Intellectual Property Office of Singapore
Registry of Patents
Circular No. 2/2019: Launch of AI^2: **A**ccelerated **I**nitiative for **A**rtificial Intelligence: An Accelerated Application-to-Grant Service for Patent Applications in Artificial Intelligence

Launch of AI^2: Accelerated Initiative for Artificial Intelligence - An Accelerated Application-to-Grant Service for Patent Applications in Artificial Intelligence (Circular No. 2/2019, dated 26 April 2019)

Artificial Intelligence (AI) is identified as one of the key catalysts and drivers as Singapore transforms to a digital economy.

As enterprises explore new ways to deploy AI solutions to transform their business and gain a competitive edge, there has been an increasing demand for AI technologies. Keen interest in AI can be observed in worldwide patenting activities where more than 180,000 inventions in relation to AI were published between 2008 to 2017[A]. Today, AI solutions are commonly deployed in a wide range of sectors including manufacturing, logistics and healthcare.

IPOS' Accelerated Initiative for Artificial Intelligence, AI^2, complements Singapore's shift towards a digital economy and supports innovative enterprises that are looking to bring their AI products faster to the market. It also underscores Singapore's commitment to nurture and protect high-value innovation such as AI technologies. AI^2 will be launched on 26 April 2019 for a period of two years[B] and will accelerate the application-to-grant process for AI patent applications in as fast as six months.

[A] Source: AI: its evolving nature and future prospects report 2017 by Info-communications Media Development Authority (IMDA)

[B] Limited to the first 50 applications filed. IPOS will have to discretion to adjust the cap and/or the criteria as deemed fit thereafter and prior notice will be given.

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To be eligible for AI², you will need to fulfil the following criteria[C]:

1. The application is an AI invention (Examples of AI inventions are provided in **Annex A**);

2. Application has to be first filed in Singapore[D],

3. Form PF1: Request for Grant of Patent and Form PF11: Request for Search and Examination Report have to be filed on the same day[E],

4. Application shall contain 20 or fewer claims;

5. Applicant needs to respond within two weeks from the date of receipt of formalities examination adverse report;

6. Applicant needs to respond within two months from the date of receipt of written opinion[E],

7. A supporting document tagged as Fast Track document stating that the application is an AI invention has to be furnished during the submission of Form PF11.

As filing a patent application can be technically and procedurally complex, it is recommended for applicant to consider engaging the services of a registered patent agent to assist with the drafting of the specification and the submission of the patent application.

For more information of the process flow for AI², please refer to the *Flowchart of AI² Process* in **Annex B**. A list of FAQ(s) will also be provided in the *FAQ(s)* section in **Annex C**.

If you have any enquiries relating to AI², please contact the AI² team:
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[C] Applications that do not meet all the above criteria during the process may not be accelerated.

Other criteria for AI² in which the applicant is highly encouraged to comply to ensure the file-to-grant process to be as fast as 6 months-

• Form PF14: Request for certification of grant has to be filed within 2 months from the notice of eligibility to proceed to the grant of the patent; and

• [For application which is not published] Form PF 9: Request for early publication has to filed prior to or on the same day as Form PF14.

[D] The patent application does not possess any priority. Divisional applications are not regarded under this initiative.

[E] Under AI², applicant may be contacted by the examiner to discuss and clarify on the patent application. Please refer FAQ Question 17 for more information.

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Annex A: General guidelines for AI inventions
Examples of AI inventions

AI refers to a set of technologies that seek to simulate human traits like: sense, comprehend, act and learn to achieve specific tasks. AI inventions are commonly associated with, but not limited to, machine learning. Machine learning is the form of AI that uses algorithms and statistical models to enable computers to make decisions without having to be explicitly programmed to perform a particular task[F]. Machine learning can be applied in different functional domains, including:

Image Recognition: Image repositories may be used to train artificial neural networks to identify features in pictures or to classify images which may then be used for applications such as automatic face detection, to recognise obstacles in the path of a moving vehicle or to perform an online search for products with related features. The use of a deep convolutional neural network on a high performance computer to extract and classify road and vehicular features for remote sensing of road networks, a system trained to analyse dermoscopic images in order to detect skin cancer, or a smartphone application employing improved machine learning-based facial recognition to securely access online products and services are some potential inventions in the area of image recognition.

