local entity participation in the light of innovation and security locally and internationally. (Smart Government)	3. Promote and support expansion of e-Transaction in business.	1. Develop and leverage quality of databases and information systems catering e-Services ready for integrating into Application/ Service Platform.
Infrastructure	1. Develop infrastructure on high speed internet or broadband in modernized manner with universal	4. Infrastructure Development	2. Develop ICT infrastructure sufficiently and economically	4. Integrate service and link data relating to e-Government works uniquely.	2. Develop and leverage linkages for data integration into Government



Area of IT Development	Thailand ICT Policy Framework B.E. 2554-2567 (IT 2020)	ASEAN ICT Master Plan 2015	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	(Draft) Thailand e-Transaction Master Plan B.E. 2556 - 2560	Draft MOL ICT Master Plan B.E. 2559 - 2563
	access and security to serve needs of all sectors.		(Optimal Infrastructure)		Data Center.
Human Resource Development	2 Develop human capital with capability to develop and utilize information efficiently, considerately and literately, including ICT personnel development to the level of international standard.	2. People Empowerment and Engagement 5. Human Capital Development	1. Develop human capital capable to access ICT and be ICT literate for living life and work sufficiently under creation of innovation, participation and utilization of benefits from ICT services. (Participatory People)	7. Leverage organization potentials, personnel and citizen for increasing capability in performing e-Transaction in the era of transitioning from analog to digital system.	3. Promote and support human development entering Digital Era for increasing efficiency over citizens' services. 4. Promote learning organization on ICT for increasing potentials of personnels' efficiency and citizens' services.



Area of IT Development	Thailand ICT Policy Framework B.E. 2554-2567 (IT 2020)	ASEAN ICT Master Plan 2015	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	(Draft) Thailand e-Transaction Master Plan B.E. 2556 - 2560	Draft MOL ICT Master Plan B.E. 2559 - 2563
Management (Policy/Process/standard)	3. Leverage competitiveness of ICT industry for creation of economic value and inducing external revenue under opportunity of regional cooperation, free trade area and ASEAN.	6. Bridging The Digital Divide	3 Leverage public e-Service by participation of community and local entity under creation of innovation and security (Smart Government)	2. Define Logical Infrastructure to facilitate standards, rules and security in performing e-Transaction.	5. Promote administration process and control ICT operations of MOL aligning with standards and quality continuously.



Information System Development	IT 2020 Policy Framework	ASEAN ICT Master Plan 2015	(Draft) Thailand ICT Master Plan 2014-2018	(Draft) Thailand e-Transaction Master Plan 2013-2017
Information System and Data Integration	4. Smart government: ICT for government service innovation and good governance including security	3. Innovation Development	3 Smart Government: To leverage e-Service for community and local entity participation via service innovation under security domestically and regionally	3. Promote and support to extend more e-Transaction in businesses
Information Infrastructure	1. Universal and secure ICT and broadband infrastructure	4. Infrastructure Development	2 Optimal Infrastructure: Develop efficient and optimized ICT infrastructure	4. Integration of services and data linkages of e-Government uniquely
Human Resource Development	2 ICT human resources and ICT competent workforce	2. People Empowerment & Engagement 5. Human Capital Development	1. Participatory People: Develop human capital in ICT accessibility and literacy for livelihood and profession in sustainable manner	7. Leverage organization, employees and citizens for increasing capability in conducting e-Transaction in transition to digital era



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Information System Development	IT 2020 Policy Framework	ASEAN ICT Master Plan 2015	(Draft) Thailand ICT Master Plan 2014-2018	(Draft) Thailand e-Transaction Master Plan 2013-2017
Management	3. ICT industry competitiveness and ASEAN integration	6. Bridging The Digital Divide	3 Smart Government: To leverage e-Service for community and local entity participation via service innovation under security domestically and regionally	2. Define Logical Infrastructure under standard, rules and security in transacting via electronic channel

Remark Number affixed to each strategy as assigned in reference sources.



3. Key Laws related to ICT Development

Reviews of key Laws related to ICT Development of MOL and OPS consisting of 10 series as briefly detailed in Table 3.

Table 3 Depicting key Laws related to ICT Development of MOL and OPS

Laws related to ICT Development	Detail Information
1. Electronic Transactions Act B.E. 2544 (2001)	Electronic Transactions Act of 2001 emerges as Thailand's first legislation recognising legal effect of the use of electronic records in transactions. The reason for promulgation of this Act is to provide legal recognition of electronic transactions by enabling them to have the same legal effect as that given to transactions made by traditional paper means.
2. Royal Decree of Electronic Transactions in the Public Sectors of B.E. 2549 (2006)	To promote e-Government for preparing readiness for organization and officers in performing activities via electronic channels under standardized procedure/ direction to render services to citizens
3. Computer Crime Act of B.E. 2550 (2007)	The objective of this Act is to stipulate measures aimed at preventing and suppressing the commission of a computer related offences. The contents of the Act can be summarized as follows:- – The Act stipulates three types of offences: offences related to computer system, offences related to computer data and offences related to providing of tools used in committing a computer crime.



Laws related to ICT Development	Deatail Information
	<ul style="list-style-type: none">- The Act imposes obligations and liabilities of internet service providers (ISP): for example duty to store computer traffic data for at least ninety days from the date onwhich the data is input into a computer system, duty to keep the necessary information of the service users in order to be able to identify them from the beginning of the service provision.- Computer data that acquired by the competent official shall be admissible in evidence under the law. <p>It can be claimed that the Computer Crime Act supports ICT infrastructure by ensuring the security and building confidence of interested parties in performing electronic transactions.</p>
4. Notification of Ministry of Information and Communication Technology (MICT) for Keeping a logfile of Internet traffic B.E.. 2550 (2007)	The Notification of Ministry of Information and Communication Technology (MICT) for Keeping a logfile of Internet traffic, including users' IP addresses, for 90 days aiming to gain evidences leading to punish fraud oprators in the ICT and online space.



