

PERVASIVE TECHNOLOGIES: PATENT POOLS

- NEHAA CHAUDHARI

INTRODUCTION

The network landscape over the past few years has been characterized by several battles of supremacy between two or more rival technologies.¹ These battles have included, *inter alia*, the constant efforts at besting rivals in the arena of patenting innovations in technology, often as a result characterised by the imposition of high royalties on rivals, for the use of one's patents. However, having realised that such efforts at besting the other could prove detrimental for all parties concerned in the long run, and stall technological advancements which would in turn translate into lower business revenue, mechanisms were devised to ensure a relatively equitable utilization of patents in the market place. One such mechanism that has been developed is that of patent pools.

Patent pools have been developed around most areas of high end technology and research and development. Over the course of this paper, the author has confined herself to a study on patent pools in the area of telecommunications, and the issues to be addressed therein. Specifically, the author will be dealing with patent pools around 3G, 4G, LTE, TD-SCDMA and TD-LTE technologies. Within this framework, the author seeks to examine what are patent pools, whether and what kind of patent pools exist, their associated costs, their licensing arrangements and the structure of the payment of royalty, and the feasibility of these patent pools.

UNDERSTANDING PATENT POOLS

Patent pools are agreements among patent owners through which patent owners combine their patents, waiving their exclusive rights to the patent to enable others, or themselves, to obtain rights to license the pooled patents.² Therefore, such pools may be focussed either on

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1. Hui Yan, *The 3G Standard Setting Strategy and Indigenous Innovation Policy in China: Is TD-SCDMA a Flagship?*, DRUID Working Paper No 07-01, available at <http://www2.druid.dk/conferences/viewpaper.php?id=1454&cf=9> (last accessed 07 12 2012)
 2. Josh Lerner and Jean Tirole, *Efficient Patent Pools*, 4 AM. ECON. REV. 691, 691 (2004)

cross licensing, that is companies mutually making their patents available to each other, or on out licensing, that is, a group of companies making a collection of patents available to companies that do not or might not have patents of their own to contribute to the pool.³ Typically, modern patent pools combine patents of various companies and are around inventions that are required to implement an established industry standard, are licensed as a whole (on an *all or nothing* basis) and not as individual licenses for patents owned by various companies within that pool, and are available to any non member for licensing.⁴ Such licensing is done under a standard agreement and royalty rates, on a non discriminatory basis. The exception to this rule is that if certain members have contributed patents to the pool, they may receive more favourable terms, in recognition of their cross licensing relationship to the pool.⁵

When viewed from a law and economics perspective, patent pools are seen to be an efficient institutional solution to various problems that arise when companies have complementary intellectual property rights, and these rights are essential to new technologies being used and employed.⁶ However, this perspective also warns about the antitrust risks that may arise when competitors or potential competitors are involved in the coordination of their intellectual property. For instance, such pools may be used to allocate markets or otherwise chill competition.⁷

THE WORKING OF A PATENT POOL

Generally, a patent pool may be administered in one of two ways- it may either have an administrative entity, or may also just be a system of cross licensing between two firms.⁸ In case of the former, the licensing agency may be one of the patent holders⁹, or may be an independent licensing company (e.g. MPEG).¹⁰

3. *Patent Pools- Some Not So Frequently Answered Questions*, available at <http://blog.patentology.com.au/2012/11/patent-pools-some-not-so-frequently.html> (last accessed 10 December, 2012)

4. *Id.*

5. *Id.*

6. Philip B. Nelson, *Patent Pools: An Economic Assessment of Current Law and Policy*, Rutgers Law Journal, Volume 38:539, 559 (2007)

