

Subject Matter Eligibility of Software – India/Global Perspective

AT: INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR

**BY: NAREN THAPPETA
PATENT AGENT/ADVOCATE (INDIA/USA)
FEB 3RD 2018
NT@IPHORIZONS.COM**

OVERVIEW

- I. Why Patents
- II. Patents for 'Software' - Why not
- III. 'Systems Software' vs 'Application Software'
- IV. International Law
- V. India Patents Act, 1970
- VI. EPO/UK Law
- VII. USA Law
- VIII. What to patent
- IX. Conclusion/Discussion

I. Why Patents?

- **Traditional View justifying patents**
 - Quid pro quo for sharing information with the public
 - Justification: Sharing helps the society to progress
 - Valid in information age? Market forces sufficient?

I. Why Patents (Cont.)

- **Modern justification of patent system**
 - Will the absence preclude opportunity for innovations to reach people?
 - Incentive for investment
 - Transaction cost for ensuring innovations to reach public (for who 'can' vs 'not')

- **'Subject Matter Eligibility'**
 - 'Policy' criteria in addition to 'obviousness'
 - Novelty = Zero limit of obviousness
 - Industrial applicability: Non-issue in software

- **Sector-wise Understanding**

II. Patents for 'Software' - Why not

- A. Roti/Kapada/Makaan/software
- B. Software reflects the mental operation/mathematical algorithms
- C. Protection not needed for progress
- D. Abstract/fluid/unclear boundaries
- E. Differences from pharma (which way do they weigh)

II. . . Why not (Cont.)

No.	Topic	Pharmaceutical	Software
0	Barrier	Only the patent (Any chemist can make it once formula is clear)	Expertise much beyond patents
1	Number of patents covering a single product used by the end user	Counted on fingers, potentially a single patent for each medicine consumed.	Many, potentially of the order of a few thousands in devices such as smartphones.
2	Major Function in Society	Each medicine potentially absolutely necessary for public health function.	Most (99%) patents generally individually optional but collectively cover important portions of a product in a functional space that aids communication and productivity.

II. ... Why not (Cont.)

No.	Topic	Pharmaceutical	Software
3	Motivation vs. ease of solution	Pain is evident in many cases and solution is challenging (i.e., as to whether the solution can be arrived at) in this unpredictable space.	Key is mental effort to identify the opportunity for improvement (motivation); Solution almost always routine in this functional space.
4	Extent of experimentation required to productionalize the innovation	Takes several years to validate each innovation and each variation (many times independently) due to stringent regulatory requirements	Software products can be designed in short durations, and changes made in very short cycles (e.g., a day or less in simple cases) with no government approvals being required

II. ... Why not (Cont.)

No.	Topic	Pharmaceutical	Software
5	Ease of defining the boundary of patent protection	Possibly simple to express the boundary; whether or not patentable is a separate question that would require a high level of skill.	Requires fair amount of mental skill, command over language/ technology (both patent office and applicant), and potentially several iterations with the patent office (and in courts sometimes) to establish the appropriate scope of protection.
6	Value in the product cycle	Valuable entire patent term (currently 21 years from filing date in India), probably with higher value towards the end. No value when the patent term overlaps with regulatory cycles (several years of the 21 year term).	Products giving rise to the patent may become obsolete soon from market perspective, but the scope of patent can be relevant for entire term of the patent in relation to later designed advanced products as well.

III. 'Systems Software' vs 'Application Software'

A. Simplified engineer's perspective

B. Problem for legal fraternity: How to set exact boundaries

- what 'is' + 'not'

IV. International Law

A. Paris convention: Nothing

B. TRIPS:

- About 15 occurrences of 'tech' in preamble/objectives/body
- Article 27 (Patentable subject matter): all fields of 'technology'
 - technology defined under national law

V. India Patents Act, 1970

A. Relevant provisions of section 3 (NOT INVENTIONS):

- The following are not inventions within the meaning of this Act, —
 - (k) a mathematical or business method or a computer programme per se or algorithms;*
 - ...
 - (m) a mere scheme or rule or method of performing mental act or method of playing game;*
 - ...
 - (n) a presentation of information;*

V. India Patents Act, 1970 (Cont.)

B. Not invention: computer programme per se

- two interpretations with polar opposite results
 - No computer programs are patent eligible
 - computer program 'per se' is not an invention
 - Everything else is!!

