



MINISTRY OF ECONOMY  
NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY

ORDINANCE/INPI/PR No. 411, OF 23 DECEMBER 2020

Establishes the new version of the Guidelines for the Examination of Patent Applications involving Computer-Implemented Inventions (IIC).

**THE PRESIDENT AND THE DIRECTOR OF PATENTS, COMPUTER PROGRAMMES AND INTEGRATED CIRCUIT TOPOGRAPHIES OF THE NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY**, in the exercise of its powers under Articles 93, 152 and 155 of Annex I to MDIC Ordinance No. 11 of 27 January 2017,

RESOLVE:

Art. 1 To establish the new version of the Guidelines for the Examination of Patent Applications involving Computer-Implemented Inventions (IIC).

Art. 2 - INPI Resolution No. 158, dated 28 November 2016, is hereby revoked. Art.

3 - This Ordinance shall enter into force on 1 January 2021.

CLÁUDIO VILAR FURTADO  
President

LIANE ELIZABETH CALDEIRA LAGE  
Director of Patents, Computer Programs and Integrated Circuit Topographies



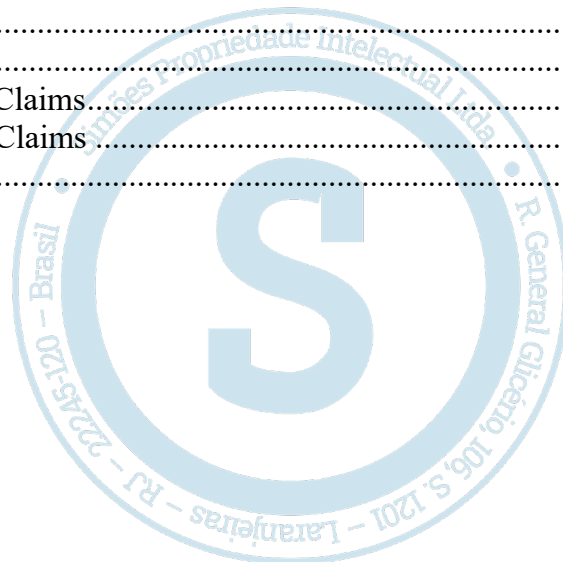
**FEDERAL PUBLIC SERVICE  
MINISTRY OF ECONOMY  
NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY  
DIRECTORATE OF PATENTS, COMPUTER PROGRAMMES AND INTEGRATED  
CIRCUIT TOPOGRAPHIES– DIRPA**

# **Examination Guidelines for Patent Applications Involving Computer-Implemented Inventions (IIC)**

This text is an integral part of the Examination Guidelines adopted by the INPI to assist in the technical examination of patent applications involving computer-implemented inventions in accordance with IPL 9.279/96– Industrial Property Law (IPL)– and with the procedures established in the administrative acts in force.

**December 2020**

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# 1 GUIDELINES

[01] The purpose of this document is to review and update the Guidelines for the Examination of Patent Applications Involving Computer-Implemented Inventions, established by INPI/PR RESOLUTION No. 158, of 28 November 2016.

[02] Patent applications relating to computer-implemented inventions, as they are based on a process, they fall solely under the nature of a patent of invention. Patent application of utility model, according to Art. 9 of the IPL, must refer to “an object of practical use, presenting new form or disposal ...”, which is not the case of computer-implemented inventions.

[03] Like any invention patent application, applications involving computer-implemented creations must meet the legal requirements, more specifically those set forth in the IPL, notably novelty, inventive step and industrial application. The Guidelines for the Examination of Patent Applications– Block I and Block II– should be consulted for general matters. The present document addresses matters related to computer-implemented inventions.

[04] When examining a patent application for computer-implemented inventions, it is irrelevant whether the process is executed on a general-purpose computer (personal computer) or a specific-purpose computer (Programmable Interface Controller– PIC, Field-Programmable Gate Array– FPGA, etc.), whether the computer is on a local network, remote network or in the cloud.

[05] When examining a patent application for computer-implemented inventions, it is irrelevant whether the process is executed in an *Internet of Things* (IoT) environment.

[06] The concepts of algorithm and embedded software are frequently found in patent applications involving computer-implemented inventions and may raise questions as to whether the invention falls within the scope of Art. 10 of the IPL. For this reason, the definitions of these terms are presented below.

