# Research on Patent Examination Practices for Emerging Technologies in ASEAN Member States

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**Research on Patent Examination Practices for Emerging Technologies in ASEAN Member States**

This report was prepared by the Working Group for the Study on Economics and Risks of Power Systems with High Shares of Renewable Energies under the Economic Research Institute for ASEAN and East Asia (ERIA) Energy Project. Although members of the working group agreed to utilise certain data and methodologies for Cambodia, Indonesia, the Lao PDR, Malaysia, Myanmar, and Viet Nam, these data and methodologies may differ from those normally used in those countries. The calculated results presented here should not, therefore, be viewed as official national analyses.

# Acknowledgements

# Contents

# Executive Summary

- The Ninth ASEAN-Japan Heads of Intellectual Property Offices Meeting held in 2019 reached an agreement on an ASEAN-Japan Intellectual Property Action Plan. The agreed-upon plan includes research and studies on the patent examination guidelines of each Association of Southeast Asian Nations (ASEAN) Member State in the field of emerging technologies. Further, such research and studies were delegated to the Economic Research Institute for ASEAN and East Asia (ERIA).

- This report is the result of the research conducted in 2019 and 2020 by ERIA as delegated from the abovementioned Meeting. The research by ERIA was conducted based on two viewpoints: the current state of the patent examination guidelines in each ASEAN Member State; and assessment of the patentability of the three Case Examples presented by the Japan Patent Office (JPO) on the basis of the JPO Guidelines.

- From the results of the research, it is clear that preparing the guidelines for assessing the patentability of emerging technologies represented by artificial intelligence (AI) is still in the stages of getting started in ASEAN as a whole. It was found that four out of the 10 member states were preparing revisions to their patent examination guidelines or aiming to develop patent examination guidelines specifically in writing. Furthermore, even for states with patent examination guidelines in writing, only two of them had separate examination guidelines focusing on each individual type of emerging technology. Although these four states had their own patent examination guidelines in writing, they either had guidelines that define emerging technologies as computer software or had general patent examination guidelines that also applied to emerging technologies.

- With respect to the assessment of patentability, a difference in observation amongst the ASEAN intellectual property (IP) offices was seen, especially in the assessment of 'eligibility for patent' (Case Example 1) out of the three Case Examples presented by the JPO. Whilst the ASEAN IP offices showed partial understanding of the JPO's judgment of eligibility for patent, some states had a

different observation, and other states had a different basis for judgment. With respect to the 'assessment of inventive step' (Case Example 2), many states generally agreed with the opinion of the JPO. Further, with respect to the 'description requirements' (Case Example 3), many states made judgments similar to the JPO's. At the same time, there were opinions that the actual judgement was difficult only with the setting shown in Case Example 3 since it is necessary to judge the content and circumstances of an invention individually and separately.

- It was confirmed that there is room in ASEAN for the future further deepening of the development of examination guidelines for assessing the patentability of AI, computer software (CS), business models (BM), and Internet of Things (IoT), etc. All the ASEAN Member States strongly feel that it is essential to enhance further the in-depth knowledge and expertise for the patent examination of these emerging technologies, which are undergoing rapid progress and changes, and they wish to improve the patent examination capability for emerging technologies by receiving consultations for such enhancement and support from the IP offices in advanced countries, such as the JPO.

- Lastly, it was assumed that conducting the research would require intensive discussions on the 'idea' of patentability. However, only four member states were able to elaborate on the assessment of patentability through visits with 1-day-long on-site discussions in 2019 due to restrictions caused by the COVID-19 pandemic. With the remaining six member states, complex discussions on the research were advanced by exchanging emails. Whilst there might have been some information lost by such telecommunications, the counterparts taking care of the research in the respective ASEAN IP offices were clearly identified, and relationships with such counterparts were established. Specifying the partners for the discussion on AI examinations in ASEAN is of great significance for the future deepening of patent examination guidelines in the ASEAN region.

The counterparts of the respective member states are listed in Reference 2 of this report. From now on, it is anticipated that these counterparts will be at the centre of discussions for advancing collaborative work together with the JPO towards the establishment of patent examination guidelines on emerging technologies.

# Section 1

## ASEAN Intellectual Property Offices That Participated in This ERIA Research Project

In conducting the research, we were able to receive active cooperation under the leadership of the respective heads of the IP offices in the 10 ASEAN Member States. For the exchange of opinions for the research, patent examiners, experts in examination guidelines, experts in charge of laws and regulations, persons in charge of international operations, and many others from each office contributed to carry out and realise the research.

**BN:** BruIPO .... Brunei Darussalam Intellectual Property Office

**KH:** DIP/MISTI .... Department of Industrial Property of Cambodia

Ministry of Industry, Science, Technology and Innovation

**ID:** DGIP .... Indonesia Directorate General of Intellectual Property

**LA:** Lao PDR IP Department

**MY:** MyIPO .... Intellectual Property Corporation of Malaysia

**MM:** Myanmar IP Department

**PH:** IPOPHIL .... Intellectual Property Office of the Philippines

**SG:** IPOS .... Intellectual Property Office of Singapore

**TH:** DIP .... Thailand Department of Intellectual Property

**VN:** IP Viet Nam .... Intellectual Property Office of Viet Nam

# Section 2

# Introduction of the ERIA Research Project and Its Objectives

### 2.1.   Background of the project

The number of patent applications in ASEAN Member States has been increasing in recent years due to rapid economic growth in the region. This increase is expected to continue in the future. Above all, emerging technologies such as IoT and AI-related patent applications are increasing not only in particular regions or developed countries but worldwide, including in ASEAN Member States. Considering this situation, the JPO has improved its Examination Guidelines for Patents and Utility Models and the JPO's Examination Handbook for Patents and Utility Models.

On the occasion of the Ninth ASEAN-Japan Heads of Intellectual Property Offices Meeting, the Meeting delegated a case study (research) to ERIA so that the research would enable ASEAN IP offices to compare the patent examination guidelines amongst ASEAN Member States and to further enhance their guidelines.

<Excerpt from the Joint Statement of the Ninth ASEAN-Japan Heads of Intellectual Property Offices Meeting, 6 August 2019>

*5. In particular, the Partners, in taking special notice of the fact that the Chairman's Statement of the 2018 ASEAN-Japan Summit urged the development of patent examination guidelines in AMS IP offices, confirmed that they will contribute to the case study being conducted by the Economic Research Institute for ASEAN and East Asia (ERIA), the aim of which is to enhance the predictability of patent examination results. In addition, the Partners agreed to undertake initiatives that address translation issues that may arise in the patent application process, in order to enhance connectivity among ASEAN Members States and Japan.*

## 2.2. Objectives of the project

The case study for patent examination practice focusing on emerging technologies in ASEAN Member States aims to enlighten the IP offices in the region to deal with the increasing number of patent applications of such technologies, bearing in mind the outlook of economic growth and world trend of the number of patent applications of ASEAN Member States. It is, thus, expected that this case study will enhance and facilitate the further development of patent examination guidelines or standards on emerging technologies in each ASEAN IP office.

Furthermore, patent examination cooperation amongst the five IP offices (Japan, United States, Europe, China, and the Republic of Korea (hereafter, Korea)) has recently been conducted to reduce the examination burden of each office through enhancing the common examination guidelines on emerging technologies and mutual exploitation of other patent offices' examination results. It is understood that this could result in reductions in the workload of each patent office.

This case study targeting ASEAN IP offices will also contribute to the orchestration of the standardisation of patent examinations amongst the IP offices in ASEAN and the five IP Offices. Such a step forward will obviously benefit patent applicants filing applications concerning emerging technologies with the world's major markets.

# Section 3

# Methodologies for Conducting the Research

## 3.1.  Methodologies

In pursuit of the objectives mentioned above to meet the request made by the Ninth ASEAN-Japan Heads of Intellectual Property Offices Meeting, the study is specifically required to focus on emerging technologies and should be conducted through concrete discussions on the three case studies presented by the JPO in the light of such technologies.

The study first needs to clarify the examination practices of each ASEAN IP office by analysing the patent examination guidelines and related laws and regulations. Then, attention can be drawn from the ASEAN IP offices to the JPO's case examples of the study, which were already shared in the above-mentioned ASEAN-Japan Heads' Meeting to conduct 1-day-long on-site discussions with each ASEAN IP Office.

## 3.2.  Conducting a prior survey: 'Topics of Discussions for Collaborative Meeting to Discuss Patentability Requirements in View of Patent Examination Cases Examples on AI-related Patent Applications'

The research was carried out in two steps. First, each ASEAN IP office was asked to respond to a questionnaire in the form of Q&A as a prior survey. Subsequently, the responses to the Q&A were carefully prepared by the person in charge of the relevant ASEAN IP office. ERIA then visited the respective IP office to hold an on-site discussion meeting, which was planned for a duration of 1 day. However, as is described in the following Section (Section 4), face-to-face meetings with the IP office were only carried out in four member states due to restrictions caused by the COVID-19 pandemic. As for the remaining six countries for which visits were not carried out, we had to confirm their detailed assessment of patentability in their patent examination guidelines according to their responses to the Q&A and their thoughts in the Q&A.

The structure of the questions in the Q&A will be explained in detail in Section 6. To summarise, the questions in the first half of the Q&A asked about the legal grounds for the patent examination guidelines, structure of examination guidelines, filing trends of AI-related inventions, current problems to be solved, and the like.

The second half of the Q&A asked about the assessment of patentability by each IP office whilst explaining about the core portion of each of the JPO's three Case Examples in assessing the patentability.

In the four member states for which an exchange of opinions by a visit to their IP offices was carried out, namely Indonesia, Malaysia, the Philippines, and Viet Nam, almost 1 day was spent for the research and opinion exchange to further explore the questions and answers covered in the Q&A. The face-to-face exchange of opinions not only enabled better understanding of the minute nuances but also enabled sharing during the exchange of the experiences and knowledge of the examinations of AI-related inventions that the JPO had acquired so far.

Whether the Q&A and the subsequent exchange of opinions to clarify the responses were conducted by a visit to the IP office or by email, quite concrete research was made available. This resulted from the close cooperation of all the people involved, such as those in charge of the patent examination guidelines, examiners, and those in charge of international operations of each IP office. This point should be emphasised.

Those in charge in the IP offices of the respective member states who were involved in the research are listed as 'counterparts' in Reference 2. In future, when the assessment of patentability and the role of examination guidelines are discussed at a deeper level in ASEAN with specific knowledge further gained on emerging technologies, such as AI-related inventions, the counterparts involved in the research will definitely serve as the centre of such discussions. Further, it is considered that the patent examination guidelines of each member state will be updated to be more detailed and be of higher quality than at present by means of the mutual collaborative work amongst these counterparts.

### 3.3. Definition of 'AI-related technologies'

In order to examine AI-related inventions, it is necessary to specify what kinds of inventions they are.

In general, AI-related inventions are regarded as collectively referring to software technologies that allow intellectual activities performed by human beings to be performed by computers, etc. However, with regards to how to define 'AI-related inventions', they are defined in the research in accordance with the JPO-announced material of 'Recent Trends in AI-related Inventions – Report' issued in July 2020. That is to say, as shown in Chapter 2.1 of the report, an AI-related invention is an invention including not only an 'AI core invention' but also an 'AI-applied invention' in which the AI is applied to various technical fields. The research was conducted based on this definition.

The JPO explains an 'AI core invention' and 'AI-applied invention' in the report as follows:

(A)  AI core invention:

Inventions characterised by a mathematical or statistical information processing technology that forms the basis of AI, such as various machine learning methods, including neural network, deep learning, support vector machines, and reinforcement learning, in addition to knowledge-based models and fuzzy logic, etc. (The assigned file index (FI), a classification unique to the JPO that has been expanded based on the International Patent Classification (IPC), is mainly G06N ('Computer systems based on specific calculation model')).

(B)  AI-applied invention:

Inventions characterised by applying an 'AI core invention' to various technical fields, such as image processing, speech processing, natural language processing, device control/robotics, and various diagnosis, detection, prediction, and optimisation systems, etc. (a number of FI would be assigned).

Note that the JPO mentions that this definition of an 'AI-related invention' is not a general definition but is used only in the above Report, and it is not an official definition of the JPO, either.

The following reference drawing from the JPO's report illustrates the relevance of AI-related invention = 'AI Core Invention' + 'AI-applied Invention' as above:

**Figure 3.1: Target of This Research (Scope of AI-related Invention)**



Source: Japan Patent Office (2021), *Recent Trends in AI-related Inventions – Report* (Figure 1 excerpt).

https://www.jpo.go.jp/e/system/patent/gaiyo/ai/document/ai_shutsugan_chosa/report.pdf

# Section 4

# Restrictions Caused by the COVID-19 Pandemic

The research was commenced in October 2019. On 8 December 2019, the World Health Organization (WHO) announced confirmation of the world's first case of COVID-19. Thereafter, COVID-19 expanded around the globe in an explosive manner and the pandemic continues as of present (1 August 2021).

The research was greatly restricted by the COVID-19 pandemic. As shown in Section 3: Methodologies for Conducting the Research, the core portion of the initially planned research was that the subcontractor entrusted with the research would visit each ASEAN IP office to exchange opinions face-to-face for a duration of approximately 1 day. However, part of the initial plan for the research was not realised.

Face-to-face visits and in-depth discussions on the assessment of patentability and examination guidelines were only able to be carried out in the following four member states:

Indonesia Directorate General of Intellectual Property (DGIP):

Opinions exchanged on 26 November 2019

Intellectual Property Office of the Philippines (IPO-PHIL):

Opinions exchanged on 28 November 2019

Intellectual Property Office of Viet Nam (IP Viet Nam):

Opinions exchanged on 11 February 2020

Intellectual Property Corporation of Malaysia (MyIPO):

Opinions exchanged on 13 February 2020

As for the six member states not listed above, the assessment of patentability and the current states of the patent examination guidelines of each state were confirmed on the basis of the responses to the Q&A and communications by email. It was difficult to achieve an understanding of the patentability through close email communications and discussions, as this was initially expected to have been carried out through face-to-face exchanges of opinions.

On the other hand, because of opinion exchanges by email, communications with each IP office were all the more frequent. Although the accompanying work load was increased, the positioning as the counterpart with each IP Office is believed to have been solidified by the frequent email exchanges. The 'counter-partnership' developed in the difficult situation of the COVID-19 pandemic is expected to function meaningfully also in the future discussions of the assessment of patentability between the ASEAN IP offices and the JPO or amongst the ASEAN IP Offices.

We hope that the list of counterparts attached to this research report as Reference 2 will be utilised as a basis of further in-depth discussions on the patentability of AI-related technologies for the future.

Furthermore, it is hoped that any insufficiencies in the depth of discussions due to the COVID-19 pandemic will be supplemented by the continued cooperative and collaborative work with the counterparts of the ASEAN IP offices in the future.

# Section 5

# The JPO's Three Hypothetical Case Examples

AI-related inventions are mainly supposed to be examined as software-related inventions. In such cases, unique issues not existing in conventional software-related inventions may be found in AI-related inventions. It is necessary to extract and specify these issues unique to AI-related inventions and confirm and research the assessment of these issues in the patent examinations of the ASEAN IP offices.

The JPO mainly set forth three issues pertaining to AI-related inventions. Then, as the base for discussions in the research, it was decided to use the JPO's hypothetical case examples for discussing the respective issues.

The three issues are: (1) assessment of the 'eligibility for patent' in the examination of teacher data, trained parameters, and the trained model; (2) assessment of the 'inventive step' in the examination of a technology in the specific field using the software in which the trained model is incorporated; and (3) assessment of the 'description requirements' in the examination of a product created (outputted) by the software in which the trained model is incorporated.

Applied to each issue is: (1) Case Example 1 (eligibility for patent): The title of the invention is 'Trained Model for Analysing the Reputations of Accommodations'; (2) Case Example 2 (inventive step): The title of the invention is 'Estimation System of Hydroelectric Generating Capacity'; and (3) Case Example 3 (description requirements): The title of the invention is 'Business Plan Design Apparatus'. For the ASEAN IP offices, the issues for each case example were briefly extracted, and research was conducted to narrow down the issues.

The issues set forth below are also included as they were in the Q&A sent to the ASEAN IP offices. The purpose of such an arrangement was to avoid discussions deviating from the issues as a result of the assumed possibility that the comprehension of each case example might differ in a variety of ways from one ASEAN IP officer to another.

(1)    Case Example 1 (eligibility for patent): The title of the invention is 'Trained Model for Analysing the Reputations of Accommodations'.

       <ISSUES> Case Example 1 raises the issue of considering whether the AI-generated 'trained model' is eligible for a patent, i.e., whether it should be defined as a statutory invention. In other words, it should be explored whether your office regards the trained model as a de facto 'program'.

       If so, we would like to clarify that your office considers a 'program' to be patent-eligible.

       Meanwhile, it should also be clarified what is required to be categorised as a 'program' by your patent examination guidelines, e.g. a 'program' should always be associated with hardware resources.

(2)    Case Example 2 (inventive step): The title of the invention is 'Estimation System of Hydroelectric Generating Capacity'.

       <ISSUES> Case Example 2 raises the issue of considering whether your office would find it as an indicator of the inventive step that a part of the input data to the neural network involves a new parameter that has not been described in the prior art. In other words, it should be explored whether your office accepts the inventive step in the case where the new input data to the neural network (which is deemed as a difference between the claim in question and the prior art) does not have an interrelation with other input data in light of common general technical knowledge, or is not easily predictable.

       Furthermore, a discussion may be brought up concerning the assessment of the inventive step by your office, i.e. whether or not your office accepts the inventive step where both cited invention and the well-known art are identical in their operations or functions, so that it would provide a premise for the motivation.

(3)    Case Example 3 (description requirements): The title of the invention is 'Business Plan Design Apparatus.'

       <ISSUES> Case Example 3 raises the issue of considering how detailed an applicant's description should be, in particular, for the enablement of claim matters that involve the use of the trained model.

With regard to the enablement requirement, it is understood that a prediction algorithm (i.e. an algorithm that predicts output by observing input) would not concretely be presented in the light of the trained model (prediction model) generated by the machine learning. In other words, Case Example 3 encourages the discussion on how much the description requirements are necessary to enable your office to predictably recognise the existence of correlation, based on common general technical knowledge, between inputs and outputs.

The originals of these case examples presented by the JPO are attached as Reference 3 (References 3-1 and 3-2). These three case examples were presented to the heads of the ASEAN IP offices by the JPO at the Ninth ASEAN-Japan Heads of Intellectual Property Offices Meeting in 2019 and were agreed upon as the research basis upon commencement of the research.

# Section 6

# Q&A Concerning the Patent Examination and Patentability Assessment of AI-related Inventions

In order to conduct the research efficiently and meaningfully, it was important to sufficiently share the recognition of the same issues prior to the 'face-to-face' discussions with each ASEAN IP office.

As mentioned above, face-to-face discussions with the IP offices were extremely restricted. However, from the viewpoint of exchanging specific opinions with the IP Offices, the prior survey (ERIA's Q&A) greatly contributed to the sharing of the issues in advance. The Q&A is configured in two aspects and three layers.

