



सत्यमेव जयते

Guidelines for Examination of Computer Related Inventions (CRIs)



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1. INTRODUCTION

Information Technology has gained special significance in the past two decades. It has emerged as a vital tool for scientific development. The term "Information Technology" encompasses the whole gamut of inputting, storing, retrieving, transmitting and managing data through the use of computers and various other networks, hardware, software, electronics and telecommunication equipments. Industry has witnessed rapid growth due to the computerization of activities which were hitherto carried out manually or mechanically. With the advent of internet and the World Wide Web (www), international boundaries have been shrinking virtually. The core elements in the application of Information Technology are computers and its peripherals. Intellectual Property creators in the domain of Computer Related Inventions (CRIs) have consistently tried for stricter protection. The traditional patent regime has to cope with the challenges of these emerging technologies and has been a subject of international attention in the recent past. The major patent offices across the world are confronted with the issue of patentability of CRIs. They have developed examination guidelines/ manuals for the use of examination divisions in these areas of technologies so as to achieve uniform examination practices.

The aim of this document is to prepare guidelines for the examination of patent applications in the field of CRIs so as to foster uniformity and consistency in the examination of such invention 

The guidelines incorporate various provisions of the patentability of computer related inventions. It discusses the procedure to be adopted by the examiners while examining such applications and jurisprudence evolved in granting/rejecting Patents in these fields of technology. The document seeks to bring out various examples of the case laws relating to Computer related inventions (CRIs) for better understanding of the issues involved. The document also contains typical examples of the content of the complete specification in respect of description, prior art, statement of claim and related issues.

However, these guidelines do not constitute rule making. In case of any conflict between these guidelines and the provisions of the Patents Act, 1970 and the rules made thereunder, the said provisions

of the Act and rules will prevail over these guidelines. The guidelines are subject to revision from time to time based on interpretations by a court of law, statutory amendments and valuable inputs from the stakeholders.

2. BACKGROUND (STATUTORY AMENDMENTS)

2.1 Prior to the implementation of Patents (Amendment) Act 2002 (No. 38 of 2002), the definition of invention¹ was as under:

"Invention means any new and useful-

(i) art, process, method or manner of manufacture;

(ii) machine, apparatus or other article;

(iii) substance produced by manufacture,

and includes any new and useful improvement of any of them, and an alleged invention;"

There was no explicit exclusion from patentability in the statute for inventions in the field of computer related inventions. The inventions from any field of science and technology, if falling under any of the above categories, were considered patentable on fulfillment of the novelty and usefulness criteria. The inventions relating to "method" or "process" were limited to 'manner of manufacture'. For any 'method' to be considered patentable, it had to undergo the scrutiny of examiners-whether or not that method is a 'manner of manufacture'. Subject matters relating to mental acts, mathematical methods, business methods, algorithms and computer programmes did not fall under the category of 'manner of manufacture', and hence were not held as inventions and therefore were not patentable.



2.2 The Patents (Amendment) Act 2002 (No. 38 of 2002) came into effect on 20th May, 2003. It amended the definition of

¹ Definition of Invention u/s 2(1)(j) under The Patents Act 1970 , prior to 2002 Amendments

inventions² under section 2(1)(j) as "*Invention*" means a new product or process involving an inventive step and capable of industrial application;

and as per section 2(1)(ja)³ "*inventive step*" means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art;

Further, section 2(1)(ac)⁴ states that "*capable of industrial application*", in relation to an invention, means that the invention is capable of being made or used in an industry;"

2.3 It further introduced explicit exclusions from patentability with regard to Computer Related Inventions (CRIs) under section 3:

- (k) *a mathematical or business method or a computer programme per se or algorithms;*
- (l) *a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions;*
- (m) *a mere scheme or rule or method of performing mental act or method of playing game;*
- (n) *a presentation of information;"*

2.4 The exclusions under section 3 (k)⁵ were amended through the Patents (Amendment) Ordinance, 2004 (No. 7 of 2004) as:

- k) a computer programme *per se* other than its technical application to industry or a combination with hardware;

² Definition of Invention u/s 2(1)(j) under The Patents Act 1970 , after 2002 Amendments


³ Definition of 'Inventive Step' under The Patents Act 1970

⁴ Definition of 'Capable of Industrial Application' under The Patents Act 1970

⁵ Exclusions under section 3(k) and 3 (ka) in Patents (Amendment) Ordinance, 2004

(ka) a mathematical method or business method or algorithms;

However, through the enactment of the Patents (Amendment) Act, 2005 (No. 15 of 2005), which did not include these amended provisions of the ordinance, the position of 2002 amendments were restored automatically.

Therefore, the re-instatement of the original phraseology of section 3 (k) clearly indicates that the legislature intended to retain the original scope of exclusion and did not approve its widening under this sub-section as attempted through the ordinance 

3. TERMS/DEFINITIONS

The terms/definitions often used while dealing with patentability of computer related inventions are summarised hereunder. The terms which are defined in any of the Indian statutes have been construed accordingly and those not having any statutory definition are construed in accordance with their ordinary dictionary meaning.

3.1 Computer

- a) The term "computer" is defined in The Information Technology Act, 2000 (No. 21 of 2000) as "*any electronic magnetic, optical or other high-speed data processing device or system which performs logical, arithmetic, and memory functions by manipulations of electronic, magnetic or optical impulses, and includes all input, output, processing, storage, computer software, or communication facilities which are connected or related to the computer in a computer system or computer network.*"
- b) and under Section 2 (ffb) of the Copyright Act 1957, as "*Computer" includes any electronic or similar device having information processing capabilities;*

3.2 Computer Network

The term "computer network" is defined in The Information Technology Act, 2000 (No. 21 of 2000) as "*the interconnection of one or more computers through -*

- (i) the use of satellite, microwave, terrestrial line or other communication media; and*
- (ii) terminals or a complex consisting of two or more interconnected computers whether or not the interconnection is continuously maintained;"*

3.3 Computer System

The term "computer system" is defined in The Information Technology Act, 2000 (No. 21 of 2000) as "*a device or collection of devices, including input and output support devices and excluding calculators which are not programmable and capable of being used in conjunction with external files, which contain computer programmes, electronic instructions, input data and output data, that performs logic, arithmetic, data storage and retrieval, communication control and other functions;"*

3.4 Computer related inventions:

This phraseology has not been defined in any of the Indian statutes and it is construed to mean for the purpose of these guidelines as any invention which involves the use of computers, computer networks or other programmable apparatus and includes such inventions, one or more features of which are realized wholly or partially by means of a computer programme/programmes.

3.5 Data

The term "data" is defined in the Information Technology Act, 2000 (No. 21 of 2000) as "*a representation of information, knowledge, facts, concepts or instructions which are being*

prepared or have been prepared in a formalised manner, and is intended to be processed, is being processed or has been processed in a computer system or computer network, and may be in any form (including computer printouts, magnetic or optical storage media, punched cards, punched tapes) or stored internally in the memory of the computer;"

3.6 Information

The term "information" is defined in The Information Technology Act, 2000 (No. 21 of 2000) as *"information" includes data, text, images, sound, voice, codes, computer programmes, software and databases or micro film or computer generated micro fiche."*

3.7 Algorithm

The term "algorithm" is not defined in Indian statutes and hence, for interpretation of this term, the general dictionary meaning may be used.

The Concise Oxford Dictionary (tenth Edition) defines 'algorithm' as *"a process or set of rules to be followed in calculation or other problem –solving operations, especially by a computer"*

3.8 Function

The term "function" is defined in the Information Technology Act, 2000 (No. 21 of 2000) as *"function", in relation to a computer, includes logic, control arithmetical process, deletion, storage and retrieval and communication or telecommunication from or within a computer."*

3.9 Software

The term "software" is not defined in Indian statutes and hence, for interpretation of this term, the general dictionary meaning may be used.