Laws related to ICT Development	Deatail Information
5. Electronic Transactions Act (2nd Amendment) B.E. 2551	The amendments strengthen the enforceability of electronic data in order to facilitate and stimulate ecommerce business transactions in Thailand. Thailand expects that these amendments, combined with the promulgation of other e-transaction laws such as the Data Protection Act and the Computer Crime Act, will encourage consumer confidence and broaden the consumer base of Thai entrepreneurs. Pursuant to the Electronic Transactions Act B.E.2544 Amendment (No.2) B.E.2551, the Electronic Transactions Commission was organized to comprise Minister of the Information and Communication Technology as a chairperson, Permanent Secretary of the Information and Communication Technology as a vice-chairperson, and other 12 committees appointed by the Cabinet.
6. Notification of Electronic Transactions Commission on Policy and Practice in the Information Security of a State agency B.E.2553 (2010)	The Notification of the Electronic Transactions Commission on Policy and Practice Statement on Personal Data Protection of a State Agency 2010 (B.E. 2553) is issued under the Royal Decree Prescribing Rules and Procedures of Electronic Transactions in the Public Sectors 2006 (B.E. 2549). The important aim is to promote organization of unique and standardized security measures and systems among public sector organizations.



Laws related to ICT Development	Deatail Information
7. Notification of Electronic Transactions Commission on Policy and Practice on personal data protection in public organization B.E.2553	Notification of Electronic Transactions Commission on Policy and Practice on personal data protection in public organization help promote protection of personal data which is basic right of any individual leading to securing electronic transaction in public sector toward unique standard at international level of governance.
8. Royal Decree of specifying security procedure in e-Transaction B.E. 2553	Royal Decree of specifying security procedure in e-Transaction will promote management and protect in a secured manner over information assets in conducting e-Transaction leading to increasing of acception and building trust in electronic data which is in line with section 25 of e-Transaction acts B.E.2544 regulating upon security procedure.
9. Notification of Electronic Transactions Commission on Policy and Practice in endorsing publication B.E.2553 B.E. 2555	e-Transaction acts regulate to organize an endorsement agency over publication of electronic data can be refered as electronic data and as original copy as defined in section 10 paragraph 4 under e-Transaction acts B.E.2544, 2nd amendment B.E. 2 5 5 1 , issued by Electronic Transactions Commission.



Laws related to ICT Development	Deatail Information
10. Licensing Facilitation Act B.E 2558	Section 7. If the license to do any act is required by law, the authority shall prepare the licensing manual for the public which at least composes of the rules, procedure and conditions (if any) for the submission of the application, work flow and period of time for the granting of license as well as the list of documents or evidences to be attached with the application, and the submission of the application may be made via electronic method in place of submission by hands if so specified in the manual.



4. Technology Trend

In scanning ICT trends, there are technology phenomena surrounding Gartner' ICT trends launched during its annual seminar hosting in October 2014 which include Gartner Technology trends as well as revealing Gartner's technology HYPE Cycle during the foresaid annual seminar under the year theme "Gartner Emerging Trends 2014" as shown in Fig.3 below.

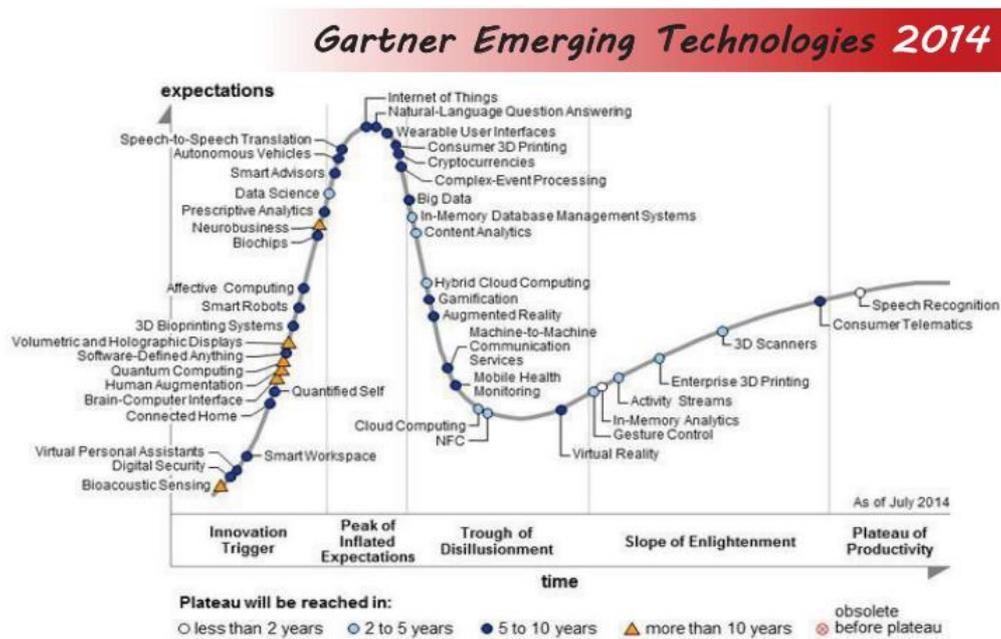


Figure 2 Depicting Technology HYPE Cycle during Seminar
of Gartner Emerging Trends 2014

Figure 3 Depicting Technology HYPE Cycle, each Hype Cycle drills down into the five key phases of a technology's life cycle as follows:

Phase 1: Technology Trigger: A potential technology breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven.

Phase 2: Peak of Inflated Expectations: Early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action; many do not.

Phase 3: Trough of Disillusionment: Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the



surviving providers improve their products to the satisfaction of early adopters.

Phase 4: Slope of Enlightenment: More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious.

Phase 5: Plateau of Productivity: Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology's broad market applicability and relevance are clearly paying off.

