

Comments and recommendations on the Guidelines for Examination of Computer-Related Inventions (CRIs), 2015

The Indian Patent Act, 1970, states in section 3(k) that "a mathematical or business method or a computer programme per se or algorithms" are not patentable inventions. Until the public release of the current changes to the Manual on Patent Office Practice and Procedure on August 21, 2015, in the form of the Guidelines on Examination of Computer Related Inventions, the Manual correctly required examiners to discard applications addressed to non-patentable subject matter. We humbly request the Patent office to withdraw the changes and amend the said Guidelines to bring them in consonance with Section 3(k) of the Patents Act, 1970 and the legislative intent behind the statutory provision.

The Indian Patent Act, 1970, in Section 3, lists various categories that are not deemed to be inventions and therefore not capable of being granted a patent. Amongst the proscribed categories are, in sub-section (k), "*a mathematical or business method or a computer program per se or algorithms*". The purpose of such a provision is well understood – jurisdictions around the world agree that subject matter which would have the practical effect of preempting laws of nature or abstract ideas are ineligible for patent protection.¹

Accordingly, Section 3(k) is on the face of it, clear in explicitly ruling out mathematical and business methods and algorithms, in any form, from the scope of patenting. Further, computer programs (software) "per se" cannot be granted a patent.

The Indian Patent Office (IPO) issues a Manual on Patent Office Practice and Procedure (first issued in 2005 then in 2011) that seeks to lay out the protocols to be followed by the IPO in order to bring certainty, transparency and consistency to the practice of examination of patent applications. While the Manual does not create, modify or interpret law, it does provide step-by-step procedures for the IPO to examine an application and is therefore an important document in laying out the protocols for examination of patents. Any change in the protocols will not only impact the process of examination of patents, but can also have serious consequences on the interpretation of the law itself.

The Manual has previously been the source of some controversy, as there have been attempts to expand the scope of patentability of software through this route – notably by attempting to permit patents for software when it was claimed in conjunction with hardware, and lead to a technical advancement. That said, the last version of the Manual (2011, v.01.11 dated March 22, 2011) adopted a position that was in consonance with the parent statute.

Chapter 08.03.05.10, of the Manual (which has now been replaced by Guidelines on Examination of CRIs, dated August 21, 2015) provided that all

¹ Generally speaking, all intellectual property laws seek to balance two competing interests – that of society in general (which is benefited by a free flow of information) versus incentivizing creation or development of new technologies/ideas (and the consequent social benefits brought by such progress). It is generally accepted that permitting IP protection is by way of exception to the general norm requiring free flow of information (as IP protection creates monopolies over knowledge). (See the dicta of the US Supreme Court in *Graham v. John Deere Co.*, 383 US 1, 7-11 (1966)). In the case of abstract ideas such as mathematical models, algorithms, business methods etc., it is argued that these are all natural / naturally occurring – and as such are not 'invented', but merely 'discovered'. It is therefore argued that only God / nature could have a patent on such subject matter. See generally Thomas Jefferson's letter to Isaac McPherson in 1813 about the nature of ideas.

claims for patents would first be examined to see if it covered ineligible subject matter in terms of attempting to protect an algorithm, a business or mathematical method. Should the application pass this first test, it would then be checked to see if it infringed the bar on “computer programs per se”. If the claims disclosed only a computer program, it would not be permitted; if the claim disclosed a ‘computer program product’ i.e. a computer program stored in a computer readable medium, it would not be permitted; and crucially, if the claims contained a software and a hardware portion, the hardware portion must be sufficiently disclosed and must “form an essential part of the innovation”. The Patent Office was therefore clear in its interpretation of the law holding that only those computer programs combined with novel, non-general purpose machines would be considered for patenting.

This aforesaid position has now been changed by the new Guidelines on Examination of Computer Related Inventions by the Patent Office, leading to a situation where the scope of patentability of software has been expanded, not by Parliament but by executive action. This could have serious effects on innovation in India – particularly at a time where the Government of India is concentrating its efforts on enhancing entrepreneurship, working towards the creation of a Digital India and promoting Open Source Software². Specifically, increasing the scope of patent protection for software, business methods and algorithms, as the said Guidelines do, could also have the effect of diverting money from Research & Discovery to discovery / litigation costs and allow patent trolls to proliferate. A failure to reverse the changes made in the Guidelines will reduce access to knowledge for citizens of India and stymie innovation.