The Oxford Advanced Learners Dictionary defines "software" as *"the programs, etc. used to operate a computer"*


3.10 Computer Program

The term *computer programme* has been defined in the Copyright Act 1957 under Section 2 (ffc) as

"computer programme" means a set of instructions expressed in words, codes, schemes or in any other form, including a machine readable medium, capable of causing a computer to perform a particular task or achieve a particular result;'

3.11 Per se

The term "per se" is not defined in Indian statutes and hence, for interpretation of this term, the general dictionary meaning may be used.

The Oxford Advanced Learners Dictionary defines "per se" as "by itself" - to show that you are referring to something on its own, rather than in connection with other things 

3.12 Firmware

The term "firmware" is not defined in Indian statutes and hence, for interpretation of this term, the general dictionary meaning may be used.

The Oxford Advanced Learners Dictionary defines "firmware" as "a type of computer software that is stored in such a way that it cannot be changed or lost"

3.13 Hardware

The term "hardware" is not defined in Indian statutes and hence, for interpretation of this term, the general dictionary meaning may be used.

The Oxford Advanced Learners Dictionary defines “hardware” as “the physical and electronic parts of a computer, rather than the instructions it follows”

3.14 Embedded Systems

An embedded system is a special purpose computer system usually built for dedicated application into a specialized device. An embedded system is designed to meet very specific requirements as compared to a general-purpose personal computer. Examples of embedded systems are ATMs, Graphics Cards, PLCs, etc.

3.15 Technical Effect

It is defined for the purpose of these guidelines as solution to a technical problem, which the invention taken as a whole, tends to overcome. A few general examples of technical effect are as follows:

- ✚ Higher speed
- ✚ Reduced hard-disk access time
- ✚ More economical use of memory
- ✚ More efficient data base search strategy
- ✚ More effective data compression techniques
- ✚ Improved user interface
- ✚ Better control of robotic arm
- ✚ Improved reception/transmission of a radio signal

3.16 Technical advancement

It is defined for the purpose of these guidelines as contribution to the state of art in any field of technology. It is important to divide between software, which has a technical outcome, and that which doesn't, while assessing technical advance of the invention. Technical advancement comes with technical effect, but all technical effects may or may not result in technical advancement.

3.17 Mathematical methods:

“Mathematical methods” are considered to be acts of mental faculty. The method of calculations, formulation of equations, finding square roots, cube roots and all other methods directly or indirectly involving mathematical methods are therefore, not held patentable. With the developments in computer technologies, these mathematical methods are used for writing algorithms and computer programmes for different applications and the claimed invention is often camouflaged as one relating to the technological development rather than the mathematical method itself. These methods, claimed in any form, if in substance relate to mathematical methods are considered to be not patentable subject matter.

3.18 Business Methods:

“Business Methods” claimed in any form are not patentable subject matters. The term ‘Business Methods’ involves the whole gamut of activities in a commercial or industrial enterprise relating to transaction of goods or services. With the development of internet technologies, many business activities have grown by leaps and bounds through e-commerce and related B2B and B2C business. Electronic fund transfers have made banking activities more user friendly than ever before. The claims are at times drafted not directly as business methods but apparently with hitherto available technical features such as internet, networks, satellites, tele-communications, etc. The exclusions are carved out for all business methods and, therefore, if in substance the claims relate to business method even with the help of technology, they are not considered patentable.

3.19 A literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions:

Writings, music, works of fine arts, paintings, sculptures, **computer programmes**, electronic databases, books, pamphlets, lectures, addresses, sermons, dramatic-musical works, choreographic works, cinematographic works, drawings,

architecture **drawings**, engravings, lithography, photographic works, applied art, illustrations, maps, plans, sketches, three-dimensional works relating to geography, topography, translations, adaptations, arrangements of music, multimedia productions, etc. are not patentable. Such works fall within the domain of the Copyright Act, 1957.

3.20 A mere scheme or rule or method of performing mental act or method of playing game:

A mere scheme or rule or method of performing mental act(s) or a method of playing game(s) are excluded from patentability, because they are considered as outcome of mere mental process. For example,

- a. Method of playing chess.
- b. Method of teaching.
- c. Method of learning.
- d. Method of training.

3.21 Presentation of information:

Any manner or method of expressing information, whether visual, audible or tangible; by words, codes, signals, symbols, diagrams or any other mode of representation, is not patentable.

For example, a speech instruction in the form of printed text where horizontal underlining indicates stress and vertical separating lines dividing the works into rhythmic groups is not patentable.

For instance, railway time table, 100 years calendar etc 

4. VARIOUS CATEGORIES OF CLAIMS CONCERNING COMPUTER RELATED INVENTIONS:

Applications concerning Computer Related Inventions (CRIs) broadly fall under the following categories:

- **Method/process:**
- **Apparatus/system:**
- **Computer readable medium**
- **Computer program product:**

4.1 Method/process:

Computer related inventions often carry claims with preamble as "method/process for....." Whether the claims are relating to "mathematical method or business method or computer programme per se or algorithm or mental act; they are claimed in 'method/process' format. The role of examiner becomes very critical in ascertaining whether the invention belongs to one of such categories and hence falls under excluded subject matter. The following are some examples showing the claims orienting towards 'method' that relate to different excluded categories:

Example 1: Mathematical method /Computer Program per se

1. A method for computing a value comprising:
 encoding a program of computable functions to describe computation of the value to be computed;
 continualizing the encoded program;
 expressing the continualized, encoded program as a differential operator;
 instantiating the differential operator in a physical medium; and
 extracting from the physical medium a solution for the continualized, encoded program.

2. The method of claim 1 wherein the encoding a program of computable functions further includes:
 for each point $(x_0, x_1, \dots, x_{N-1})$ in the domain $S_1 \times S_2 \times \dots \times S_N$ of computable functions a mapping given by:

$$F : [0, 1, \dots, p^{N-1}] \rightarrow [0, 1, \dots, p]$$

where

$$\bigwedge_{s=0}^{N-1} x_s \in S_s$$

and p is a natural number defined by:

$$p = \max_{i,d} \{ \{N_i | i = 1, \dots, N\}, N_d \} + 1$$

and $F(x) = M^x \gg x - 1$ if defined
 \emptyset otherwise

Example 2: Business method

A method for purchasing a product from a seller computer using a virtual payment account comprising the steps of

receiving a request from a buyer computer to purchase a product from a seller computer using a virtual payment account,

in response to said purchase request, determining whether said buyer computer is associated with said virtual payment account,

in response to determining that said buyer computer is associated with said virtual payment account, applying a cost of said product to said virtual payment account and

providing said product to a buyer associated with said buyer computer.

Example 3: Computer program per se

1. *A method of detecting vulnerabilities in source code comprising:*

analyzing variables in the source code and creating models therefrom in which each model specifies pre-determined characteristics about each variable; using the variable models to create models of arguments to routine calls in the source code; and using the argument models in conjunction with pre-specified criteria for the corresponding routine calls to determine whether the routine calls possess vulnerabilities as a consequence of the arguments and known routine behavior.

Example 4: Algorithm

A method comprising:

receiving, at each of a plurality of logical replicas, a request from a client, wherein: each said logical replica is configured for exclusive association with one said client; each said logical replica includes a queue; and the request is for accessing one of a plurality of resources; and when a particular said logical replica is exclusively associated with another said client, storing the request in the queue of the particular said logical replica.

4.2 Apparatus/system:

The other main preamble of patent claims relating to CRIs relates to "**Apparatus/system for.....**". These claims are often crafted to appear in "means + function" format. It requires the examiners' attention to properly construe whether the claimed subject matter indeed relate to any apparatus which is novel, inventive, having industrial applicability or is just formatted to appear so. The apparatus claim should clearly define the inventive constructional/hardware features. The claim for an apparatus may incorporate a "process limitation" for an apparatus, where "limitation" means defining the specific application and not the general application.

Example: *Apparatus for providing a secure communications session between a device and a wireless network, comprising means - for receiving an access request from the device - characterized in that means - for redirecting the access request to a local web server for allowing a reconfigured access to the wireless network via a packet traffic filter means ; means - for activating, in response to the information received from the device - a module that reconfigures the device - for authentication using appropriate parameters associated with a configuration arrangement*

selected by a user; and means - for authenticating the reconfigured device - and allowing access to the wireless network in response to the authentication.