Gartner also forecasted 10 technology trends influencing businesses from 2015 onward which is depicted with details in Table 4 as followings:



Table 3 -> 4 Depicting ICT trends in the future

No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
1	Computing Everywhere	<p>As mobile devices continue to proliferate, Gartner predicts an increased emphasis on serving the needs of the mobile user in diverse contexts and environments, as opposed to focusing on devices alone.</p> <p>"Phones and wearable devices are now part of an expanded computing environment that includes such things as consumer electronics and connected screens in the workplace and public space," said Mr. Cearley. "Increasingly, it's the overall environment that will need to adapt to the requirements of the mobile user. This will continue to raise significant management challenges for IT organizations as they lose control of user endpoint devices. It will also require increased attention to user experience design."</p>	<ul style="list-style-type: none">- Organization to embrace Computing Everywhere- Individuals to be aware of using mobile devices

² Source <http://thanachart.org/2014/10/11/gartner-top-10-strategic-it-trends-2015/>



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
2	The Internet of Thing (IoT)	The combination of data streams and services created by digitizing everything creates four basic usage models — Manage, Monetize, Operate and Extend. These four basic models can be applied to any of the four "Internets." Enterprises should not limit themselves to thinking that only the Internet of Things (IoT) (assets and machines) has the potential to leverage these four models. For example, the pay-per-use model can be applied to assets (such as industrial equipment), services (such as pay-as-you-drive insurance), people (such as movers), places (such as parking spots) and systems (such as cloud services). Enterprises from all industries can leverage these four models.	<ul style="list-style-type: none"> - Rendering various services - Rendering Pay-per-use services - Managing Self services - Managing Cloud services: SaaS, PaaS and IaaS - Considering how to deploy The Internet of Things - Individuals view of using The Internet of Things
3	3D Printing	Worldwide shipments of 3D printers are expected to grow 98 percent in 2015, followed by a doubling of unit shipments in 2016. 3D printing will reach a tipping point over the next three years as the market for relatively low-cost 3D printing devices continues to grow rapidly and industrial use expands significantly. New industrial, biomedical and consumer applications will continue to demonstrate that 3D printing is a real, viable and	<ul style="list-style-type: none"> - Utilizing 3D Printing technology in organization



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
		cost-effective means to reduce costs through improved designs, streamlined prototyping and short-run manufacturing.	
4	Advanced, Pervasive and Invisible Analytics	Analytics will take center stage as the volume of data generated by embedded systems increases and vast pools of structured and unstructured data inside and outside the enterprise are analyzed. "Every app now needs to be an analytic app," said Mr. Cearley. "Organizations need to manage how best to filter the huge amounts of data coming from the IoT, social media and wearable devices, and then deliver exactly the right information to the right person, at the right time. Analytics will become deeply, but invisibly embedded everywhere." Big data remains an important enabler for this trend but the focus needs to shift to thinking about big questions and big answers first and big data second — the value is in the answers, not the data.	<ul style="list-style-type: none"> - Preparing infrastructure for developing high level analytics system - Acquiring tools and equipments to support high level data analysis
5	Context-Rich Systems	Ubiquitous embedded intelligence combined with pervasive analytics will drive the development of systems that are alert to their surroundings and able to respond appropriately. Context-aware security is an early application of this new capability, but	<ul style="list-style-type: none"> - Deploying the idea of high level analytics to benefit organization



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
		<p>others will emerge. By understanding the context of a user request, applications can not only adjust their security response but also adjust how information is delivered to the user, greatly simplifying an increasingly complex computing world.</p>	
6	Smart Machines	<p>Deep analytics applied to an understanding of context provide the preconditions for a world of smart machines. This foundation combines with advanced algorithms that allow systems to understand their environment, learn for themselves, and act autonomously. Prototype autonomous vehicles, advanced robots, virtual personal assistants and smart advisors already exist and will evolve rapidly, ushering in a new age of machine helpers. The smart machine era will be the most disruptive in the history of IT.</p>	<ul style="list-style-type: none"> - Organizations will get benefits from Smart Machines technology - Individuals will get benefits from Smart Machines technology
7	Cloud/Client Architecture	<p>The convergence of cloud and mobile computing will continue to promote the growth of centrally coordinated applications that can be delivered to any device. "Cloud is the new style of elastically scalable, self-service computing, and both internal applications and external applications will be built on this new</p>	<ul style="list-style-type: none"> - Impacts on organization's basic infrastructure by systems like e-Mail system, and storage system and etc. - Behavior of users will be in changing



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
		style," said Mr. Cearley. "While network and bandwidth costs may continue to favor apps that use the intelligence and storage of the client device effectively, coordination and management will be based in the cloud."	models
8	Software Defined Infrastructure and Applications	Agile programming of everything from applications to basic infrastructure is essential to enable organizations to deliver the flexibility required to make the digital business work. Software-defined networking, storage, data centers and security are maturing. Cloud services are software-configurable through API calls, and applications, too, increasingly have rich APIs to access their function and content programmatically. To deal with the rapidly changing demands of digital business and scale systems up — or down — rapidly, computing has to move away from static to dynamic models. Rules, models and code that can dynamically assemble and configure all of the elements needed from the network through the application are needed.	<ul style="list-style-type: none"> - Learning software development model with Agile approach - Learning how to analyze software under Static and Dynamic Model - Learning how to code and combining codes from network to develop required application
9	Web-Scale IT	Web-scale IT is a pattern of global-class computing that delivers the capabilities of large cloud service providers within an	- Learning about tools in development on Android pervasive for developing



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
		<p>enterprise IT setting. More organizations will begin thinking, acting and building applications and infrastructure like Web giants such as Amazon, Google and Facebook. Web-scale IT does not happen immediately, but will evolve over time as commercial hardware platforms embrace the new models and cloud-optimized and software-defined approaches reach mainstream. The first step toward the Web-scale IT future for many organizations should be DevOps — bringing development and operations together in a coordinated way to drive rapid, continuous incremental development of applications and services.</p>	<p>Web-Scale IT</p>
10	<p>Risk-Based Security and Self-Protection</p>	<p>All roads to the digital future lead through security. However, in a digital business world, security cannot be a roadblock that stops all progress. Organizations will increasingly recognize that it is not possible to provide a 100 percent secured environment. Once organizations acknowledge that, they can begin to apply more-sophisticated risk assessment and mitigation tools. On the technical side, recognition that perimeter defense is inadequate and applications need to take a more active role in security gives rise to a new multifaceted approach. Security-aware application</p>	<p>- Learning to be aware of organizational and users' security</p>



No.	Future Technology Trends ²	Details	Conclusion of Issues to Study and Apply
		design, dynamic and static application security testing, and runtime application self-protection combined with active context-aware and adaptive access controls are all needed in today's dangerous digital world. This will lead to new models of building security directly into applications. Perimeters and firewalls are no longer enough; every app needs to be self-aware and self-protecting.	