We submit that the words "per se" are not words of limitation. Any software is a computer program. Therefore the words ‘computer program per se’ limits the scope of any patent to exclude a computer programme by itself,," and no category of software may be the subject of valid patent claims. The Joint Parliamentary Committee made clear in its notes on the legislation that it was using the Latin phrase (meaning "in itself") literally and normally:

“In the new proposed clause (k) the words "per se" have been inserted. This change has been proposed because sometimes the computer programme may include certain other things, ancillary thereto or developed thereon. The intention here is not to reject them for grant of patent if they are inventions. However, the computer programmes as such are not intended to be granted patent. This amendment has been proposed to clarify the purpose.”

So inventions may be made using materials, including software or, for example, wood. Inventions may be "ancillary to" or "developed on" software. If so, patent rights may be claimed for the invention. But software or a computer programme in itself ("per se") can never be the subject of a patent claim.

² See the Government of India policy on Adoption of Open Source Software for Government of India available at: http://deity.gov.in/sites/upload_files/dit/files/policy_on_adoption_of_oss.pdf

This is not a complex or difficult position. It does not require the division of software inventions into "computer programme *per se*" and something else. The 2011 edition of the Manual correctly captured both the rule and how it should operationally affect the actions of examiners.

The nature of software, like mathematics or basic scientific research, is that innovation is best produced by collaboration and sharing. History shows that innovation in software over the last generation has occurred first in communities of free sharing, where patenting has been systematically discouraged. Many Courts, including the United States Supreme Court, have recognized the growth and innovation in the software industry in the absence of patent protection. Innovation in software, like innovation in mathematics, is encouraged by scientific processes of free sharing and open publication, not by granting state-issued monopolies on ideas.

The history of the free software movement and the worldwide adoption of Free and Open Source (FOSS) software by industry shows that patenting software has not contributed to the important software innovations of the last generation. The "free software movement," which has become the single most influential body of software practitioners around the world believes, that computer software expresses abstract ideas. Ideas, being un-patentable, software should therefore not be subject to patents.

In the more than twenty years of its existence, FOSS has taken the world by storm and has driven the majority of the world's technological advancement in computer programming. FOSS lives under the hood of it all—from desktops and servers, to laptops, netbooks, smartphones, and "the cloud." Linux, distributed under the GNU General Public License of the Free Software Foundation, is the operating system kernel in devices such as mobile phones, networking equipment, medical devices, and other consumer electronics. Android, which relies on Linux and includes the Java programming language and other software under the Apache Software Foundation's ALv2 license, currently has far and away the largest market share in smartphone operating system software. There is no major or minor computer hardware architecture, no class of consumer electronics, no form of network hardware connecting humanity's telephone calls, video streams, or anything else transpiring in the network of networks we call "the Internet" that doesn't make use of FOSS. The most important innovations in human society during this generation, the World Wide Web and Wikipedia, were based on and are now dominated by free software and the idea of free knowledge sharing it represents.

Given the widespread use and availability of enterprise applications running on GNU/Linux in "the cloud," FOSS presently provides the infrastructure at the frontier of computing in society. Big Data analytics rely heavily on FOSS, such as the Hadoop project of the Apache Software Foundation.

The major technologies of the Web, from its beginning, have been embodied in software without patent restrictions. In the early 1990s, CERN, the European Organization for Nuclear Research, committed the Web's fundamental technologies, including initial web-serving and web-browsing programs, to the public domain. The flexibility and sophistication of the Web we use today depends on freely available scripting languages such as Perl and PHP, invented by FOSS developers who deliberately did not seek patent monopolies for them. From 2000, the World Wide Web Consortium (W3C), which advances and standardizes the technology of the Web, has required its recommended technologies in its standards to be available royalty

free with respect to all patent claims of the companies and parties participating in standards-making. Google, Facebook, Twitter and other information services used by billions of individuals worldwide could not exist without FOSS and the collaboration it has spawned. If we wish to see similar innovation in India, the CRI guidelines must be recalled

In view of the aforesaid, we submit to the IPO, the following comments and recommendations on the Guidelines on the Examination of CRIs dated August 21, 2015.