First, the two aspects are configured by Aspect 1: finding out the basic present conditions with regards to the patent examination guidelines of each IP office; and Aspect 2: exploring in depth the basis of the understanding of the present conditions as to how each Office makes the assessment in the examination of the JPO's three case examples.

Furthermore, in Aspect 2, there are three layers divided according to the JPO's case examples. The first layer (Layer 1) is related to Case Example 1 and is configured by the questions asking about the 'eligibility for patent.' The second layer (Layer 2) asks about the idea of the 'inventive step' on which Case Example 2 focuses, and the third layer (Layer 3) includes the questions asking about the idea of 'description requirements'.

Gist of ERIA's Q&A

= Topic of Discussions for Collaborative Meeting with ASEAN IP Offices:

> **Aspect 1 (Q1-Q16)**: Finding out the basic structures and conditions with regards to the office's patent examination guidelines.

> **Aspect 2 (Q17-Q26)**: Conducting studies on the three case examples by the JPO, and concluding the studies by deciding whether or not the inventions concerned are considered as 'patentable'.

**Layer 1 (Q17-Q19)**:

Case Example 1 for assessment of the 'eligibility for patent'.

*'Trained Model for Analysing the Reputations of Accommodations'*

**Layer 2 (Q20-Q23)**:

Case Example 2 for assessment of the 'inventive step'.

*'Estimation of Hydroelectric Generating Capacity'*

**Layer 3 (Q24-Q26)**:

Case Example 3 for assessment of the 'description requirements'.

*'Business Plan Design Apparatus'*

We received vigorous cooperation from each ASEAN IP office in their efforts for the Q&A. After having proposed the Q&A to each office, we asked them to respond within about 3 weeks. Upon receipt of the responses from each office, we exchanged opinions to further ask necessary questions and unify the format and expressions, whilst confirming and closely examining the contents of the responses. There were six IP offices which could not be visited due to restrictions caused by the COVID-19 pandemic, so opinions had to be exchanged by email. With these offices, it was naturally needed to exchange substantially more emails than was expected. For all the ASEAN offices, approximately 160 emails were exchanged, through which the ERIA's Q&A was compiled. This number of exchanged emails reflects the ASEAN IP offices' strong interest and enthusiasm for the examination of AI-related inventions.

Reference 1, attached, is the original of ERIA's Q&A and the responses from the 10 ASEAN IP offices. Further, the summary points of the responses from each office are introduced in Sections 7 and 8 below.

In addition, Reference 4, attached, shows the presentation materials prepared to show the background of the research and the current state of AI-related inventions as well as the points of the JPO's three case examples, all of which were especially for the occasion of the face-to-face exchange of opinions with the ASEAN IP offices. This material as a prerequisite for the efficient and effective exchange of opinions was used for unifying the

basis of the discussions, such as the definition and basics of AI-related inventions, and basic understanding of the research. However, the materials were only actually used on the occasion of the opinion exchanges with each of the four IP offices for which face-to-face exchanges of opinions were possible.

Lastly, we take this opportunity to express our deep respect to the respective ASEAN counterparts (Reference 2) who devoted themselves to dealing with, researching, and analysing the difficult cutting-edge issues of AI.

# Section 7

# Results of the Research (General Issues)

**7.1. Availability of Patent Examination Guidelines / Separate AI-related Examination Guidelines / Working Manuals**

| | ID | MY | PH | SG | TH | VN |
|---|---|---|---|---|---|---|
| Availability of patent exam. guidelines **\<Q1\>** | **YES:** in written form | **YES:** in written form | **YES:** in written form | **YES:** in written form | **YES:** in written form | **YES:** in written form |
| Separate parts in the guidelines for AI, CS, BM, and IoT **\<Q6\>** | **YES:** Separate parts for **CS** and **BM** | NO: All in '**programs for computer**' (new one now in progress) | **YES:** Separate parts for **AI**, **CS**, **BM,** and **IoT** | NO: **'General' examination guidelines** cover broad principles for examination, including such new technologies | NO: '**Manual 2019 (Chapter 6)**' includes all areas, since AI technologies are regarded as 'computer-related invention' | **YES:** Separate part for **CS** |
| Working manuals **\<Q5\>** | NO: | **YES:** | **YES:** | **YES:** | NO: | NO: |
| Guidelines publicly available **\<Q4\>** | NO: (as general government policy) | **YES:** but only in English | **YES:** but only in English | **YES:** but only in English | **YES:** but only in Thai | **YES:** but only in Vietnamese |

**7.2. Availability of Patent Examination Guidelines / Separate AI-related Examination Guidelines / Working Manuals**

| | BN | KH | LA | MM |
|---|---|---|---|---|
| Availability of patent exam. guidelines **<Q1>** | NO:<br>No own examination guidelines available.<br><br>BruIPO mainly conducts preliminary examinations and then forwards patent applications to foreign examiners for substantive examination. | NO:<br>No own exam. guidelines available.<br>DIP/MISTI conducts formality examination. The office then recognises the results of substantive examinations by other cooperative IP offices. | **YES** + NO:<br>Presently revising the previous ones | NO:<br>Patent examination is not yet available in Myanmar because Myanmar Patent Law No.7/2019 has not entered into force. |
| Separate parts in the guidelines for AI, CS, BM, and IoT **<Q6>** | | | NO:<br>Lao PDR IP Department subsidises substantive examinations by other cooperative IP offices in line with their patentability rules. | |
| Working manuals **<Q5>** | | | | |
| Guidelines publicly available **<Q4>** | NO:<br>(as a general government policy) | NO: | NO: | NO: |

## 7.3. Concrete Examples in Guidelines / Number of AI/CS Applications Received / Difficulties Faced

| | ID | MY | PH | SG | TH | VN |
|---|---|---|---|---|---|---|
| Concrete examples in guidelines **<Q12>** | **YES**: | **YES**: | **YES**: | N/A: No separate guidelines | N/A: No separate guidelines | NO: but **YES** in future versions |
| Number of AI/CS applications received so far **<Q16-1>** | 61 files (21 examined) | 26 files (16 examined) | 15 files (4 examined) | N/A: Data are not yet ready, thus not publicly available | 32 files (2006–2021) | G06N3… 3 G06N5… 1 G06N20… 1 |
| | The numbers are indicated as of the date of the research Q&A. | | | | | |
| Any difficulties faced **<Q16-5>** | Lack of AI knowledge base and unfamiliarity | Lack of AI knowledge base and unfamiliarity | Assessment for patent eligibility and description requirements | Much time and effort required to learn new technologies ahead | Lack of expertise, concrete ideas, and know-how to deal with AI inventions | Lack of AI knowledge base and unfamiliarity |
| Division(s) in charge of AI matters **<Q16-2, Q16-3>** | 'Electrical Engineering' | 'Component and Network Unit' or 'Management & Information System' | 'Electrical and Electronics', and/or 'ICT' | N/A: Data are not yet ready, thus, not publicly available | Three examiners specialised in: 'Electronic Engineering', 'Data Science', and 'Computer Science' | 'Electronic and Communication' |

## 7.4. Concrete Examples in Guidelines / Number of AI/CS Applications Received / Difficulties Faced

| | BN | KH | LA | MM |
|---|---|---|---|---|
| Concrete examples in guidelines <Q12> | NO: | NO: | NO: | NO: |
| | Presently, patent examination guidelines are not yet available. | | | |
| Number of AI/CS applications received so far <Q16-1> | N/A: | N/A: | None | None |
| Any difficulties faced <Q16-5> | N/A: | Three patent examiners do not have any AI-related technical background | The only patent examiner needs training in examination | Lack of AI knowledge, expertise, and examination human resources (examiners) |
| Division(s) in charge of AI matters <Q16-2, Q16-3> | N/A: | N/A: | N/A: | Currently plans to deal with AI matters in Patent Division |

**7.5.    Patentability Criteria Applied to Guidelines**

| | ID | MY | PH | SG | TH | VN |
|---|---|---|---|---|---|---|
| Eligibility <Q7–Q10> | Included in **CS** and **BM** parts | The present guidelines (officially titled as the 'Manual') have a chapter, '**Patentability: Program for Computers**' (a new version in progress). | Included in **AI**, **CS**, **BM**, and **IoT** parts | N/A: Guidelines are not separated Judgement of eligibility and inventive step depends on cases, as it needs to be fact-specific | N/A: Guidelines are not separated | Included in **CS** part |
| Novelty and inventive step <Q7–Q10> | Included in **CS** and **BM** parts | | Included in **AI**, **CS**, **BM**, and **IoT** parts | | | Covered only in the general patent guidelines |
| Description requirements <Q7–Q10> | Covered by the general patent guidelines | | Included in **AI**, **CS**, **BM**, and **IoT** parts | | | |

| | BN | KH | LA | MM |
|---|---|---|---|---|
| Eligibility <Q7–Q10> | N/A: | N/A: | N/A: | N/A: |
| Novelty and inventive step <Q7–Q10> | Presently, patent examination guidelines are not yet available. | | | |
| Description requirements <Q7–Q10> | N/A: | N/A: | N/A: | N/A: |

**7.6.** **Assessment of the JPO's** Case Example 1 … **'Patent Eligibility' <Q17–Q19>**

| | |
|---|---|
| **ID**<br><br><#1> | Since the technology is new and unfamiliar to the DGIP, the office needs more concrete and detailed background information to decide whether or not a 'trained model' is regarded as a 'computer program'.<br><br>The DGIP is however of the opinion that 'technical features' are unavoidable for the patentability assessment.<br><br>Thus, **the DGIP may possibly share the observation with the JPO, since the example in Case 1 is a combination between hardware and software (technical features).** |
| **MY** | **The MyIPO has a different view from the JPO's.**<br><br>Although 'computer program' is NOT included in the list of non-patentable inventions, Claim 1 of Case Example 1 does not satisfy either the meaning of invention nor any 'technical character' requirement.<br><br>To the MyIPO, the 'trained model' as explained in the claim is regarded as an abstract idea unlike a computer program (a mechanism that produces output as instructed), and it does not contribute to the solution of a specific problem in the field of technology. |
| **PH** | **The IPOPHIL has a different view from the JPO's.**<br><br>The IP Code of the Philippines stipulates that a 'computer program' is a 'non-patentable invention', and a 'trained model' should be regarded as a 'computer program' because it is directed to computer algorithms. However, the IPOPHIL considers |

| | |
|---|---|
| SG | the claim in Case Example 1 can be patentable, if it is redrafted such that the subject matter is directed to a product or process as the code says. |
| SG | **The IPOS mainly goes along with the JPO concerning the eligibility of the trained model. The office, however, has different reasonings for the patentability with regard to 'CS invention'.**<br><br>The IPOS sees that the actual contribution of the claimed subject matter lies in using two neural networks working together to generate a quantified value of reputation. It does not fall within the exclusive list specified in the examination guidelines.<br><br>The guidelines, however, say that concerning CIIs, the examiner should determine the extent to which the technical features (or computers) contribute to the invention defined in the claims, and it must be established that the said technical features are integral to the invention in order for the actual contribution to comprise the said technical features. |

### 7.7.    Assessment of the JPO's <u>Case Example 1</u> … 'Patent Eligibility' <Q17–Q19>

| | |
|---|---|
| **TH** | **The DIP mainly shares the opinion and decision of the JPO.**<br><br>The DIP regards the trained model as computer programming. It is created and discovered by human intervention to cause a computer to function the algorithm. Thus, it is eligible as an invention.<br><br>With regard to the CS-related invention, the DIP also goes along with the JPO.<br>If the CS-related invention meets certain requirements, it should be eligible as an invention. The department, however, considers that business related inventions are not eligible as an invention as they do not provide either a product, process, or a new technical solution to a problem. |
| **VN** | IP Viet Nam finds it difficult to rationally conclude whether a 'trained model' is patent-eligible or not. An AI-related invention should be examined on a case-by-case basis.<br><br>Even though a 'computer program' is a non-patentable invention, IP Viet Nam considers that it needs to apply a 'claim-as-a-whole' approach to examine AI-related inventions, for they seem to be different from a 'computer program'. IP Viet Nam feels that it needs more specific information concerning Case Example 1 to observe how the subject matter contributes to the technical effect. |

| | |
|---|---|
| **BN** <br> <#2> | **N/A:** |
| **KH** <br> <#2> | **N/A:** |
| **LA** <br> <#3> | **The Lao PDR IP Department shares the view with the JPO on the eligibility of an AI invention.** <br><br> The department, however, considers that the business model inventions are NOT regarded as being eligible as an invention. |
| **MM** <br> <#3> | **The Myanmar IP Department is of the same mind as the JPO and its reasoning on the eligibility of an AI invention.** <br><br> Article 14(a)(iii) of the Myanmar Patent Law stipulates that a computer program itself cannot be patentable. However, the office presently assumes that the trained model itself is not a computer program. Thus, the trained model is eligible as an invention. <br><br> Further, the department also regards that if inventions consist of concrete mechanisms realising the collaboration between software and hardware resources, the CS invention is an 'invention'. |

**7.8.    Assessment of the JPO's <u>Case Example 2</u> … 'Inventive Step' <Q20–Q23>**

| | |
|---|---|
| **ID**<br><#1> | **The DGIP has the same view as the JPO that Claim 2 of Case Example 2 has an inventive step, because Claim 2 uses a temperature factor as an input parameter.**<br>The DGIP also shares the view with the JPO that 'an estimation system of a hydroelectric power generating capacity of a dam' relates to a 'system', and, further, 'system' invention is deemed as an invention that belongs to 'products' or 'apparatuses'. |
| **MY** | **The MyIPO has the same view as the JPO that Claim 2 of Case Example 2 has an inventive step because the Claim 2 uses a temperature factor as an input parameter.** |
| **PH** | **The IPOPHIL shares the view as the JPO that Claim 2 of Case Example 2 has an inventive step.**<br>The reason is that there is no teaching or evidence in the prior art about using a temperature factor as an input parameter to make the estimation of dam power generating capacity more accurate. |
| **SG** | **The IPOS has a different view from the JPO in assuming that machine learning would always be a natural choice for the skilled person to consider.**<br>The IPOS considers that the analysis should be based on the information in the survey and thinks that the facts given in Case Example 2 are not enough to determine whether it is obvious to the person skilled in the art to replace the regression model with the neural network.<br>Concerning the inventive step in Claim 2, the office shares the opinion with the JPO for a case where it is not obvious to the person skilled in the art that the temperature in question would affect the hydroelectric power generating capacity. |

### 7.9. Assessment of the JPO's <u>Case Example 2</u> … 'Inventive Step' <Q20–Q23>

| | |
|---|---|
| **TH** | **Although the DIP shares the view with the JPO in denying an inventive step in Claim 1 (unlike Claim 2), the office sees this case differently from the JPO's opinion concerning a 'system' invention.**<br>The DIP defines that a 'system' invention belongs to the 'method' or 'process' category, which relates to the process or any action related with computers.<br>On the contrary, the JPO explains that a 'system' invention belongs to the 'product' or 'apparatus' category. Concerning the 'non-technical features' of an invention, the DIP examines the inventive step of an invention only from the perspective of 'technical features'. |
| **VN** | **IP Viet Nam has the same view as the JPO that Claim 2 of Case Example 2 has an inventive step because the invention as a whole should be categorised as a product or apparatus invention as a matter of formality examination.** |
| **BN**<br><#2> | **N/A:** |
| **KH**<br><#2> | **N/A:** |
| **LA**<br><#3> | **The Lao PDR IP Department can go along with the opinion and decision of the JPO.**<br>The department also considers that this invention belongs to 'products'. |
| **MM**<br><#3> | **The Myanmar IP Department shares the opinion and decision of the JPO.**<br>The department further observes that Claim 2 of the invention has an inventive step because of the utilisation of the temperature factor as an input parameter. |

**7.10.  Assessment of the JPO's <u>Case Example 3</u> … 'Description Requirements' <Q24–Q26>**

| | |
|---|---|
| **ID**<br><br><#1> | **The DGIP has not yet set up the requirements of the description in a detailed manner, such as how to write and use it.**<br><br>The guidelines only state that the description must disclose any features essential for carrying out the invention in sufficient detail. The DGIP has not yet ruled out any requirements in the guidelines regarding enablement of the claim matters. |
| **MY** | **The MyIPO shares the view of the JPO.**<br><br>The office observes that the claim in Case Example 3 is supported by the description, since the features of the web advertisement data and the mentioned data are clearly disclosed in the description.<br><br>**The MyIPO, however, finds it difficult to explain how much the description should be supported by data and other supportive information because it may depend on factors.** |
| **PH** | **The IPOPHIL has the same view as that presented by the JPO.**<br><br>The examination guidelines require the applicant to disclose fully in the application from the view point of a person skilled in the art.<br><br>To that end, the application should pass the test of enabling disclosure prescribed in the Implementing Rule and Regulations. |

| | |
|---|---|
| **SG** | **The IPOS mainly recognises the opinion and observation by the JPO in relation to the description requirements.**<br><br>IPOS's Examination Guidelines specify a general approach to determining the sufficiency of disclosure. If the claims themselves provide an enabling disclosure and are supported by the description, then this may be sufficient. However, if the invention is unpredictable in nature, then more details may be required.<br><br>Based on the disclosure in the specification, it is assessed whether the said disclosure will impose an undue burden on the person skilled in the art to test all possible combinations to determine those that fall within the scope of the claims. If 'yes', the disclosure is probably insufficient. |

**7.11. Assessment of the JPO's <u>Case Example 3</u> … 'Description Requirements' <Q24–Q26>**

| | |
|---|---|
| **TH** | **The DIP mainly shares the view of the JPO.**<br>The DIP may, however, have a different opinion in relation to the description requirement in detail. Despite its title including 'apparatus', the invention of Case Example 3 is regarded as a system comprising of multiple processes and methods, without concrete hardware.<br>Claim 1 is too broad and explains only the overview concepts of the machine learning model, which makes the DIP conclude it as 'unpatentable'.<br>The applicant should explain more in detail in claims, or give examples of datasets or relevant supportive information of the model. |
| **VN** | **IP Viet Nam may have the same view as the JPO.**<br>The office considers that, based on the given assumption that a certain relation is already established in the case, a person skilled in the art can presume such a correlation between the data and sales quantity.<br>However, for such presupposition, IP Viet Nam has the feeling that the office should invite the applicant and require concrete reasonings to show the correlation between the two factors. |
| **BN**<br><#2> | **N/A:** |
| **KH**<br><#2> | **N/A:** |
| **LA**<br><#3> | **The Lao PDR IP Department has the same view at that presented by the JPO for all questions under Case Example 3.** |

| MM<br><#3> | **The Myanmar IP Department has the same views as the JPO concerning the questions of Case Example 3.**<br>With regard to the enablement requirement of the invention, the department considers that the JPO's observation seems to be in line with Myanmar's Patent Regulation, which is now drafted and under the process of internal authorisation. The department, however, considers that the description requirement should be on a case-by-case basis depending on the invention. |
|---|---|

Notes and acknowledgements for the observations listed in tables 8-6 to 8-11, which respond to the JPO's Case Examples:

NOTE #1:       (for DGIP (ID))

The DGIP would reserve its official judgement on the questions presented as the office is presently exploring its positions on how to conduct patent examination for AI-related inventions.

NOTE #2:       (for BruIPO (BN) and DIP/MISTI (KH))

Both the BruIPO and DIP/MISTI would like to reserve their official judgements on each case example as the offices have not yet conducted substantive examinations on patents.

