Software inventions - Examining patentability

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The Indian Patent Office recently released the final version of the Guidelines for Examination of Computer Related Inventions\(^1\). They offer much needed clarity on the vexing issue of determining subject matter eligibility of Computer Related Inventions ("CRI"), a.k.a. software inventions. A standout feature of the final Guidelines is its singular focus on the core issue of providing directions to Patent Examiners in the examination of applications directed to CRIs.

Setting a positive tone from the outset, the Guidelines seek to determine patent-eligible subject matter based on considering ‘the claims, taken as a whole’ and not denying a patent if in substance the claims “do not fall in any of the excluded category.”\(^2\)

Even in the determination of patent eligibility of claims directed to mathematical and business methods, which have an absolute bar under Section 3(k), the Final Guidelines urge the Examiners to consider the claim as a whole before rejecting the claims. Specifically, the Final Guidelines states that the mere recitation of a mathematical formula in a claim “would not necessarily render the claim to be a mathematical method.”\(^3\) Similarly, the mere usage of business-related terminology, such as enterprise, business rules, supply-chain, commerce, transactions, payments, etc., “should not lead to the conclusion of a Computer Related Invention being just a ‘Business Method.’”\(^4\)

The Final Guidelines clearly identify two categories of claims as being directed to computer programs \textit{per se}, and hence patent ineligible.\(^5\)

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\(^2\) Final Guidelines, \textit{supra} note 2 at Section 4.5, page 10. The positive tone is evident when one considers the “Form and Substance” discussion at Section 6 of the Draft Guidelines, which emphasis the exclusion aspect of the determination.

\(^3\) \textit{Ibid.}, at Section 4.5.1, page 10.


\(^5\) \textit{Ibid.}, at Section 4.5.4, page 11.
These exclusions are based on the views expressed by the JPC on the 2002 Amendments with respect to the term “per se” used in conjunction with computer programs.\(^6\)

In the new proposed clause (k) the words "per se" have been inserted. This change has been proposed because sometimes the computer program 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 programs as such are not intended to be granted patent. This amendment has been proposed to clarify the purpose.\(^7\)

In view of the legislative intent as evident above, the Final Guidelines direct the Examiners that when claims are not directed to a computer program “in itself,” have industrial applicability and fulfill other criteria for patentability, then “the patent should not be denied.”\(^7\)

When assessing claims involving computer programs, the Final Guidelines identify three determinants, anyone of whose presence is an indication of patent eligible subject matter.\(^8\)

The first two determinants, namely, novel hardware and novel hardware in conjunction with a novel computer program are straightforward and need no further discussion. However, the third determinant – novel computer program with known hardware, under which a majority of computer related inventions would fall, requires further consideration.

Unlike the Draft Guidelines, the Final Guidelines do not reject outright the claims directed to a novel computer program with a known hardware. Instead, they focus on the interactions between the novel software and the known hardware. When such interactions go

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\(^{7}\) Final Guidelines, supra note 2 at Section 4.5.4, page 12.

\(^{8}\) Ibid., at Section 5.1, page 13.
beyond “normal” interactions, and bring “a further technical effect,” the claims may not be considered as excluded subject matter under Section 3(k).  

The Final Guidelines set out a six pronged test to ascertain whether claims have the requisite technical advancements to escape the exclusion under Section 3(k). If a claim under examination satisfies any one of the six prongs, then the claim does not fall within the purview of Section 3(k). The Final Guidelines direct the Examiners to assess the technical advancement in the claimed subject matter. If the technical advancement or technical contribution is on a process outside the computer environment, at the architecture level of a computer, or is by way of a change in the hardware or the functionality of the hardware, then the claim is patent eligible. Moreover, if the technical contribution of a claim results in the computer being made to operate in a new way or makes it a “better computer,” then the claim is patent eligible. Also, if any changes in the hardware or the functionality of the hardware amount to a technical advancement, then the claim cannot be excluded under Section 3(k). These factors are analogous to the factors identified by the UK High Court in the matter of AT&T and CVON v. The Comptroller General of Patents.

Factors Determinative of Technical Advancement

(i) whether the claimed technical feature has a technical contribution on a process which is carried on outside the computer;
(ii) whether the claimed technical feature operates at the level of the architecture of the computer;
(iii) whether the technical contribution is by way of change in the hardware or the functionality of hardware.
(iv) whether the claimed technical contribution results in the computer being made to operate in a new way;
(v) in case of a computer program linked with hardware, whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;
(vi) whether the change in the hardware or the functionality of hardware amounts to technical advancement.