Proposed amendments to the Guidelines for Examination of Computer-Related Inventions (CRIs), 2015			
Clause	Current text	Amended text	Rationale
1.2	“Intellectual Property creators in the domain of Computer Related Inventions (CRIs) have consistently endeavored for stricter protection granted by patents as opposed to copyrights. The patent regimes have to cope up with the challenges posed by such emerging technologies and have been a subject of international attention in the recent past.”	<i>“<u>The ubiquity of computer related devices and other emerging technologies across different spheres of the economy poses new challenges to patent regimes across the world. Given the diverse nature of claims and applications in this sphere, there is a need to ensure certainty in the interpretation of the law – in the form of putting in place consistent protocols for the examination of patent applications for CRIs. Accordingly, patent offices in different jurisdictions have developed examination guidelines/ manuals for examination of patent applications from these areas of technology so as to achieve uniform examination practices and certainty in the grant of patents.</u>”</i>	<p>The statement made in the first sentence of Para 1.2 is factually inaccurate. While undoubtedly there are those proposing stronger patent protection for CRIs, it is inaccurate to state that ‘IP creators in the domain of CRIs’ have consistently endeavored for stricter patent protection to be extended to CRIs.</p> <p>In fact, it is recognized by numerous industry players – particularly small and medium sized enterprises as well as local (Indian) enterprises that innovation and industry is best served through ensuring easier access to knowledge and therefore ensuring that strict IP regimes are not in fact legitimized.</p> <p>For instance, the Infosys CEO Vishal Sikka has called software patents “a curse’</p>

			<p>for the software industry. Similarly, Venkatesh Hariharan, Outreach Lead of the Open Innovation Network has repeatedly pointed out the deleterious effects of software patents on Indian industry. Similar statements have been made by numerous industry experts and those involved in the Indian IP space.</p>
4.5	<p>“Determination of excluded subject matter relating to CRIs: Since patents are granted to inventions, whether products or processes, in all fields of technology, it is important to ascertain from the nature of the claimed CRI whether it is of a technical nature involving technical advancement as compared to the existing knowledge or having economic significance and is not subject to exclusion under Section 3 of the Patents Act.</p> <p>The sub-section 3(k) excludes mathematical methods or business methods or computer programme per se or algorithms 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. It</p>	<p>“Determination of excluded subject matter relating to CRIs: , it is important to ascertain from the nature of the claimed CRI whether it is <u>inherently a mathematical method, business method, algorithm or computer programme per se.</u></p> <p>It is well-established that, in patentability cases, the focus should be on the underlying substance of the invention, not the particular form in which it is claimed. <u>In examining a patent application that relates to CRIs, one must take care to analyze and examine the application as a whole.</u></p> <p><u>Due care must be taken to analyze the substance of the claims made – not merely the form thereof - and whether the claims actually extend to protecting any excluded subject matter under Section 3(k). Should the claim lead to the practical effect of</u></p>	<p>This change clarifies that any CRI patent claim needs to be examined in substance to ensure that a CRI which is inherently a computer program is not granted a patent.</p> <p>It is the duty of the patent office to examine the substance of each application and claim made therein and see whether these have the practical effect of protecting proscribed subject matter i.e. a business or mathematical method/algorithm / computer program per se.</p> <p>We also wish to caution against relying on the Guidelines for Examination in the European Patent Office, as the exclusion of mathematical and business methods, algorithms and computer programmes under Article 52 of the European Patent Convention is substantially different from their exclusion under Section 3(k) of the</p>