8. Roger B. Andewelt, *Analysis of Patent Pools Under the Antitrust Laws*, 53 ANTITRUST L.J. 611, 611 (1984).

9. Philips has been known to have been the licensing agency for patent pools where it was a member

10. *Supra* note 3

The ownership of patents within the pool is retained by the owners, who then license them to the operator/administrator on a non exclusive basis, with sub licensing rights. This means that the owners are free to continue to license their patents on an individual basis, and the administrator also has the right to further license the patents to any party who is interested in licensing from the patent pool.¹¹ The responsibility of managing licensing and licenses is vested in the operator/administrator of the patent pool. Licensees are required to report sales and pay royalties to the pool administrator, who in turn would enforce the conditions of the license.¹² The distribution of royalties between the members of the pool is on the basis of a formula which may, or may not be transparent to non member licensees, with the pool operator retaining a management fee.¹³ Typically, pool licenses are also structured in a manner so as to render difficult early termination by the licensee. The nature of the contract, once signed by a licensee, is typically binding in nature. Therefore, this would mean that the administrator of the patent pool could sue the licensee for non performance of the contract.¹⁴ However, unless a pool operator is a member of the pool itself, it cannot sue for the infringement of patents.¹⁵ Therefore, in the event that a patented technology were to be utilised without having taken a license, one or more of the individual patent owners would be required to take legal action. The involvement of the pool operator would be limited to being a part of any settlement discussions, if they were to occur, since one of the options for the alleged infringer could be to obtain a license for the patent pool.¹⁶

DRAWING PARALLELS WITH OTHER PATENT POOLS

In this section of the paper, the author seeks to study patent pools in other areas of technology in order to better understand the structure and pricing of patent pools.

The ‘3C DVD’ Patent Pool

Established in 1998, the *3C DVD Patent Pool* was the brainchild of *Philips*, *Sony* and *Pioneer*, and *L.G.* was subsequently inducted as a member. *Philips* acts as a licensing

11. *Supra* note 3

12. *Supra* note 3

13. *Supra* note 3

14. *Supra* note 3

15. *Supra* note 3

16. *Supra* note 3

administrator for patents held by all the companies, which are over two hundred in number. These patents include those for the manufacture of the DVD players, and for the manufacture of the DVD disks themselves.¹⁷ The player license per unit royalty was set as 3.5% of the net selling price of each player sold. This was subject to a minimum fee of \$7 per unit, which after January 1, 2000 became \$5 per unit. The disc license royalty was set as \$0.05 per disc sold.¹⁸

The ‘DVD- 6C’ Patent Pool

Established in June 1999, the members of this pool at the time of its inception were *Hitachi*, *Matsushita*, *Mitsubishi*, *Time Warner*, *Toshiba*, and *JVC*. This pool was also for the DVD-ROM and the DVD- Video formats, with *Toshiba* acting as the administrator.¹⁹ The royalties were set at \$.075 per DVD Disc and 4% of the net sales price of DVD players and DVD decoders, with a minimum royalty of \$4.00 per player or decoder, which saw a substantial reduction in 2003.²⁰ Subsequently, there were various changes that were made to this group, including the inclusion of newer standards, the joining and subsequent departure of IBM and other organizations as a member etc. *Hitachi* and *Panasonic* also act as regional agents in certain regions of the world.

The MPEG LA pool

The MPEG-2 is a standard for describing the coding of data *inter alia*, on DVD discs. For MPEG-2, a patent pool has been established, where the administrator is an independent, external organization known as the MPEG Licensing Authority, that set itself the aim to develop a patent pool for this standard.²¹ The MPEG LA invited parties that thought they owned patents essential to this standard to join the program, which took off in 1997. At present, the pool has over a hundred patents and thousands of licensees.²²

17. Rudi Bekkers et. al., *Patent Pools and Non Assertion Agreements: Coordination Mechanisms for Multi Party IPR Holders in Standardization*, available at [http://www-i4.informatik.rwth-aachen.de/Interest/EASST Bekkers Iversen Blind.pdf](http://www-i4.informatik.rwth-aachen.de/Interest/EASST_Bekkers_Iversen_Blind.pdf) 22 (last accessed 09 December, 2012)

18. *Id.*

19. *Id.*

20. *Id.*

21. *Supra* note 17 at 23.

22. *Supra* note 17 at 23.

PATENTING IN TELECOM AND RELATED TECHNOLOGY

In this section of the paper, the author examines the working of patenting and patent pools in the telecommunications sector and in areas of related technology.

Early Developments and the Emergence of GSM

Patent pools are slowly developing into a key component of the telecommunications and the technological industry. The technology industry has been said to be an *ecosystem*, wherein there is a complex correlation between those who develop the technology and those who implement it in the creation and development of products.²³ In the telecommunications industry for instance, each handset manufacturer has declared only a small percentage of the various types of intellectual property assets that are necessary to implement a 3G compatible cellular phone. Therefore, the working in such a context is that various companies develop different technologies, and the same is shared by various manufacturers that seek to make use of this technology.²⁴