4.3 Computer program product:

The claims relating to computer program product are nothing but computer program per se simply expressed on a computer readable storage medium (CD, DVD, Signal etc.) and as such are not allowable.

Example: *A computer program product for feeding back information from a receiver to a transmitter, the program comprising code which when executed on a processor of the receiver receives signals from the transmitter over a wireless multiple-input multiple- output channel; based on the received signals, transmits a plurality of reports back from the receiver to the transmitter in a periodic sequence of respective time intervals, the reports of each period comprising at least an indication of a pre-coding matrix and an indication of a rank of the pre-coding matrix in response to an event, omits the report comprising the rank indications from one of said periods; determines a subsequent report comprising an indication of a pre-coding matrix on the basis of a predetermined default rank, and transmits that report to the transmitter.*

5. EXAMINATION PROCEDURE:

The examination procedure of patent applications relating to CRIs is common with other inventions to the extent of considering novelty, inventive step and industrial applicability. The determination that the subject matter is relating to one of the excluded category requires greater skill of the examiner and these guidelines focus more on this aspect.

5.1 Novelty

Novelty is the foremost requirement to determine the patentability of any invention. No invention can be held patentable if the subject matter as described and claimed was disclosed before the date of filing, or before the date of priority, as the case may be. The determination of novelty in respect of CRIs is no different than any other field of invention.

The definition of "new invention" in The Indian Patents Act, 1970 is as follows:

"New invention" means any invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e. the subject matter has not fallen in public domain or that it does not form part of the state of the art;

The novelty criterion is judged under the provisions of Section 13 of the Act and the procedures are laid out in chapter 08.03.02 of Manual of Patent Office Practice and Procedure available on official website of the office of the CGPDTM.

5.2 Inventive step

Inventive step is decided in accordance with the provisions section 2(1) (ja) of Indian Patents, Act 1970. The determination of inventive step with regard to CRIs are carried out in like manner as other category of inventions.

"(ja) "inventive step" means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art;"

IPAB in Enercon case⁶ referring to *Windsurfing International Inc.*⁷ and *Pozzoli*⁸ held the following step for determination of Inventive step:

1. Identifying the inventive concept embodied in the patent;
2. Imputing to a normally skilled but unimaginative addressee what was common general knowledge in the art at the priority date;
3. Identifying the differences if any between the matter cited and the alleged invention; and
4. Deciding whether those differences, viewed without any knowledge of the alleged invention, constituted steps which would have been obvious to the skilled man or whether they required any degree of invention.

The detailed procedure with regard to determination of inventive step is given in chapter 08.03.03.02 of Manual of Patent Office Practice and Procedure available on official website of the office of the CGPDTM.

5.3 Industrial Applicability:

In patent law, industrial applicability or industrial application is a patentability requirement according to which a patent can only be granted for an invention which is susceptible of industrial application, i.e. for an invention which can be made or used in some kind of industry.

It has been defined in section 2(1)(ac) of Indian Patents Act, 1970 as follows:

(ac) "capable of industrial application", in relation to an invention, means that the invention is capable of being made or used in an industry;

⁶ (M.P. Nos.5/2010, 27/2010 & 49/2010 in ORA/4/2009/PT/CH and ORA/4/2009/PT/CH)

⁷ *Windsurfing International Inc. v Tabur Marine (GB) Ltd.*⁷ [1985] RPC 59,

⁸ *Pozzoli v BDMO* [2007] EWCA Civ 588; [\[2007\] FSR 37](#)

An example of invention which would *not* be susceptible of industrial application is "a method of contraception..." to be applied in the private and personal sphere of a human being.

The requirement of workability and usefulness are both connected with this requirement. If an invention is not workable, it means it is also not industrially applicable.

The determination of industrial applicability in case of CRIs is very crucial since the inventions relating to these categories of exclusions are considered abstract theories, lacking in industrial application.

The detailed procedure with regard to determination of industrial applicability is given in chapter 08.03.04 of Manual of Patent Office Practice and Procedure available on official website of the office of the CGPDTM.

5.4 Determination of excluded subject matter relating to CRIs

5.4.1 While it is comparatively simple to determine the patentability of inventions relating to apparatus/system having hardware implementations, with the amendment of the definition of invention u/s 2(1) (j) through the Patents (Amendment) Act, 2002 to cover a new product or process involving an inventive step and capable of industrial application; the scrutiny of process/method related inventions became very crucial as they were no more limited to 'manner of manufacture' alone, as was practiced previous to the implementation of the amended Act. Rather, it depends on the crucial judgment of the examiner as to whether the claimed method/process can be construed to qualify under the process/method as defined in the statutes. Since patents are granted to inventions whether products or processes, in all fields of technology, it is pertinent to ascertain from the nature of the claimed method/process whether it relates to technological field.

5.4.2 Since the investigation of inventive step involves a check as to whether a feature of invention involves technical advance as compared to existing knowledge, the 'method/process' has to

be judged on the technical advancement over prior art. Further, since the protection and enforcement of patent rights do contribute to promotion of technological innovations, it is amply clear that for a subject matter to be considered patentable it must relate to the technological innovations.

5.4.3 Therefore, any method/process relating to non-technological field shall not be considered patentable. The exclusions under sub-sections (k) to (n) of section 3 explicitly carves out the specified categories of inventions from the broad definition of inventions under clause (j) of sub-section (1) of section 2; considering them as mental, intellectual, aesthetic and/ or abstract subject matter not involving technical character.

5.4.4 Terms such as mathematical or business related methods, a computer programme *per se*, or algorithm, mental act, aesthetic creation, method of playing games and method of presentation of information are all excluded from the ambit of patentability indicating the positive intent of legislature not to allow patents in these fields.

5.4.5 Essentially, all computer programmes need a combination with some hardware for its functionality. Does it imply that all such programmes can be considered as away from the purview of computer programme *per se*? The question therefore, is whether a computer programme loaded on a general purpose known computer or related devices can be held patentable. Keeping in view the spirit of law the answer is in the negative. In an application for patent for a new hardware system, the possibility of a computer programme forming part of the claims is not ruled out. The examiner is to carefully consider as to how integrated is the novel hardware with the computer programme. Further, whether the machine is programme specific or the programme is machine specific is important to ascertain. This requires critical care of the Examiners.

5.4.6 A computer programme which may work on any general purpose known computer does not meet the requirements of the law. For considering the patentability of computer programme in combination with hardware features, the hardware portion has to be something more than general-purpose machine. In cases

where the novelty resides in the device, machine or apparatus and if such devices are claimed in combination with the novel or known computer programmes to make their functionality definitive, the claims to these devices may be considered patentable, if the invention has passed the triple test of novelty, inventive step and industrial applicability.

5.4.7 It is important to note that the term *per se* has been suffixed to the computer programme alone. Therefore, if the invention is relating to mathematical method, business method or algorithm, they are considered to be non-patentable by direct application of law. However, if a claim of an invention is oriented towards a novel, inventive and industrially applicable computer or related device along with the programme for defining its functionality, then it may be considered to be patentable.

5.4.8 The following illustrative examples have been incorporated in the guidelines to exhibit the approach the office adopts while deciding applications relating to these excluded categories:

Illustration 1: An application titled, "system and method for billing augmentation" was held as a business method.

The Controller held that the subject matter of amended claims 1-9 recited a billing augmentation method in which a message from customer is received, analyzed for determining service charge category and accordingly billing event is generated to bill the customer an amount. The method was simply linking business entities; hence the method is essentially a business method, because the processing steps of the method relate merely to automation of business processing steps. Hence, subject matter of these claims falls within scope of clause (k) of section (3) of the Patents Act, 1970 (as amended). Therefore, the invention claimed in said claims was not patentable.

Illustration 2: In another matter, the Controller held, that patent system was meant for protecting only one kind of

creativity , i.e., technological creativity and since the claimed invention related to business method and method of presenting information, it was not allowed.