5. Information and Communication Technology Master Plan of Ministry of Labor, B.E. 2559 - 2563

5.1 Vision

“Ministry of Labor robustly develops Information and Communication Technology for rendering quality services to citizen in parallel to efficient human resource development.”

5.2 Mission

1) Develop and enhance quality of database and information system for rendering services to citizen both domestically and internationally and for accessibility to labor data and services anywhere equally.

2) Develop and improve ICT systems for integrating labor data in all angles both internally and externally.

3) Promote and support development of human resource potential on standardized knowledge for being capable to create and produce and use ICT as tools in handling operation with quality and highest benefits.

4) Promote and support creation of knowledge over ICT for sustainability.

5.3 Objectives of MOL ICT Master Plan

1) To define extent of development and improvement of ICT systems of Ministry of Labor during the years 2016-2020.

2) To define policy framework, vision, mission, strategy, goal, indicator and direction for developing ICT systems to support MOL’s administration.

3) To render common understanding among MOL’s officers for developing and improving ICT of MOL during the years 2016-2020.



5.4 Overall Goals of MOL ICT Master Plan

- 1) To develop and enhance quality of database, information system and e-Services for citizens, businesses and employees both domestically and internationally.
- 2) To develop and enhance connectivity of MOL's databases and information systems both internally and externally to access to labor related data for supporting policy and strategy defining and including to support operations of departmental units of MOL.
- 3) To develop and enhance knowledge related to ICT for every level of MOL's officers ready for development of systems in-line with digital policy direction, literate and able to utilize in handling operations with quality in both user group and developer group.
- 4) To create knowledge related to ICT for delivering quality services to citizens.
- 5) To develop and improve ICT management to continually standardize, leverage quality, for preparing to enter ASEAN community.

5.5 Development Strategy of MOL ICT Master Plan

Based on SWOT Analysis lining up factors affecting ICT development of MOL consisting of strength, weakness, opportunity and threat which pointed to strategic ICT development of MOL association with to succeed vision, mission and overall goals of the MOL ICT Master Plan, thus concluding into 5 development strategies as followings:

- Strategy 1 To develop and enhance quality of database, information system for rendering e-Services that ready to integrate into variety of service models (Application/Service Platform).
- Strategy 2 To develop and enhance connection for integration of data with Government Data Center.
- Strategy 3 To promote and support development of human resource toward digital era for increasing efficiency of services to citizens.
- Strategy 4 To promote MOL to be learning organization on ICT for increasing potential of human resources and services to citizens.
- Strategy 5 To promote management process and control operation of ICT of departmental units with standard and quality continuously.



Strategy 1: To develop and enhance quality of database, information system for rendering e-Services that ready to integrate into variety of service models (Application/Service Platform)

<p>Rational</p>	<p>Presently MOL is overloaded by tons of workload causes officers though limited number, cannot handle their works efficiently and effectively especially over services to citizens, businesses including alien workers thoroughly and equally. In addition, ICT has been developed in accelerate speed, resulted in new behaviors over usage of services such as conducting more e-Transactions, consume data/information via hand-phone and Social Network) for communication and etc. Hence, MOL has to adapt itself to harness such changes of users of services including to increase efficiency of services of officers with convenience, speed, throughout area and equality, especially to develop and enhance database and information system that leading to development and improvement of more varieties of e-Services.</p>
<p>Objective</p>	<ol style="list-style-type: none"> 1) To develop and improve database of MOL both centrally and regionally with quality and up-to-date, conveniently and promptly accessible for users under protection with security system. 2) To develop and enhance information systems of MOL to serve user requirement of processing capacity as the socalled Cloud Computing peforming for optimization, more efficiency, security and reduction of management responsibility over computer and network systems. 3) To develop and improve e-Service systems toward the variety of services model via “Application/Service Platform” such as redering in the form of e-Business and using application for accessing services through mobile hand phone upon “Mobile Application and Service“ for users to reach data and services conveniently, rapidly, omniprecently and equally while no extra burden for users. 4) To develop and improve e-Service systems to overcome the existing manual systems, ready to work in digital era with ridden extra steps and time in certain business process including reduction of papers for



	environment conservation by introducing e-Form, e-Document and e-Payment as well as deploying service to citizens under the Licensing Facilitation Act, B.E. 2558
Indicators	<ol style="list-style-type: none">1) Percentage of Development and improvement of data manipulation in database with quality2) Percentage of information systems development and enhancement toward processing optimization to serve user requirement (Cloud Computing).3) Percentage of Development and improvement of e-Service systems toward the variety of services model via “Application/Service Platform”4) Percentage of Development and improvement of e-Service systems to take over the manual systems, including deploying service to citizens under the Licensing Facilitation Act, B.E. 25585) Percentage of number of projects/activities defined within strategy 1 succeeded by departmental units under MOL.
Responsible Units	<ol style="list-style-type: none">1) ICT responsible divisions of departmental units under MOL2) Data and information systems responsible divisions of departmental units under MOL



Strategy 2 : To develop and enhance connection for integration of data with Government Data Center.

<p>Rational</p>	<p>MOL has organized National Labor Data Center for integrating data/information and giving data/information service to internal and external entities including citizens. Due to more data/information demanded by related agencies, thus requiring MOL to acquire more universal data/information especially to manage linkage to government datacenter which has been endorsed by the government, in order to integrate as well as to fill up the gap for further utilization of data/information as needed by all stakeholders and at the same time, be ready for integration with ASEAN ICT Masterplan 2015.</p>
<p>Objectives</p>	<p>1) To enhance MOL's databases to be unique and up to date by collecting data to cover in both practical and analytical aspects over primary and secondary data in line with standards at the country, regional and global levels, referable to a certainly defined scope, especially in transitting into ASEAN community.</p> <p>2) To develop databases and information systems of MOL both internally and externally for accumulating data/information to respond to departmental units' needs in their administration aiming at convenience, cost reduction in services to citizen and business, including labor workforces and be ready to leverage to connect to AEC countries by starting from available data and the commonly usables.</p>
<p>Indicators</p>	<p>1) Percentage of number of databases which are already linked to (Government Data Center via National Labor Datacenter.</p> <p>2) Percentage of number of external agencies which are already linked to MOL databases.</p> <p>3) Percentage of number of projects/activities defined within strategy 2 succeeded by departmental units under MOL.</p>