The revival of patenting in the sector of telecommunications, post a period of decline in the decades of the 1950s to the 1980s, is attributed to the advent of the GSM standard for mobile communications in Europe.²⁵ In 1988, the main European operators invited equipment suppliers and developed a procedure wherein manufacturers would have to give up their intellectual property rights and to provide free world wide licenses for essential patents.²⁶ After opposition from the manufacturers, the approach was modified to one wherein the operators required the suppliers to sign a declaration agreeing to serve all of the GSM community on fair, reasonable and non discriminatory conditions.²⁷ In the early 1990s, Motorola by refusing to grant non discriminatory licenses for its substantial portfolio of essential patents and only agreeing to enter into cross license agreements further intensified the debate over IPRs in telecommunications. The company only lifted these restrictions after various countries across the world expressed a preference for this standard. The experience in this standard has demonstrated

23. Keith Mallinson, *Fixing IP Prices with Royalty Rate Caps and Patent Pools*, available at <http://ipfinance.blogspot.in/2011/07/fixing-ip-prices-with-royalty-rate-caps.html> (last accessed 10 December, 2012)

24. *Id.* See Appendix 1 for a graphical representation of declared intellectual property assets in 2009.

25. *Supra* note 17 at 25

26. *Supra* note 17 at 27

27. *Supra* note 17 at 27

that it would not be accurate to expect that all parties holding essential patents would be willing to license them to all interested parties.²⁸ Companies were only willing to relax their licensing conditions once revenue generating opportunities increased.

The 3G3P and the UMTS

In July 2000 the 3G Patent Platform Partnership (3G3P) and its 18 partners notified various agreements to the end of establishing a worldwide patent platform. The purpose behind this was disclosed to be that of providing a voluntary and cost effective mechanism to evaluate, verify and license patents that were essential for third generation (3G) mobile communication systems.²⁹ It was also claimed that the said agreements would have pro competitive effects and that the purpose behind this Platform was the facilitation of access to technology and consequent entry into the markets.³⁰ On the intellectual property front, the purpose was to reduce cost uncertainties and the delays that were accompaniments of licensing numerous essential patents for complex technologies.

While it has often been considered to be a patent pool, this arrangement has been said to be only similar to a patent pool.³¹ The 3G3P itself has argued that since it was a mere facilitator of transactions between patent holders and licensees, and that membership was open to both licensors and licensees as opposed to only licensors as in the case of patent pools, it would be fallacious to classify the Platform as a patent pool. Further, it has also been argued that licensing by members is not restricted to the Platform and that there was no bundling or real pooling of the patents *per se* and those licensees have the opportunity to pick and choose between patents with the licensing being carried out on a bilateral basis. Additionally, unlike in a patent pool, there is no single license between the patent holders as a collective and the licensee, and the parties have a choice between the Standard License of the Platform, and a negotiable individual license.³² A Standard License provides for Standard Royalty Rate, a Maximum Cumulative Royalty Rate and

28. *Supra* note 17 at 28

29. Dessy Choumelova, *Competition Law Analysis of Patent Licensing Agreements- the Particular Case of 3G3P*, available at http://ec.europa.eu/competition/publications/cpn/2003_1_41.pdf- 41 (last accessed 10 December, 2012)

30. *Id.*

31. *Id.*

32. *Id.*

a Cumulative Royalty Rate.³³ Bilateral transactions on the other hand, are negotiated between the parties where the consideration is to be determined on *fair and equitable* terms.³⁴ This Platform also provides for a price cap, which, instead of being absolute and set at a pre-determined royalty rate, is a *default five percent maximum (not minimum) cumulative royalty rate for potential licensees per product category*.³⁵ The royalty rate for each individual patent will differ for each of the licensees and this depends on the patent portfolio under each product category that the licensee has chosen.³⁶

The concerns and challenges of the GSM experience were well perceived during the determination of the course of action for UMTS. European actors were especially wary of *Qualcomm* and expected the firm to demand high license fees, with some even fearing them to be in excess of 10%.³⁷ Subsequently, various attempts at developing licensing schemes failed, until 2004 and the establishment of the W-CDMA Patent Licensing Programme for UMTS FDD patents.³⁸ At the outset, seven licensors offered their patents as a bundle to prospective licensors, a number which decreased over time.³⁹

The Development of LTE Patent Pools

The next stage in the process of innovation in the realm of telecommunications was the development of the Long Term Evolution (LTE) Standard, which while being essential to 4G technology has also seen application in the realm of 3G. Consequently, patent pools or similar structures have been developed in these areas. LTE patents are being viewed as among the most valuable intellectual property resource in the mobile telecommunications industry, with most operators around the world building LTE networks.⁴⁰

As per in a study conducted in 2011, 23% of the patents about this technology were owned by *L.G. Electronics*, with *Qualcomm* coming in second with 21%. *Motorola Mobility*,

33. *Id* at 42.