Illustration 3: A patent application was filed with the following main claims:

A method for generating a billing event for a download transaction of an application from a download server, wherein generating said billing event requires a first set of information and a second set of information, comprising: – storing said first set of information as a metadata, said metadata comprising a plurality of blocks;

– responsive to the download transaction conducted by the download server, receiving raw transaction data, said raw transaction data comprising – a plurality of references to blocks of said metadata, and

– said second set of information;

– correlating each of said plurality of references in said raw transaction data to retrieve said first set of information from said metadata; and

– creating said billing event from said first and second sets of information.

Refusing the application, the Controller held that the scope of the invention involves a subscription transaction in the working of the alleged invention having a transaction processing environment using a transaction manager, subscription option, pricing information and a flowchart depicting a method of processing transaction data for a carrier's billing system which involves the step of creating a billing event containing pricing information associated with the data transaction of downloading an application by processing the raw transaction data and the metadata.

Thus it is evident that the alleged invention relates to the processing of transaction data and billing for transactions across a data network which is a mere **business method**.

Illustration 4: The patent application was filed with the following main claims:

A system operated over an electronic network for surveying nursing quality of nursing units at multiple healthcare facilities, comprising:

a database configured to store information received from multiple healthcare facilities; and a Web server, configured to transmit at least one question relating to a nursing quality indicator to at least one staff member of a first nursing unit of a first healthcare facility via a first Web client and to at least one staff member of a second nursing unit of a second healthcare facility via a second Web client, receive a first data element in response to the at least one question presented to the at least one staff member of the first nursing unit, a first unit type, and a first identifier from the first Web client, and a second data element in response to the at least one question presented to the at least one staff member of the second nursing unit, a second unit type, and a second identifier from the second Web client, save the first data element, the first unit type, the first identifier, the second data element, the second unit type, and the second identifier in the database, determine if the first unit type and the second unit type are substantially the same type, and if the first unit type and the second unit type are determined to be substantially the same type, perform a comparison of the first data element and the second data element stored in the database and organize results of the comparison based on unit type and healthcare facility, and

transmit results from the Web server to a third Web client.

A method for surveying nursing quality of nursing units at multiple healthcare facilities connected via a network, comprising: presenting at least one question relating to a nursing quality indicator to at least one staff member of a first nursing unit of a first healthcare facility using a Web server via a first Web client connected to the network; presenting the at least one question relating to the nursing quality indicator to at least one staff member of a second nursing unit of a second healthcare facility using a Web server via a second Web client connected to the network; receiving a first data element in response to the at least one question presented to the at least one staff member of the first nursing unit, a first unit type of the first nursing unit, a first identifier of the first healthcare facility, and the first data element using a Web server via the first Web client; receiving a second data element in response to the at least one question presented to the at least one staff member of the second nursing unit, a second unit type of the second nursing unit, a second identifier of the second healthcare facility, and the second data element using a Web server via the second Web client; storing the first data element along with the first unit type and the first identifier using a Web server in a database; storing the second data element along with the second unit type and the second identifier using a Web server in the database; and determining if the first unit type and the second unit type are substantially the same type, and if the first unit type and the second unit type are substantially the same type using a Web server, performing a comparison of the first data element and the second data element stored in the database using a Web

server, organizing results of the comparison based on unit type and healthcare facility using a Web server, and transmitting the results to a third Web client for display using a Web server.

Refusing the application, the Controller held that when the server and database are known in the art, the computer is known in the art and the way those interact with each other is known, then what is the contribution of the inventor? The contribution is only a computer program to carry out the above discussed business method.

Illustration 5: *A method of scoring compatibility between members of a social network, said method comprising the steps of:*

preparing interest compatibility scores based on expressed Interests of the members of the social network; and

computing a compatibility score between a first member of the social network and a second member of the social network based on expressed interests of the first member, expressed interests of the second member, and the interest compatibility scores between the expressed interests of the first member and the expressed interests of the second member.

The Controller held that the said method for scoring compatibility between the social network users is nothing but a business method which shall be used commercially. Thus the subject matter of the instant invention cannot be allowed u/s 3(K) of The Patents Act, 1970.

The said method for scoring compatibility between the social network users, say estimating the probability and dividing the estimated probabilities from the resultant product, is a mere a mathematical method which cannot be allowed u/s 3(K) of The Patents Act, 1970.

The subject matter of the instant invention, say the method for computing compatibility score, is based on a scheme/predefined set of rules which cannot be allowed u/s 3(m) of The Patents Act, 1970.

Hence, in view of the above pending objections, this application was refused u/s 15 of the Patents Act, 1970.

Illustration 6: *A method for adding value to a customer account, comprising:*

distributing an identifier associated with a value to a customer, wherein the identifier is usable to add the value to an account;

receiving via short message service (SMS) a request to add the value to a customer account, the request comprising the identifier and account identification information associated with the customer account, the request being received from a user communication device as an SMS message;

identifying the value associated with the identifier and the customer account associated with the account identification information based on the request;

causing the value to be added to the customer account; and

passing to the user communication device a confirmation that the value was added to the customer account.

The Controller held that the Claim 1 (independent principal claim) teaches the functions of distributing the identifier usable to add value to an account, sending, receiving and identifying the value, causing the value to be added to an account and confirming that the value has been added which clearly portray a business method I transaction of value I services.

Moreover, the subsequent remainder of the claims directly help or aid in the business method/ activity/ service transaction directly and merely teach how the service transaction is carried out. Based on the above facts and conclusions, it was concluded and decided that the subject matter of the alleged invention do not constitute a patentable subject matter and purely relate to a business method and software per se and as such the application for patent cannot be processed further. Hence it was concluded that the claims 1 to 19 are not

allowed in view of the Indian Patents Act 1970. Therefore, the Controller refused to proceed with the application.

Illustration 7: *An interactive computerized method of linking a consumer and a nutritional pharmacologist offering the consumer's personalized nutritional information through a central network site, the method comprising:*

- a) providing a central integration site through which the nutritional pharmacologist and the consumer communicate with each other, the central integration site comprising a storage medium,*
- b) storing a first database for maintaining biochemical marker data information for at least one biochemical marker in the storage medium;*
- c) storing a second database for maintaining a nutritional data for at least one nutrient in the storage medium, the nutritional data comprising a record on association and effects of the at least one nutrient with the at least one biochemical marker;*
- d) receiving a consumer's clinical test result containing at least one biochemical marker level from the central integration site;*
- e) generating a consumer's biochemical marker level set by comparing the at least one biochemical marker level indicated in the consumer's clinical test result with the biochemical marker data information of the first database;*
- f) comparing the consumer's biochemical marker level set with the nutritional data stored in the second database;*
- g) generating a status report indicating personalized nutritional information for the consumer; and*
Communicating the status report obtained in step (g) to the consumer.

The Controller held that, based on the above facts and conclusions, the subject matter of the alleged invention DO NOT constitute of patentable subject matter and purely relate to **a business method** and **software per se** and as such the application for patent could not be processed further. Hence, it was concluded that the claims are not allowed in view of the Indian Patents Act 1970. Therefore, the Controller refused to proceed with the application.

Illustration 8: Yahoo case IPAB OA/22/2010/PT/CH

Claims:

A method of operating a computer network search apparatus for generating a result list (710) of items representing a match with information entered by a user through an input device connected to the computer network (20), the search apparatus comprising a computer system (22, 24) operatively connected to the computer network and the method comprising:

storing a plurality of items (344) in a database (38, 40), each item comprising information to be communicated to a user and having associated with it at least one keyword (352), an information provided (302) and a bid amount (358);

receiving a keyword entered by a user through an input device (12);

searching the stored items (344) and identifying items representing a match with the key word entered by the user;

ordering the identified items using the bid amounts (358) for the identified items, and generating a result list (710) including the ordered, identified items;

providing the result list (710) to the user;

receiving a request from the user for information regarding an item selected from the result list (710);

charging to an account of the information provider (302) associated with the selected item the bid amount (358) associated with the selected item; and

providing information providers (302) with authenticated login access to permit an information provider to modify at least the bid amount (358) associated with the information provider's listing (344);

wherein the computer system (22, 24) sends an indication of the status of the information provider's account to the information provider (302) in response to the occurrence of a predetermined condition.