	<p>is well-established that, in patentability cases, the focus should be on the underlying substance of the invention, not the particular form in which it is claimed.</p> <p>What is important is to judge the substance of claims taking whole of the claim together. If the claims in any form such as method/process, apparatus/system/device, computer program product/computer readable medium fall under the said excluded categories, they would not be patentable. However, if in substance, the claims, taken as whole, do not fall in any of the excluded category, the patent should not be denied.”</p>	<p><u>protecting excluded subject matter under Section 3(k), it must be denied - irrespective of the language used in the application.</u></p>	<p>Indian Patents Act.</p>
4.5.1	<p>Claims directed at “Mathematical Method”: Mathematical methods are a particular example of the principle that purely abstract or intellectual methods are not patentable. Mathematical methods like method of calculation, formulation of equations, finding square roots, cube roots and all other methods directly involving mathematical methods are therefore not patentable. With the development in computer technology, mathematical methods are used for writing algorithms</p>	<p>Claims directed at “Mathematical Method”: Mathematical methods are a particular example of the principle that purely abstract or intellectual methods are not patentable. Mathematical methods like method of calculation, formulation of equations, finding square roots, cube roots and all other methods directly involving mathematical methods are therefore not patentable. With the development in computer technology, <u>these and similar</u> mathematical methods are used for writing</p>	<p>The rationale behind clause 4.5.1 appears to be that applications should not be ruled out of patentability simply as they mention a mathematical method in the claims.</p> <p>While the intention behind this paragraph is correct, a clarification must be made that ensures that no claims directed at mathematical methods are patented through the back door – particularly in view of the wording of section 3(k), which explicitly rules out all mathematical methods from the scope of patenting.</p>

<p>and computer programs for different applications and the invention is claimed as one relating to the technological development rather than the mathematical method itself. However, mere use of a mathematical formula in a claim, to clearly specify the scope of protection being sought, would not necessarily render the claim to be mathematical method.</p> <p>Some examples which may not fall under category of “mathematical method” exclusion:</p> <ul style="list-style-type: none"> • Any computing/calculating machine constructed to carry out a method • Method of encoding/ decoding, method of encrypting/ decrypting, method of simulation through employing mathematical formulae for their operations may not fall under these exclusions <p>Some examples which will attract exclusion:</p> <ul style="list-style-type: none"> • Acts of mental skill. e.g. A method of calculation, formulation of equations, finding square roots, cube roots and all other methods 	<p>algorithms and computer programs for different applications and the <u>claimed invention is often camouflaged</u> as one relating to the technological development rather than the mathematical method itself. <u>Such methods, claimed in any form, are considered to be not patentable subject matter.</u></p>	<p>It must therefore be clarified that the invention cannot reside in the mathematical method recited in the claim, but must reside outside it.</p> <p>If we see the examples provided, e.g.: method of encoding/decoding, method of encrypting/decrypting, method of simulation, they could be claiming technological advance and industrial applications, but are all <i>mathematical methods</i> and excluded under 3(k). Even the example given regarding what is excluded is too restrictive, “merely manipulates abstract idea or solves a purely mathematical problem without specifying a practical application.” This could imply that if it manipulates abstract idea or solves a purely mathematical problem, while specifying a practical application, it would not attract exclusions.</p> <p>It may be noted that the exclusion under 3(k) applies whether there is a practical application to the mathematical method or not. Industrial application is a different clause and is not related to 3(k) exclusion.</p> <p>We also note that the legislature has</p>
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	<p>directly involving mathematical methods like solving advanced equations of mathematics</p> <ul style="list-style-type: none"> • Merely manipulates abstract idea or solves a purely mathematical problem without specifying a practical application 		<p>treated both mathematical methods and algorithms similarly – i.e. both are similarly excluded from the scope of patenting and therefore the procedures for examination of applications concerning these two subject matters must be similar.</p> <p>In their present form, the Guidelines negate the letter of the law and legislative intent behind Section 3(k). Section 3(k), as mentioned previously, is clear in stating that <u>all</u> Mathematical Methods are not patentable. It makes no difference whether a practical application of the Method is specified or not – the law requires all the patent office to reject all claims that attempt to protect a Mathematical Method in any way shape or form. In this respect, it must once again be noted that the “per se” qualification only applies to software and not mathematical Methods / Business Methods.</p>
4.5.2	<p>Claims directed at “Business Method”: The term “Business Methods” involves whole gamut of activities in a commercial or industrial enterprise relating to transaction of goods or services. The claims drafted not directly as “business methods”</p>	<p>Claims directed at “Business Method”: The term “Business Methods” involves a gamut of activities in a commercial or industrial enterprise relating to transaction of goods or services. <i>No such method is a patentable subject matter.</i></p>	<p>At the outset it must be noted that the legislature has used similar language pertaining to Business Methods, Algorithms and Mathematical Method. Therefore the procedure for examination of all three categories must be similar.</p>