Responsible Units	<ol style="list-style-type: none">1) ICT responsible divisions of departmental units under MOL2) Data and information systems responsible divisions of departmental units under MOL
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**Strategy 3 To promote and support development of human resource toward digital era for increasing efficiency of services to citizens.****Rational**

MOL has continually developed ICT as tools for supporting its administration while the government policy is to pace into digital era for economic and social development for leveraging the country competitiveness, therefore development and increasing potential of human resource in every level in gaining knowledge of ICT is considered important since human workforce is playing key mechanism role in applying ICT in operational works for gaining efficiency and benefits. However, ICT to date is for a certain extent complicated, when crashing is in place needs expertise to fix and time consuming that stuck service operation, caused unsatisfaction from customers in the waiting queue which eventually leads to grievance filing. Hence, human capacity building in the direction of digital policy of the government is needed by MOL to accomplish certain level of ICT literacy and be capable to apply in workplace consistently in both users and developer domains in to the certain points when they can solve basic problems by their own and on the progressive side training gain among qualified personnel to win professional certification endorsed by a certain agency such as EGA is must to promote in MOL.

Objectives

- 1) To develop and leverage knowledge level on ICT for all level of personnel to fill in ICT systems which will be implemented under Digital policy direction to accomplish certain level of ICT literacy and be capable to apply in workplace consistently in both users and developer domains in to the certain points when they can solve basic problems by their own.
- 2) To develop and leverage ICT personnel to gain perception on development of application systems in an integration manner for understanding well in utilizing those systems to support operational works of all departmental units under MOL, including to be capable to develop and improve the systems toward integration among cross border agencies which leads to citizens benefits a part from efficiency gain.



	<p>3) To develop and leverage knowledge for personnel be capable to create or produce creative works or innovation upon ICT aiming to deploy with efficiency as well as tangible benefits.</p> <p>4) To develop and increase skill sets for ICT personnel to be able to pass standard professional certification over IT.</p>
Indicators	<p>1) Percentage of number of trained personnel on ICT for preparing to enter digital era.</p> <p>2) Percentage of number of application systems developed and approved by MOL personnel to deploy in related works in departmental units under MOL.</p> <p>3) Percentage of number of ICT personnel who passed ICT professional certified test program.</p> <p>4) Percentage of number of projects/activities defined within strategy 3 succeeded by departmental units under MOL.</p>
Responsible Units	<p>1) ICT responsible divisions of departmental units under MOL</p> <p>2) Human resource development divisions of departmental units under MOL</p>



Strategy 4 To promote MOL to be learning organization on ICT for increasing potential of human resources and services to citizens.	
Rational	<p>ICT workforce has been highly demanded in the labor market, resulting in scarcity condition and in addition of high turnover in this group of personnel which to this end, affect not only to the overall market but also MOL where not enough headcounts to support ICT development in-house, at the same time training provision to accrue knowledge and skill in capturing literacy over ICT dynamicity has been dis-continuing for existing members, therefore knowledge management upon ICT context will be able to help fix as an alternative to assist the ICT personnels in learning and working by their own sake and all the available time.</p>
Objectives	<ol style="list-style-type: none"> 1) To build sustainably smart society within MOL. 2) To build knowledge in labor context sourcing from operational works or research over labor subjects which to be managed and supported under ICT. 3) To build ICT knowledge from responsible works of ICT personnels.
Indicators	<ol style="list-style-type: none"> 1) Percentage of number of labor related knowledge subjects managed and supported by ICT systems. 2) Percentage of number of knowledge subjects on ICT. 3) Percentage of number of projects/activities defined within strategy 4 succeeded by departmental units under MOL.
Responsible Units	<ol style="list-style-type: none"> 1) ICT responsible divisions of departmental units under MOL 2) Divisions supervising KM under MOL 3) Human resource development divisions of departmental units under MOL



<p>Strategy 5 To promote management process and control operation of ICT of departmental units with standard and quality continuously.</p>	
<p>Rational</p>	<p>MOL has accumulately spent budget on ICT development in a high scale lump-sum which therefore needs to deploy effective resources management for gaining highest efficiency and benefit possible including security which requires reviews and improvements upon existing policy, rule and regulation and procedure, in-line with current laws within international trend and standard, aiming to building trust for citizens and labor workforces in using MOL services.</p>
<p>Objectives</p>	<p>1) To review and improve existing policy, rule and regulation and procedure to be in-line with current laws for ensuring that management process will be conforming to related ICT laws as well as to facilitate application of ICT in operational works of departmental units under MOL.</p> <p>2) To develop and improve ICT management guidelines to be current and conforming to international standard acceptable among service users and be ready to enter ASEAN community and moreover the deploying standards must be over certain level of or be benchmark-able to standards endorsed among counterpart countries within the region.</p> <p>3) To deploy good practices for efficient and beneficial ICT management such as PMQA deployment technique.</p>
<p>Indicators</p>	<p>1) Level of service users' satisfaction over ICT responsible divisions of departmental units under MOL.</p> <p>2) Percentage of number of greivances filing to ICT responsible divisions of departmental units under MOL.</p> <p>3) Percentage of number of projects/activities defined within strategy 5 succeeded by departmental units under MOL.</p>
<p>Responsible Units</p>	<p>1) ICT responsible divisions of departmental units under MOL</p> <p>2) Divisions responsible for monitoring and appraising performance of related divisions of departmental units under MOL</p>



6. ICT Master Plan of MOL's Office of Permanent Secretary, B.E. 2559 - 2563

6.1 Vision

“To be key mechanism for Labour Data integration to support quality service and abreast to changes”

6.2 Mission

- 1) Develop and improve ICT systems for integrating labor data in all angles both internally and externally including in line with ASEAN community.
- 2) Develop and improve capability of databases and information systems for rendering services to citizen both internally and externally.
- 3) Promote and support development of human resource for being capable to use ICT as tools in handling main operational works and supporting works efficiently.
- 4) Propose policy for management and investment of ICT aiming at using ICT resources with highest efficiency and benefits.