The Controller concluded that the invention was only a business strategy and hence was not patentable.

On appeal, the IPAB analyzed various decisions of foreign courts with regard to 'business method' patents. In its decision, the Board held that the invention was falling in the category of "method of doing business", maybe a technically smarter way of doing business.

Thus it can be observed that IPAB have analysed the foreign cases in light of "business methods" and their allowability in various other jurisdiction.

Illustration 9: An invention titled "a computer performance optimization method".

Initially the applicant filed 19 claims of which independent claim 1 related to a Computer performance optimization method and other two independent claims 12 and 16, claiming again a supplementary method to quickly optimize an unlimited number of Identical computers as well as

a main non-volatile storage medium optimized with purpose specific sections that contains a basic set of four purpose specific sections.

The Controller observed as follows:

The invention as claimed and described in this patent application consisted of the following three components of present invention as appended below:

- a) Method for optimizing the performance of a Computer;
- b) Method for quickly optimizing the performance of an unlimited number of Computers;
- c) Main non-volatile storage medium optimized with purpose-specific sections.

He has analysed by claims component-wise:

a) Method for optimizing the performance of a computer:

The above first component of this Invention is a method for optimizing the performance of a computer by means of purpose-specific sections created in its main non-volatile storage medium.

b) Method for quickly optimizing the performance of an unlimited number of Computers :--

The second component of this invention consists of a secondary method that supplements the first component of this invention so that it is possible to quickly optimize the performance of an unlimited number of "replica" computers from the optimization obtained in a "master computer".

Massive applications at Commercial or Industrial levels, however, require a secondary method that makes it possible to swiftly optimize dozens, hundreds, or even thousands of identical Computers which are /must be identical in its hardware and Software as well as configuration. The above said second component of invention is achieved by the following software steps of method such as

- (i) Optimizing the "Master Computer",
- (ii) Optimizing the "replica" Computers and
- (iii) Final adjustments in the Optimized computers.

C) Main non-volatile storage medium optimized with purpose-specific sections.

The third and last component of this invention is the main non-volatile storage medium optimized with purpose sections that result after applying the "method for optimizing the performance of a "Computer", either by using such method in only one computer as the first component explained, or in an unlimited computers, as the second component does.

In this connection, the Controller observed that all these steps of three components of invention are steps of Software method and therefore these Software steps will be executed only with Software Program.

Hence, the Controller concluded and opined that the above invention as claimed: A Computer performance optimization method in claim 1, a supplementary method to quickly optimize an unlimited number of identical computers in claim 12 as well as a main non-volatile storage medium optimized with purpose specific sections in claim 16 including their dependent claims, are **computer programs per se** and therefore fall under section 3 (k) of Patent Act 1970 and as amended by Patent Act 2005.

The Controller further added that mere using a computer to automate what was previously done manually is not enough for an invention to be said to make a technical contribution. Examples: steps like (i) configuring the data processor to determine which document templates are required, (ii) accessing user input data stored in a database and (iii) merging those templates with the user's answers to generate the documents required makes a technical contribution. Although they are "technical" in the sense that they are carried out by technical means within the computer, they are merely programming steps and the interrelationships between them follow naturally from the automation process and may be termed as administrative solutions and cannot be held patentable.

6. FORM AND SUBSTANCE:

- 6.1 While the judgment of mathematical methods or business methods is comparatively easier, it is the computer programme *per se* or algorithms related inventions that require careful consideration of the examiner. The computer programme is considered to be the author's creation and is therefore protectable under the Copyright Act. The sub-section excludes computer programme *per se* from patentability. Computer programmes are often claimed in the form of algorithms as method claims or system claims with some 'means' indicating the functions of flow charts or process steps. The algorithm related claims are even wider than the computer programmes claimed by themselves. A programme represents a particular set, the algorithm gives way for many programmes in different languages to be written based on the same algorithm. Therefore, the inventions claimed in any of the above forms belong to the excluded category in substance and hence would not be patentable.
- 6.2 Further when the issue is related to hardware/software relation, (e.g., when the claims recite 'processor is programmed to... or 'apparatus comprising a processor and configured / programmed to.....) the expression of the functionality as a method, is judged on its substance. It is well established law that, in patentability cases, the focus should be on the underlying substance of the invention, not the particular form in which it is claimed. The Patents Act clearly intends computer programs *per se* to be excluded, and it is the clear intention of the legislature that the exclusion could not be avoided merely by wording and further saying that different sub-routines are performed in different physical locations e.g. processors.

Illustration 10: In an invention titled "A Transaction processing method and system", the objection of examiner was that claims(s) (1 to5) and (13 to 16) fall(s) within the scope of section 3(k) of the Patent Act.

"A networked computer system for transaction processing comprising: a server configured to

exchange data with a plurality of clients computers; a database operatively coupled to the server and storing chemical product data for a plurality of chemical products; a memory operatively coupled to the server and comprising instructions to configure the server to;

- a. receive a request comprising a product identifier from a first one of the plurality of client computer,*
- b. query the database in response to the received request to retrieve product information,*
- c. send the product information to the first client computer; and a formulation means to combine ingredients to form a chemical product.”*

The Controller held that although the claims were drafted as a system but in fact they are not more than a method of doing business since the transaction processing in the alleged system is performed by the instructions stored in the memory to configure the server which in-turn performs the functions of receiving a request, querying the database and sending the product information.

The Controller observed that there was no invention in the network system as the alleged network system used all conventional hardware devices for its implementation, a fact which had also been admitted by the agent for the applicants. The instant invention also does not lie in the formulation of each product which is being transacted by the alleged network system.

Refusing the application, the Controller held that the invention claimed was simply an automation of the process of transaction of business by computer program functioning on the basis of instructions to configure the server which prevents a customer from going to a shop and buying appropriate products therefrom. Therefore, the network system which is claimed in the instant application is nothing but a business method in the disguise of a system implemented by a computer programme by configuring the instruction given through computer program to

complete the transaction of the business. Hence, the invention attracts the provisions of section 3(k) of the Patents Act, 1970 being a business method implemented by means of computer program using the instructions contained in the memory of the server.

Illustration 11: The invention was titled "Type checking system and Method thereof".

Claims: A method, implemented in a type-checking system (920), of type-checking a programming language in a compiler according to one or more type checking rule sets (310) comprising:

- Selecting ,by a type-checker (398,400) of the type-checking system (920) ,one or more of the checking rule sets (310) stored in a persistent memory(128) based upon a present stage of compilation ;and

- Type-checking, by the type-checker (308,400) of the type-checking system (920), the programming language based on the selected one or more type-checking rule sets (310), wherein the type-checking the programming language comprises type checking each of a plurality of intermediate representations of the programming language; Wherein the one or more type checking rule sets (310) comprise one rule set corresponding to weak type-checking, and one corresponding to representation type-checking.

The Controller observed that the invention related to a method and a system for type checking of typed intermediate languages in a manner that the compilation of any kind of programming language is improved, which in turn prevents compiler error and enhances the reliability and robustness of the compiler.

It is necessary to understand what a compiler is? "A compiler is a computer program (or set of programs) that transforms source code

written in a programming language (the source language) into another computer language (the target language, often having a binary form known as object code)". The most common reason for wanting to transform a source code is to create an executable program. Further, a type system is a system used in programming languages to aid in the detection and prevention of run-time errors. A programming language is "type-checking" if it contains a set of types that are declared for objects such as a variables, functions, etc. and these types are checked versus a set of rules during compilation of a program written in the language. If the source code written in the typed language violates one of the type's rules, compiler error is determined.

A representation of types, type checker, and compiler are provided for checking consistency in various forms of an intermediate language. The type checker and compiler allow use of different types and type checking rules, depending on the source language for a program component and /or the stage compilation. A compiler is provided with a type-checker that constructs one or more sets of rules based on any one, or combination of two or more of numerous criteria.