	<p>but apparently with some unspecified means are held un-patentable. However, if the claimed subject matter specifies an apparatus and/or a technical process for carrying out the invention even partly, the claims shall be examined as a whole. Only when in substance the claims relate to “business methods”, they are not considered to be a patentable subject matter.</p> <p>However, mere usage of the words such as “enterprise”, “business”, “business rules”, “supply-chain”, “order”, “sales”, “transactions”, “commerce”, “payment” etc. in the claims should not lead to conclusion of a Computer Related Invention being just a “Business Method”, but if the subject matter is essentially about carrying out business/ trade/ financial transaction and/or a method of selling goods through web (e.g. providing web service functionality), should be treated as business method.</p>	<p>However, mere usage of the words such as “enterprise”, “business”, “business rules”, “supply-chain”, “order”, “sales”, “transactions”, “commerce”, “payment” etc. in the claims should not lead to conclusion of a Computer Related Invention being just a “Business Method”. If the subject matter is essentially about carrying out business/trade/financial transaction and/or a method of selling goods through web (e.g. providing web service functionality), should be treated as business method.</p>	<p>The changes made by the 2015 Guidelines have the effect of enhancing the scope of patentability of Business Methods by stating that in combination with a device, a Business Method would be patentable. This is clearly against the intent of the legislature, which has ensured in Section 3(k) that all Business Methods, irrespective of form, are excluded from the subject matter of patentability. The Patents Act is clear in stating that all business methods – irrespective of technical application thereof or the addition of a device/hardware cannot be considered inventions.</p> <p>The issue of ‘unspecified means’ is clearly not an exception envisaged by the legislature. All Business Methods cannot be considered the subject matter of patenting, whether taken with a device/ apparatus or not.</p> <p>The Guidelines have adopted the (mistaken) argument made regarding the patenting of software, which is predicated on the existence of the words “per se” to qualify “computer program”, and applied</p>
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			<p>the same (wrong) logic to Business Methods, without considering the letter of the law and the fact that Business Methods and Computer Programs are indeed treated differently by the legislature. The Guidelines are therefore a complete negation of legislative intent.</p>
<p>4.5.4</p>	<p>Claims directed at Computer Programme per se: The computer programme per se is excluded from patentability under section 3 (k) apart from mathematical or business method and algorithm. Claims which are directed towards computer programs per se are excluded from patentability, like</p> <ul style="list-style-type: none"> (i) Claims directed at computer programmes/ set of instructions/ Routines and/or Sub-routines written in a specific language (ii) Claims directed at “computer programme products” / “Storage Medium having instructions” / “Database” / “Computer Memory with instruction” i.e. computer programmes per se stored in a computer readable medium <p>The legislative intent to attach suffix per se</p>	<p><u>Claims Directed at “Computer Programs per se”:</u> <u>Computer programmes per se are excluded from the scope of patentability under Section 3(k) of the Patents Act, 1970.</u></p> <p><u>Accordingly claims directed:</u></p> <ul style="list-style-type: none"> (i) <u>at computer programmes / set of instructions/ Routines and/or Sub-routines written in a specific language;</u> (ii) <u>at computer programme products/ Storage Medium having instructions/ Database/ Computer Memory with instruction i.e. computer programmes per se stored in a computer readable medium</u> <p><u>will not be considered patentable.</u></p>	<p>The explanatory note provided in the Guidelines changes the interpretation of Section 3(k) and enhances the patent protection available to software products.</p> <p>The Guidelines then however proceed to misrepresent the comments of the JPC regarding use of the words “per se” in Section 3(k), stating that the JPC meant that if a computer program is not claimed ‘by itself’ but in a manner so as to establish industrial applicability of the invention, and it fulfills other criteria of patentability, a patent should not be denied.</p> <p>It is clear that this interpretation of the law is wrong. Not only does the JPC not mean what the Guidelines state, the intent of Parliament is made evident through the rejection of the amendments proposed to Section 3(k) by the 2004 Amendment</p>

to computer programme is evident by the following view expressed by the Joint Parliamentary Committee while introducing Patents (Amendments) Act, 2002:

“In the new proposed clause (k) the words "per se" have been inserted. This change has been proposed because sometimes the computer programme may include certain other things, ancillary thereto or developed thereon. The intention here is not to reject them for grant of patent if they are inventions. However, the computer programmes as such are not intended to be granted patent. This amendment has been proposed to clarify the purpose.”