6.3 Objectives of OPS ICT Master Plan

- 1) To define extent of development and improvement of ICT systems of Office of Permanent Secretary, Ministry of Labor during the years 2016-2020.
- 2) To define policy framework, vision, mission, strategy, goal, indicator and direction for developing ICT systems to support OPS's administration.
- 3) To render common understanding among MOL's officers for developing and improving ICT of MOL during the years 2016-2020.
- 3) To organize action plan to incorporate plans, projects, activities with related budgets and responsible divisions/units in development and improvement of ICT systems of Office of Permanent Secretary during the year 2016-2020.
- 4) To introduce unique understanding among relevant officers in development and improvement of ICT systems of Office of Permanent Secretary during the year 2016-2020.



6.4 Overall Goals of OPS ICT Master Plan

- 1) To leverage capability of labor data service for citizens and organizational entities both internally and externally including ASEAN community via linkages for integrating labor data extensively.
- 2) To develop and improve OPS information systems for leveraging data service both internally and externally.
- 3) To be capable to define policy direction in management and investment upon ICT, leading to resources utilization with highest efficiency and benefits.
- 4) To enhance human resource capability in ICT literacy and ready to utilize ICT in operational works with highest efficiency and benefits.

6.5 Development Strategy of OPS ICT Master Plan

- Strategy 1: To enhance efficiency to integrate labor data for rendering services and administration works in accordance with labor related strategy.
- Strategy 2: To develop and improve OPS information systems and infrastructure for leveraging capability in rendering services both internally and externally.
- Strategy 3: To conduct human resource development to be capable to utilize ICT with highest efficiency and benefits.
- Strategy 4: To review and improve management including related laws and regulations in order to integrate data/information both internally and externally.



<p>Strategy 1: To enhance efficiency to integrate labor data for rendering services and administration works in accordance with labor related strategy.</p>	
<p>Rational/ Objectives</p>	<p>To develop and improve OPS databases including linkages of databases and information systems both internally and externally for accruing data/information for serving operational works of departmental units under MOL and OPS with convenience and efficiency as well as incurring costs reduction for rendering services to citizens, businesses and labor workforces.</p>
<p>Related Mission</p>	<p>Mission 1: Develop and improve ICT systems for integrating labor data in all angles both internally and externally including in line with ASEAN community.</p>
<p>Strategies for Implementation</p>	<ol style="list-style-type: none"> 1. To develop and improve labor databases with unique standard to be ready to enter ASEAN community. 2. To build up networking partners for sharing labor data between public and business sectors. 3. To develop and improve Infrastructure system for coping linkages between National Labor Data Center and Government Data Center. 4. To develop and improve Infrastructure systems under OPS, both centrally and regionally for increasing efficiency in integrating labor databases.
<p>Indicators</p>	<ol style="list-style-type: none"> 1) Percentage of developed and improved labor databases with unique standard to be ready to enter ASEAN community. 2) Number of agencies already linked for sharing labor data between public and business sectors. 3) Integration of data communication systems between National Labor Data Center and Government Data Center. 4) Percentage of Number of MOL units both centrally and regionally which use data communication network of MOL for sharing labor data/information.



Projects/ Activities	<ol style="list-style-type: none">1) Project: Increasing efficiency for National Labor Data Center2) Project: MOU signing with external agencies for exchanging labor data3) Project: Maintenance of data communication network systems both centrally and regionally
Responsible Divisions/Units	<ol style="list-style-type: none">1) Information and communication Technology Center of MOL2) Divisions/Units responsible for related data/information3) Divisions/Units responsible for information systems



<p>Strategy 2: To develop and improve OPS information systems and infrastructure for leveraging capability in rendering services both internally and externally.</p>	
<p>Rational/ Objectives</p>	<p>To develop and improve OPS information systems and infrastructure leading to rendering public e-Service (Smart Government) to citizens, businesses and labor workforces both domestically and internationally, capable to easy, universal and equal access to data and services, and not to create burden to service users.</p>
<p>Related Mission</p>	<p>Mission 2: Develop and improve capability of databases and information systems for rendering services to citizen both internally and externally</p>
<p>Strategies for Implementation</p>	<ol style="list-style-type: none"> 1) To develop and improve main information systems for leading to processing power as required by users (Cloud Computing) and rendering e-Service via mobile phone (Mobile Service Platform). 2) To develop and improve supporting information systems (Back Office) for serving management works and reduction of paper costs. 3) To build systems and mechanism for directing and appraising performance of information systems utilized by divisions/units under OPS. 4) To develop and improve Infrastructure for information systems under OPS, both centrally and regionally with efficiency and continuity.
<p>Indicators</p>	<ol style="list-style-type: none"> 1) Percentage of number of developed and improved main information systems leading to Cloud Computing 2) Percentage of number of developed and improved e-Service toward mobile services (Mobile Platform) 3) Percentage of number of developed and improved supporting information systems (Back Office) to take over manual service systems 4) Number of systems and mechanism for monitoring and appraising performance of information systems utilized by divisions/units under OPS 5) Number of appraisals upon actions taking under ICT master plan 6) Percentage of number of computers and network systems peripherals already installed and utilized as planned. 7) Percentage of number of computers and network systems maintenance as planned.



Projects/ Activities	<ol style="list-style-type: none">1) Project: Increasing efficiency of information systems processing on Cloud Computing2) Project: Development and improvement of e-Service toward Mobile Platform3) Project: Development and improvement of supporting information systems (Back Office) to take over manual service systems4) Project: Development of systems and mechanism for directing and appraising performance of information systems utilized by divisions/units under OPS5) Project: Acquisition of computers and peripherals to fulfilment and replacement of usage6) Project: Maintenance of computers and network systems for efficient consistent service and operation
Responsible Divisions/Units	<ol style="list-style-type: none">1) Information and communication Technology Center of MOL2) Divisions/Units responsible for information systems3) Divisions/Units responsible for monitoring and appraising work operations



Strategy 3: To conduct human resource development to be capable to utilize ICT with highest efficiency and benefits.	
Rational/ Objectives	To develop and leverage knowledge level on ICT for all level of personnel to fill in ICT systems which will be implemented under Digital policy direction to accomplish certain level of ICT literacy and be capable to apply in workplace consistently in both users and developer domains as well as to develop knowledge via ICT in relation to labor issues resulted from works and researches and knowledge upon ICT from operational works either.
Related Mission	Mission 3: Promote and support development of human resource for being capable to use ICT as tools in handling main operational works and supporting works efficiently. Mission 4: Propose policy for management and investment of ICT aiming at using ICT resources with highest efficiency and benefits.
Strategies for Implementation	1) To develop and increase skill for ICT personnels to be capable in managing ICT with highest efficiency and benefits. 2) To develop potentials on ICT for all level of personnels both centrally and regionally. 3) To promote and support transferring knowledge on ICT based on on-hand experience.
Indicators	1) Percentage of number of trained ICT personnel on ICT system management. 2) Number of ICT system management curricula of which overall personnels have been trained. 3) Percentage of number of trained personnels on ICT located centrally and regionally.