Therefore, the present invention as claimed in revised claim 1 is a method of type-checking a programming language in a compiler. And another revised independent claim as claimed in claim 8 is also a type-checking system for type-checking source code authored in a plurality of source languages in accordance with a type-checker ,wherein the type-checker selects one or more type checking rule sets to apply to the source code at each of a plurality of representation, wherein the plurality of representation include at least one of high-level intermediate representation- mid-level intermediate representation - and low-level intermediate representation - The use of processor unit and the memory in the system claim have no significance but as a generalized use.

In view of above it is observed that the revised method Claim 1 and system claim 8 still fall under sub-section (k) of Section 3 of Patent Act 1970. It is also observed that such claim of method claim is nothing but a system claim since these claims contain only the feature of selecting various types type-checking rules and therefore there is no locus stand to obviate objection of 3(k) of Patent Act 1970 in respect

of claims as claimed in claim 1 or claim 8 as well as their dependent claims. Therefore, it is concluded that the claims as claimed in revised claims 1 to 12 or original claims 1 to 34, fall under Section 3(k) of the Patent Act 1970 and Patent (amendment) Act 2005 and are not allowable.

7. MEANS PLUS FUNCTION:

For resolving the cases belonging to the claim category of “means plus function”, the claims in means plus function form shall not be allowed if the structural features of those means are not disclosed in the specification.

Further, if the specification supports implementation of the invention solely by the computer program then in that case means plus function claims shall be rejected as these means are nothing but computer program per se.

Illustration 12: The patent application was filed with the following main claims:

A method for developing a computer model of an animal joint, comprising: identifying data relating to a biological state of the joint; identifying a plurality of biological processes related to the data, the plurality of biological processes defining at least one portion of the biological state of the joint; and

combining the plurality of biological processes to form a simulation of the biological state of the joint.

A computer model of the biological state of an animal joint, comprising:

code to define a set of biological processes related to the biological state of the joint; and code to define a set of mathematical relationships related to interactions among biological variables

associated with the biological processes, at least two biological processes from the set of biological processes being associated with the set of mathematical relationships, a combination of the code to define the set of biological processes and the code to define the set of mathematical relationships defining a simulation of the biological state of the joint

A computer executable software code, comprising:

code to define a plurality of biological processes related to a biological state of an animal joint including:

code to define a set of mathematical relations associated with a first biological process from the plurality of biological processes and associated with interactions among biological variables associated with the first biological process, and code to define a set of mathematical relations associated with a second biological process from the plurality of biological processes and associated with interactions among biological variables associated with the second biological process, the plurality of biological processes being associated with the biological state of the animal joint.

The Controller held that the claims were oriented towards "a computer system" comprising "a processor", "main memory" and "static memory" including various "means" which "means" have not been defined in the specification.

The process steps of the flow chart have been camouflaged and incorporated in the claims to alter the form of the claims in "system" + "means" format. It is evident that the specification discloses that "although certain embodiments of the computer system are described above, other embodiments are possible. Such computer system embodiments can be, for example, a networked or distributed

computer system. In addition, certain embodiments of the invention may be practiced without the assistance of a computer system.”

Further, “In one embodiment, in analytical model, the analytical representation of the biological state of the joint can be implemented without the assistance of a computer system.” However, production of such an analytical representation is also included in the computer system claim.

Refusing the application, the Controller held that the inventive ingenuity did not lie in the computer system and any general purpose computer having processor and memory can be used to execute the alleged invention with the help of mathematical processes and mathematical algorithms described through flow charts.

Illustration 13: *A device for processing bit symbols generated by a data source, in particular a video, still image or audio source, the bit symbols comprising a plurality of input data vectors $X=X_1, X_2, \dots, X_k$, the device comprising:*

A bit-plane construction and scanning unit for constructing a plurality of bit-plane from the data source, each bit-plane comprising a plurality of bit-plane symbols, and scanning the bit-plane symbols of each bit-plane to generate a binary string of bit plane symbols,

A statistical model unit for providing statistical information which is generated based on statistical properties of a laplacian probability distribution function of the data source and which to define the statistical information, wherein the laplacian probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

Wherein is the standard deviation of the laplacian probability distribution function and an encoding unit for encoding the binary string of bit-plane symbols based on the statistical information provided by the statistical model unit

A first determining unit for determining an optimal bit-plane form the plurality of constructed bit-planes by determining an integer which best satisfies

$$\phi^{2^{-L+1}} \leq \theta < \phi^{2^{-L}} \dots$$

Refusing the application, the Controller observed and held that the alleged invention as claimed in the claims and described in the specification relates to a device for processing of the data particularly video, image or audio data. The data used in the said device is an output of the mathematical equation of claim 1 i.e. the laplacian probability distribution function. Also in the said claim the determining unit for determining an integer for optimal bit plane best satisfies this equation:

$$\phi^{2^{-L+1}} \leq \theta < \phi^{2^{-L}}$$

These calculations are being done by the so-called device as claimed in claims. The function of the so called device appears to be, to receive certain mathematical parameters, processing and embedding them therein. The said device consists of well known units such as scanning unit, encoding unit etc., which function in known manner to process the data and generates statistical properties. Therefore, processing of these parameters is being done when certain predetermined conditions of laplacian probability distribution functions are satisfied which are based on certain equations as mentioned in claim 1.

It was further held that the so-called device is based on mathematical method for solving mathematical equation given in the claims which are further based on various algorithms. Although

the claims are drafted as device but in fact they are not more than a mere processing of data by mathematical method of solving complex mathematical equations using various algorithms since the various units in the alleged device are not further sufficiently defined as a novel hardware unit of the device or their combination.

Illustration 14: The invention titled "Method, System and a Mobile Communication Station Adapted for selection of an Access Network".

A method of selecting an access network from among one or more access Networks capable of providing service to a mobile communication terminal (10), Comprising:

Determining (S1) a radio quality (q) from the terminal (10) to each access network,

Determining (S2) for each access network, a utilization factor (p) for at least one node,

Determining (S3) for each access network, a user perceived data quality (Qu), based on said determined utilization factor (p) and said determined radio quality (q) for the access network, and

Selecting (S4) at least one of said access networks, based on the determined user perceived quality (Qu).

The Controller observed that no specific hardware components were disclosed in the Complete Specification, which facilitate in achieving the above phenomenon of Reduction to Practice of the method Claim 1 of selecting an access network from among one or more access Networks. In view of the above reasoning, it was concluded /opined that the above method claim 1 is a mathematical method thereby failing to meet the subject matter eligibility requirements as set forth in and thereby the method claims as claimed in claims 1 to 23 fall under the clause (k) of Section 3 of the Patent Act 1970 as amended Patent Act 2005 Act.

Further it was held that **means-plus-function** element be defined according to the corresponding structure as disclosed in the specification. If no corresponding structure is found then the term cannot be defined and is therefore invalid as indefinite. In the present case, as per system claim 24, it was observed that the system claim 24 comprises four types of "means" referred by reference numerals 12,13,14 and 15. The term "Means" as stated in claim 24 were neither described nor any corresponding hardware structures were disclosed in the complete specification. In this connection it is also noted that there is no support for system claims 24 as invention for system as such have not been described in the complete specification.

In view of above, it was concluded that Claims as claimed in claims 24 claiming "Means-Plus-Function" were invalid and indefinite because the Means-Plus-Function limitations were not supported by any corresponding hardware structure as disclosed in the Specification and thereby not allowable.

8. COMPUTER RELATED INVENTIONS IN THE FIELD OF BIO-INFORMATICS/BIO-TECHNOLOGY:

The following examples indicate the methodology of dealing with claims in the field of bio-informatics/bio-technology concerning CRIs:

Illustration 15: *A computer readable medium having stored thereon a nucleic acid sequence as set forth in SEQ ID NO:1, and sequences substantially identical thereto, or a polypeptide sequence as set forth in SEQ ID NO:2, and sequences substantially identical thereto.*

Comments – Claims 1 to 33 were directed to genome sequences. Claim 34 was directed to computer readable medium. In FER, objection u/s 3(k) was raised for the said claim. In reply, the agents deleted the said claim.