Speech/Voice Recognition: AI machines can be trained to recognize words by analysing speech utterances using an acoustic model as well as to recognise and authenticate the person speaking. Advances in the use of deep neural networks as acoustic models for large vocabulary continuous speech recognition can significantly improve sentence accuracy and reduce word error rates. Examples of potential AI inventions in this area include improved voice-user interfaces for more accurate data entry, lower-latency dictation, and more secure user authentication.

Natural Language Processing: The improved parsing of human sentences so that they can be correctly interpreted in the context of a conversation or a written work has enabled more accurate language translations, automated sentiment analysis and more user friendly human machine interfaces for the provision of products and services to consumers. A client computing platform that uses an improved neural machine translation technique to more accurately translate a foreign language, a machine learning enabled speech assisted online shopping application, or a machine learning-based platform that provides automated round the clock customer support are all examples of machine learning-based AI inventions in natural language processing.

Autonomous Systems: AI and machine learning methods are particularly suited for autonomous and semi-autonomous systems that perform tasks ranging from data processing to driving vehicles. Examples of AI and machine learning systems combining some or all of the above applications may be an energy management system that learns and optimises the use of electricity in a smart building, an agricultural system to monitor and maintain crop and

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[F] WIPO (2019). WIPO Technology Trends 2019: Artificial Intelligence. Geneva: World Intellectual Property Organisation

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soil health by learning from weather data and anticipating weather conditions in order to increase crop yield, and self-driving buses that utilize machine learning to analyse and adjust to traffic conditions along their routes for enhanced passenger safety and greater cost efficiency.

Patent applications for AI inventions

For an invention to be patentable, it must, in general, be novel, involve an inventive step and be capable of industrial application. It is worthwhile to note that mathematical methods *per se* are excluded from patentability.

- A claim to an AI method characterised by the mathematical steps of the algorithm would be considered a mathematical method *per se,* and therefore not an invention.
- Where said AI method is defined to be implemented on a generic computer or using conventional computer hardware, the mere recitation of said generic hardware in the claim is unlikely to be enough for the actual contribution of the claim to be considered anything more than the underlying mathematical method.
- However, a claim to an AI method implemented on a computer and directed to solving a specific problem, for example, a machine learning method implemented on a computer for speech or image recognition or natural language processing would likely be considered as an AI invention in the patent application.
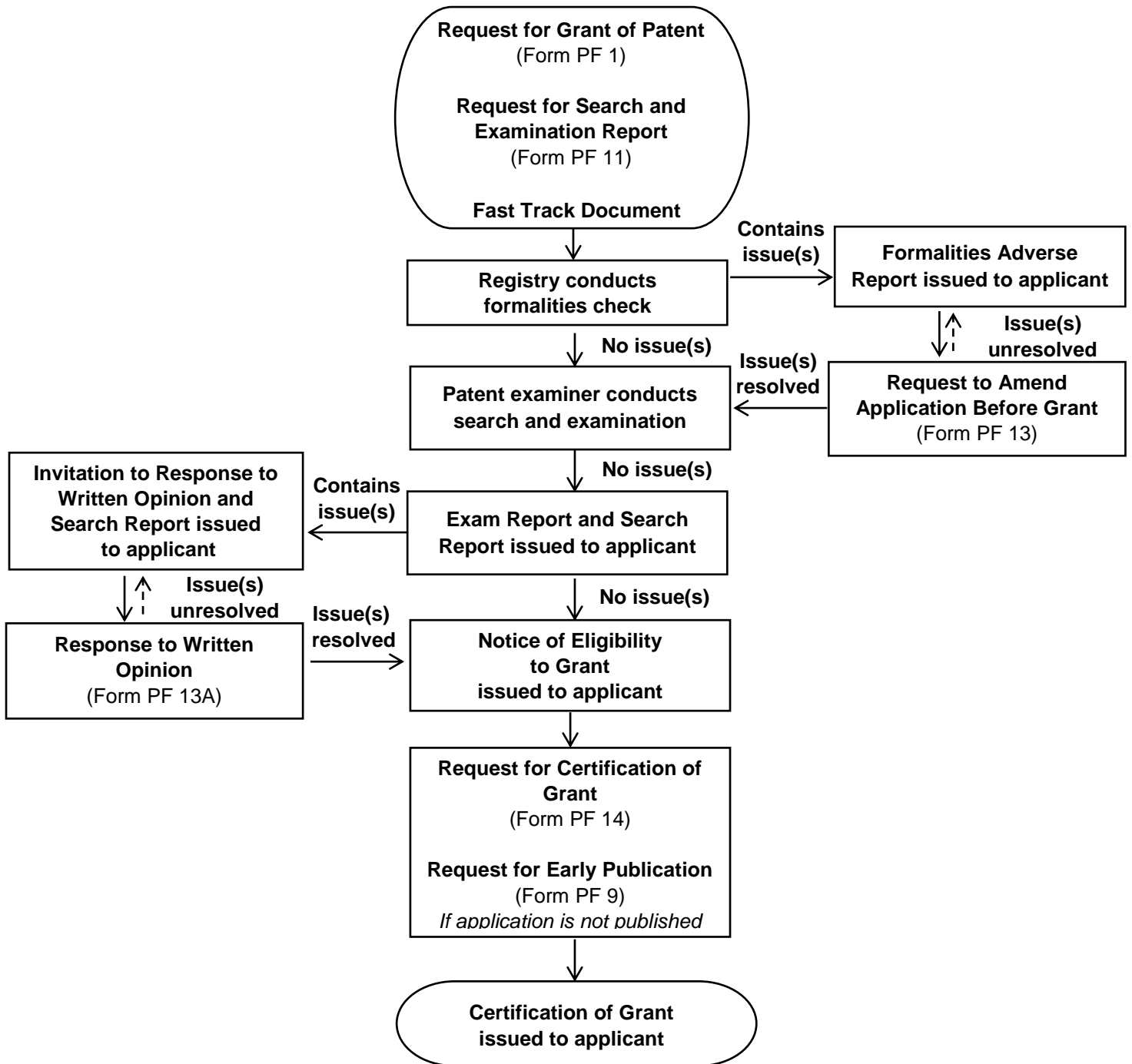
For more details, please refer to Chapter 8 of the [Examination Guides for Patent Applications at IPOS](#) under the heading "ii. Scientific theories and mathematical methods".