	<ol style="list-style-type: none">4) Percentage of number of newly recruited personnels located centrally and regionally to be capable in using information systems for their works.5) Number of ICT knowledge subjects have been created.
Projects/ Activities	<ol style="list-style-type: none">1) Project: ICT personnel capacity building on ICT system management2) Project: Overall personnels capacity building on ICT system utilization3) Project: Knowledge management on ICT based on on-hand experience
Responsible Divisions/Units	<ol style="list-style-type: none">1) Information and communication Technology Center of MOL2) Divisions/Units responsible for HR development3) Divisions/Units responsible for KM



<p>Strategy 4: To review and improve management including related laws and regulations in order to integrate data/information both internally and externally.</p>	
<p>Rational/ Objectives</p>	<p>To develop and improve standard regarding ICT to international level, be ready to join ASEAN community (AEC) as well as deploying good practices on ICT management with highest efficiency and benefits.</p>
<p>Related Mission</p>	<p>Mission 4: Propose policy for management and investment of ICT aiming at using ICT resources with highest efficiency and benefits.</p>
<p>Strategies for Implementation</p>	<p>1) To build up systems and mechanism for reviewing and improving laws and regulations considered burden to integration of labor related data/information</p> <p>2) To develop and improve ICT management process toward international standard ready for entering ASEAN community.</p> <p>3) To develop systems and mechanism for monitoring and appraising ICT operations defined in ICT master plan.</p>
<p>Indicators</p>	<p>1) Percentafe of number of corrected/ amended laws or rules considered burden to integration of labor related data/information</p> <p>2) Number of deployed international standard in ICT management process</p> <p>3) Users' satisfaction level over quality of ICT systems</p> <p>4) Developed systems and mechanism for monitoring and appraising ICT operations defined in ICT master plan.</p> <p>5) Number of appraisals upon ICT master plan and operations defined there under.</p>
<p>Projects/Activities</p>	<p>1) Project: Consultancy for conducting study on reviewing and improving laws and regulations considered burden to integration of labor related data/information</p>



	<p>2) Project: Consultancy for ICT management process toward international standard ready for entering ASEAN community</p> <p>3) Project: Development of systems and mechanism for monitoring and appraising ICT operations defined in ICT master plan</p>
Responsible Divisions/Units	<p>1) Information and communication Technology Center of MOL</p> <p>2) Divisions/Units responsible for related data/information</p> <p>3) Laws Bureau/Division/Unit</p> <p>4) Divisions/Units responsible for monitoring and appraising operations' performance</p>



7. Conclusion of Coincisions of Strategies of MOL ICT Master Plan and OPS ICT Master Plan and Related Strategies

Conclusion of Coincisions of Strategies of MOL ICT Master Plan and OPS ICT Master Plan and Related Strategies which are Draft Thailand ICT Master Plan B.E. พ.ศ. 2559-2561 and Labor Master Plan B.E. 2555 - 2559 is depicted in Table 5 as following:

Table 4 -> 5 Depicting Conclusion of Coincisions of Strategies of MOL ICT Master Plan and OPS ICT Master Plan and Related Strategies

ICT Master Plan of Office of Permanent Secretary, MOL (Version 3) B.E. 2559-2563	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	Draft Digital Economy and Society Plan B.E. 2559 - 2563	MOL ICT Master Plan (Version 3) B.E. 2559-2563	Labor Mater Plan B.E. 2555-2559	National Labor Strategies B.E. 2558-2569	(Draft) Strategic Plan of Office of Permanent Secretary, MOL B.E. 2558-2561
1. Increase efficiency of data integration for rendering service and management accordingly to labor strategy.	3. Leverage public e-Service with community and local entity participation in the light of innovation and security locally and internationally. (Smart Government)	1. Develop Digital Communications (Hard Infrastructure) 3. Promote of Service Infrastructure development.	2. Develop and leverage linkages for data integration with Government Data Center.	5. Develop management to the level of excellence.	4. Labor management toward international level.	1. Develop to lead in management of labor strategy.
2. Develop and improve information system and			1. Develop and leverage databases and information systems for			



ICT Master Plan of Office of Permanent Secretary, MOL (Version 3) B.E. 2559-2563	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	Draft Digital Economy and Society Plan B.E. 2559 – 2563	MOL ICT Master Plan (Version 3) B.E. 2559-2563	Labor Mater Plan B.E. 2555-2559	National Labor Strategies B.E. 2558-2569	(Draft) Strategic Plan of Office of Permanent Secretary, MOL B.E. 2558-2561
infrastructure for leveraging data/information service internally and externally.			enhancing e-Service ready for multi-cannel svices. (Application/Service Platform)			
3 . Develop human resource for applying highest ICT efficiently and beneficially.	1: Develop human capital capable to access ICT and be ICT literate for living life and work sufficiently under creation of innovation, participation and utilization of	5. Digital Society development. 6 . Digital Workforce Development.	3. Promote and support human resource development toward digital era to increase efficiency of service to citizen.			



ICT Master Plan of Office of Permanent Secretary, MOL (Version 3) B.E. 2559-2563	(Draft) Thailand ICT Master Plan (Version 3) B.E. 2557 - 2561	Draft Digital Economy and Society Plan B.E. 2559 - 2563	MOL ICT Master Plan (Version 3) B.E. 2559-2563	Labor Mater Plan B.E. 2555-2559	National Labor Strategies B.E. 2558-2569	(Draft) Strategic Plan of Office of Permanent Secretary, MOL B.E. 2558-2561
	benefits from ICT services. (Participatory People)					
4. Review and improve management including related laws and regulations for data integration with both internal and external organizations.	3. Leverage public e-Service with community and local entity participation in the light of innovation and security locally and internationally. (Smart Government)	2. Develop trust in utilizing digital technology. (Soft Infrastructure)	5. Promote management process and operation control of ICT to meet standards and quality continuously.			