The JPC report holds that the computer programmes as such are not intended to be granted patent. It uses the phrase “ ... certain other things, ancillary thereto or developed thereon...”. The term “ancillary” indicates something essential to give effect to the main subject. In respect of CRIs, the term “ancillary thereto” would mean the “things” which are essential to give effect to the computer programme. The clause “developed thereon” in the JPC report may be understood as any improvement or technical advancement

Ordinance and the 2005 Amendment Bill. The fact that industrial or technical application and mere combination with hardware were specifically rejected from inclusion in the Patent Act has been somehow overlooked by the Guidelines (of course, it goes without saying that an invention that has no technical application is completely worthless and as such not an invention at all).

The presence of Section 3(k) on the statute books means that only software as a part of a larger invention of which it is a part could be considered for a patent. The comments of the JPC make it clear that software “standing alone” is not patentable under Indian law. As software cannot execute on its own without any hardware, this logically means that software running on general-purpose data processing machines (computers) should also not qualify for patent protection. The mere addition of conventional data processing equipment to a software application does not turn that application into an invention. Only if the software application is a part of a larger system and the system as a whole is eligible for a patent, can the invention

<p>achieved by such development. Therefore, if a computer programme is not claimed by “in itself” rather, it has been claimed in such manner so as to establish industrial applicability of the invention and fulfills all other criterion of patentability, the patent should not be denied. In such a scenario, the claims in question shall have to be considered taking in to account whole of the claims.</p>		<p>be patented as a whole.</p> <p>Based on the changes made to the Ordinance of 2004, when enacted as the Patents Amendment Act of 2005, one is also certain of the legislative intent to ensure:</p> <ul style="list-style-type: none">• mere combination of novel software with hardware was deemed insufficient to satisfy the prerequisites of patentability;• a technical application or industrial application of software was deemed insufficient to satisfy the prerequisites of patentability <p>As an aside, it is worth noting that a similar position is now also accepted in US law following the decision in Alice Corp. v CLS Bank where the US Supreme Court held that “<i>the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea while adding the words ‘apply it’ is not enough for patent eligibility. Nor is limiting the use of an abstract idea ‘to a particular</i></p>
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			<i>technological environment’.</i> ”
5	Determinants	<p><u>Test to determine patentability:</u> <i>Examiners may rely on the following three-stage test in examining CRI applications:</i></p> <ol style="list-style-type: none"> 1. <u>Properly construe the claim and identify the actual contribution</u> 2. <u>If the contribution lies in mathematical method, business method or algorithm deny the claim.</u> 3. <u>If the contribution lies in the field of computer programme, check whether it is claimed in conjunction with a novel hardware and proceed to other steps to determine patentability with respect to the hardware. The computer programme in itself is never patentable. If the contribution lies solely in the computer programme, deny the claim. If the contribution lies in both the computer programme as well as hardware, proceed to other steps of patentability.</u> 	<p>The Guidelines state (clause 5.1) that to be considered patentable, claims must show:</p> <ol style="list-style-type: none"> (a) novel hardware, (b) novel hardware with a novel program, or (c) novel software with known hardware that goes beyond the normal interaction with that hardware and affects a change in functionality of the hardware. <p>Part (c) above, once again, is a departure from the extant law and the letter and spirit of Section 3(k). Merely changing technical functionality of the hardware is not sufficient criteria for patentability – as mentioned previously the industrial application clause in the 2004 Amendment Ordinance was specifically rejected by Parliament. There is a clear requirement in the law for novelty to be shown in the hardware portion of the invention and not just the software portion.</p>