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Annex B: Flow Chart of AI² Process

Request for Grant of Patent
(Form PF 1)

Request for Search and Examination Report
(Form PF 11)

Fast Track Document

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Registry conducts formalities check — **Contains issue(s)** → **Formalities Adverse Report issued to applicant**

Issue(s) unresolved ↕

Request to Amend Application Before Grant
(Form PF 13)

Issue(s) resolved ←

No issue(s) ↓

Patent examiner conducts search and examination

No issue(s) ↓

Invitation to Response to Written Opinion and Search Report issued to applicant ← **Contains issue(s)** — **Exam Report and Search Report issued to applicant**

Issue(s) unresolved ↕

Response to Written Opinion
(Form PF 13A)

Issue(s) resolved →

No issue(s) ↓

Notice of Eligibility to Grant issued to applicant

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Request for Certification of Grant
(Form PF 14)

Request for Early Publication
(Form PF 9)
If application is not published

↓

Certification of Grant issued to applicant

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Annex C: FAQ(s) on AI² Initiative

GENERAL

1. **How is the AI² initiative different from other accelerated services that IPOS has?**

    Please refer to the comparative table below.

Initiative	AI²	FinTech Fast Track (FTFT)	12 months file-to-grant
Invention	• Applies to AI inventions only	• Applies to FinTech inventions only	• Applies to all inventions
Speed	• Qualifying application could be granted as fast as 6 months		• Qualifying application could be granted within 12 months from date of application
Criteria	• Application has to be first filed in Singapore. • Request for grant of patent and intention to request for search and examination have to be filed on the same day. • Request for certification of grant has to be filed within 2 months from the notice of eligibility to proceed to the grant of the patent		
	• Applicant needs to respond within two weeks from the date of receipt of the formalities examination adverse report. • Applicant needs to respond within two months from the date of receipt of the report. • A supporting document to be furnished to briefly explain your invention. • Application which has deficiencies and objections during formalities and examination may still qualify but the pendency period will be extended according to the time taken by applicants to remedy them. • Applicant is encouraged to request for early publication prior to or on the same day as request for certification of grant.		• Application is free of deficiencies during formalities examination. • Application is free from objections during search and examination. • Request for early publication and request for certification have to be filed on the same day

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2. **What is the duration of the AI^2 initiative?**

The AI^2 initiative is effective from 26 April 2019 for a period of 2 years. A notice will be put up on IPOS' website 3 months before termination of the initiative. This initiative will be limited to 50 applications per year.

3. **Is additional fee required to participate in AI^2?**

No additional fee is required to participate in AI^2.

4. **Who will benefit from this AI^2 initiative?**

The AI^2 initiative is open to all individuals and corporate entities provided that all requirements under the AI^2 initiative are met.