Illustration 16: *A computer system comprising a processor and a data storage device wherein said data storage device has stored thereon a nucleic acid sequence as set forth in SEQ ID NO:1, or a polypeptide sequence as set forth in SEQ ID NO:2.*

The computer system of claim 35, further comprising a sequence comparison algorithm and a data storage device having at least one reference sequence stored thereon.

Comments – Claims 1 to 33 were directed to genome sequences of phytase enzyme. Claims 34 and 35 were directed to computer system. In FER, objection u/s 3(k) was raised for the claims 34 and 35. In reply, the agents deleted the said claims.

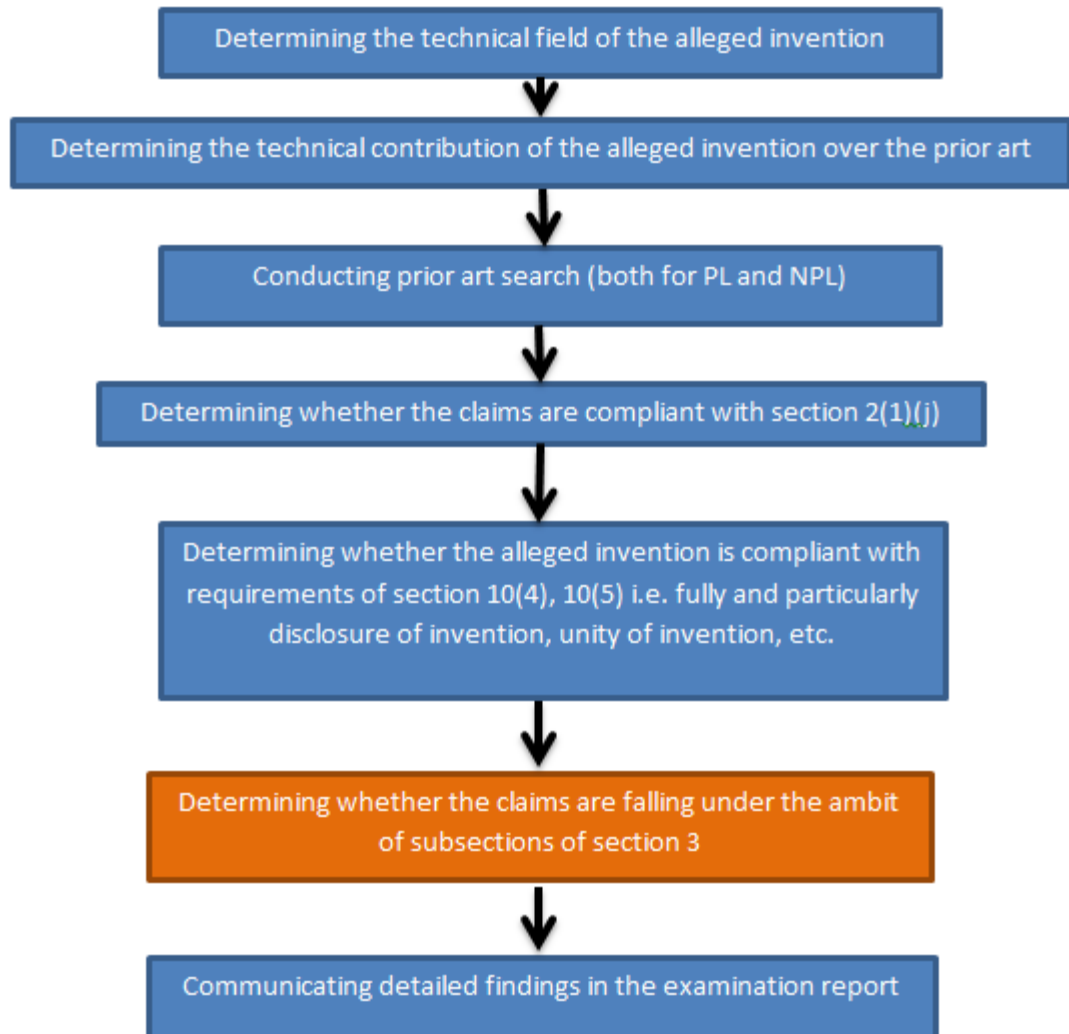
Illustration 17: *A method for comparing a first sequence to a reference sequence or a database of sequences wherein said first sequence is a nucleic acid sequence as set forth in SEQ ID NO:1 or a polypeptide sequence as set forth in SEQ ID NO:2 comprising:*

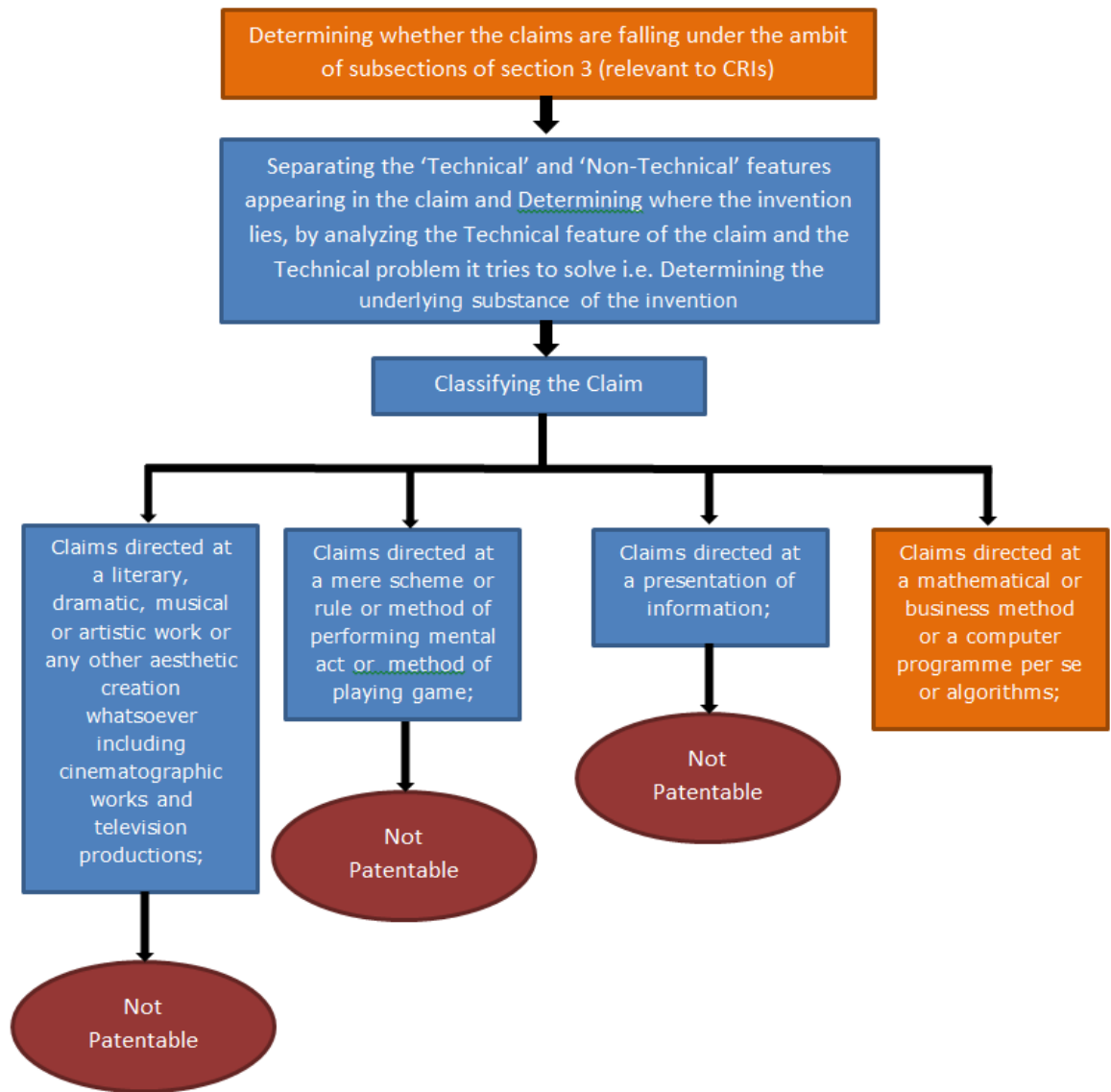
Reading the first sequence and the reference sequence or database of sequences through use of a computer program which compares sequences; and