C. 2004 ordinance to expand exception and reversal to original language!

- "other than its technical application to industry or a combination with hardware".

V. India Patents Act, 1970 (Cont.)

D. Draft CRI Guidelines (June 2013): “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 subsection as attempted through the ordinance”

**E. Principles of Statutory Interpretation Paperback
– 26 Aug 2011 by GP Singh (Page 313)**

V. India Patents Act, 1970 (Cont.)

An amending Act is construed in a way which does not result in its misfiring or in denying its efficacy³⁹ but without straining its language or re-writing or adopting it to cover cases other than those to which it clearly applies.⁴⁰ Change in language is not, however, always indicative of a change in construction.⁴¹ The alteration in language in or by a later statute may be the result of many other factors. For instance, words may be omitted in a later statute when they were mere surplusage⁴² and the natural and ordinary meaning of the existing words indicates no intention of alteration of meaning.⁴³ Similarly addition of words may be to make clear a meaning which was already implied.⁴⁴ Further, the change in wording may be because the draftsman wanted to improve the style.⁴⁵ As aptly stated by LORD UTHWATT, no alteration in meaning by alteration in language can result "unless, (1) the requirements of the English language demand it, (2) those requirements permit it and sense of the section demands it".⁴⁶ It must also be remembered that for bringing about fundamental changes such as departure from the general system of the law or imposition of new burdens, a clear intention to that effect is necessary and the courts will not infer such fundamental changes unless the language used expresses an intention to the contrary.⁴⁷

V. India Patents Act, 1970 (Cont.)

F. What did Legislature intend INITIALLY?

- Joint committee report on THE PATENTS (SECOND AMENDMENT) BILL, 1999

“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.”

V. India Patents Act, 1970 (Cont.)

- CLINCHER: 'Record of the discussion of the meetings of the Group of Ministers, held on 24.9.2004 and 25.10.2004...'

10.	3(k)	To bifurcate the provision as under: 3(k)(i) A computer programme per se other than its technical application to industry or combination with hardware 3(k)(ii) a mathematical method or a business method or algorithms	To clarify the provision so as to allow patent for software related inventions when they have technical applications.
-----	------	--	---

-1-

- Hon. CGI asks inputs on meaning of: "computer programme may include certain other things, ancillary thereto or developed thereon"

V. India Patents Act, 1970 (Cont.)

D. First round of CRI Guidelines

- Date: 21 August 2015
- “5.1 For being considered patentable, the subject matter should involve
 - a novel hardware, or
 - a novel hardware with a novel computer programme, or
 - a novel computer programme with a known hardware which goes beyond the normal interaction with such hardware and affects a change in the functionality and/or performance of the existing hardware. A computer program, when running on or loaded into a computer, going beyond the “normal” physical interactions between the software and the hardware on which it is run, and is capable of bringing further technical effect may not be considered as exclusion under these provisions.”

V. India Patents Act, 1970 (Cont.)

E. Second round of CRI Guidelines

- Dated: February 19, 2016
- Hon. Controller General ignores 'complex' questions of statutory interpretation
- Required hardware novelty (implicitly): Novelty in hardware and Novelty in operation of the combination of hardware elements – Contrary to the Delhi HC judgement in Telefonktiebolaget LM Ericsson (PUBL) vs. Intex Technologies (India) Limited (March 2015)
- Section 5 (3) of CRIs states:

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 invention. 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.