NOTE #3:       (for the Lao PDR IP Department (LA) and Myanmar IP Department (MM))

Both the Lao PDR IP Department and Myanmar IP Department would like to reserve their official judgements on each case example as the office has not yet conducted substantive examinations on patents. The offices, however, present comments, without any prejudice to future changes, to activate the exchange of opinions on the patentability on AI inventions.

# Section 8

# Results of the Research

# (Each ASEAN Member State's Observations)

This chapter shows the assessment of patentability for each ASEAN Member State's IP office and their thoughts that led to such an assessment with respect to the three case examples presented by the JPO. Note that the reporting of each member state's assessment of patentability starts with the six that have examination guidelines in writing, followed by the four member states whose examination guidelines are under development, taking into consideration the convenience of practical reference.

Note that the laws and regulations referred to in this research are included in the report to the extent that is practically possible, focusing on the available English originals or English translations. Furthermore, as for the laws, regulations, and guidelines whose English versions were unavailable, the JPO, JETRO, etc. translated the laws and regulations, etc. from the original languages into Japanese. Thus, the research was conducted with reference to the provisions in Japanese that were publicly available. Reproduction of these laws and regulations, etc. in Japanese is omitted in the report.

Member states that already have examination guidelines in writing

- **ID:** DGIP .... Indonesia Directorate General of Intellectual Property

- **MY:** MyIPO .... Intellectual Property Corporation of Malaysia

- **PH:** IPOPHIL .... Intellectual Property Office of the Philippines

- **SG:** IPOS .... Intellectual Property Office of Singapore

- **TH:** DIP .... Thailand Department of Intellectual Property

- **VN:** IP Viet Nam .... Intellectual Property Office of Viet Nam


Member states whose examination guidelines are under development or under consideration for substantive examination to be carried out by the member state in the future

- **BN:** BruIPO .... Brunei Darussalam Intellectual Property Office

- **KH:** DIP/MISTI .... Department of Industrial Property of Cambodia

    Ministry of Industry, Science, Technology and Innovation

- **LA:** Lao PDR IP Department

- **MM:** Myanmar IP Department

**ID: Section 1**

1.  **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

1.1. **Patent law**

The Republic of Indonesia has the independent Law Concerning Patents (Revision of Law No. 13 of 2016) (https://wipolex.wipo.int/en/text/421121), in which there are provisions on patents and simple patents. Article 1 'Definitions' of the Patent Law (hereinafter, the 'Law') provides definitions of a patent, an invention, and a patent examiner, etc. Further, Article 2 of the Law stipulates that patent protection includes patents and simple patents.

The Law defines 'Invention' as 'the inventor's idea that is poured into specific problem-solving in the field of technology in the form of a product or process or the improvement and development of a product or process (Article 1(2)). A characteristic point is that there are exclusion provisions (Article 4) in addition to the above general provisions (Article 1) as the provisions on the definition of 'Invention'. Paragraph c of Article 4 lists 'rules and methods for carrying out activities: involving mental activities; game; and business' and paragraph d thereof lists 'rules and methods containing only computer programs'.

Furthermore, separately from the provisions on exclusion from 'Invention' (Article 4), there are provisions on the inventions that are not patentable (so-called unpatentable grounds) (Article 9), and paragraph c thereof lists 'theories and methods in the fields of science and mathematics'.

A patent is granted for an invention that is new, contains inventive steps, and can be applied in industry (Article 3(1)). In contrast, a simple patent is defined to be 'granted to a new invention, the invention that is a development of an existing product or process and can be applied in industry' (Article 3(2)), including an invention of a process. Further, inventive step is not included in the requirements for simple patents.

Chapter II 'Scope of Patent Protection' of the Law provides provisions on patent requirements, and Chapter III 'Application for Patent' of the Law provides provisions on description requirements. These are the provisions relating to the substantive examination of computer-implemented inventions (CIIs) and AI-related inventions (for specific provisions, see the attached material in which they are included).

The provisions considered that require special attention in relation to the eligibility for patent of CIIs and AI-related inventions are Articles 4 and 9 out of the provisions on patent requirements, in addition to the provisions on the definition of an invention (Article 1(2)). Article 1(2) requires that an 'Invention' must be an idea to solve a problem in <u>technical field</u>, and the Patent Examination Guidelines on 'Patentability' of the Republic of Indonesia, to be discussed later, provide a guideline for the eligibility for patent based on this provision. Article 4 is the exclusion provisions with respect to 'Invention' and stipulates, as discussed above, that <u>rules and methods for carrying out activities: involving mental activities; game; and business</u>, <u>rules and methods containing 'only' computer programs</u>, etc. are excluded from the 'Invention' defined by the Law. Article 9 is the provisions on unpatentable grounds and stipulates that inventions, etc. of <u>theories and methods in the fields of science and mathematics</u> are unpatentable. Note that there are no provisions that clearly deny the eligibility of a <u>recording medium with a computer program stored therein</u>.

Further, it is not limited to CIIs and AI-related inventions, but any invention must be new, involve an inventive step, and be industrially applicable in order to obtain its patent (however, involving an inventive step is not a requirement for simple patents). In addition, with respect to industrial applicability, Article 8 merely stipulates that 'invention can be applied in industry if the invention can be implemented in industry as described in the application', and there are no provisions considered to assist in understanding the extension and intension of 'industry'.

Article 25 of Chapter III 'Application for Patent' of the Law stipulates the description requirements for claims and a description of the invention, and paragraph (3) stipulates the enablement requirement and paragraph (4) the clarity and support requirements. Chapter IX 'Simple Patents' of the Law provides provisions on simple patents. Article 121 stipulates that 'all provisions provided for in this Law apply mutatis mutandis to simple

patents, except for the provisions of Article 3 paragraph (1), Article 7, and otherwise provided for in this Chapter'. Article 3(1) specifies the patent requirements; Article 7 is the provisions on the definition of an inventive step, and an inventive step is not included in the requirements for simple patents, so these provisions are excluded from the mutatis mutandis application. Article 122(1) stipulates that 'a simple patent is granted for only one invention'. Note that in the case of a patent, Article 24(3) stipulates that 'each Application is filed for one Invention or several Inventions which constitute a unity of interrelated Inventions'. Article 122(2) stipulates that 'an application for a substantive examination of a simple Patent may be made simultaneously with the submission of a simple Patent Application or no later than 6 (six) months from the Filing Date of a simple Patent Application for a fee', and it is stipulated that a simple patent is also subject to a substantive examination.

## 1.2. Examination guidelines, handbook, etc. relating to the examination of AI-related inventions

Although there are the Patent Examination Guidelines for 'Patentability' of the Republic of Indonesia (hereinafter, abbreviated as the 'Examination Guidelines'), only the Indonesian version exists, and it is not publicly available. There are no separate examination guidelines on CIIs and AI-related inventions; however, the Examination Guidelines include a guideline for 'eligibility for patent' in the patent system of the Republic of Indonesia, and particularly 'Attached Material 3' thereof provides guidelines directed solely on the examination of CIIs. The portions of the Examination Guidelines that are directed to the eligibility for patent and the examination of CIIs are excerpted and included in an attached material of this report. Thus, only the main points are summarised here.

The guideline concerning 'eligibility for patent' is based on the provisions on the definition of an 'Invention' (i.e. Articles 1(2) and 4 of the Law) and unpatentable grounds (i.e. Article 9 of the Law). First of all, pursuant to Article 1(2) of the Law, an 'Invention' (to be protected) that falls under the scope of an invention must be an idea for specific problem-solving in the field of technology. Judging from this provision, the Examination Guidelines consider that the requirement of eligibility for patent is to be an appropriate 'Invention' as a technical solution to a specific technical problem, and specify that if such a solution

is further elaborated and created in a form having a technical characteristic or realising a technical effect (that is, if claimed), eligibility for patent is fulfilled. In addition, the Examination Guidelines seem to interpret that those excluded from an 'Invention' in Article 4 of the Law are excluded because none of them is 'technical'.

Furthermore, the Examination Guidelines suggest to keep it in mind that any 'Invention' falling under the unpatentable grounds in Article 9 cannot be granted a patent in the Republic of Indonesia even if it is an appropriate 'Invention' as a technical solution to a specific technical problem.

As mentioned above, 'Attached Material 3' of the Examination Guidelines is the guidelines mainly directed to the examination of CIIs; however, its content includes Chapter 2 dealing with eligibility for patent, Chapter 3 dealing with inventive step, Chapter 4 dealing with the description requirements, and Chapter 5 dealing with claim examples. In the following, the content of each chapter is briefly summarised.

In 2.1 of Chapter 2, it is explained that if it is possible to produce a further technical effect in excess of ordinary physical interactions between a computer program and a computer when the computer program is operated on the computer, this case is not excluded from patentability. This provides an important suggestion when considering the issue of eligibility for patent of an invention as claimed in the form of a program or a recording medium. That is to say, Article 4(d) of the Law excludes rules and methods containing 'only' computer programs from 'Invention'; however, as discussed above, the Examination Guidelines interpret that the exclusion in Article 4 of the Law is the exclusion of those not 'technical'. To put it the other way around, the Examination Guidelines appear to interpret that if a computer program realises 'a further technical effect', namely, it does not fall within those not 'technical,' the computer program does not fall within those containing 'only' computer programs (also referred to as computer programs per se) in Article 4(d) of the Law.

Further, 2.2 of Chapter 2 provides a typical example of claim development for CIIs.

2.3 of Chapter 2 explains the 'technical characteristics.' Here, it is explained once again that if a computer program has a technical characteristic (realises a further technical effect), then the computer program does not fall within a computer program per se in relation to which examples of 'technical characteristics' and examples of 'further technical effects' are provided.

Furthermore, 2.4 of Chapter 2 explains that a computer-implemented business method shall relate to subjects that can be separated into the technical side and the non-technical side, and that the subjects having a technical characteristic is an 'Invention' under Article 2(2) of the Law and, thus, does not fall within the 'rules and methods for carrying out activities of business' as excluded in Article 4(c)(3) of the Law. This provides an important suggestion when considering the issue of eligibility for patents of business model-related inventions.

Chapter 3 explains the assessment of the inventive step of CIIs. It is explained that in order to assess the inventive step of a subject matter, it is important to assess the technical contribution to prior art, and that the non-technical side itself, such as the business methods, means merely contributing to non-technical problem-solving and fails to be associated with the assessment of inventive step. That is to say, if a subject matter differs from prior art only in terms of the genuine, non-technical side, the subject matter does not bring about any technical contribution and, thus, fails to fulfil the inventive step requirement.

Chapter 4 deals with the description requirements for the specification and claims, stating that CIIs may be an invention of a method as well as an invention of a product, providing an example in the format of a claim on a program or data (structure) and an example of defining a program as an invention of a product.

Further, special notes include: (a) even in cases where a claimed invention defines terms other than 'program', if it is evident in consideration of general common knowledge at the filing of the application that the invention according the claims is a 'program' that specifies a plurality of functions performed by a computer, such an invention is treated as relating to a 'program'; (b) if a claimed invention relates to 'program signals' or 'data signals', it is not possible to specify whether it is an invention of a product or an invention of a method, thereby resulting in a violation of the clarity requirement for claims; (c) also in the case

that the term in the claims is a 'program product', the technical scope of the term is unclear so the scope of the claims becomes unclear, thereby resulting in a violation of the clarity requirement; and (d) if the claims recite a 'system', the invention is decided to be an invention of a product. Amongst these special notes, (a) is particularly important because it relates to Case Example 1 in Chapter 2 of this report.

Chapter 5 provides examples of the claims of a method for conducting business. 5.1 provides an example of a method per se for conducting business, that is, an example falling under Article 4(c)(3) of the Law and excluded from 'Invention' (resulting in ineligibility for patent), and 5.2 provides an example of claims of a method for conducting business having a technical characteristic, that is, an example falling under 'Invention' (resulting in falling under 'Invention').

### 1.3. Business model-related inventions

Although there are no separate examination guidelines concerning business models and IoT-related inventions in Indonesia, it is considered that the Examination Guidelines cover business models and IoT-related inventions as well.

Specifically, as explained in 1.2 above, 2.4 of Chapter 2 in the 'Attached Material 3' of the Examination Guidelines provides an important suggestion when considering the issue of eligibility for patent of business model-related inventions. In addition, the considerations and principles applied to the examination of CIIs in paragraph j and the examples lacking 'further technical effect', both of which are provided in 2.3 of Chapter 2, will also serve as references. Furthermore, a claim example of a method per se for conducting business and a claim example of a method for conducting business having a technical characteristic in Chapter 5 will also provide important suggestions.

Further, as for the inventive step of business model-related inventions, the explanation of the 'technical contributions' in 3.3 of Chapter 3 will serve as a reference.

### 1.4. How to proceed with the examination of AI-related inventions

In response to Q11, the Indonesia Directorate General of Intellectual Property (DGIP) states: 'Since separate guidelines concerning AI and IoT are not yet available in the Office, the Office members works together by gathering their own technical expertise to deal with such AI-related applications. Japan International Cooperation Agency: JICA is helpful

to facilitate learning process for the Office members to acquire knowledge base.' Then, for a challenge for the future, the response to Q15 states: 'The DGIP works in a team to enrich the content of the examination guidelines and makes its efforts to cover AI and IoT technologies in additional guidelines. The Office's major concern is the lack of technical information concerning the emerging technologies (thus, three Case Examples presented were currently difficult to deal with).'

**ID: Section 2**

The observations of the Directorate General of Intellectual Property, Department of Justice and Human Rights of the Republic of Indonesia on the three case examples and consideration of the results thereof prepared by the JPO were summed up on the basis of the responses to the questions for each case example in the questionnaire sent in advance.

It is noted at the beginning of the responses that 'The DGIP would reserve its official judgments concerning AI Case Examples, for the Office needs to explore its position on how to conduct patent examination for the AI-related inventions. Therefore, the following responses are the current general consensus and are subject to change, as the future discussions in this regard are to be evolved in the Office.'

**Case Example 1: Eligibility for patent**

**a) Conclusion:** The conclusion of the Directorate General of Intellectual Property, Department of Justice and Human Rights of the Republic of Indonesia is 'reservation' with respect to eligibility for patent.

**b) Explanation:** The response to Question No. 17-1 concerning eligibility for patent in the questionnaire is 'agreeable', but it is noted that 'the DGIP would however find it difficult to rationally conclude that a trained model is a computer programming due to unfamiliarity to such technologies.'

The response to Question No. 18-1 is 'reservation in deciding a position'. The reason is explained such that 'at this moment, the Office cannot decide that the Office can agree to the JPO's reasoning or not, because the term 'trained model' used in the AI discussion is a relatively new terminology for this Office. Therefore, the DGIP inclines to reserve its

positions for further internal discussions and comprehension of the technology.'

The response to Question No. 19-1 is 'agree'. It is explained that 'the DGIP agrees to the [JPO's] criteria to observe the eligibility of the invention. … [T]he Office considers that it would substantially be in line with the Office's definition of an invention, i.e. subject matter which is eligible for patent protection must have technical characteristics. In this case, technical characteristics can substantially be interpreted as a combination of software and hardware, and there is a concrete mechanism realising the collaboration between software and hardware resources.'

## Case Example 2: Inventive step

**a) Conclusion:** The conclusion of the Directorate General of Intellectual Property, Department of Justice and Human Rights of the Republic of Indonesia is to 'agree' with the view and judgment of the JPO.

**b) Explanation:** The response to Question No. 20-1 concerning the inventive step is: 'Agree. The DGIP also shares the same view with the JPO in this regard.'

The response to Question No. 21-1 is: 'Agree. The DGIP considers that replacing the regression equation model with trained model as mention in claim 1 would be a mere modification of prior art without involving any inventive step.'

The response to Question No. 22-1 is: 'Agree, but further consideration needed.' The reason is explained such that 'Some of the examiners in the DGIP agree in principle with the abovementioned reasoning. Some other examiners may however have a slightly different view on this. Thus, at this moment, it is difficult to present an official position on this matter before the Office's further discussions.'

The response to Question No. 23 is as follows:

Based on the DGIP's examination guidelines, when assessing the inventive step of such a mixed-type invention (invention plus non-technical features), nontechnical features are not taken into account, as non-technical features do not contribute to the technical character. Non-technical features do however, in the whole context of the invention, contribute to producing a technical effect serving a technical purpose of the invention; thereby, it would contribute to the technical character of the invention.

Further, for the question of whether they observe that certain aspects of Case Example 2

have some elements that should be regarded as an invention with non-technical features, the DGIP replies: 'No, the DGIP does not think so. All features listed in Claims 1 and 2 in Case Example 2 are technical features.'

**Case Example 3: Description requirements**

**a) Conclusion:** The conclusion of the Directorate General of Intellectual Property, Department of Justice and Human Rights of the Republic of Indonesia is to 'agree' with the view and judgment of the JPO.

**b) Explanation:** For No. 24-1 concerning the description requirements in the questionnaire, the response is: 'Agree: The DGIP shares the view and reasoning with the JPO that the judgement is to be made by such assumption of a certain correlation or the like.'

For Question No. 25-2, the response is: 'Agree: In our opinion based on the aforementioned description, the apparatus, in order to generate the output data, will utilise the estimation model as conventionally done by machine learning.'

For Question Nos. 26-1 and 26-2, the response is as follows:

Basically, the DGIP is not yet in the position to agree or disagree, since the Office does not set up a requirement for the description in a detailed manner such as how to make and how to use it. In the Office's guidelines, it is only stated that the description must disclose any features essential for carrying out the invention in sufficient detail to render it apparent to the skilled person how to put the invention into practice using their common general knowledge.

For Question No. 26-3, the response is: 'The DGIP has not used the terminology 'enablement requirement' in the context of the description requirement. Thus, even the general guideline does not have an equivalent provision for it. The Office however observes that the same concept may be covered in ruling out the description requirements in the guidelines (such as the sufficiency of describing and supporting an invention), so that the invention may be practiced.'

**MY: MyIPO .... Intellectual Property Corporation of Malaysia**

**MY: Section 1**

1.      **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

1.1.    **Patent law**

Although the Patents Act does not explicitly show the terminology, such as 'computer program', Sections 12 and 13 fall under the relevant provisions in examining AI-related inventions. Section 13 provides examples of non-patentable inventions, but computer programs and AI are not explicitly included in the examples. Thus, the eligibility for patent of AI-related inventions is not immediately denied under Article 13. The inventions are judged by examiners on whether or not Section 12 (Meaning of 'invention') of the Patens Act is fulfilled.