OPS ICT Master Plan (Version 3) B.E. 2559-2563	MOL ICT Master Plan (Version 3) B.E. 2559-2563	Draft Thailand ICT Master Plan (Version 3) B.E. พ.ศ. 2559-2561	Labor Master Plan B.E. 2555 - 2559	Labor Strategy Plan B.E.2558 - 2569	Draft OPS Strategy 2558 - 2561
1. To enhance efficiency to integrate labor data for rendering services and administration works in accordance with labor related strategy.	2. To develop and enhance connection for integration of data with Government Data Center.	3 Smart Government: To leverage e-Service for community and local entity participation via service innovation under security domestically and regionally	5. Develop management/ administration of MOL to excellent level	4. Manage labor development toward international extent	1. Develop divisional units to be leading organization in management of labor strategy
2. To develop and improve OPS information systems and infrastructure for leveraging capability in rendering services both internally and externally.	1. To develop and enhance quality of database, information system for rendering e-Services that ready to integrate into variety of service models (Application/Service Platform).				



OPS ICT Master Plan (Version 3) B.E. 2559-2563	MOL ICT Master Plan (Version 3) B.E. 2559-2563	Draft Thailand ICT Master Plan (Version 3) B.E. พ.ศ. 2559-2561	Labor Master Plan B.E. 2555 - 2559	Labor Strategy Plan B.E.2558 - 2569	Draft OPS Strategy 2558 - 2561
3. To conduct human resource development to be capable to utilize ICT with highest efficiency and benefits.	3. To promote and support development of human resource toward digital era for increasing efficiency of services to citizens.	1. Participatory People: Develop human capital in ICT accessibility and literacy for livelihood and profession in sustainable manner			
4. To review and improve management including related laws and regulations in order to integrate data/information both internally and externally.	5. To promote management process and control operation of ICT of departmental units with standard and quality continuously.	3 Smart Government: To leverage e-Service for community and local entity participation via service innovation under security domestically and regionally			

Note: Strategy Number specified in the table is the official number defined in the reference source



8. Output and Outcome

8.1 Expected Outputs

- 1) There exists MOL and OPS ICT master plans during B.E. 2559 – 2563
- 2) There exists ICT vision, missions, strategies, goals, indicators and development directions associated with the MOL and OPS ICT master plans during B.E. 2559 – 2563
- 3) There exists existing system (As-is) analysis data over MOL and OPS ICT operational works, including problems and obstacles.
- 4) There exists OPS ICT Action Plan during B.E. 2559 – 2563
- 5) There exists analysis and appraisal report upon OPS's ICT implementation as defined in OPS ICT Master Plan B.E. 2552 – 2556

8.2 Expected Outcomes

- 1) Citizens are redered public services with convenience, fastness and efficiency universally and equally.
- 2) Host agencies are able to succeed their missions while stakeholders meet their expectations with efficiency and effectiveness.
- 3) Employees are able to ICT on their works with highest efficiency and benefits for their organizations.

9. Critical Success Factors

To succeed strategies' objectives and goals as defined, Critical Success Factors are recommended to drive MOL and OPS ICT master plans as followings:

9.1 High level executives are aware of priority and support strategies execution substantially and consistently.

9.2 Number of projects, major and supporting activities to be executed must be coincided with strategies specified in the ICT master plan.



9.3 Management and driving mechanism over projects, major and supporting activities must be efficient and be capable to push utilization at stake in every level both inside and outside organizations.

10. Management and follow-up to Monitor ICT Master Plan

To succeed strategies' vision, missions and goals in ICT development of MOL and OPS is depending on management and follow-up to monitor ICT master plan which are concluded as followings:

10.1 Direction to Manage ICT Master Plan

Management of ICT master plan is meant to direct strategies and implementation strategies as defined in the ICT master plan toward strategic implementation efficiently and effectively with details as followings:

1) Conduct knowledge and understanding in Strategies and implementation strategies such as:

1.1) Organize meeting to clarify strategies and implementation strategies to every level within organization for common focusing and leading to participation in strategies execution of related organizations.

1.2) Create related management knowledge for related officers for own responsibility and attracting them to follow suit of the specified strategies.

2) Organize Action plan

Organization of action plan to be direction framework for execution upon strategies and implementation strategies defined in the ICT master plan, is to specify related plans and projects associated with goals, indicators, budgets and responsible divisions/units which have to be in-line with strategic implementation of the ICT master plan.

3) Take Action

Taking action is the process to execute plans and projects/activities as specified above which in addition must have adaptation and changes of existing working



process such as application systems, hardware/equipment, software and etc. for scession under related divisions/units.

- 4) Build up systems and mechanism of follow-up and appraisals
 - 4.1) Specify unique systems and mechanism of follow-up and appraisals
 - 4.2) Develop integrated follow-up and appraisals systems
 - 4.3) Conclude, report and conduct PR for official acknowledgement

10.2 Direction of Follow-up and appraisal of ICT Master Plan

Follow-up and appraisal of ICT Master Plan efficiently must be conducted at the level of project and activity as defined in ICT master plan in order to exploit appraisal result in reviewing and improving goals and indicators specified in each strategy precisely. Context Input Process Evaluation (CIPP) model will be applied in directing follow-up and appraisal of ICT Master Plan with following appraisal issues:

- 1) Context Evaluation: C which is to evaluate project context for perceiving project goals.
- 2) Input Evaluation :I is to evaluate plan of the project
- 3) Process Evaluation : P is to evaluate operational works to dignify problems leading to better improvement of project process and activities.
- 4) Product Evaluation : P consisting of 2 parts which are Output : KPIs such as indicators associated with the plan and proceed operation accordingly to scope of work under TOR as well as satisfaction level over outputs and etc. such as evaluation of efficiency, benefits over systems utilization and etc.