V. India Patents Act, 1970 (Cont.)

F. Delhi High Court case(s)

Telefonktiebolaget LM Ericsson (PUBL) vs. Intex Technologies (India) Limited

Citation: 2015(62) PTC 90(Del)

Date: March 13, 2015

“120. Thus, it is appears to me prima facie that **any invention which has a technical contribution or has a technical effect and is not merely a computer program per se** as alleged by the defendant and the same is patentable. The objection raised by the defendant in the suit for infringement is not tenable, however, admittedly defendant’s revocation petitions are pending, the same have to be considered on merit including the objection of Section 3(k) and (m). At this interim stage, this court is not impress with the argument of the defendant that the injunction be refused on this ground.”

V. India Patents Act, 1970 (Cont.)

Telefonktiebolaget LM Ericsson (PUBL) vs. Lava International Ltd.

Citation: 2016(67) PTC 596(Del)

Date: June 10, 2016

“87. The defendant's contention that the suit patents which are being asserted by the plaintiff are mere algorithm and thus, not patentable under the Act is denied by the plaintiff. It is denied that plaintiff has obtained the suit patents by misleading the Indian Patent Office and by making false assertions regarding the subject matter of its inventions. **The term 'algorithm' is being misunderstood and misinterpreted by the defendant inasmuch as the bar of Section 3(k) applies to algorithms which are theoretical in nature and/or abstract formulae. This bar of Section 3(k) does not apply when in a patent involving modern day technology, algorithms are employed in order to perform certain calculations or selections which are thereafter utilized by various hardware components or elements to produce/improve a technology and create a practical effect or result in a physical realization.**”

V. India Patents Act, 1970 (Cont.)

H. Alloys Case:

Enercon India Ltd. vs. Aloys Wobben (18.11.2010 - IPAB):
MANU/IC/0095/2010

“ Process steps to carry out a technical process or achieve a technical effect cannot be regarded as relating to computer programme *per se* or algorithms”

V. India Patents Act, 1970 (Cont.)

I. Alloys Case:

“79. Windmills are normally erected in the manner of wind farm so as to have larger generation of power output in the order of Mega Watts Range. ... All these have to be done at very short intervals of time, preferably in milliseconds range, the variation change in the operational setting of blade pitch angle or azimuth angle etc, which is possible only by using the advanced computer technology, which would read the signal from the external conditions and carry out the corrections in its internal operating units. **This is normally a computer operated or computer controlled technical instrumentation processing of the utilities to achieve the target in an automatic fashion and this technical process control associated with or directed to a computer set up to operate in accordance with a specified program (whether by means of hardware or software) for controlling or carrying out a technical process control such as the above, cannot be regarded as relating to a computer program per se or a set of rules of procedure like algorithms and thus are not objectionable from the point of view of patentability, more so 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 finally the maximum power output by controlling the wind turbine. Hence the objection that invention is not patentable under Section 3(k) fails or not valid.**”

V. India Patents Act, 1970 (Cont.)

J. Third Round of CRI Guidelines

Dated: June 30, 2017

Back to JPC report standards –

“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.”

VI. EPO/UK Law

A. EPO: Article 52 Patentable inventions

1. European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.
2. The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - a) discoveries, scientific theories and mathematical methods;
 - b) aesthetic creations;
 - c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
 - d) presentations of information.
3. The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

...

VI. EPO/UK Law (Cont.)

AT &T Knowledge Ventures LP's Patent Application
[2009] EWHC 343 (Pat), [2009] FSR 19

Signposts to determine technical effect:

- i. whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;
- ii. whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;
- iii. whether the claimed technical effect results in the computer being made to operate in a new way;
- iv. whether there is an increase in the speed or reliability of the computer;
- v. whether the perceived problem is overcome by the claimed invention as opposed to being merely circumvented.