> *'Section 12. Meaning of 'invention'.*
>
> *(1) An invention means an idea of an inventor which permits in practice the solution to a specific problem in the field of technology.*
>
> *(2) An invention may be or may relate to a product or process'*
>
> *'Section 13. Non-patentable inventions.*
>
> *(1) Notwithstanding the fact that they may be inventions within the meaning of section 12, the following shall not be patentable:*
>
> *(a) discoveries, scientific theories and mathematical methods;*
>
> *(b) plant or animal varieties or essentially biological processes for the production of plants or animals, other than man-made living micro-organisms, micro-biological processes and the products of such micro-organism processes;*
>
> *(c) schemes, rules or methods for doing business, performing purely mental acts or playing games;*
>
> *(d) methods for the treatment of human or animal body by surgery or therapy, and diagnostic methods practiced on the human or animal body:*
>
> *Provided that this paragraph shall not apply to products used in any such methods.*
>
> *(2) For the purpose of subsection (1), in the event of uncertainty as to whether the items specified therein shall be patentable or not, the Registrar may refer the matter to the Examiner for an opinion and the Registrar shall thereafter give a decision as to whether to include or exclude such item as being patentable, as the case may be.'*

## 1.2. Current research situation on examination guidelines and a handbook, etc. relating to the examination of AI-related inventions

The guideline titled as 'Guidelines for Patent Examination Manual' (commonly called the 'Patent Examination Manual 1985', last amended in 2011) has been issued for examiners (response to Q5). Further, this guideline has the subchapter of 'Programs for computers' (3.6 of Chapter IV); however, there is no explanation on AI in the subsection. The MyIPO is now drafting the guidelines on computer-related inventions, including AI, CS, BM, and IoT (response to Q6). The entire text of 3.6 of Chapter IV is indicated below. The main point of subchapter 3.6 is that although computer programs per se and media are unpatentable, program-controlled machines and their manufacturing methods are considered to be patentable subject matters.

*Chapter IV*

*'3.6 Programs for computers*

*A computer program is a set of instructions for controlling a sequence of operations of a data-processing system. It closely resembles a mathematical method. It may be expressed in various forms and may be presented in a format suitable for direct entry into a particular computer or may require transcription into a different format. It may be presented in terms either of software or in combination with hardware. A data-processing operation can be implemented either by means of a computer program or by means of special circuits and the choice may have nothing to do with the inventive concept but be determined purely by factors of economy or practicality. With this point in mind, examination in this area should be guided by the following approach: A computer program claimed by itself or as a record on a carrier is not patentable, irrespective of its content. The situation is not normally changed when the computer program is loaded into a known computer. If, however, the subject-matter as claimed makes a technical contribution to the prior art, patentability should not be denied merely on the ground that a computer program is involved in its implementation. This means, for example, that program-controlled machines and program-controlled manufacturing and control processes should normally be regarded as patentable subject-matter. It follows also that, where the claimed subject-matter is concerned only with the program-controlled internal working of a known computer, the subject-matter*

*could be patentable if it provides a technical effect. As an example, consider the case of a known data-processing system with a small fast working memory and a larger but slower further memory. Suppose that the two memories are organised under program control, in such a way that a process which needs more address space than the capacity of the fast working memory can be executed at substantially the same speed as if the process data were loaded entirely in that fast memory. The effect of the program in virtually extending the working memory is of a technical character and might therefore support patentability. Where patentability depends on a technical effect, the claims must be so drafted as to include all the technical features of the invention which are essential for the technical effect. Where patentability is admitted then, generally speaking, product, process and use claims would be allowable.'*

The MyIPO has prepared guidelines for examining information and communications technology-related inventions (Computer Related Invention Guidelines (internally referred to as CRI), which might be a step towards examining AI-related inventions. The CRI Guidelines apply to patent applications relating to computers, computer networks, BM, etc. that are realized by means of program or programs (response to Q11).

Note that the idea of the judgment criteria for computer programs is shown also in the explanation concerning Section 12 (Meaning of 'invention') of the Patents Act in subchapter 2.2 of Chapter IV of the aforementioned Patent Examination Manual.


## 2. How to proceed with the examination of AI-related inventions

According to the explanation of the MyIPO, there are cases where a plurality of examiners in the group of examiners discuss and conduct the examination of program-related inventions whilst applying the CRI Guidelines and the aforementioned Manual.

**MY: Section 2**

The observations of the MyIPO on the three case examples and assessments prepared by the JPO were summed up for each case example on the basis of the responses to the prior questionnaire and the on-site interview.

Case Example 1: Eligibility for patent

**a) Conclusion:** The conclusion of the MyIPO is that there is no eligibility for patent (which differs from the judgment of the JPO).

**b) Explanation:** Combining the responses to Q17-1 and Q17-2 and the opinions exchanged with the persons in charge (on 13 February 2020) leads to the following reasons why the MyIPO determines Case Example 1 to be ineligible for patent.

According to the response to Q17-1 and Q17-2: 'Even though a computer program does not fall under the non-patentable invention (Section 13), the claims of Case Example 1 [a trained model] do not satisfy the meaning of invention, because they do not have technical character (Section 12(1)). The trained model as explained in the claim is regarded as an abstract nature unlike a computer program (a mechanism which produces output as 'instructed'). A trained model does not comprise of instructions that a computer can carry out and causes the computer to carry out said calculations.' In the on-site discussions, it was found that the view behind this response was that the trained model as explained in the claim is technical but functions to determined parameters autonomously at the training stage unlike the procedures and instructions, such as programs, that cause the computer to operate, and, thus, the trained model changes through the training (i.e. not fixed), so that the model is determined to be abstract.

In the response to Q18-1 and Q18-2, the MyIPO provides the following explanation:

As explained in Response to Question 17, the MyIPO is currently of the opinion that the trained model as claimed in Case Example 1 is still an 'abstract' idea, for it produces outputs after having learned data 'by itself' so that it creates outputs 'by its discretion', even if the trained model has reproducibility in its productions. We never know the reason or mechanism why the trained model would develop such an output. The Office thus observes that there are no technical features involved in the trained model unlike other computer programs for which specific functions are all 'instructed.' The Office also thinks

the issue here may be only a matter of drafting the description to evaluate the invention as a whole.

In relation to this response, the MyIPO presented the opinion during the on-site discussions that redrafting the claim to recite a 'system' rather than a trained model would work towards the determination of eligibility.

Further, the response to Q19-1 is as follows:

There is no provision in the current Malaysian Patents Act that the CS invention [Computer software (CS) related invention] is expressly excluded from the definition of the patentability. Especially the invention consists of mechanisms by collaboration between software and hardware resources. However, if the claim(s) does not have technical characters, i.e. the claimed contribution of the CS invention is abstract or only an idea, it does not satisfy the definition of invention (Section 12(1)).

The response to Q19-2 is: 'Currently, the CRI [Computer Related Invention] Guideline is only available for internal reference. Whilst using it internally, the Office tries to improve its quality and usability involving more and more patent examiners and some of the lawyers and users. The MyIPO does its best efforts to 'finalise' the CRI Guidelines, so that the guideline would be open to the public (even though making the guideline publicly available is not legislatively mandatory in Malaysia).'

The response to Q19-3 is: 'The method of doing business per se falls under non-patentable invention (Section 13(1)(c) schemes, rules or methods for doing business, performing purely mental acts or playing games). However, if the claimed invention comprises a technical character, the claims will be examined according to the CRI Guidelines.'

One of the observations expressed during the on-site discussions was that the MyIPO is based on the recognition that an invention comprising a neural network or AI is certainly unclear in terms of the process of its mechanism (such as the intermediate layer of the neural network); however, it is a fact that Big Data are utilised for learning and making a judgment in the field of imaging technologies, and it is therefore necessary to deal with inventions comprising such neural networks. The MyIPO expressed that they will interact with more and more such invention cases in the future and make efforts to enhance the new guidelines.

**Case Example 2: Inventive step**

**a) Conclusion:** Agree with the judgment of the JPO.

The response to Q20-1 is 'agree'. That is to say, in the MyIPO, a 'system' invention is deemed as an invention of a product or an invention of an apparatus. The response to Q21-1 is 'agree'. The agreement includes the JPO's judgment and reasoning that the invention of claim1 has no inventive step in relation to the cited invention. The response to Q22-1 is 'agree [with the observation of the JPO]'. That is, the MyIPO agrees that the invention of claim 2 has an inventive step. The response to Q23(1) is: 'The MyIPO practices patent examination as EPO exercises.' In response to Q23(2): 'The MyIPO does not observe any non-technical feature in Case Example 2.'

**Case Example 3: Description requirements**

**a) Conclusion:** In the responses to Q24-1 to Q26-1, the MyIPO agrees with the observations of the JPO, and the MyIPO and the JPO have consistent observations. Some responses with an explanation will be introduced below.

The response to Q24-1 is as follows:

The MyIPO observes that the claim is supported by the description, since the features of web advertisement data and mention data are clearly disclosed in the description. In this sense, the presumption that a certain correlation between the data concerned is assumed as a premise for Case Example 3, is not such a major issue ... The Office further concludes that the description requirement is fulfilled even if the above-mentioned assumption has not been given in the case.

The response to Q26-3 is: 'The MyIPO would find it difficult to explain how much the description should be supported by data and other supportive information, for it may indeed depend on cases. The Office would however conduct the patent examination in accordance with the rules provided for in the Patents Act of Malaysia and, specifically, its Regulation Sections 12 and 15 [(Inventive Step)].'

**PH: Section 1**

1. **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

**1.1. Intellectual Property Code**

There is no independent patent law or utility model law in the Philippines, and the Intellectual Property Code which went into effect on 4 March 2013 (https://wipolex.wipo.int/en/text/488674) has provisions on patents and utility models. Part II 'The Law on Patents' of the Intellectual Property Code provides provisions on patents (Sections 20 to 120), amongst which Chapter XII 'Registration off Utility Models' provides provisions on utility models (Sections 108 to 111). Note that Chapter XIII (Sections 112 to 120) is entitled 'Industrial Design and Layout-Designs (Topographies) of Integrated Circuits' and that utility models, industrial designs, and layout-designs of integrated circuits are assigned to be a part of the law on patents under the Intellectual Property Code of the Philippines.

Further, the implementing regulations for intellectual properties (The Revised Implementing Rules and Regulations for Patents, Utility Models and Industrial Designs) (https://drive.google.com/file/d/1WFiTWpNmwf-LYW7k8jeNElg4jBH-68uL/view) went into effect on 1 August 2017. Characteristic of these regulations is the inclusion of a large number of rules overlapping in content with the provisions of the Intellectual Property Code. As a matter of fact, these regulations contain rules for implementing the provisions of the Intellectual Property Code as is the case with ordinary implementing regulations, so that practically, it is designed such that if reference is made to these regulations, reference to the code is no longer necessary (see the attached material that contains extracted relevant Regulations). Hereinafter, the Intellectual Property Code of the Philippines will be abbreviated as the 'Code' and the implementing regulations for intellectual properties (The Revised Implementing Rules and Regulations for Patents, Utility Models and Industrial Designs) as the 'Regulations.'

Although the Code does not have any provisions for the definition of 'invention' or 'utility model', Section 21 of Chapter II 'Patentability' of the Code and Rule 200 of Part II 'Patentability' of the Regulations specify that 'Patentable Inventions' are: 'Any technical solution of a problem in any field of human activity which is new, involves an inventive step and is industrially applicable shall be patentable. It may be, or may relate to, a product, or process, or an improvement of any of the foregoing.' It can be interpreted that an 'invention' is defined as any technical solution of a problem in any field of human activity. Further, Rule 201 states more specifically in Statutory Classes of Patentable Inventions – A patentable invention may be or may related to:

(a) A product, such as a machine, a device, an article of manufacture, a composition of matter, a microorganism;

(b) A process, such as a method of use, a method of manufacturing, a non-biological process, a microbiological process;

(c) Computer-related inventions; and

(d) An improvement of any of the foregoing.

Note that Section 21 of the Code and Rule 201 apply mutatis mutandis to utility models as well. Therefore, utility models may be in the category of a process.

Inversely, Section 22 'Non-Patentable Inventions' of the Code lists: subsection 22.1. Discoveries, scientific theories and mathematical methods, and in the case of drugs and medicines, the mere discovery of a new form or new property of a known substance which does not result in the enhancement of the known efficacy of that substance, or the mere discovery of any new property or new use for a known substance, or the mere use of a known process; 22.2. Schemes, rules and methods of performing mental acts, playing games or doing business, and programs for computers; 22.3. Methods for the treatment of the human or animal body by surgery or therapy and diagnostic methods practiced on the human or animal body; 22.4. Plant varieties or animal breeds or essentially biological processes for the production of plants or animals; 22.5. Aesthetic creations; and 22.6. Anything which is contrary to public order or morality. Rule 202 'Non-patentable Inventions' stipulates in more detail that the following are excluded from patent protection:

*(a)     Discoveries, scientific theories, and <u>mathematical methods</u>, <u>a law of nature</u>, <u>a scientific truth</u>, or <u>knowledge as such</u>;*

*(b)     <u>Abstract ideas or theories, fundamental concepts apart from the means or processes for carrying the concept to produce a technical effect</u>;*

*(c)     <u>Schemes, rules, and methods of performing mental acts and playing games</u>;*

*(d)     <u>Method of doing business, such as a method or system for transacting business without the technical means for carrying out the method or system</u>;*

*(e)     <u>Programs for computers</u>;*

*(f)     Methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practiced on the human or animal body. (This provision shall not apply to products and compositions for use in any of these methods);*

*(g)     Plant varieties or animal breeds or essentially biological process for the production of plants and animals. (This provision shall not apply to microorganisms and non-biological and microbiological processes);*

*(h)     Aesthetic creations; and*

*(i)     Anything which is contrary to public order, health, welfare, or morality, or process for cloning or modifying the germ line genetic identity of humans or animals or uses of the human embryo. Note that Rule 202 applies mutatis mutandis to utility models.*

***SEC. 22.** Non-Patentable Inventions. -The following shall be excluded from patent protection:*

*22.1. Discoveries, scientific theories and mathematical methods, and in the case of drugs and medicines, the mere discovery of a new form or new property of a known substance which does not result in the enhancement of the known efficacy of that substance, or the mere discovery of any new property or new use for a known substance, or the mere use of a known process unless such known process results in a new product that employs at least one new reactant.*

*For the purpose of this clause, salts, esters, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations, and other derivatives of a known substance shall be considered to be the same substance,*

*unless they differ significantly in properties with regard to efficacy;*

*(As amended by Republic Act No.9502 or the Universally Accessible Cheaper and Quality Medicines Act of 2008)*

22.2. *Schemes, rules and methods of performing mental acts, playing games or doing business, and programs for computers;*

22.3 *Methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practiced on the human or animal body. This provision shall not apply to products and composition for use in any of these methods;*

22.4. *Plant varieties or animal breeds or essentially biological process for the production of plants or animals. This provision shall not apply to micro-organisms and non-biological and microbiological processes. Provisions under this subsection shall not preclude Congress to consider the enactment of a law providing sui generis protection of plant varieties and animal breeds and a system of community intellectual rights protection;*

22.5. *Aesthetic creations; and*

22.6. *Anything which is contrary to public order or morality.*

Note that utility model applications are not subject to substantive examination, for the provisions of Sections 43 to 49 of the Code, which include the provisions on classification and search, publication, and substantive examination, do not apply to utility model applications (109.2 of Section 109 of the Code).

These provisions and Regulations are related to the eligibility for patent of computer-implemented inventions (hereinafter abbreviated as 'CIIs') and AI-related inventions (utility models) and seem to require special attention. What is characteristic is that 'computer-related inventions' are patentable inventions, whilst those of 'programs for computers' are non-patentable inventions. Note that there are no provisions which deny the eligibility for patent of a computer readable medium with a program or programs for computer stored therein (hereinafter, 'Computer Readable Medium'). As discussed later, 'the guideline for the examination of information and communications technology (hereinafter abbreviated as 'ICT')' affirms the eligibility of a Computer Readable Medium type claim.

In order to obtain a patent, an invention, not limited to ICT, CIIs, and AI-related inventions, must be new, involve an inventive step, and be industrially applicable (Section 21 of the Code; Rule 200). On the other hand, <u>a utility model only has to be new and industrially applicable, and involving an inventive step is not required</u> (Section 109 of the Code; Rule 1400). Further, with respect to industrial applicability, it is applied to both patents and utility models that 'an invention [utility model] that can be produced and used in <u>any industry</u> shall be industrially applicable' (Section 27 of the Code; Rules 208 and 1402), <u>which is interpreted as the service industry, etc. being included</u>, for example.

Section 35 of the Code and Rules 405 and 1410.6 define the description requirements (enablement requirement) for the specification of a patent or a utility model, and Section 36 of the Code and Rules 415 and 1410.7 define the description requirements (clarity and support requirements) for the claims of the same.

Further, Section 39 'Information Concerning Corresponding Foreign Application for Patents' of the Code imposes on the applicant <u>the obligation that the applicant shall,</u> at the request of the Director, <u>furnish them with</u> the date and number of <u>any application for a patent filed by the applicant abroad, hereafter referred to as the 'foreign application', relating to the same or essentially the same invention as that claimed in the application filed with the Office [i.e. Intellectual Property Office of the Philippines]</u> and <u>other documents relating to the foreign application</u>. The 'other documents relating to the foreign application' are understood as including the materials showing search/examination results in any foreign country. However, there is no provision that, when furnishing or having furnished such materials, the applicant can request to omit/simplify the search/examination in the Philippines.

**1.2. Examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

**1.2.1. Summary**

'The Guidelines on the Examination of Information Communications Technology (ICT) and Computer Implemented Inventions (CII)' of January 2018 (hereinafter, 'Examination Guidelines') ([https://drive.google.com/file/d/1dBu5X5H078FU3-brr24gawmoHIt3JLdt/view](https://drive.google.com/file/d/1dBu5X5H078FU3-brr24gawmoHIt3JLdt/view)) are separate examination guidelines in the field of ICT and CIIs and are publicly available only in English.

The Examination Guidelines are prepared based on the current evaluation of the major binding relevant provisions (i.e. relevant provisions of the Code and the Regulations as well as (if any) the decisions of the Supreme Court), but also referenced are the precedents as well as the provisions related to the Code and the Regulations governing the implementation of patent grant procedures, all of which are in various foreign countries.

The Introduction of the Examination Guidelines states as follows:

*These "Examination Guidelines for Information and Communications Technology patent applications" ("ICT and CII Guidelines") are to assist Patent Examiners in the examination of patent applications for various inventions in the ICT field such as information systems, communication systems, telecommunications, radio communications, computer implemented systems, software related systems, data mining systems, computer information networking systems, computer operating systems, embedded systems, data warehousing systems, network and data security systems, multimedia design systems, content delivery systems, digital broadcasting, graphic representation devices, website development platforms, application development platform, system development platforms, cloud computing infrastructure, ubiquitous computing frameworks, mobile computing systems, Internet of Things (IoT) infrastructure, virtual infrastructure, electronic commerce systems, electronic services systems, electronic workflow frameworks, object modelling systems, image or video processing systems, photonics systems, machine learning systems, artificial intelligence systems, distributed systems, robotic systems, sensing devices, and big data modelling systems.*

As stated above, these Examination Guidelines are the examination guidelines related to the examination of CIIs and AI-related inventions.

### 1.2.2. Relationship between Sections 21 and 22 of the Code and Rules 201 and 202, and the Examination Guidelines

The subject matter as claimed must, without exception, be a technical solution as provided in Section 21 of the Code and, at the same time, must not fall, to a reasonable extent, under any of the inventions excluded from patent protection (non-patentable inventions) provided in Section 22 of the Code. In the Philippines, the exclusion in Section 22 of the Code includes mathematical methods and schemes, rules, and methods of performing mental acts, playing games, or doing business, and programs for computers. Furthermore, the exclusion in Rule 202 includes, in addition to the above, abstract ideas or theories, fundamental concepts apart from the means or processes for carrying the concept to produce a technical effect; and methods of doing business, such as a method or system for transacting business without the technical means for carrying out the method or system. Any of these is a subject matter deeply related to ICT and CIIs. For this reason, the Examination Guidelines on ICT and CIIs give the full treatment of determination of the eligibility for patent unlike the examination guidelines on the other fields.