34. *Id* at 42.

35. *Id* at 42-43.

36. *Id* at 43.

37. *Supra* note 17 at 29.

38. *Supra* note 17 at 39.

39. *Supra* note 17 at 39.

40. Elizabeth Woyke, *Identifying the Tech Leaders in LTE Wireless Patents*, available at <http://www.forbes.com/sites/elizabethwoyke/2011/09/21/identifying-the-tech-leaders-in-lte-wireless-patents/> (last accessed 08 December, 2012)

InterDigital, *Nokia* and *Samsung* each owned 9%, China's *ZTE* owned about 6%⁴¹ and *Nortel* owned 4%, which were later sold to a consortium of *Apple*, *EMC*, *Ericsson*, *Microsoft*, *Research in Motion (RIM)* and *Sony*, after *Nortel* filed for bankruptcy in 2009.⁴² *Ericsson* also independently owns 2% of the patent pool and *RIM* owns 1%.⁴³ However, another analysis⁴⁴ of IP databases conducted by *ZTE* in 2011 revealed differing results. As per this analysis, *InterDigital* was the leader, with its Patent Holdings arm controlling 13% and the Technology arm controlling 11% of LTE essential patents. *Qualcomm* controlled 13%, *Nokia* and *Samsung* 9% each, *Ericsson* controlled 8%, as did *Huawei*, *ZTE* controlled 7%, *L.G.* controlled 6% and *NTT DoCoMo* brought up the rear with 5%. The remaining 11% was held by various other firms.⁴⁵ It is to be realized that these studies have often come under criticism from different companies, with each of them eager to portray themselves as the market leader.⁴⁶ Setting aside criticism driven by corporate egos, the principle of it, that is, the difficulty in assessing and valuing patents cannot be disputed. Valuing patents is far from merely counting the number of patents owned by a company. The complications are especially evident when it comes to determining which of these patents are essential and which of them aren't. Additionally, the worth of these patents varies depending on the existence or the absence of certain conditions, including transfer restrictions, cross licensing arrangements, ownership and market conditions.⁴⁷

The aforesaid discussion reveals the complexity and the fragmentation of the LTE environment, which further underscored the need to have patent pools in this field. Although the need for a patent pool was realized in 2009-2010, given that the WCDMA patent pool had been met with very limited success,⁴⁸ industry watchers were reluctant to be optimistic. This was in part fuelled by the understanding of the attitude of dominant players, wherein they continued to

41. *Id.*

42. *Id.*

43. *Id.*

44. Caroline Gabriel, *ZTE Claims 7% of LTE Essential Patents*, available at <http://www.rethink-wireless.com/2011/01/11/zte-claims-7-lte-essential-patents.htm> (last accessed 09 December, 2012)

45. *Id.*

46. *Id.*

47. *Supra* note 40.

48. Keith Mallinson, *Mallinson: Uncertain Futures in LTE Patent Pool Licensing*, available at <http://www.fiercewireless.com/europe/story/mallinson-uncertain-outlook-patent-pool-licensing/2010-08-25> (last accessed 10 December, 2012)

believe that they could derive more monetary, cross licensing and litigation defence value if they did not pool their patents.⁴⁹

The development of LTE patent pools can be traced back to 2009, and the response of *Via Licensing*, *Sisvel* and *MPEG LA* to a Request for Information on forming such a patent pool by the *Next Generation Mobile Network Alliance (NGMN)*.⁵⁰ *Sisvel's* proposal, which it subsequently made at a public conference in 2010 sought to demonstrate that patent pools could prevent excessive costs from royalty stacking⁵¹. Among various other examples, *Roberto Dini*, the founder of *Sisvel* suggested that if patents were to be licensed individually, for instance, 85 patents for MPEG video at 50 cents apiece would cost \$42.50. As opposed to this, the patent pool charged \$2.50.⁵² In 2011, the *NGMN* reiterated its recommendation to all stakeholders in the mobile industry that were interested in developing patent pools to hasten their development process to avoid further delays in LTE licensing.⁵³ The *NGMN* also went on to state that it would be ideal if all the parties were to agree on a single patent pool that promoted reasonable royalties, offered certainty on the availability of the licenses for patents and created a framework for evaluation of their essentiality, where the value of the patents essential to the pool would be established by the industry.⁵⁴ These recommendations were not without their fair share of criticism, both, from industry watchers⁵⁵ and from vendors.⁵⁶ Notwithstanding these reservations, both, *Sisvel*⁵⁷ and *Via Licensing* have gone on to issue calls for patents for the purposes of creating patent pools in the LTE marketplace.