The Final Guidelines provide a rational and cogent analysis for the determination of patent eligible subject matter under Section 3(k) for mathematical and business methods as well as for computer programs per se. However, the Final Guidelines fall short in providing the same level of direction when dealing with algorithms.

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9 Ibid.
10 Ibid. at Section 6.1, pages 13-14.
11 Ibid. at Section 6.1, page 14.
The definition of algorithm provided at Section 3.1 and the discussion of claims directed at algorithms at Section 4.5.3 of the Final Guidelines lack specificity. For example, algorithm is defined as “a set of rules that must be followed when solving a particular problem,” based on the definition provided in the Oxford Advanced Learner’s Dictionary. However, according to the discussion at Section 4.5.3, an algorithm is not just limited to a set of rules, but also includes “a set of procedures or any sequence of steps or any method expressed by way of a finite list of defined instructions.” The Final Guidelines also imply that algorithms in all forms, “whether for solving a problem or otherwise, and whether employing a logical, arithmetical or computational method, recursive or otherwise, are excluded from patentability.” This is somewhat contradictory to the otherwise uniform approach of considering the “claim as a whole” in determining whether “in substance,” a claim is directed to an excluded category.

However, Example 8.9 of the Final Guidelines offers some direction when dealing with subject matter allegedly directed to an algorithm. The Intellectual Property Appellate Board (IPAB) held that “when the claims do not claim, or contain any algorithm or its set of rules as such, but only comprise of some process steps to carry out a technical process or achieve a technical effect [...] the objection that invention is not patentable under section 3(k) fails or [is] not valid.” Thus, we can hope that the IPAB decision along with the six prong test for the assessment of technical advancement discussed earlier will be considered in the assessment of whether a claim is directed to an algorithm.

Conclusions - Practical Considerations

The provisions under Sections 3(k), 3(m) and 3(n) are not unique to India. Article 52 of the European Patent Convention includes similar provisions for delineation of patent ineligible subject matter. With the coming into force of the Final Guidelines, we hope that the Indian Examination practices for determination of patent eligible subject matter are better aligned with those followed by the European Patent Office. Although the United States does not have an explicit exclusion list in its patent statutes, the USPTO practice for assessing the judicial exceptions under 35 USC 101 post Alice are moving towards the European framework. As such, there appears to be a harmonizing trend in the examination of computer related inventions.

Patent drafters and prosecutors would be well advised to familiarize with these developments in order to secure the best scope of protection for patent applicants across

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13 Final Guidelines, supra note 2 at Section 3.1, page 5.
14 Ibid., at Section 4.5.3, page 11.
15 Ibid.
16 Ibid. at Example 8.9, page 18
jurisdictions. When drafting a single patent application for multiple jurisdictions, it may be worthwhile to have common minimum standard for computer related applications.

**Practical Context/Application – Some pointers**

The specification should set out the computer related invention in a practical context or a practical application. For example, inventions relating to Big Data analytics may be tied to specific applications of the analytics. The specific applications could be in disaster management, traffic control, power grid optimization, or the like. Tying the underlying method to such practical applications may help an Examiner better relate to and understand the underlying concepts.

**Interactions with Hardware Elements**

The specification should intertwine hardware elements with the software features of the invention throughout. Standalone stock description of hardware elements either preceding or following the description of the software implemented invention only lends credibility to the argument that the claims are directed to software *per se* and implemented using a general purpose computer. Also, specific functional hardware elements such as transmitters, receivers, signal processors etc. should be described than merely reciting standard elements such as CPU, memory, database, input/output devices.

**Technical Problem**

More and more emphasis is being made on the nature of the problem being solved by an invention. The Examiners are looking to set up a technical problem based on their understanding of the description and/or the claims. Why not make their tasks simpler by explicitly identifying a technical problem in the specification?

**Technical Effects**

Many a times, the description and the claims are oriented to the technical problem and the technical solution. The technical effects of the claimed solutions are only implicitly discernable. Describing the technical effects explicitly in the specification would assist during prosecution of the application without having to rely on standard or stock phrases such as better efficiency, improved performance, or lower power consumption etc.

The Final Guidelines are a vast improvement over the draft version. It is believed that these Guidelines will go a long way in achieving the Patent Office’s stated goal of fostering uniformity and consistency in the examination of computer related inventions.

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