### 1.2.3. Basic idea of patent eligibility determination

The Examination Guidelines state the basic idea of eligibility determination roughly as follows:

### *4.1.    Statutory Classes of Inventions*

*In accordance with Section 21 of the IP Code and Rule 201 of the IRR, patentable subject matters eligible for patent protection are limited to a product, process, or improvements thereof.*

### *Categories of Inventions in the ICT/CII field*

> ***Product*** *- products such as a machine, a device, and an article of manufacture that involve computers, computer networks or other programmable apparatus whereby prima facie one or more of the features of the claimed invention are realized by means of a program or programs.*

> ***Process*** *- processes such as a method of use and a method of manufacturing that*

*involved computers, computer networks or other programmable apparatus that whereby prima facie one or more of the features of the claimed invention are realized by means of a program or programs.*

*A claim directed to computer program per se is an ineligible subject matter under Section 22 of the IP Code.*

*To fall within categories of invention patentable under Section 21 of the IP Code as a product (article of manufacture), a claim directed to a computer program should be drafted in manner wherein the program instructions are (e.g. embodied in a tangible computer readable recording medium/data carrier) cooperatively working with a programmable device.*

*<u>The following non-exhaustive list comprises examples of acceptable claim</u>*

*<u>formulations for claims directed to computer programs</u>:*

- *<u>A computer-readable recording medium which records a program that makes a computer execute a process A, a process B, A process C...</u>*

- *<u>A computer readable recording medium which records a program that causes the computer to function as a means A, means B, means C...</u>*

- *<u>A computer readable medium which records a program that makes a computer implement a function A, a function B, a function C...</u>*

- *<u>A computer-readable recording medium which records a program that makes the computer carry out step A, step B, step C...</u>*

*Subject matters that do not fall within the meaning of statutory classes of inventions as set forth in Section 21 of the IP Code are not eligible for patenting.*

*__Example 1__: An example of a claim that does not fit in the statutory categories under section 21:*

*Claim: A signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.*

*A transitory, propagating signal like the claim above likewise does not fall within meaning of the two statutory categories of invention, namely "an invention of a product" nor "an invention of a product". The transient electric or electromagnetic transmission is man-made and physical. It exists in the real world and has tangible causes and effects -but does not qualify as a product (article of manufacture), or as any of the other statutory categories stipulated in section 21 of the IP Code.*

The Examination Guidelines further continue that 'if a claim falls under at least one of the statutory classes, proceed to the assessment of whether the claim falls under non-statutory classes of inventions' and state the outline of how to assess whether or not the claim falls under non-statutory classes of inventions, as below. Note that the **technical character** is defined in the Examination Guidelines to 'mean of the kind that involves a technical teaching, i.e. an instruction addressed to a skilled person on how to solve a particular technical problem using particular technical means'.

### 4.2. Non-Statutory Subject Matter

*Section 22 of the IP Code and Rule 202 of the IRR specifically define non-statutory subject matters that are ineligible for patent protection.*

*For inventions concerning the field of ICT and CII, especial considerations are conferred to the non-statutory subject matters set forth hereunder. In the following chapters "Abstract Ideas" is used under the following definition:*

***Abstract Ideas - includes fundamental concepts apart from the means or processes for carrying the concept to produce a technical effect;*** *Schemes, rules, and methods of performing mental acts and playing games; method of doing business, such as a method or system for transacting business without the technical means for carrying out the method or system; and mathematical methods.*

***Computer Program*** *- shall mean a set of instructions executed by the computer to achieve intended results (from the Cybercrime Prevention Act of 2012).*

### 4.3. Technical Character

*In accordance with the IP Code and its implementing rules and regulations, subject matters falling within the meaning of non-statutory subject matters represent purely abstract concepts devoid of any technical character wherein an*

*invention relates to aforesaid subject matters as such and do not offer anything more than the abstract idea. In other words, the subject matter as claimed, considered as whole, does not provide any contribution to the art in a field not excluded from patentability under Sec. 22 of the IP Code.*

*Having technical character is an implicit requirement of the IP Code to be met by an invention in order to be an invention within the meaning of Section 21 of the IP Code. Thus an invention may be an invention within the meaning of Section 21 if for example a technical effect is achieved by the invention or if technical considerations are required to carry out the invention.*

*Furthermore, an apparatus constituting a physical entity or concrete product suitable for performing or supporting an abstract idea (e.g. business method) to produce technical effect, is an invention within the meaning of Section 21 (IP Code). However, the feature of using technical means (apparatus) for a purely nontechnical purpose and/or for processing purely non-technical information does not necessarily confer technical character to an invention. In fact, any activity in the non-technical branches of human culture involves physical entities and uses, to a greater or lesser extent, technical means.*

*Hence, apart from the presence of tangible components (apparatus, devices, etc.), an application as claimed must likewise clearly recite feature/s serving for the purpose of providing a technical solution to problem in order to fall within the meaning of patentable inventions under Section 21 of the IP Code. In other words, the subject-matter as claimed, considered as a whole, should provide a technical contribution to the art in a field not excluded from patentability.*

*In considering whether the subject-matter of an application is an invention within the meaning of Section 21, there are two general points the examiner must bear in mind. Firstly, any exclusion from patentability under Section 22.1 or Section 22.2 will in general apply only to the extent to which the application relates to the excluded subject-matter as such. Secondly, the examiner should disregard the form or kind of claim and concentrate on its content in order to identify the real contribution which the subject-matter claimed, considered as a whole, adds to the known art. If this contribution is not of a technical character, there is no invention within the*

*meaning of Section 21. Thus, for example, if a computer program is claimed in the form of a physical record, e.g. on a conventional tape or disc, the contribution to the art is still no more than a computer program. In these instances the claim relates to excluded subject-matter as such and is therefore not allowable.*

*If, on the other hand, a computer program in combination with a computer causes the computer to operate in a different way from a technical point of view, the combination might be patentable.*

*Furthermore, regarding programs for computers, the basic patentability considerations here are exactly the same as for the other exclusions listed in Section 22. However a data-processing operation can be implemented either by means of a computer program or by means of special circuits, and the choice may have nothing to do with the inventive concept but be determined purely by factors of economy or practicality. With this point in mind, examination in this area should be guided by the following approach:*

*A computer program claimed by itself or as a record on a carrier, is not basically patentable irrespective of its content. The situation is not normally changed when the computer program is loaded into a known computer. If however the subject matter as claimed makes a technical contribution to the known art, patentability should not be denied merely on the ground that a computer program is involved in its implementation. This means, for example, that program-controlled machines, program controlled manufacturing and control processes should normally be regarded as patentable subject-matter. This also means, for example, that a computer program as a record on a carrier can be regarded as patentable subject matter if the computer program is implemented in a computer and has technical character. It follows also that, where the claimed subject-matter is concerned only with the program-controlled internal working of a known computer, the subject matter could be patentable if it provides a technical effect.*

*It must also be borne in mind that the basic test of whether there is an invention within the meaning of Section 22, is separate and distinct from the questions whether the subject-matter is susceptible of industrial application, is new and involves an inventive step.*

*To fall within the meaning of statutory classes of invention, the IP Code requires that patent protection should be conferred only for technical creations. An invention for which protection is sought should, therefore, embody technical character in order to qualify for patent protection. Thus an invention may be an invention within the meaning of Section 21 of the IP Code if for example a technical effect is achieved by the invention or if technical considerations are required to carry out the invention. (omitted)*

*In these regard, <u>an invention for which these guidelines relate is said to be possessing technical character when it explicitly or implicitly manifests technical consideration in providing a solution to a problem</u>. Where a tangible or concrete means is involved, the manner by which the invention operates must show indication that information technology and ICT and computer-related technical aspects or considerations are applied in realizing the invention.*

*If a claim, under the broadest reasonable interpretation, covers an invention that fall within the non-patentable classes of inventions as provided by Section 22 of the IP Code, a rejection should be made*.

As seen from the above, Section 21 of the Code provides that a patentable invention is a <u>technical solution</u> that satisfies prescribed requirements, based on which the Examination Guidelines specify that <u>possessing technical character</u> is a requirement that an invention should satisfy in order to be an invention within the meaning of Section 21 of the Code.

**1.2.4. Subject matter eligibility determination test of inventions in the field of ICT/CIIs**

The Examination Guidelines further provide a subject matter eligibility determination test in the field of ICT/CIIs, as outlined below.

*Inquiry:*

*Step 1: Is the claim involving the field of ICT/CII?*

● *No - Perform eligibility determination using criteria/method applied for other subject matters (General Criteria)*

● *Yes – Proceed*

*Step 2: Is the claim directed to a product or process within the meaning of the IP Code?*

● *No - Ineligible Subject Matter*

● *Yes - Proceed*

*Step 3: Does the claim involved an abstract idea?*

● *No - eligible subject matter, i.e. the claim has technical character (i.e. directed to technical elements and excludes feature/s relating to an abstract idea).*

● *Yes – Proceed*

*Step 4: Does the claim constitutes technical character wherein a technical solution to a problem is evident after weighing all the factors?*

● *No - ineligible subject matter*

● *Yes – Proceed*

*After weighing all the factors, if the claim is not drawn to an eligible subject matter, reject the claim as being directed to a non-statutory subject matter. If the claim is drawn to an eligible subject matter, proceed to the determination of novelty, inventive step, and industrial applicability.*

## 1.2.5. Regarding the novelty/inventive step of inventions in the field of ICT/CIIs

The Examination Guidelines further state the novelty/inventive step of inventions in the field of ICT/CIIs roughly as follows.

### *7. Novelty*

*Novelty Section 23 of the IP Code - an invention shall not be considered new if it forms part of a prior.*

● *Any distinguishing feature of an invention over the prior art implies presence of novelty. For example, a computer of known type set up to operate according to a new program cannot be considered as forming part of the prior art.*

### 7.1. Invention of Sub-combination

In cases where an invention of overall apparatuses or an invention of method of manufacturing a product (hereunder referred to as "combination") is formed by combining two or more apparatuses or processes, sub-combination is defined as an invention of each apparatus or each process of the combination.

In the field of ICT/CII, an invention of a sub-combination is sometimes filed, since an applicant sometimes wishes to acquire a patent right directed not only to a system claim but also to a server or a terminal which is connected to the server via a network (PC, smart phone, machine etc.) respectively.

In view of this applicant's tendency, the examiner should take into consideration, in examining novelty (or inventive step), concerning claimed inventions in protection being sought is directed to a particular sub-combination wherein reference to elements/features of other sub-combinations is present are matters as hereunder described.

The examiner, in analysing the claimed invention, should consider elements relevant to "another sub-combination" stated in the claim. The examiner should also seriously look into the role these elements play that impacts the sub-combination invention with respect to aspect of its shape, structure, constituent element, composition, operation, function, property, characteristic, method (an act or action), use, etc. (hereunder referred to as "a structure, function, etc.") when the examiner evaluates the claimed sub-combination invention. In this regard, the examiner takes into account the statements of the description and drawings as well as the common general knowledge at the time of filing.

In cases where an element relevant to "another sub-combination" has a role that affects a structure, function, etc. of the claimed sub-combination invention, the examiner should consider that the claimed sub-combination invention has such a structure, function, etc. If difference between a sub-combination invention and a cited prior art lies in said structure, function, etc., the examiner should consider that the sub-combination invention involves novelty.

*In cases where an element relevant to "another sub-combination" merely refers to "another sub-combination" and does not affect a structure, function, etc. of the claimed sub-combination invention at all, the examiner should construe the invention on the premise that the said element is only relevant to said "another subcombination" and does not play any role in the operation of the claimed subcombination invention.*

*If the claimed sub-combination and prior art differs only with regards to said elements that is relevant only to the "another sub-combination", no difference exists between the claimed sub-combination invention and the cited prior art in terms of structure, function, etc. Therefore, the examiner should decide that the subcombination invention does not involve novelty.*

### 8. Inventive Step

*Inventive Step Section 26 of the IP Code - An invention involves an inventive step if, having regard to prior art, it is not obvious to a person skilled in the art at the time of the filing or priority date of the application claiming the invention.*

- *requires that the invention at bar provides a non-obvious technical contribution ( i.e. a non-obvious solution to a problem defined in terms of technical features) over of the prior art.*

*Problem Solution Approach*

- *Identify closest prior art*

- *Determine differentiating features and their technical effects*

- *Formulate an objective technical problem based on the differences*

- *Decide whether the propose solution is not obvious to a person skilled in the Art*

### 8.1. Examples of a Person Skilled in the Art Exercising Expected Ordinary Skills and Creativity

### A. Application to other fields

*There are a lot of cases in which procedure or means for realizing the function used in software-related inventions are often common in function or operation, regardless of the applied field to which the invention belongs. In such cases, it is within the ordinary*

*creative activity expected of a person skilled in the art to apply such procedure or means of software-related inventions used in certain applied fields to other fields to realize the same function or operation.*

**B.** **Addition of a commonly known means or replacement by equivalent**

*It is within the ordinary creative activity expected of a person skilled in the art to add a commonly known means for systematization as a constituent element or to replace part of constituent elements of the system with a well known means equivalent thereof.*

**C.** **Implementation by software of functions which are otherwise performed by hardware**

*It is within the ordinary creative activity expected of a person skilled in the art to try to realize functions that has been so far performed by hardware (e.g. circuits) by means of software.*

**D.** **Automation of human transactions**

*Where the cited prior art describes human transactions but does not describe how to automate them.*

*It is within the ordinary creative activity expected of a person skilled in the art to systematize existing human transactions in an applied field in order to realize on a computer, if the said systematization can be realized by a routine activity of usual system analysis method and system design methods.*

**E.** **Reproduction of a known event in computerized virtual space**

*It is within the ordinary creative activity of a person skilled in the art to reproduce a known event in a computerized virtual space, provided that the said reproduction would have been made by a routine work by using usual system analysis and system design methods.*

**F.** **Design modification on the basis of known facts or customs**

*When different features between the claimed invention and the cited invention are based on known facts or customs, and as a result of considering other publicly known cited inventions and the common general knowledge (including "evident facts"), the said different feature is of the nature to be decided at the discretion of a person skilled in the*

*art, and there is no hindering factor for coming up with the combination, the difference is no more than a design modification that is an obvious choice depending on the need of a person skilled in the art. Therefore, it is within the ordinary creative activity expected of a person skilled in the art.*

For business model-related inventions, as stated in the Introduction of the Examination Guidelines (see 1.2.1 of this report), the 'Guidelines on the Examination of ICT and CII' of January 2018 are the examination guidelines on business model and IoT-related inventions. Therefore, the Examination Guidelines include mentions of business model and IoT-related inventions throughout the guidelines (for details, see 1.2).

2.     **How to proceed with the examination of AI-related inventions**

The Intellectual Property Office of the Philippines (IPOPHL) has prepared and provided to examiners the ICT and CII Examination Guidelines, and examinations are being conducted in accordance with the guidelines. If the response to Q15 is summarised, the guidelines need to be updated to include more recent examples in determining patentability requirements. It is important to discuss the patentability of claimed inventions for each of AI, CS, BM, and IoT. Further, examples should comprise many case samples dealing specifically and separately with each of AI, CS, BM, and IoT.

**PH: Section 2**

The observations of the Intellectual Property Office of the Philippines on the three case examples and consideration of the results thereof prepared by the JPO were summed up on the basis of the responses to the questions for each case example in the questionnaire sent in advance.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** The conclusion of the IPOPHIL is that the claim of Case Example 1 is ineligible for patent (namely, 'disagree' with the judgment of the JPO).

**b) Explanation:** The response to Question No. 17 concerning eligibility for patent in the questionnaire is to 'disagree' with the observation and judgment of the JPO. As the reason, the IPOPHIL first determines that the 'Trained Model' in Case Example 1 is directed to computer algorithms, which fall under computer programs per se under the IP Code of the Philippines. Then, after introducing Sections 21 and 22 of the Code and Rule 201, the Office states: 'Because a Trained Model does not fall within the definition of product or process in view of the IP Code, it is, therefore, not eligible for patent protection. However, if the claim is redrafted such that the subject matter is directed to a product or process in view of the IP Code, the claim can be patentable'. It introduces an example of redrafted claim as below:

A computer system programmed to output values of the reputations of accommodations based on text data on the reputations of accommodations by means of a trained model wherein:

The model is comprised of a first neural network and a second neural network connected in a way that the said second neural network receives output from the said first neural network;

The said first neural network is comprised of an input layer to intermediate layers of a feature extraction neural network in which the number of neurons of at least one intermediate layer is smaller than the number of neurons of the input layer, the number of neurons of the input layer and the number of the output layer are the same, and weights were trained in a way each value input to the input layer and each corresponding value output from output layer become equal;

The weights of the said second neural network were trained without changing the weights of the said first neural network; and

The model causes the computer function to perform a calculation based on the said trained weights in the said first and second neural networks in response to the appearance frequency of specific words obtained from the text data on the reputations of accommodations input to the input layer of the said first neural network and to output the quantified values of the reputations of accommodations from the output layer of the said second neural network.

The response to Question No. 18-1 is to 'agree' on the premise that the specific information processing of analysing hotel accommodation reputations, as embodied by the claim, involves software and hardware components wherein the software is concretely realised by hardware devices (i.e. input to the computer, weights calculation, and final output).

The response to Question No. 18-2 is: 'The IP Code of the Philippines, however, disagrees with findings that the claim, as drafted, [of Case Example 1] is patentable because a Trained Model is considered as computer software (algorithm) per se, which is a non-statutory subject matter for patent. However, if redrafted in a manner that the subject matter is directed to an invention falling under the product or process category as aforementioned in [Question No.] 17.2, the invention in Case 1 can be patentable subject matter under the IP Code of the Philippines.'

The response to Question No. 19-1 is to 'agree' with its reason explained as follows:

Under the IP Code of the Philippines, computer programs can be patentable subject matter for inventions if 'further technical effect' is produced when the program is carried out by a computer. When software is concretely realised by using hardware resources, said software is deemed to be exhibiting a 'further technical effect'. There, invention should include tangible/concrete means whereby the software and hardware are working cooperatively and evidently to solve/realise a technical problem which, for example, includes the manipulation of information or arithmetic operation. However, a claim to a computer program should follow the format allowable provided in the ICT and CII Guidelines.

Then, the response introduces the four 'examples in the claim format allowable for a claim directed to a computer program', which are published in the Examination Guidelines.

The response to Question No. 19-3 includes an example of each of the non-patentable business method and the patentable business method. In the example of the non-patentable business method, it is first introduced that Rule 202(d) provides a 'method of doing business, such as a method or system for transacting business without the technical means for carrying out the method or system (i.e. claims for a method of doing business in abstract, i.e. not involving any technical means and considerations in carrying out the method).' Then, it is further stated that the 'business method per se' may be construed

to mean that the subject matter is considered to be a mere abstract creation lacking in technical character; therefore, it is not a patentable invention.