VII. USA Law

A. 35 USC § 101: Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

B. 'Everything under the sun' standard early on

C. 'computer readable medium': In re Beauregard, 53 F.3d 1583 (Fed. Cir. 1995)

- Controller of computer or mere medium with 'written' information
- Apparatus claims: Infringed when sold/made/used/imported
- Method claims: When used & 'Importation' of product made abroad

VII. USA Law (Cont.)

D. Development of 'Judicial exceptions'

- laws of nature, physical phenomena

Le Roy v. Tatham, 14 How. 156, 55 U. S. 175 (1853) (See paras 174-175) - "It is admitted that a principle is not patentable. A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right. Nor can an exclusive right exist to a new power, should one be discovered in addition to those already known..."

Funk Brothers Seed Co. v. Kalo Inoculant Co., 333 U. S. 127, 333 U. S. 130 (1948)- discovery of a natural principle or law) "The qualities of these bacteria, like the heat of the sun, electricity, or the qualities of metals, are part of the storehouse of knowledge of all men. They are manifestations of laws of nature, free to all men and reserved exclusively to none. He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, **it must come from the application of the law of nature to a new and useful end.**"

VII. USA Law (Cont.)

D. Development of 'Judicial exceptions' (Cont.)

- abstract ideas
Gottschalk v. Benson, 409 U. S. 63, 409 U. S. 67 (1972); (abstract ideas- mathematical formulae) Parker v. Flook, 437 U. S. 584 (1978);

E. Alice Corporation

- Step 1: Judicial exception?
- Step 2: Significantly more?

F. Step 1: Judicial exception

- Abstract idea, a law of nature, a natural phenomenon, etc.
- Abstract idea: Long prevalent practices, organizing human activities

VII. USA Law (Cont.)

G. Step 2: Significantly more

- meaningfully limits the judicial exception
- improves another technology or technical field
- improves the functioning of a computer itself
- adds a specific limitation other than what is well-understood, routine, conventional activity in the field or unconventional steps that confine the claim to a particular useful application

H. 'Preemption' as a primary concern

VII. USA Law (Cont.)

I. Now cases

DDR Holdings vs Hotels. com (773 F.3d 1245 (Fed. Cir. 2014))

13. An e-commerce outsourcing system comprising:

- a data store including a look and feel description associated with a host web page having a link correlated with a commerce object; and
- a computer processor coupled to the data store and in communication through the Internet with the host web page and programmed, upon receiving an indication that the link has been activated by a visitor computer in Internet communication with the host web page, to serve a composite web page to the visitor computer wit[h] a look and feel based on the look and feel description in the data store and with content based on the commerce object associated wit[h] the link.

VII. USA Law (Cont.)

McRO, Inc. v. Bandai Namco Games America (837 f.3d 1299 (2016))

1. A method for automatically animating lip synchronization and facial expression of three dimensional characters comprising:
 - obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence;
 - obtaining a timed data file of phonemes having a plurality of sub-sequences;
 - generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules;
 - generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters; and
 - applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.

VII. USA Law (Cont.)

BASCOM GLOBAL INTERNET SERVICES, INC., v. AT&T (827 f.3d 1341 (2016))

1.A content filtering system for filtering content retrieved from an Internet computer network by individual controlled access network accounts, said filtering system comprising:

- a local client computer generating network access requests for said individual controlled access network accounts;
- at least one filtering scheme;
- a plurality of sets of logical filtering elements; and
- a remote ISP server coupled to said client computer and said Internet computer network, said ISP server associating each said network account to at least one filtering scheme and at least one set of filtering elements, said ISP server further receiving said network access requests from said client computer and executing said associated filtering scheme utilizing said associated set of logical filtering elements.

VII. USA Law (Cont.)

BASCOM GLOBAL INTERNET SERVICES, INC., v. AT&T (827 f.3d 1341 (2016))

1.A content filtering system for filtering content retrieved from an Internet computer network by individual controlled access network accounts, said filtering system comprising:

- a local client computer generating network access requests for said individual controlled access network accounts;
- at least one filtering scheme;
- a plurality of sets of logical filtering elements; and
- a remote ISP server coupled to said client computer and said Internet computer network, said ISP server associating each said network account to at least one filtering scheme and at least one set of filtering elements, said ISP server further receiving said network access requests from said client computer and executing said associated filtering scheme utilizing said associated set of logical filtering elements.