[07] An algorithm is considered to be a sequence of logical steps to be followed to solve a particular problem. According to this definition, an algorithm consists of a method or process and, therefore, must be claimed as such. To be considered an invention, such a method or process must not fall under the provisions of Art. 10 of the IPL.

[08] Embedded software is considered to be a computer program that determines the behaviour of a dedicated device. In this context, both the functionality associated with the behaviour of this device may be patentable in the form of a process, and the device dedicated to that functionality may be patentable in the form of a product. However, the computer program itself is not patentable because it is not considered an invention. The fact that a creation is embedded is not sufficient for it to be considered an invention. To be considered an invention, the creation must not fall under the restrictions listed in Art. 10 of the IPL.

## 2 ARTICLE 10 OF THE IPL<sup>1</sup>

[09] The following items will analyse cases relating to sections of Art. 10 that may involve computer-implemented creations.

### 2.1 Subsection I– Mathematical methods

[10] Subsection I of Art. 10 of the IPL determines that mathematical methods are not considered inventions, which should be understood as methods that solve a purely mathematical problem, i.e., dissociated from any application that solves a technical problem. The fact that a mathematical method is implemented on a computer does not exclude it from falling under this subsection.

Example: a particular method of numerical integration is not considered an invention because it is a method that solves a purely mathematical problem.

[11] A method involving a mathematical concept is not immediately excluded by subsection I of Art. 10 of the IPL. If a process applies the mathematical concept to obtain a solution to a technical problem, such a process may be considered an invention provided that the resulting effects are technical and not purely mathematical. A method implemented on a computer involving mathematical concepts is considered an invention when such method is intrinsically linked to an application that produces a technical effect.

Example: a method of controlling engines that uses a numerical integration technique to obtain a result of greater speed of action or stability may be considered an invention, as it is applied to a technical problem, produces a technical effect and, therefore, does not qualify as a mathematical method.

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<sup>1</sup> See General Guideline - Block II, Chapter I.

[12] Creations involving mathematical concepts may be considered inventions when applied to the solution of technical problems and manipulate information associated with physical quantities or abstract data, with real or virtual results.

Examples of manipulation of physical quantities: a method of filtering seismic data, which allows noise reduction, and a method of controlling the dynamic behaviour of a given vehicle or robot. In this case, the physical quantities are, respectively, seismic data and data measured by motion sensors.

Example of abstract data manipulation: a data compression method and a data encryption method.

[13] Artificial intelligence (AI) techniques, including *machine learning* and *deep learning* tools, among others, when applied to technical problem solving, may be considered inventions.

## **2.2 Subsection III– Commercial, accounting, financial, educational, advertising, lottery or inspection methods**

[14] Item III of Art. 10 of the IPL establishes that schemes, plans, principles or methods that are commercial, accounting, financial, educational, advertising, lottery or inspection methods are not considered inventions. The fact that these methods are implemented on a computer does not exclude them from this item.

Example: methods of business feasibility analysis, market analysis, auctions, consortia, incentive programs, methods of point-of-sale analysis, fund transfer, tax or insurance processing, asset analysis, financial analysis, auditing methods, investment planning, retirement plans, medical agreements, *online* purchasing methods, methods of selling airline tickets over the Internet, among others are not considered inventions.

[15] The items contained in item III of Art. 10 of the IPL, even when using technical means or having practical utility, are not considered inventions.

## **2.3 Subsection V– Computer program per se**

[16] The computer program itself, referred to in item V of Art. 10 of the IPL, is understood as the expression of an organised set of instructions in natural or coded language, referring to the literal elements of the creation, such as the source code. The computer program itself is not considered an invention and, therefore, is not subject to patent protection as it is merely an expression of a technical solution, being intrinsically dependent on the programming language. The appropriate protection regime for the computer program itself is that conferred on literary works by copyright and related rights legislation, as indicated in Law 9.609/98.

[17] Item V of article 10 of IPL, when mentioning that “the computer program per se” is not considered an invention, it only separates and distinguishes between protection systems when dealing with creations involving computer programs. Creations involving computer programs have two forms of protection: by copyright, for the computer program per se, and patents, for processes

or products that solve technical problems achieving technical effects not related exclusively to changes in the code.