On the other hand, in the example of the patentable business method, it is stated that 'if an invention involves 'Technical Character', wherein tangible components/devices and computer-related technical concepts are employed, the claim to a product or process, even if it involves a business method/concept, is considered eligible for patent protection.'

**Case Example 2: Inventive step**

**a) Conclusion:** The conclusion of the IPOPHIL is to 'agree' with the observation and judgment of the JPO.

**b) Explanation:** The response to Nos. 20 to 22 concerning the inventive step in the questionnaire is 'agree'. Note that the response to Question No. 22-1 has a comment that 'there is no teaching or evidence in the prior art about using the temperature factor as an input parameter to make the estimation of dam power generating capacity more accurate'.

The response to Question No. 23 is as follows:

We categorised the invention in terms of technical and non-technical features to determine whether it fulfils the eligibility requirement in terms of 'technical character'. If the invention involves only abstract/non-technical features, it will not be eligible for patent protection. On the contrary, if the invention involves both technical and non-technical features, it is patentable subject matter.

For inventions involving both technical and non-technical features, we examine the patentability requirements (i.e. novelty and inventive step) of the claim as a whole and do not separate the non-technical and technical features. If the claimed invention and the prior art differ in either the nontechnical or technical features, the invention is considered novel. If the difference of the invention and prior art lies in the non-technical field (e.g. rules, data gathering schemes etc.) the invention is obvious because non-technical/abstract concepts are obvious to a skilled person. However, if the difference lies in the technical features, the invention as claimed might be patentable if the prior arts do not provide prima facie evidence of the differentiating feature.

In the case of the invention in Case Example 2, the invention involves both technical and

non-technical features in which the subject matter of the invention differs from the prior art in that the subject invention includes using the temperature factor as an input parameter to make the estimation more accurate. Therefore, the invention in Case 2 is novel over the prior art. Since the temperature factor is a technical parameter that requires technical considerations/concepts to implement, the invention in Case 2 has an inventive step in view of the prior art because the difference is not suggested in the prior art and likewise involves the technical features of the claimed invention.

**Case Example 3: Description requirements**

**a) Conclusion:** The conclusion of the IPOPHIL is to 'agree' with the observation and judgment of the JPO.

**b) Explanation:** Each of the responses to Question Nos. 24, 25, and 26-1 concerning description requirements in the questionnaire is 'agree'.

The response to Question No. 26-3 is as follows:

The IPOPHL patent examination guidelines do not have any specific provisions pertaining to the inclusion of flowcharts and tables. Flowcharts and tables are only necessary when there is a need to explain and illustrate the invention using such tools. For instance, if the invention sought for protection cannot be fully described without flowcharts and tables, the specification should include such tools including detailed explanation for the same. If, however, the application can be disclosed fully, from the view point of a person skilled in the art, with the exclusion of flowcharts and tables it is also considered complete disclosure. In other words, full disclosure/enablement determination lies not on the presence or absence of flowcharts and tables but on whether the application passes the test of enabling disclosure prescribed by Rule 406 and Rule 406.1 of the Implementing Rules and Regulations (as for Rule 406 and Rule 406.1, see the attached manual).

**SG: Section 1**

1. **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

1.1. **Patent law**

The Republic of Singapore has an independent Patents Act (https://wipolex.wipo.int/en/text/581740), and the latest revision was made on 1 February 2021. Note that there is no system for utility modes (petty patents and simple patents).

The Patents Act has <u>no provisions on the definition of an invention</u>, <u>nor does it have provisions on the exclusion, from patent protection, of the subject matters such as discoveries, scientific theories, mathematical algorisms; aesthetic creations; schemes, rules, or methods for performing human mental activities, doing business, or playing games; and presentations of information</u> (however, these are, as discussed later, mentioned in the examination guidelines). In addition, <u>there is no provision on denial of eligibility of computer programs or recording media</u> (for specific provisions, see the attached material that contains them).

Part III 'Patentability' of the Patents Act has provisions on patentability, and they are the provisions relating to the patentability of CIIs and AI-related inventions (for specific provisions, see the attached material; hereinafter the same applies).

Section 13 stipulates that <u>a patentable invention</u>, not limited to CIIs and AI-related inventions, <u>is new, involves an inventive step, and is capable of industrial application</u>. It is specified (in Section 16(1)) that an invention shall be taken to be capable of industrial application if it can be made or used in <u>any kind of industry, including agriculture</u>, from which it is interpreted that service industry, etc. is also included in the 'industry'. Further, Section 14 provides the definition of novelty and Section 15 provides the definition of an inventive step.

The provisions on the description requirements of the specification (including the description of an invention) and claims as well as on the unity of invention are provided in Section 25 'Making of application' of Part V 'Applications for Patents,' wherein subsection

(4) specifies the enablement requirement, subsection (5)(b) clarity, (5)(c) support requirement, and (5)(d) the unity of invention.

What is characteristic of the patent examination in the Republic of Singapore is that the 'Registrar' appoints the 'Examiner' and that the 'Examiner' includes any Deputy Registrar of Patents, and any Assistant Registrar of Patents or public officer to whom the 'Registrar' has delegated any of the Registrar's powers or functions (Section 2). The patent system of Singapore started originally as a system for the 'Registrar' in Singapore to re-register, at request, the patents that had been registered in the United Kingdom upon payment of the fees, and the above appointment system seems to be based on such a historical background. Further, it is specified that 'Examiner' means any person, organisation, entity, or foreign or international patent office or organisation appointed by the 'Registrar,' so that 'Examiner' may be not only any natural person but any organisation or entity as well. This arrangement seems to correspond to the following three routes for filing a request for examination.

Another characteristic of the patent examination in the Republic of Singapore is that there are three routes for filing a request for examination (Section 29). The first route is a route for requesting a so-called modified substantive examination. If the claims of a patent application filed with the Republic of Singapore contain all the claimed elements determined to satisfy the three requirements: novelty, inventive step, and industrial applicability in a particular foreign patent office or international searching authority/international preliminary searching authority, then the applicant may request this route. In this case, the Examiner makes no determination of these three requirements and only determines as to the eligibility for patent, any invention of a method of therapy or diagnosis, description requirements, novelty, and the like. Note that this route is scheduled to be closed (abolished) in the near future.

The second route is that if there are prior art search results issued by a particular foreign patent office, the Intellectual Property Office of Singapore, or an international searching authority with respect to the claims that match with those of a patent application filed with the Republic of Singapore, the applicant may request this route by submitting such results. In this case, the Examiner does not conduct any search in principle and makes a determination on the basis of the prior art indicated in the submitted search results.

The third route may be requested if the request for examination under any of the above two routes is not possible or is not intended. In this case, the Examiner independently conducts searches and determines based on the search results.

**1.2. Examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

In February 2014, the first version of the Examination Guidelines for Patent Applications at IPOS (hereinafter, abbreviated as the 'Examination Guidelines') (https://www.ipos.gov.sg/docs/default-source/resources-library/patents/guidelines-and-useful-information/examination-guidelines-for-patent-applications-at-ipos_2020-mar.pdf) was prepared and, thereafter, the Examination Guidelines have been repeatedly revised almost every year. At the time of the ERIA research, the version released on 26 March 2020 was the latest. Note that the Examination Guidelines are publicly available only in English (from a response in the questionnaire in Section 2).

Chapter 8 of the Examination Guidelines is about 'Patentable Subject Matter and Industrial Applicability', wherein Section A specifies the 'statutory requirements'. The legal grounds for Section A are described to be the provisions of Section 13(1) of the Patents Act, containing the term 'invention', which states that 'a patentable invention is one that satisfies the following conditions: (a) the invention is new; (b) it involves an inventive step; and (c) it is capable of industrial application' (paragraph 8.1). Note that the Patents Act of the Republic of Singapore has no provision on the definition of an 'invention'.

Section A provides general guidelines whose core paragraphs are shown below:

**8.3** *If there is a residual issue that the claims may relate to subject matter which is not an "invention", a separate analysis of the claimed subject matter should be undertaken. In determining whether or not the claims define an "invention", the Examiner should take into account the substance rather than the form of the claims in order to identify the actual contribution which is made by the claimed subject matter, having regard to the problem to be solved, how the claimed subject matter works, and what its advantages are. Regard should also be given to the person skilled in the art and the common general knowledge he possesses.*

**8.5** *An objection should be raised if the actual contribution lies solely in subject matter that is not an "invention" (for example, if the actual contribution falls within any of the areas described in sub-sections i, ii, iii, iv or v of this Section in this Chapter).*

**8.6** *In considering the actual contribution of claims directed to computer-implemented inventions (CIIs), Examiners should determine the extent to which the computer (or other technical features) contributes to the invention defined in the claims. For such CIIs, it must be established that said computer (or other technical features), as defined in the claims, is integral to the invention in order for the actual contribution to comprise said computer (or technical features).*

**8.7** *For example, <u>claims relating to a computer-implemented business method would be considered an invention if the various technical features (e.g. servers, databases, user devices etc.) interact with the steps of the business method (i) to a material extent; and (ii) in such a manner as to address a specific problem. As an example of what is meant by "material extent", a claim may recite known hardware components for implementing a business method, but if the overall combination of the hardware provides, for example, a more secure environment for performing transactions, then the hardware would be regarded to interact with the business method to a material extent to address a specific problem. The actual contribution, in this case, is likely to be the use of that combination of hardware for the business method, which would be considered an invention. However, if the technical features recited in the claim are such that they are no more than the workings of a standard operating system, in particular, the use of a generic computer or computer system to perform a pure business method, then such an interaction would not be considered to be a material extent and it is apparent that no specific problem is solved. The actual contribution is likely to be the business method, and the claimed subject matter would not be considered an "invention" by merely including the term "computer-implemented" or a similar generic term in the claims.</u>*

Furthermore, Section A include five sub-sections: <u>(i) discoveries; (ii) scientific theories and mathematical methods; (iii) aesthetic creations: literary, dramatic, musical, or artistic works; (iv) schemes, rules, or methods for performing a mental act, playing a game, or doing business; and (v) presentation of information</u>. Amongst them, <u>sub-section (ii)</u>

scientific theories and mathematical methods mentions 'artificial intelligence and machine learning' particularly in paragraphs 8.22 to 8.27 (hereinafter, the portion of paragraphs 8.22 to 8.27 are called the 'AI and Machine Learning Guidelines').

The AI and Machine Learning Guidelines state as follows:

**8.22**  *Artificial intelligence and machine learning methods typically utilize computational models and algorithms for classification, clustering, regression and dimensionality reduction in the performance of various tasks. Neural networks, support vector machines, discriminant analysis, decision trees, k-means and other such computational models and algorithms applied in machine learning are, by themselves, mathematical methods, and are hence not considered to be inventions.*

**8.23**  *On the other hand, where the claimed subject matter relates to the application of a machine learning method to solve a specific (as opposed to a generic) problem, the actual contribution of said claimed subject matter is likely considered to go beyond the underlying mathematical method and thus, could be regarded as an invention. To clarify, a generic problem, such as using the method in controlling a system, is unlikely to be sufficient to pass the threshold; the application must be a specific one, such as using the method in controlling the navigation of an autonomous vehicle.*

**8.24**  *Furthermore, <u>the mere fact that a mathematical method may solve a specific problem is unlikely to be sufficient. The claim should be functionally limited to solve the specific problem, either explicitly or implicitly. This can be achieved by establishing a sufficient link between the specific problem and the steps of the mathematical method, for example, by clearly specifying how the input and the output of the sequence of mathematical steps relate to the specific problem, so that the mathematical method is causally linked to solve said problem.</u>*

**8.25**  *For example, a claim directed to a deep learning method, incorporating both heterogeneous transfer and multi-task learning such that the method is characterized by the mathematical steps of the algorithm would be considered a mathematical method per se, and therefore would not be regarded as an invention. However, said method, for example, applied to process audio or video data to solve the specific problem of recognising human speech or recognising images would likely be considered an invention.*

*8.26* *Artificial intelligence or machine learning methods may also be claimed with reference to their implementation on a computer or using computer hardware. In such cases, the same considerations at paragraphs 8.23 and 8.24 should apply to determine whether or not the claimed invention solves a specific problem. Where such a specific problem is not apparent, and the claimed subject matter appears to involve the mere use of conventional computer hardware to implement a machine learning method based on a computation model, it is unlikely that the actual contribution of said claimed subject matter would be considered to go beyond the underlying mathematical method, regardless of whether or not the model can be "trained" based on training data. In such a situation, the underlying mathematical method is also not considered to interact with the conventional hardware to a material extent and in such a manner as to address a specific problem.*

*8.27* *It should be mentioned that artificial intelligence and machine learning methods may be applied across a broad spectrum of industries, and thus care should be taken that the actual contribution of the claims also does not fall within other subject matter not considered to be inventions, such as business methods. For such subject matter, the considerations at paragraphs 8.6 and 8.7 are applicable.*

For business model-related inventions, as discussed in 1.2 above, <u>sub-section (iv) of Section A in Chapter 8 of the Examination Guidelines mentions schemes, rules or methods for performing a mental act, playing a game, or doing business. This is</u> considered to be<u> the examination guidelines on business model-related inventions in the Republic of Singapore</u> (hereinafter, called the 'Business Model Guidelines').

Sub-section (iv) provides the following two guidelines:

*8.31* *Methods that are considered mental acts or schemes are generally not inventions. These include teaching methods (such as a method of learning a language or reading), methods of mental arithmetic, methods of memorising things, or methods of designing a product.*

*8.32* *This practice is applied narrowly – for example, in Halliburton Energy Services Inc v. Smith International (North Sea) Ltd [2005] EWHC 1623, the Court found that claims to a method of designing a drill bit were sufficiently broad to also encompass the purely intellectual content of a design process, and hence the claims were deemed*

*to be directed to a mental act. However, the Court considered that this deficiency was a matter of form and could have been overcome by the inclusion of a manufacturing step.*

Seen from these guidelines, it is considered that the Intellectual Property Office of Singapore (IPOS) recognises the possibility that business model-related inventions are determined to be eligible for patent.

Further, sub-section (v) presentation of information, includes the following guideline:

**8.33** *Any invention which is characterised solely by the content of the information is not an invention, even if a physical apparatus is involved in the presentation. In Townsend's Application [2004] EWHC 482 (Pat), claims relating to an advent calendar with an additional indicium on each door were found not to be an invention. Laddie J held that the exclusion does not only apply to the expression of information but also to the provision of information.*

**8.34** *The key consideration in such cases is whether the actual contribution is the presentation of the information as such.*

*(a) to (e) (omitted).*

> *(f) Claims to software that are characterised only by source code, and not by any technical features, is unlikely to be considered an invention on the basis that the actual contribution would be a mere presentation of information.*

As a contrary interpretation of (f) of paragraph 8.34, it is considered that the decision of lacking the eligibility for patent in the Republic of Singapore would not mechanically be made only because the subject invention is in the format of a claim directed to a recording medium or program.

## 2. How to proceed with the examination of AI-related inventions

The IPOS has prepared its guidelines and has been conducting examinations in accordance with the guidelines. Furthermore, according to the response to Q11, ''General' Examination Guidelines cover broad principles and guidance for examiners to carry out the examination in all technical fields. Meanwhile, examiners are generally informed to understand the 'case-by-case' nature of determination for emerging technologies, since eligibility and the inventive step for such cases tend to be fact specific.' Then, as for the future, according to Q15, the IPOS considers that '[its] current 'general' Examination Guidelines are sufficient for the applications in emerging technologies we examine in Singapore.'

**SG: Section 2**

The observations of the IPOS on the three case examples and consideration of the results thereof prepared by the JPO were summed up on the basis of the responses to the questions for each case example in the questionnaire sent in advance.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** The conclusion of the IPOS is that this case is eligible for patent (the conclusion is consistent with the judgment of the JPO).

**b) Explanation:** The response to Nos. 17 and 18 concerning the eligibility for patent in the questionnaire is 'agree'.

With respect to the response to No. 17, the reasoning resulting in the conclusion is explained as below:

The actual contribution of the claimed subject matter lies in using two neural networks working together to generate a quantified value of reputation of accommodation based on text data. It does not fall within the excluded list specified in Examination Guidelines for Patent Applications at the IPOS (Version: March 2020). The actual contribution is technical in nature. Thus, it is considered to be patent eligible. Further, upon citing paragraph 8.34 of Examination Guidelines (see 1.3 of Chapter 1), the trained model defined in claim 1 of Case Example 1 is not 'software that is characterised only by source

code, and not by any technical features'.

Further, as for the response to No. 18-1, the reasoning resulting in the conclusion is explained as below:

The actual contribution of the claimed subject matter lies in using two neural networks working together to generate a quantified value of reputation of accommodation based on text data. It does not fall within the subject matter not considered to be inventions specified in the Examination Guidelines for Patent Applications at the IPOS (Version: March 2020) (see sub-sections I to V of Section A in Chapter 8). The actual contribution is technical in nature. Thus, it is considered to be patent eligible.

In the case of the response to Nos. 19-1 and 19-2 concerning the eligibility for patent in the questionnaire, 'agree' or not is not explicitly indicated and paragraphs 8.6 and 8.5 of the Examination Guidelines (see 1.2 of Section 1) are copied. Further, for the response to No. 19-3 in the questionnaire, 'yes/no' is not explicitly indicated, and paragraph 8.7 of the Examination Guidelines (see 1.2 of Section 1) is copied.

**Case Example 2: Inventive step**

**a) Conclusion:** The conclusion of the IPOS is that with respect to No. 20 concerning inventive step in the questionnaire, the Office 'agrees' with the JPO's interpretation that a system invention belongs to the 'products or apparatuses' category; as for No. 21 in the questionnaire, the Office does not explicitly indicate 'agree' or not, but seems to not 'agree,' judging from the content of the explanation below; and for No. 22 in the questionnaire, the Office 'agrees' with the conclusion of the JPO.

**b) Explanation:** In the response to No. 20 concerning an inventive step in the questionnaire, no reason to 'agree' is stated.

In the response to No. 21, the IPOS explains as follows:

Claim 1 defines a system which estimates the hydroelectric power generating capacity of a dam using a neural network. The prior art discloses a system achieving the same objectives by a regression equation model without utilising machine learning. The IPOS adopts the Windsurfing test (Windsurfing International Inc. v Tabur Marine Ltd. [1985] RPC 59) to determine whether the claim is inventive. The difference between claim 1 and the prior art is that claim 1 defines a system which estimates the hydroelectric power

generating capacity of a dam using a neural network rather than a regression model. The question is whether the difference is obvious to the person skilled in the art. Question 19 provides that 'the cited invention 1 achieves the same objectives by a regression equation model without utilising machine learning. The JPO concludes that claim 1 of the invention in question does not have an inventive step, for machine learning is considered as well-known art'. We think that the facts given in question 19 are not enough to determine whether it is obvious to the person skilled in the art to replace the regression model with the neural network. If the prior art and/or the common general knowledge of the skilled person does not suggest that it is advantageous to replace the regression model with a neural network, and a neural network is not known to be used in the context of the invention, the person skilled in the art would not be motivated to do so. Therefore, claim 1 is inventive. On the other hand, if the prior art and/or the common general knowledge suggests that it is advantageous to replace the regression model with a neural network, and a neural network is commonly known to be used in the context of the invention, it is obvious to the person skilled in the art to replace the regression model with a neural network in order to obtain the suggested advantage. Therefore, claim 1 is not inventive.