VII. USA Law (Cont.)

TLI COMMUNICATIONS LLC v. AV AUTOMOTIVE, L.L.C.

17. A method for recording and administering digital images, comprising the steps of:

- recording images using a digital pick up unit in a telephone unit,
- storing the images recorded by the digital pick up unit in a digital form as digital images,
- transmitting data including at least the digital images and classification information to a server, wherein said classification information is prescribable by a user of the telephone unit for allocation to the digital images,
- receiving the data by the server,
- extracting classification information which characterizes the digital images from the received data, and
- storing the digital images in the server, said step of storing taking into consideration the classification information.

VII. USA Law (Cont.)

ENFISH v. MICROSOFT 822 f.3d 1327(2016)

Claim 17. A data storage and retrieval system for a computer memory, comprising:

- means for configuring said memory according to a logical table, said logical table including:
 - a plurality of logical rows, each said logical row including an object identification number (OID) to identify each said logical row, each said logical row corresponding to a record of information;
 - a plurality of logical columns intersecting said plurality of logical rows to define a plurality of logical cells, each said logical column including an OID to identify each said logical column; and
 - means for indexing data stored in said table.

VII. USA Law (Cont.)

TRADING TECHNOLOGIES INTERNATIONAL, INC., v. CQG, INC., CQG, LLC, FKA CQGT, LLC,

1.A method of placing a trade order for a commodity on an electronic exchange having an inside market with a highest bid price and a lowest ask price, using a graphical user interface and a user input device, said method comprising:

- setting a preset parameter for the trade order
- displaying market depth of the commodity, through a dynamic display of a plurality of bids and a plurality of asks in the market for the commodity, including at least a portion of the bid and ask quantities of the commodity, **the dynamic display being aligned with a static display of prices corresponding thereto, wherein the static display of prices does not move in response to a change in the inside market;**

VII. USA Law (Cont.)

Bids and Asks Quantities columns are dynamic

Column indicating status of trader's orders at that price

Price column remains static

Order entry region: order placed through mouse clicks

Cells for the trader to adjust the quantity of ordered lots through clicks

Rows showing highest bid price and the lowest ask price in the market

SYCOM FGBL DEC99						
E/W	10:48:44	BidQ	AskQ	Prc	LTQ	
1009	L	3	104	99		
1010	R	5				
1011		720	24	98		
1012	X	10	33	97		
1013		0	115	96		
1014	10	1H	32	95		
	50	3H	27	94		
1007	S 0 W 24	1K	5H	63	93	
	S 0 W 7	CLR		45	92	
1015	X	10	28	91		
1016	17		20	90	10	
1008	B 0 W 15	CXL	18	89		
	B 0 W 13	+ -	97	88		
1017		NET 0	30	87		
1018	B 0 W 17	NET REAL	43	86		
1019			110	85		
			23	84		
			31	83		
1021			125	82		
			21	81		

VII. USA Law (Cont.)

J. Problem with royalty for Trading Tech?

K. Artificial Intelligence: Blurring Line

- operation of mind
- design of solution

VIII. What to patent

A. Approach

- HOW YOU ADVANCE YOUR SPACE
- Patent even simple stuff, not necessarily just complex ideas
- Necessity is the mother of invention
- 'Close the door behind' (consider obviousness discussion later)

B. Typical Questions to Ask

- Marketing/sales: Product/Service Differentiation
- Technologist: Why is your product/service cheap/fast/consumes less power/better

VIII. What to patent

A. Define Process for Identifying Patentable Ideas

- Integrate with your business process
- Potentially as soon as the feature is identified
- Conduct product reviews
- ANTICIPATE THE SPACE AND FILE CONCEPT PATENTS

B. Broad Categories

- Product features
- Architectures
- Circuit Designs
- User interfaces
- Technology Enabled Business Models

IX. Conclusion/Discussion

THANK YOU!

Naren Thappeta
nt@iphorizons.com