[18] Terms “set of instructions” and “expression of a set of instructions” are not synonyms. A set of instructions defines a method, while the expression of a set of instructions defines a particular way in which that method manifests itself.

[19] The expression of a set of instructions in a language, object code, source code or source code structure is not considered an invention, even if its execution provides technical effects.

Example: the source code of a program that provides the benefits of greater speed, smaller size (whether of the source code or the space occupied in memory), modularity, among others, is not considered an invention, even though these are technical effects.

[20] A creation with industrial application implemented on a computer may be considered an invention if it solves a technical problem and achieves technical effects that do not relate solely to the way in which this computer program is written.

[21] In assessing the technical effect, consideration is given to the effects achieved throughout all stages of the computer-implemented invention. Non-exhaustive examples of technical effects achieved by computer-implemented inventions are: optimisation of execution times, hardware resources, memory usage, access to a database; improvement of the user interface that is not merely aesthetic; file management; and data switching. It is important to note that if the technical effects result from changes in the computer program code and not in the process, the creation is not considered an invention.

[22] The mere interaction between the computer program and the hardware does not guarantee that the creation implemented by such a program is considered an invention. It is necessary to discern a technical effect beyond this interaction, regardless of whether this technical effect is achieved internally or externally to the processing unit. Furthermore, the technical effect of an invention must be intentional and directly derived from the proposed invention.

Example: computer-implemented creations that are directly intended to reduce memory access time, improve control of a robot element or improve the encoding of a received radio signal may be patentable.

[23] Although amendments to the way in which the computer program is written generate indirect physical effects, such as variations in electrical current, this is not sufficient to confer a technical character on a computer-implemented creation.

## **2.4 Subsection VI - Presentation of information**

[24] Subsection VI of Art. 10 of the IPL establishes that the presentation of information is not considered an invention. Thus, any creation implemented on a computer characterised solely by its informational content, such as music, text or images, is considered a presentation of information and is not considered an invention.

Example: a graphical interface in which icons are displayed on the screen without any functionality is not considered an invention.

[25] Creations that provide technical effects with functional aspects, in addition to merely presenting information, may be considered inventions.

Example: a graphical interface that associates personal notes with excerpts from an electronic document using XML tags may consist of a technical solution that is patentable.

[26] When a creation that generates coded information has a technical character, it may be considered an invention. If the coded information has a functional and/or structural relationship with a process or product, these may also be considered inventions. This is because the claimed object refers to the process or product that presents information linked to the technical character and not only to the presentation of the information.

Example: a data recording process with specific coding on a medium (HD, CD, DVD, etc.) and a recording process using volumetric features of the medium or a recording device employing these processes may be considered inventions because they have a functional and structural relationship with the recording medium.

[27] A medium characterised solely by its informational content falls under item VI of Art. 10 of the IPL.

Example: a medium characterised by having a song recorded on it is not considered an invention.

[28] Data structures, classes, objects, and database structures, including those defined by tables and relationships between tables, consist of the presentation of information and, therefore, are not considered inventions under the terms of item VI of Art. 10 of the IPL. However, a creation that uses or generates data structures, classes, objects, or database structures may be considered an invention.

## **2.5 Subsection VIII– Operative, therapeutic or diagnostic methods for application to the human or animal body**

[29] Item VIII of Art. 10 of the IPL determines that techniques and operating methods, as well as therapeutic or diagnostic methods for application to the human or animal body, are not considered inventions. The fact that such a method is implemented on a computer does not exclude it from falling under this item.

[30] If the proposed method has no application in the human or animal body, it may be considered an invention even if it is implemented by computer.

Example: a method for processing electrocardiographic signals that optimises the calculation of non-stationary signals, allowing the obtaining of parameters that can assist the physician in diagnosing pathologies, may be considered an invention.

### 3 REQUIREMENTS FOR PATENTABILITY

#### 3.1 Industrial application<sup>2</sup>

[31] Computer-implemented inventions may be claimed as processes and/or products. The fact that a process is computer-implemented does not disqualify it from industrial application. Thus, the same rules apply to the examination of industrial application of any invention patent.

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<sup>2</sup> See General Guideline - Block II, Chapter II.