In the response to No. 22, the following explanation is provided:

If there is no prior art disclosing that the temperature of the upper stream of the river would affect hydroelectric power generating capacity, it is not obvious to the person skilled in the art to introduce the temperature of the upper stream of the river as input data into the neural network. Therefore, the claim (claim 2) is inventive.

**Case Example 3: Description requirements**

**a) Conclusion:** The conclusion of the IPOS is that with respect to No. 24 concerning description requirements in the questionnaire, the Office 'agrees' with the JPO's reasoning that 'in view of a common general technical knowledge, a person skilled in the art can presume a certain relation such as a correlation … between the advertisement data and reference data on the web and the sales quantity, even though the correlation or the like is not explicitly indicated in the description'.

As for No. 25 in the questionnaire, the Office 'agrees' with the JPO's reasoning that 'it would be practically feasible to produce an apparatus which designs and proposes business plans. The Office further believes that the apparatus utilises the estimation

model which enables the said input data to generate the output data, since it is conventionally known that the machine learning does realise the estimation model.'

For No. 26-1 in the questionnaire, the Office 'agrees' with the JPO's reasoning that 'the JPO justifies the enablement requirement of the invention by observing two factors, i.e. (i) the invention should be reproduced by a person skilled in the art (how-to-make), and (ii) the invention should be carried out (how-to-use).'

**b) Explanation:** In the responses to Nos. 24, 25, and 26-1 concerning description requirements in the questionnaire, no reason to 'agree' is particularly stated.

In the response to No. 26-3 concerning description requirements in the questionnaire, the Intellectual Property Office of Singapore explains as follows:

With respect to the requirement for the details of the description, Examination Guidelines for Patent Applications at the IPOS (Version: March 2020) has specified a general approach to determine the sufficiency of disclosure (Paragraphs 5.23-5.34).

We need to first identify the invention and what said invention claimed to enable the skilled person to do, and then ask whether the specification enabled the person to do it. The specification must provide sufficient disclosure across the full scope of the claims. If the claims themselves provide an enabling disclosure and are supported by the description, then this may be sufficient.

However, if the invention is unpredictable in nature, then more details may be required. Based on the disclosure in the specification, it is assessed whether the said disclosure will impose an undue burden on the person skilled in the art to test all possible combinations to determine those that fall within the scope of the claims. If 'yes', the disclosure is probably insufficient.

Our Examination Guidelines specify that the specification does not need to disclose all the details required to work the invention if these would be known or obvious to the skilled person. The specification must disclose features that are essential to carry out the invention or provide sufficient detail for the skilled person to work the invention without needing to undertake further invention to do so.

For this case, it is understood that examples are given in the description, such as the web advertisement data, which is the number of times when the specific product publicly

appeared on the web, and the reference data, which includes reviews on the product or advertisements in web articles, social media, and blogs, etc. Even though it is not explicitly mentioned about the correlation of the web advertisement data, the reference data and sales quantity, with the assumption 'a certain relation such as a correlation between advertisement data, reference data on the web and sales quantity', the skilled person with common general knowledge would be able to work the invention after they read the specification. Hence, there is no enablement issue.

**TH: Section 1**

**1.     Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

**1.1.   Patent law**

As the relevant provisions in examining AI-related inventions, the Patent Act provides '(3) computer programs' which is one of the five types listed in Section 9 specifying that 'the following inventions are not protected under this Act'. Except for this point, there is no special provision about AI-related inventions in the Patent Act, and AI-related inventions are examined based on Section 3 (the definition of invention), Section 5 (novelty, inventive step, and industrial applicability), and Section 17 (description requirements), all of which apply to all the inventions.

> *Section 9*
>
> *The following inventions are not protected under this Act:*
>
> *(1) naturally occurring microorganisms and their components, animals,*
>
> *plants or extracts from animals or plants;*
>
> *(2) scientific or mathematical rules or theories;*
>
> *(3) computer programs;*
>
> *(4) methods of diagnosis, treatment or cure of human and animal diseases;*
>
> *(5) inventions contrary to public order, morality, health, or welfare.*

**1.2.   Examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

'The Manual of Petty Patent and Patent Application Examination' (2019 revised version) (only in the Thai language) explains the examination of computer programs in detail, specifically in Part 1 'Computer programs' of Chapter 1 and in Chapter 6 (Guidelines for computer-related inventions). According to these guidelines, computer programs and media with such programs recorded therein are not protected. However, if an invention can be determined to provide technological development to prior art, even though the

invention may use a computer program, the invention may be patentable. For example, the machine controlled by a program and the production managed by a program and a control step are generally deemed to be granted protection in the case of an invention relating only to a program that controls the work in the generally-used computer, and if the program provides technical efficiency, the invention is patentable as a matter of course. Such explanation is provided. The eligibility for patent of AI-related inventions is set to be considered according to this guideline or criterion at the Thailand Department of Intellectual Property (DIP), and such practice involves judgment of the eligibility for patent of the current Case Example 1.

Other than 'The Manual of Petty Patent and Patent Application Examination' (2019 revised version) (only in the Thai language), no other patent examination materials (guidelines or instructions) for examiners are issued (Response to Q5). Although the manual has no separate explanations dedicated to AI, CS, BM, or IoT, etc. (Response to Q6), Chapter 6 illustrates an example showing the judgment criteria for computer-related inventions.

## 2. How to proceed with the examination of AI-related inventions

As discussed above, the DIP has prepared the Manual of Petty Patent and Patent Application Examination, and the response to Q11 relating to the manual states the following about the examination:

The work processes in our office for the emerging technologies are almost the same as the methodologies of a general patent examination. However, we need to consider the eligibility of a patent in emerging technologies for whether the patent is a CS-related invention. Considering one of the AI-related inventions in DIP titled 'Satellite Image Correction Method and Apparatus Using Neural Network', it seems like the technique/method used in the invention is a neural network to create a trained model for correcting satellite images. Although the DIP does not have concrete examination guidelines on AI application, it considers all AI applications as 'computer related inventions', which are dealt with in the guidelines in Manual 2019, Chapter 6.

Thus, in the views of scientific and mathematical theories and schemes, and rules or methods of doing business, the invention has patentability because the invention

describes clearly how the invention cooperates between hardware and software.

The DIP's last point that being the work of both hardware and software is included in the judgment criteria is consistent with the judgment of the JPO.

The response to Q15 concerning the future of the Manual is: 'The DIP has a plan to enrich the patent examination guidelines (also known as the 'Manual of Petty Patent and Patent Application Examination'), so that the guidelines cover the patent examination of AI and the other emerging technologies. The DIP also plans to publish an English version of the manual, but we do not have a translator or budget. The examiner of the DIP has a lack of AI knowledge, so we therefore take a longer time to complete the examination of AI applications. If the JPO provides training courses of AI technologies to the DIP, we will be grateful for Japan's support.' The response shows the future directionality of the revision of the guidelines.

**TH: Section 2**

The observations of the DIP on the three case examples and assessments prepared by the JPO were summed up for each case example on the basis of the responses to the prior questionnaire.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** The conclusion of the DIP is that this case is eligible for patent.

**b) Explanation:** According to the response to Q17-1, the DIP considers that: 'The trained model, which is considered as a computer programming, is created and discovered by human intervention to cause a computer to function the algorithm. Thus, the trained model is eligible as an invention.' Furthermore, according to the response to Q18, 'the DIP agrees with the … reasoning adopted by the JPO' and is consistent with the JPO also in terms of the reasoning.

Further, the response to Q19-1 is as follows:

The DIP agrees with the … reasoning adopted by the JPO. The CS-related invention can be considered eligible for patent if the CS-related invention falls under one of the points

below.

• a collaboration between software and hardware resources, or between software and devices;

• a special technical characteristic of the invention; or

• a concrete better effect and/or solution of the invention.

Lastly, the DIP responses to Q19-3 concerning business-related inventions are as follows:

The DIP considers that business-related inventions are not eligible for an invention as they do not provide a product or a process or a new way of doing something, or offer a new technical solution to a problem. However, if the business model invention shows a special technical characteristic that provides a product or a process or a new way of doing something, the business model invention is eligible as an invention.

This means that being eligible or not depends on the presence or absence of a 'special technical characteristic'.

**Case Example 2: Inventive step**

**a) Conclusion:** Disagree with the judgment of the JPO.

**b) Explanation:**   The response to Q20-1 and Q20-2 is as follows:

The DIP defines a 'system' invention that is deemed as an invention which belongs to the 'method' or 'process' category. The 'method' or 'process' category refers to the method, process, manufacturing procedure, maintaining or providing better quality, or better modification for products and procedure using.

On the other hand, the 'products' or 'apparatuses' category in the DIP definition means that the shape of the products or elements of the patterns or the colour of the products, have characteristics for the products to enable them to be used as industry products, including handicraft.

In the context of the computer and software (CS), the 'system' invention in the DIP definition means the procedure, means, process, or any action related with computers.

This differs from the interpretation and reasoning of the JPO that a system invention belongs to a 'products' or 'apparatuses' category.

The response to Q21-1 is that 'the DIP agrees with the judgment and reasoning adopted by the JPO' (that the claim 1 of the invention does not have an inventive step due to the relation to the cited invention).

The response to Q22-1 is that the DIP agrees with the JPO's opinion (that the claim 2 of the invention has an inventive step).

The response to Q23 is as follows:

The DIP considers the examination of the invention by splitting it into two parts between the invention 'with technical features' and the invention 'non-technical features', but the DIP considers only the invention's 'technical features' for an inventive step.

For Case Example 2, there are no elements in the invention that claim be regarded as an invention with non-technical features.

**Case Example 3: Description requirements**

**a) Conclusion:** The DIP agrees with the reasoning of the JPO as to the description requirements for the correlation between the number of times of advertisement, etc. and the sales quantity (Q24-1, Q25-1, and Q26-1)

**b) Explanation:** On the other hand, according to the response to Q26-3, the DIP requires further disclosure in Case Example 3 as the disclosure requirement practice of the DIP. The DIP responds as below:

Although the title of the application is explicitly named as an apparatus, the DIP concludes an invention as a system comprising multiple processes and methods without concrete hardware. Furthermore, claim 1 of the said application is too broad and explains only overview concepts of the machine learning model. Consequently, the DIP justifies that the application is unpatentable refer to Section 9(3) Suggestion Applicants should specifically detail special technical features. In this case, they should explain more about how to set up the model and hyperparameters. Besides that, they should fully describe all features in the training datasets, the timeframe of data collecting, and advertising channels. They should give an example of datasets in a tabular form, and attach some flowcharts to describe the sequence of the model.

**VN: Section 1**

1.  **Research on patent law and implementation rules, etc. relating to the examination of AI-related inventions**

**1.1.   Law of Intellectual Property**

The Law of Intellectual Property includes copyrights, industrial property rights, industrial designs, trademarks, geographical indications, trade secrets, and others (only in the Vietnamese language).

Articles 58 and 59 of the Law of Intellectual Property correspond to the provisions that come to be related in examining AI-related inventions. Article 59 illustrates examples of the inventions that are ineligible for patent, explicitly indicating computer programs. Thus, any invention on a computer program would immediately be denied in terms of the eligibility for patent pursuant to Article 59. Next, examiners determine whether or not an invention as filed satisfies Article 58 (novelty, inventive step, and industrial applicability) and Article 102 (description requirements) of the same law, all of which the requirements apply to all the inventions, including AI-related inventions.

**1.2. Current situation research on examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

The 'Patent Application Examination Guidelines' were issued in 2010 (only in the Vietnamese language) (Response to Q5). The guidelines consist of six chapters in total and explain the formality examination, substantive examination, handling of international applications, and administrative provisions in the Intellectual Property Office of Viet Nam (IP Viet Nam). Then, in Chapter 2 'Formality examination', 'computer programs' are included in the 10 types that are ineligible for patent. However, if an invention has a technical characteristic and aims at solving a technical problem by technical means as a substantial technical solution to provide a technical effect, the invention can be protected (5.8.2.5 'Computers' of Chapter 2 in the Guidelines).

## 2.    How to proceed with the examination of AI-related inventions

The patent examination on the emerging technologies is carried out through team collaboration amongst patent examiners. With regard to the AI, BM, or IoT inventions, decisions by the team and instructions shared in the team prevail and direct how to conduct the examination of such emerging technologies (Response to Q11). Further, IP Viet Nam considers it necessary to include more examples in the Examination Guidelines to make the emerging technologies more easy to understand for examiners in the fields of the emerging technologies. One of the most important concerns is how to update the new technology knowledgebase for examiners. In addition, examiners are individually encouraged to have discussions with the inventors of such emerging technologies to acquire knowledge on the technologies. IP Viet Nam responds that the assistance of other Offices like the JPO in terms of sharing examination practices would be very valuable (Response to Q15(2)).

**VN: Section 2**

The observations of IP Viet Nam on the three case examples and assessments prepared by the JPO were summed up for each case example on the basis of the responses to the prior questionnaire and the on-site interview.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** Although the JPO's judgment that this invention is eligible for patent is agreeable, IP Viet Nam needs further detailed information on the case example to conclude.

**b) Explanation:** The following are the results of the combination of the explanation from IP Viet Nam during the on-site discussions at IP Viet Nam with the responses to Q17.

The response to Q17-1(1) is: 'IP Viet Nam would however find it difficult to rationally conclude that a trained model is patent-eligible or not. The examination on AI-related technologies is in reality conducted on a case-by-case basis.' Further, in response to Q17-1 (any reason in case of a different observation from the JPO's), IP Viet Nam provides the following explanation:

1. In general, EPO practices are followed in the patent examination.

2. A computer program is expressly stipulated as a non-patentable subject matter in Law of Intellectual Property (Article 52(2)) and the patent examination guideline, and is considered as a part of a 'formality' issue before the substantive examination.

3. Computer programs are instead supposed to be protected by copyright under Article 22 of Law on Intellectual Property.

4. Even though the neural network and trained model appear to be a 'product' without a hardware attached, they do not exactly fall under the category of 'program'. The concept of a 'program' is somewhat different from those used in the AI-related technologies.

5. Despite the facts mentioned above and having observed the present practice and tendency of the patent examination, the so-called 'claim as a whole' approach should possibly be applied to the examination on such emerging technologies where concrete examination methodologies are not yet established.

IP Viet Nam feels that it needs more specific information concerning Case Example 1 in order to observe how the subject matter would contribute to the technical effect comprehensively.

Further discussions are needed to see what exactly is excluded from the eligible patents, i.e. 'computer program' or de facto 'computer program per se'. IP Viet Nam may examine the substance of the invention as a whole. The information given in Case Example 1 is insufficient for this.

The response to Q18-1 is: 'As in the situation explained in the response to Question No. 17, IP Viet Nam considers that it should require more information to evaluate the eligibility of the trained model. The Office may need to observe the technical effects and preciseness of the outcoming results derived from the trained model.'

In the response to Q19: 'IP Viet Nam wishes to take more time to contemplate the issue and to explore more in detail how to assess the eligibility of AI-related inventions/trained models. The Office considers the following viewpoints are the touchstone of this assessment.

- Expression used in the claim: formality examination

- If the subject matter is a product or process

- If the subject matter involves technical effects or technical characters

- Technical problems which the subject matter intends to solve'

**Case Example 2: Inventive step**

**a) Conclusion:** Agree with the judgment of the JPO.

**b) Explanation:** IP Viet Nam states: 'Even though Claim 1 defines the invention as a 'system', the Office considers that the invention as a whole should be categorised as a product or apparatus invention as a matter of formality examination' (Response to Q20-1). Their observation concerning the inventive step of Case Example 2 is consistent with the JPO's. The response to Q21-1 and Q22-1 is 'agree', and the response to Q23 is, 'No, IP Viet Nam observes that the elements with regard to Case Example 2 are all 'technical features', since the input data explained in the Case are technical parameters'.

**Case Example 3: Description requirements**

**a) Conclusion:** Agreeable.

**b) Explanation:** IP Viet Nam suggests requesting the applicant to submit more data in part with respect to the description requirements. The response to Q24-1 is that 'a person skilled in the art can presume a correlation between the advertisement data and web reference data or sales quantity (the relation that if advertisement increases in number, in proportion to which web reference data also increases in number). However, but for the above-mentioned presupposition, the Office has a strong feeling that the Office should invite the applicant and require concrete reasonings to show the correlation between the two factors.' This point is case-by-case, but if there is any question, requiring such concrete reasonings is considered a commonly-used examination practice.

The response to Q25-1 is 'agree'. For Q26-1, the Office responds: 'Even though the CS guideline does not have any enablement requirement, the general patent guideline does explain 'how to make' or 'how to use' type of requirements as a rule for drafting the descriptions for the invention to be carried out. The expressions in the guideline are that the description should be 'concise' and has enough information so that a person skilled in the art 'can do' the invention.'

**BN: BruIPO .... Brunei Darussalam Intellectual Property Office**

**BN: Section 1**

The response to the prior questionnaire with respect to the patent examination of AI-related inventions is that the BruIPO only conducts the preliminary examination, e.g. formality, drawings, priority documents, and outsources substantive examination to a foreign office. The BruIPO does not have information on AI patent examination.

**BN: Section 2**

The response to the prior questionnaire with respect to the following actual examples is: 'The BruIPO would like to reserve its official judgements on the following three case examples, for the Office does not yet conduct substantive examination on patents.'

**KH: Section 1**

1. **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

1.1. **Patent law**

The Kingdom of Cambodia has the Law on Patents, Utility Model Certificates and Industrial Designs (https://wipolex.wipo.int/en/text/567453) signed on 22 January 2003, in which there are provisions on patents and utility models. Article 3 of the law provides the definitions of 'patent' and 'invention', and Article 69 the definition of utility model (for specific provisions, see the attached material which includes them).

What is characteristic of these definitions is the point that it is explicitly stated that an invention means the one which permits in practice the solution to a specific problem in the field of technology, and the point that the utility model may be, or may relate to, not only a product but also a process as is the case with patents.

Provisions on patents are provided in Chapter 2 'Patents', and these are the provisions relating to the examination of CIIs and AI-related inventions (for specific provisions, see the attached material which includes them). Further, provisions on utility models are provided in Chapter 3 'Utility Model Certificates', in which Section 3 'Special Provisions Relating to Utility Model Certificates' specifies that the three patent requirements: novelty; inventive step; and industrial applicability shall not apply in the case of devices for which utility model certificates are requested (Article 71), and that the Registrar shall not take a decision as to whether the patent requirements, etc. are fulfilled (Article 72). Utility models are registered with no examination.