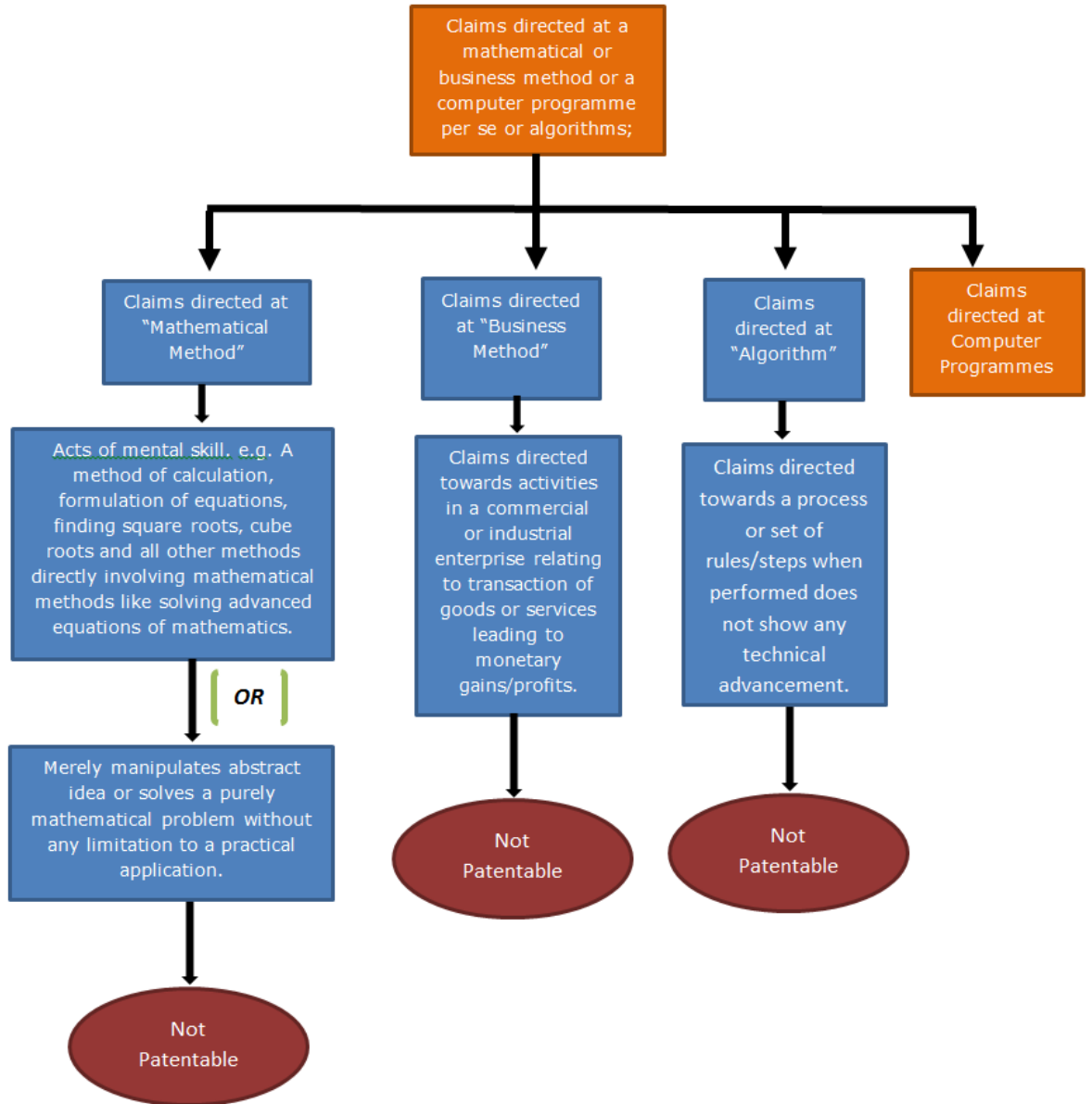
Determining differences between the first sequence and the reference sequence or database of sequences with the computer program.

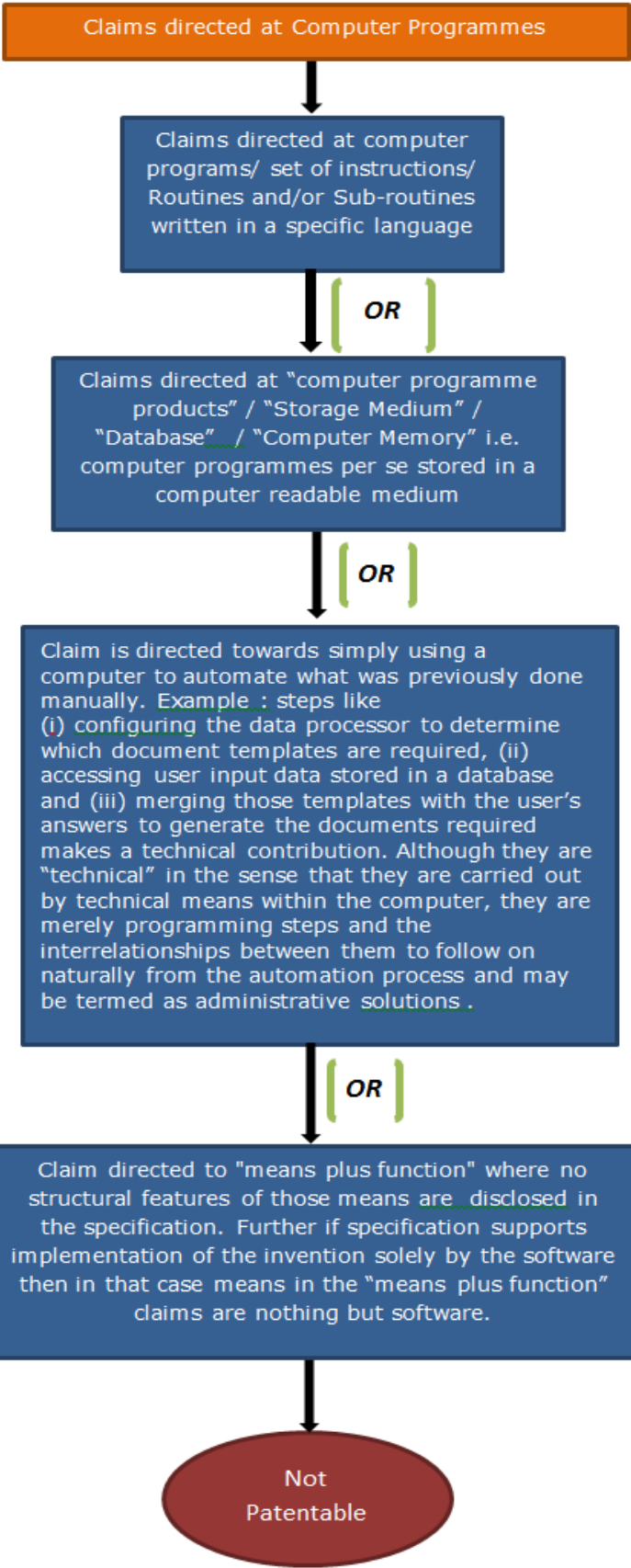
Comments – The said claim was objected u/s 3(k) in FER. The agents deleted the said claim in reply to FER.

9. FLOW CHART SHOWING PROCEDURES OF EXAMINATION OF COMPUTER RELATED INVENTIONS









10. CONCLUSION:

This document intends to achieve uniformity of practice while dealing with patent applications concerning CRIs. It is hoped that the illustrative examples and the flow chart for examination of these categories of inventions will prove to be effective tools towards achieving the objectives. Further, the examining division shall keep itself abreast with the latest orders of CGPDTM and various judicial pronouncements on the subject. These guidelines shall be updated periodically.