## 3.2 Novelty<sup>3</sup>

[32] For the purposes of examining the novelty of patent applications for computer-implemented inventions, the same rules apply as for examining the novelty of any invention patent.

## 3.3 Inventive step<sup>4</sup>

[33] A computer-implemented invention relating to a process or product previously implemented by specific hardware does not involve an inventive step when it constitutes a mere equivalent realisation.

[34] A computer-implemented invention does not involve an inventive step if it merely automates a known manual process. By mere automation, we mean a direct correspondence between the steps of the manual and automated processes.

Example: consider that a method characterised by mixing compound X with compound Y is known in the prior art. A claim recited “Robot-implemented method characterized by mixing the compound X and compound Y” cannot be protected since the claimed method is not considered inventive, as it constitutes mere automation of a method already known. However, the method of operation of the robot and the way in which the elements that make up the robot must interact in order to implement the said mixing would be considered inventive. In this case, the protection conferred on such a method focuses on the operability of the robot and not on the mixing method known in the art, i.e., it is not protection of mere automation, since the operability of the robot is considered inventive in view of the state of the art.

[35] For the purposes of inventive step, the technical effects achieved by the computer-implemented invention must be taken into account. Some of the technical effects achieved are the result of the qualities of the computer used and not of the computer-implemented invention, such as processing speed, the ability to process large amounts of data, uniformity and accuracy of results. Thus, a distinction must be made between the technical effects achieved by the computer-implemented invention and the technical effects inherited from the computer system used. The creation must show that the technical effects are achieved by the computer-implemented invention.

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<sup>3</sup> See General Guideline - Block II, Chapter IV.

<sup>4</sup> See General Guideline - Block II, Chapter V.

## 4 STRUCTURE OF THE PATENT APPLICATION<sup>5</sup>

### 4.1 Title

[36] The title must be concise, clear and precise, identifying the subject matter of the application and covering the categories of claims sought. Expressions or words such as: software, computer program, computer program product, algorithm, commercial method, therapeutic method, financial method, as they define objects that fall directly under the restrictions set forth in Art. 10 of the IPL, are not accepted.

### 4.2 Specification

[37] The description of the invention must be clear and sufficient so that a person skilled in the art can reproduce the invention. Small excerpts from the source code may be presented if they are useful for understanding the invention.

[38] Unless there is an equivalent in Portuguese for technical terms or abbreviations in a foreign language that are commonly used by technicians in the field, these do not need to be translated.

Example: bitcoin, bitmap, boot, buffer, byte, cache, CDMA, data mining, desktop, drivers, firewall, hash, host, HTML, login, hub, mouse, online, phishing, pixel, plug-in, prompt, QPSK, RAM, among others.

[39] It is suggested that commonly used terms be used in Portuguese.

Example: *navegador (browser), barramento (bus), dispositivo (device), banco de dados (database), disco rígido (hard disk), multimídia (multimedia), rede (network), senha (password), roteador (router), among others.*

### 4.3 Drawings

[40] Drawings are optional and may be submitted for a better understanding of the invention. We encourage the submission of drawings that show an overview of the creation in physical terms, flowcharts with the main features of the process or product, flowcharts with data structures and, if the invention includes user interfaces, the main display screens. Indicative terms or keywords may be included in the drawings when relevant.

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<sup>5</sup> See General Guideline - Block I.

## 4.4 Claims

[41] Computer-implemented inventions may be claimed as a process (method) or product (system, apparatus, device, or equipment associated with the process). Claims for categories that fall directly under the restrictions in Art. 10 of the IPL are not accepted.

Example: claims for categories such as software, computer programs, computer program products, algorithms, applications, code, among others, are not accepted.

[42] Claims must not contain excerpts from source code so as not to cause problems of ambiguous interpretation, and consequently lack of clarity, in relation to item V of Art. 10 of the IPL.

[43] Claims involving subject matter covered by Art. 10 are not considered to fall under that article merely because they describe that the desired function or results are achieved by the use of a computer, a computer component (such as a processor), via the Internet, in the form of a product defined as means plus functions or the like.

Example: a device for calculating the solution of a differential equation characterised only by means for executing the Runge Kutta method is not considered an invention since its contribution lies in the mathematical method (item I of Art. 10 of the IPL).