The provisions, amongst those on patents, relate to the eligibility for patent of CIIs and AI-related inventions and are considered requiring particular attention to Article 3, paragraph 2; and Article 4. The former requires that an invention must be the one which permits in practice the solution to a specific problem in the field of technology, and the latter specifies that the following inventions shall be excluded from patent protection: scientific

theories and mathematical methods; and schemes, rules, or methods for doing business, performing purely mental acts or playing games. The law has no provisions that deny the eligibility of computer programs or recording media. However, the Declaration of the Procedure for the Grant of Patents, Utility Model Certificates and Industrial Designs (which specifies regulations for implementation of the Law) (https://wipolex.wipo.int/en/text/241556) specifies that product inventions consisting of machine-readable computer program codes that are stored on a tangible medium, such as a floppy disk, computer hard drive, or computer memory and are executed by computer, are included in the computer software-related 'inventions' (Rule 44), and explicitly indicates that recording media fall under the scope of an invention. However, as a contrary interpretation of the fact that computer programs are not listed in the computer software-related 'inventions', it seems that computer programs are treated as being ineligible for patent.
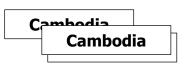
In order to obtain a patent for an invention, not limited to CIIs and AI-related inventions, the invention must be new, involve an inventive step, and be industrially applicable (Article 5). It is explicitly indicated that an invention shall be considered industrially applicable if it can be made or used in any kind of industry (Article 8). It seems that the service industry is not particularly excluded.

Articles 18 and 19 specify the description requirements for the specification and claims. It is considered that Article 18 specifies an enablement requirement, and Article 19 clarity and support requirements. It is noteworthy that Article 18 requires the applicant what is known as indication of the best mode.

The most characteristic provisions include those of Section 6 (Articles 30 to 32), specifying that it is possible to request the applicant to furnish information on corresponding foreign applications, and those of Section 7 (Articles 33 to 37) specifying the examination procedure by the Registrar of the Department of Industrial Property, Ministry of Industry, Science, Technology and Innovation (DIP/MISTI) of the Kingdom of Cambodia. First, the applicant shall, at the request of the Registrar, furnish them with the following: the date and number of any application for a patent filed by him abroad ('foreign application') relating to the same or essentially the same invention as that claimed in the Cambodian application, as well as (i) a copy of any communication received by the applicant

concerning the results of any search or examination carried out in respect of the foreign application; (ii) <u>a copy of the patent certificate granted on the basis of the foreign application</u>; or (iii) <u>a copy of any final decision rejecting the foreign application or refusing the grant of a patent requested in the foreign application</u>. The Registrar <u>takes into account (i) or (iii) above when rendering the decision of whether or not the patent requirements are fulfilled</u>. Note that it is specified that the Registrar <u>takes into account</u>, in addition to (i) or (iii) above, <u>the results of any international search report and any international preliminary examination report in the case of an application under the PCT and, if none of these exists, takes into account a search and examination report which was carried out upon request by an external search and examination authority</u>. From the above, the Registrar can eventually decide in any case whether or not the patent requirements are fulfilled, on the basis of the results of any search and examination report carried out by an external search and examination authority. Consequently, <u>at present under the Law on Patents, Utility Model Certificates and Industrial Designs of the Kingdom of Cambodia, the patent authority</u> (currently, Department of Industrial Property, Ministry of Industry, Science, Technology and Innovation) <u>carries out a formality examination only and does not carry out a substantive examination</u>. As a matter of fact, it is not the Examiner but the Registrar that makes a decision of whether or not the patent requirements are fulfilled, and the DIP/MISTI of Cambodia has no examiners for substantive examination. Currently, the entire staff of the DIP/MISTI of Cambodia are four people, amongst whom three people deal with all patent examinations.

According to the response to No. 14 in the questionnaire, the following international cooperation has been taking place between the DIP/MISTI and other IP offices, with respect to direct approval of the results of search and examinations carried out by other IP offices (i.e. omission or simplification of substantive examination): (i) Cooperation for Facilitating Patent Grant (CPG) with the JPO; (ii) Patent Cooperation with the KIPO and USPTO; (iii) Patent Validation Agreement with the EPO; and (iv) Re-registration of the patent with the IPOS and CNIPA. With such cooperation, the applicants from those countries can ask for a patent grant in a short period of time by submitting the DIP/MISTI with the required documents, provided that the application filed with the DIP/MISTI is identical to the certified copy of the patent specification that was originally filed with one of those IP offices in the cooperative relationship and that the applicant pays the fee. For

patent applications that are to be filed locally in Cambodia, the DIP/MISTI encourages the applicants of such applications to go through patent search and examination conducted by the cooperative IP offices or their preferred IP offices.

**1.2.  Examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

As in 1.1 above, the DIP/MISTI of Cambodia has not yet prepared examination guidelines (or examination criteria or a handbook, etc.) since the DIP/MISTI can rely on the cooperative IP offices (with respect to substantive examination). Naturally, there are no examination guidelines on CIIs and AI-related inventions; nor are there any staff who have a background in AI technologies or are experienced in examining AI applications.

Currently, the DIP/MISTI of Cambodia does not conduct a substantive examination, although it conducts a formality examination. In the future, however, the DIP/MISTI may establish its own patent guidelines with assistance from other IP offices, or it may follow the ASEAN patent guidelines, which are under progress.

For business model-related inventions, there are no examination guidelines on business models or IoT-related inventions, either.

**2.     How to proceed with the examination of AI-related inventions**

Currently, the DIP/MISTI conducts a formality examination and, for a substantive examination, asks applicants to submit a document with the same examination results as carried out by another office (JPO, USPTO, EPO, KIPO, or IPOS) with which the DIP/MISTI has established a cooperative relationship. If the content of the corresponding invention examined by the other office is identical with that of the invention filed with the DIP, the DIP/MISTI grants a patent.

The DIP/MISTI proceeds with the examination in this way and thus has no guidelines at present. If it comes to prepare its own guidelines, however, the DIP/MISTI may do so with assistance from other IP offices or may follow the ASEAN patent examination guidelines, which are under progress, according to the response to Q15.

**KH: Section 2**

The observations of the DIP/MISTI of Cambodia on the three case examples and the consideration of the results thereof prepared by the JPO were summed up on the basis of the responses to the questions for each case example in the questionnaire sent in advance.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** No response from the DIP/MISTI of Cambodia.

**b) Explanation:** As seen in Section 1 above, the DIP/MISTI currently has no experience in the substantive examination of patents and, accordingly, is unable to respond to the questions about Case Example 1.

**Case Example 2: Inventive step**

**a) Conclusion:** No response of the DIP/MISTI of Cambodia.

**b) Explanation:** As seen in Section 1 above, the DIP/MISTI currently has no experience in the substantive examination of patents and, accordingly, is unable to respond to the questions about Case Example 2.

**Case Example 3: Description requirements**

**a) Conclusion:** No response of the DIP/MISTI of Cambodia.

**b) Explanation:** As seen in Section 1 above, the DIP/MISTI currently has no experience in the substantive examination of patents and, accordingly, is unable to respond to the questions about Case Example 3.

**LA: Section 1**

1. **Status of development of patent law and examination guidelines, etc. relating to the examination of AI-related inventions**

**1.1. Intellectual property law**

The Lao PDR does not have any independent patent law or petty patent (utility model) law, and the Law on Intellectual Property amended on 15 November 2017 has provisions on patents and petty patents. Article 3 'Definitions' of the law provides definitions of patent, invention, petty patent, and utility innovation.

What are characteristic of these definitions are the point that it is explicitly stated that invention and utility innovation are the products obtained through <u>technical</u> solution or <u>technical</u> improvements, and the point that utility innovation not only includes products, but methods as well.

Further, Part III 'Industrial Property' provides provisions on patents and petty patents, and these are the provision relating to the examination of CIIs and AI-related inventions.

The provisions, amongst those on patents and petty patents, which are related to the eligibility for patents of CIIs and AI-related inventions and are considered requiring particular attention, are items 5 and 7 of Article 3 and item 2 of Article 21. The former requires that invention and utility innovation must be a <u>technical</u> solution, and the latter specifies that <u>the subject matter of an invention that is merely a scientific principle or theory, a mathematical algorithm, or a set of rules for doing business or playing games does not constitute a technical solution</u>. The proviso of the latter is considered to specify that the eligibility for patent is not denied only because a part of the elements of an invention or utility innovation is the subject matter as above. Note that <u>there is no provision that denies the eligibility of computer programs or recording media</u>.

In order to obtain a patent for an invention or utility innovation, not limited to CIIs and AI-related inventions, the invention or utility innovation must be new, involve an inventive step, and be industrially applicable. However, <u>the criteria for being new and involving an inventive step differ between invention and utility innovation</u>. Further, <u>it is explicitly stated</u>

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that the 'industry' for industrial applicability includes services (Articles 13 and 14).

Article 31 specifies the description requirements for claims and the description, and it is considered that item 3 specifies the enablement requirement, whilst item 4 the clarity and support requirements.

The most characteristic provisions are Articles 40 and 41 concerning substantive examination. First, it is specified that not only patent applications but petty patent applications as well are subject to substantive examination. Specified next is that, where the application has previously been subject to a search or examination by a foreign patent or IP office, the applicant may submit to the Ministry of Science and Technology of the Lao PDR a copy of the search/examination report by such a foreign office and request the ministry to find no need of conducting any further search (naturally, such submission of a copy by the applicant is in the case where the applicant has obtained a positive report on the patent requirements with respect to the subject foreign application). Then, upon receipt of the request as above, the examiner of the Lao PDR IP Department of the Ministry of Science and Technology ('Lao PDR IP Department/MST') reviews the search/examination results by the foreign office and checks and confirms that the claims of the Lao PDR application are identical with those of the subject foreign application. If identical, the examiner finds no need of conducting any further search, and as a result a patent is granted. Even if not identical, the examiner invites the applicant to amend the claims to make them identical with those of the subject foreign application, and, if amended, finds no need of conducting any further search. If there are a plurality of foreign applications for each of which the applicant has received a positive report on the patent requirements and whose claims are not identical, the applicant must select which foreign office's claims to rely on.

If the applicant does not submit a search/substantive examination report by a foreign office and requests substantive examination, the Lao PDR IP Department/MST needs to conduct a substantive examination of the application as filed. At the moment, however, the department has only one examiner for substantive examination and, thus, entrusts the substantive examination externally on the basis of cooperation with the relevant foreign patent offices or institutions (specifically, the IPOS).

**1.2. Examination guidelines and handbook, etc. relating to the examination of AI-related inventions**

The examination guidelines (or examination criteria, handbook, etc.) prepared with the support of the Japan Patent Office were available until 4 years ago but are no longer effective at present (it seems this is because the guidelines have not corresponded to the intellectual property law amendment in 2017) and need to be revised. Note that the examination guidelines are not publicly available.

There are no examination guidelines on CIIs and AI-related inventions irrespective of the guidelines in a partial form or an independent form. However, no patent applications for CIIs or AI-related inventions have been filed in the Lao PDR until today.

Currently, the Lao PDR IP Department/MSI conducts a formality examination but does not conduct a substantive examination. In the future, however, when the Lao PDR IP Department/MSI starts substantive examination, it is anticipated that the department will actively deal with future emerging technologies, as the patent and petty patent system does not limit the field of technologies but is open to all the technical fields. However, the Lao PDR IP Department/MSI does not have any specific plan for guidelines addressing the emerging technologies and looks forward to the ASEAN Common Guidelines on Patent Examination which would address the emerging technologies. Based on the practice on patent examination in the Lao PDR at the moment and the ASEAN Action Plan on Establishing Patent Examination Guidelines in the near future, the Department hopes to use the Guidelines together with the previous guidelines of the Lao PDR so as to make the Lao PDR's own guidelines more efficient in the future.

Note that the substantive examination entrusted based on cooperation with foreign IP offices is conducted in line with the rules for patentability of the entrusted offices.

For business model-related inventions, there are also no examination guidelines on business models and IoT-related inventions. Note that, according to a response to the questionnaire in Section 2 below, the Lao PDR IP Department/MSI is of the opinion that business model-related inventions are not eligible for a patentable invention.

**2.  How to proceed with the examination of AI-related inventions**

The Lao PDR IP Department entrusts substantive examination to another office, and the examination is conducted under the examination guidelines of the entrusted office. On the other hand, the Lao PDR IP Department is in the process of revising the guidelines to make them reflect technology advancement. The new guidelines may possibly trigger the Lao PDR's substantive examination being conducted by the Lao PDR IP Department in the future (Response to Q14). For AI-related inventions, according to the response to Q15, the department responds as follows:

We have no plan for guidelines addressing emerging technologies. We would like to follow international regulations to deal with them. We are also looking forward to the ASEAN Common Guidelines on Patent Examination, which will address emerging technologies. Based on our practices on patent examination at the moment and the ASEAN Action Plan on Establishing Patent Examination Guidelines in the near future, we would use these guidelines as a basis together with the previous ones that we had under the assistance from the JPO.

**LA: Section 2**

The observations of the Lao PDR IP Department/MSI on the three case examples and consideration of the results thereof prepared by the JPO were summed up on the basis of the responses to the questions for each case example in the questionnaire sent in advance.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** The conclusion of the Lao PDR IP Department/MSI is that the case is eligible for patent (the conclusion is consistent with the judgment of the JPO).

**b) Explanation:** The responses to Nos. 17, 18, and 19 concerning the eligibility for patent in the questionnaire state: 'The Department agrees with the opinion and decision by the JPO.'

However, the department is of the opinion that <u>business model-related inventions are not eligible for a patentable invention</u>.

**Case Example 2: Inventive step**

**a) Conclusion:** The conclusion of the Lao PDR IP Department/MSI is complete agreement with the opinion and decision of the JPO.

**b) Explanation:** The response to No. 20 concerning an inventive step in the questionnaire is: 'The Department agrees with the opinion and decision by the JPO, for we consider that this invention belongs to 'products.'' The response to Nos. 21 and 22 concerning an inventive step in the questionnaire states: 'The Department agrees with the opinion and decision by the JPO.'

**Case Example 3: Description requirements**

**a) Conclusion:** The conclusion of the Lao PDR IP Department/MSI is complete agreement with the opinion and decision by the JPO.

**b) Explanation:** The response to Nos. 24, 25, and 26 concerning description requirements in the questionnaire states: 'The Department agrees with the opinion and decision by the JPO.'

**MM: Section 1**

## 1. Research on patent law and implementation rules, etc. relating to the examination of AI-related inventions

Even though Myanmar's IP-related laws were approved by the parliament, the laws, including the Patent Law, have not yet been entered into force as of the time of this Research (i.e. May 2021). The Myanmar IP Department and ERIA carried out the discussions for this research on the premise that the present laws and agreements in their regards should come into effect as they are. The Myanmar IP Department made the following observations and comments on the premise as such.

### 1.1. Patent law

Article 14 of the Patent Law falls within the provisions that would be related in examining AI-related inventions. Article 14 shows examples of the inventions not eligible for patent, and computer programs are explicitly indicated amongst the examples. Thus, if an invention is directed to a computer program, its eligibility for patent would immediately be denied under Article 14(a)(iii). The relevant observations are made in the next section 2 under Case Example 1.

### 1.2. Research on the current situation of examination guidelines and handbook, etc. relating to the examination of AI-related inventions

As the Patent Law has not been entered into force as of the time of the research, patent examination guidelines or the like are not yet prepared (as of the time of the Research in May 2021). The answer to Q15 extracted below suggests that the Myanmar IP Department is preparing for providing their examiners with guidelines on emerging technologies:

> With regard to the patent examination guidelines in general, Myanmar IP Department has a plan to establish them in due course after the implementation of Regulations for the Patent Law.

> However, the Department does not have concrete implementing steps toward the establishment of the patent examination guidelines focusing on AI-related

inventions, for we think that there are lots of issues to be considered and learned in these emerging technologies.

We had legal advice on drafting regulations from JICA, and also requested JICA to review and redraft the examination part of the patent regulation.

Concerning the emerging technologies, the Department is not familiar with such advanced technologies. Thus, we appreciate kind assistance from the relevant parties so that the Department can effectively draft patent examination guidelines for such new technologies.'

## 2. How to proceed with the examination of AI-related inventions

How to proceed with the examination is undecided as the Patent Law is not put into force as of the time of the research.

**MM: Section 2**

The Myanmar IP Department proactively shared comments with the following notes:

> Myanmar IP Department would like to reserve its official judgements on the following questions concerning case examples as the Department does not yet conduct substantive examination on patents. The Department is however pleased to present some comments responding to some of the questions on the case examples. The following comments are made without prejudice to future possible changes based on the upcoming examination guidelines.

**Case Example 1: Eligibility for patent**

**a) Conclusion:** Agree with the judgment of the JPO that this case is eligible for patent.

**b) Explanation:** The response to Q17-1 is: 'According to Article 14 (a)(iii) of the Myanmar Patent Law, a computer program itself cannot be patentable. We presently assume the trained model is not itself a computer program. So, the trained model is eligible for an invention.' The response to Q18-1 is: 'We agree with the reasoning adopted by the JPO.'

The response to Q19-1 is: 'The Department agrees with the opinion and decision by the JPO.' For Q19-3 asking about business models, the response is: 'According to Article 14 (a)(ii) of the Myanmar Patent Law, schemes, rules or methods for doing business, performing purely, mental acts, or playing games cannot be patentable.'

With respect to Case Example 1, the Myanmar IP Department agrees with the idea of the JPO, although their responses are on the premise of being before entry into force of the Patent Law.

**Case Example 2: Inventive step**

**a) Conclusion:** Agree with the judgment of the JPO.

**b) Explanation:** In response to Q20-1, the Myanmar IP Department shares the observation regarding the inventive step of Case Example 2 with the JPO. Further, the response to Q21-1 is 'agree', and the response to Q22-1 is: 'Claim 2 of the invention has an inventive step because of the use of the temperature factor as an input parameter. It is not common general knowledge to those persons skilled in the art to use the upstream temperature to estimate power generation, and it has the effect of improving the estimation accuracy.'

**Case Example 3: Description requirements**

**a) Conclusion:** Agree.

**b) Explanation:** With respect to description requirements, the Myanmar IP Department suggests requesting the applicants to submit further data in some cases. The response to Q24-1 and Q25-1 is: 'The Department agrees with the opinion and decision by the JPO.' Further, in response to Q26-1, the Department introduces the current draft regulation and, expressing sharing of the JPO's observation, responds as follows:

The Department considers that the JPO's observation seems to be in line with our patent regulation, which is now drafted and under the process of being finalised. The draft Regulation provides for as follows:

The description shall start by stating the title of the invention, which shall be short and precise, and shall:

(a) specify the technical field to which the invention relates;

(b) indicate the background art which, as far as known to the applicant, can be regarded as useful for the understanding, searching, and examination of the invention and, where feasible, cite the documents reflecting such art;

(c) disclose the invention in such terms that it can be understood and, in a manner, be sufficiently clear and complete for the invention to be evaluated and to be carried out by a person having ordinary skill in the art, and state its advantageous effects, if any, with reference to the background art;

(d) briefly describe the figures in the drawings, if any;

(e) pursuant to Section 22(a) of the Law, describe at least one best mode conceived by the applicant for carrying out the invention by the person having ordinary skill in the art; this shall be done in terms of examples, where appropriate, and with reference to the drawings, if any;

(f) indicate explicitly, when it is not obvious from the description or nature of the invention, the way in which the invention is industrially applicable and the way in which it can be made and used as an invention by the person having ordinary skill in the art, or, if it can only be used, the way in which it can be used.

The response to Q26-3 asking about details of the disclosure requirement is: 'The Department considers that it depends on the invention of the patent application, which has to describe drawings, flowcharts, time charts, or tables, if any.'