5. **Where can one seek professional help for their patent application?**

As filing a patent application can be technically and procedurally complex, it is recommended for an applicant to consider engaging the services of a registered patent agent to assist with the drafting of the specification and the submission of the patent application. The professional fees range from $10,000 to $26,000. For information of funding available for development needs of Small & Medium Sized Enterprises, you may refer to the link here.

6. **Who can one approach to assess whether it is worthwhile to file a patent for their invention?**

IPOS provides complimentary IP business clinics where enterprises may seek the advice of a business consultant on their IP business matters.

7. **Who can one approach if they have questions about their application?**

Applicant can send their enquiries to ipos_enquiry@ipos.gov.sg.

OPERATIONS OF AI^2 INITIATIVE

8. **Can an application that is filed prior to the launch of the AI^2 initiative participate in the pilot?**

The acceleration only applies to application filed from 26 April 2019 and before the end date of the initiative. There is also a limit of 50 applications to be accelerated under AI^2. However, IPOS will have the discretion to adjust the number of applications received and/or the criteria for acceleration.

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9. **Can an applicant discontinue his/her participation in the AI² initiative?**

Yes, applicant may write in to withdraw from the AI² initiative.

10. **How would a deficiency raised during the formalities examination stage have an impact on the application?**

Applicant is to exercise due diligence in meeting the formalities requirement so as to avoid any possible delays in the application. Should the application contain deficiencies, applicant needs to respond within two weeks from the date of receipt of that notification.

11. **Is there a limit to the number of office actions for this AI² initiative?**

An application will generally be accorded acceleration unless the prosecution proceeds beyond two written opinions. In such an event, the examiner has the discretion to place the application in the regular track for processing.

12. **If an application under AI² initiative is rejected, what recourses are there for the applicant?**

Applicant will have the same recourse as any application (i.e. to file for a request for examination review or to request for a divisional application within the stipulated timeline and fulfilling the conditions as prescribed in accordance to the Singapore Patents Rules).

13. **What is the effect of the dismissal from the AI² initiative?**

The application will be join the queue for processing in the regular track.

14. **How do I file an AI² application?**

Online filing of a patent application could be done via IPOS' e-service portal, IP²SG (www.ip2.sg). You will need to login to your IP²SG account via your SingPass or CorpPass login ID and password. To file a patent application, go the Online Filing: Forms. Complete Form PF1/PF8: *Request for Grant of Patent/Statement of Inventorship and Right to Grant of Patent*. To proceed with a Search and Examination request, complete Form PF11: *Request for Search and Examination Report*. To notify the Office that you are filing an AI application, you will need to enclose a *FastTrack Document* under Attachment* when submitting Form PF11.

15. **What information do I need to provide in the *FastTrack Document*?**
In the *FastTrack Document*, you will need to provide a cover letter stating that the patent application is related to AI. You may also indicate your request for the AI² initiative to be applied for your application in the same document.

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16. Which initiative should my patent application be accelerated under it relates to both FinTech and AI?

As long as you have provided us the FastTrack Document and cover letter stating that your patent application is related to AI/FinTech during your submission for Form PF11, your application will be considered for acceleration either under the FTFT or AI^2 initiative.

However, during the course of examination, if it was determined that your patent application is related to either FinTech or AI, its acceleration will be considered solely under the FTFT or AI initiative subjected to their respective conditions.

INTERVIEW

17. Is an applicant required to attend an interview upon request by the examiner?

Under AI^2, applicant may be contacted by the examiner to discuss and clarify on the patent application. In general, the interview serves to resolve or address issues with regards to the patent application.

If an applicant agrees to an interview with the examiner, it will generally speed up the prosecution process. Therefore, an applicant is highly encouraged to agree to an interview upon request by the examiner.

PUBLICATION

18. When will applications under the AI^2 Initiative be published?

Subjected to Rule 29 of the Singapore Patents Rules, applications are published 18 months from the declared priority date, or where there is no declared priority date, the date of filing of the application. To fulfil the requirement(s) under the AI^2 initiative, the application shall not have a priority date. Hence, the applications under the AI^2 will typically be published 18 months from the date of filing.

19. If an application is not published before the notice of eligibility of grant is issued, what should an applicant do?

As it is a requirement for the application to be published before the grant of an application, it is necessary for the applicant to file Request for early publication (Form PF9). To expedite the process, applicant may consider to file PF9 earlier or together with Request for Certification of Grant (Form PF14).

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