[44] A product claim must claim physical components or the technical means used. In turn, a process claim must claim a set of steps. Otherwise, there will be a lack of clarity as to the type of claim.

[45] An independent claim may refer to one or more claims when such a structure does not cause lack of clarity in the claimed subject matter.

Example: device characterised by comprising means for performing a method as defined in any one of claims 1 to 10; system for detecting a signal characterised by comprising means for implementing the method defined in claim 1.

### 4.4.1 Process Claims

[46] Process claims should be drafted as a sequence of steps describing their technical features. Such claims should be drafted as a method or as a process, which are considered synonymous.

Example: method for automatic clutch control characterised by the steps of measuring the engine speed, generating a slip reference signal, comparing the engine speed and the input speed, controlling the clutch actuation.

[47] Steps of process claims shall not be initiated by expression “means for”, when such expression could be interpreted as “device for, causing a lack of clarity as to the type of claim.

#### **4.4.2 Product claims**

[48] Product claims should be drafted in terms of their physical components (devices, memories, etc.) or in terms of means plus functions.

[49] The expression "means more functions" is used to refer to product constructions that contain means or devices for performing functions without inserting a definition of specific physical features of such means or devices. In this case, the person skilled in the art must be clear as to which means to use to implement the claimed invention.

Example: device for encoding, encoder for encoding, and means for encoding.

[50] Terms such as "means for" in product claims should not be used when they cause ambiguity and lack of clarity. In such cases, the claim should technically specify the claimed means instead of using the expression “means for”.

[51] When there is no grounds in the specification, the use of the expression “means for” to broaden the scope of protection is not allowed. When the means are specific to the implementation of that functionality, it shall be mandatory that such specification of the means used is claimed.

Example: the expression “means for data storage” is not acceptable when the specification specifies that for the proposed invention to achieve the desired results. There is a need for the use of a “DRAM memory” and there is no grounds for the invention to properly work with any type of memory.

[52] One category of product claim is the system claim. Usually, the system claim refers to different equipment working together, and should, whenever possible, explain the interrelationship between such equipment and their functions.

[53] When the system claim cannot be defined in structural terms, it can be described in terms of " means plus functions" .

Example: system for automatic control of mechanical gear shifting comprising a fuel choke and a mechanical gear shifting transmission characterised by comprising: i) a device for detecting the actual gear ratio used during each starting operation, and ii) a memory for storing the actual gear ratio used during each starting operation.

[54] A category of product claim is the medium claim.

Example: recording media, memory, signal, wave, carrier, non-transitory computer-readable medium, among others.

[55] Claims relating to a medium containing a set of instructions for performing a method claimed in a previous claim are accepted, provided that this method is considered an invention. In this case, the medium is not considered to contain mere presentation of information or a computer program.

Example: computer-readable memory characterised by containing a set of instructions which, when executed, perform the method comprising steps A, B and C.

[56] A claim that claims a medium containing a mathematical, financial, commercial, accounting, educational, advertising, lottery, inspection, therapeutic or diagnostic method, as well as the computer program that implements it, is not considered an invention, since the method falls within the restrictions of Art. 10 of the IPL.

[57] In the case of an invention that is the medium per se for recording or transporting data (CD, DVD, Blu-ray, flash drive, signal, database, etc.), it must be claimed for its physical features or for the way in which the data is written or organised, and not for the content of the information recorded on it.

[58] A medium claim defined by a computer program per se is not considered an invention because its content falls under Art. 10 of the IPL. Claims defined by expressions that can be interpreted as synonyms of terms “computer program”, such as software, firmware and application.

Example: The following claims are not accepted: “Recording medium containing a computer program characterized by executing steps A, B and C”, “Computer-readable memory containing recorded software characterized by the software implements the method with steps A and B” or “computer-readable medium characterized by a computer program”.

[59] In a claim, expressions such as “recording medium(s)”, “storage medium(s)”, among others, are not accepted when the term “medium(s)” can be interpreted as both a method (set of steps) and a physical device, making the claim ambiguous and, therefore, unclear and imprecise.

## **4.5 Abstract**

[60] The abstract must clearly show that the claimed subject matter is a computer-implemented invention and not the computer program per se.