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

53. *NGMN Board Recommendation on LTE Patent Pool*, available at <http://4g-portal.com/ngmn-board-recommendation-on-lte-patent-pool> (last accessed 10 December, 2012)

54. *Id.*

55. Caroline Gabriel, *NGMN's Calls for an LTE Patent Pool Will be Futile in the Current IPR Climate*, available at <http://www.4gtrends.com/articles/53511/ngmns-calls-for-an-lte-patent-pool-will-be-futile/> (last accessed 11 December, 2012)

56. Michelle Donegan, *Vendors Balk at LTE Patent Pool Proposal*, available at http://www.lightreading.com/document.asp?doc_id=212362 (last accessed 11 December, 2012).

57. *SISVEL: Patent Pool for 3G Long Term Evolution (LTE)*, available at [http://www.thefreelibrary.com/SISVEL%3A+Patent+Pool+for+3G+Long+Term+Evolution+\(LTE\).-a0199544458](http://www.thefreelibrary.com/SISVEL%3A+Patent+Pool+for+3G+Long+Term+Evolution+(LTE).-a0199544458) (last accessed 08 December, 2012)

The *Sisvel* LTE Patent Pool materialized in late 2012, wherein licenses were offered under a portfolio of patents essential to LTE.⁵⁸ The pool includes patents owned by *Cassidian*, the *China Academy of Telecommunication Technology*, the *Electronics and Telecommunications Research Institute*, *France Telecom*, *TDF*, and *KPN*, in addition to some patents that had been originally filed by *Nokia* but were acquired by *Sisvel* in 2011.⁵⁹ The pool is also open to other organizations that have patents essential to LTE. At present, the current portfolio of these patents is available under standard terms and conditions. The running royalty rate is 0.99 Euros per device.⁶⁰

Having promised a launch within a few months in June, 2012⁶¹, *Via Licensing* has also developed its own LTE Patent Pool, with the initial companies in this pool being *AT&T*, *Clearwire Corporation*, *DTVG Licensing*, *HP*, *KDDI Corporation*, *MTT DoCoMo*, *SK Telecom*, *Telecom Italia*, *Telefónica* and *ZTE*.⁶² Like *Sisvel's* Patent Pool, this pool is also open to other organizations that believe they possess essential LTE patents, and they are encouraged to submit the same for evaluation.⁶³ The patent pool floated by *Via* leans heavily towards service providers, but some of the big players in the industry including *Nokia*, *Ericsson*, *Huawei Technologies* and *Samsung Electronics* are conspicuous by their absence.⁶⁴ This absence is felt even in *Sisvel's* patent pool, with the reasoning being proposed⁶⁵ that these key patent holders may prefer private licensing and subsequent litigation over pooled resources in patent pools.⁶⁶ Understandably, the

58. *LTE Patent Pool from Sisvel*, available at <http://4g-portal.com/lte-patent-pool-from-sisvel> (last accessed 09 December, 2012)

59. *Id.*

60. *Id.*

61. Mike Dano, *Via Promises LTE Patent Pool Launch Within Months*, available at <http://www.fiercewireless.com/story/licensing-promises-lte-patent-pool-launch-within-months/2012-06-15> (last accessed 07 December, 2012)

62. *LTE Patent Pool Available Through Via's Licensing Program*, available at <http://4g-portal.com/lte-patent-pool-available-through-vias-licensing-program> (last accessed 10 December, 2012).

63. *Id.*

64. Stephen Lawson, *Lte Patent Pool Brings Together Technologies From At&T, Zte, Hp And Others*, available at http://www.computerworld.com/s/article/9232043/LTE_patent_pool_brings_together_technologies_from_AT_amp_T_ZTE_HP_and_others (last accessed 09 December, 2012)

65. Peter White, *Sisvel LTE Patent Pool Emerges After All- Majors Still Hold Back from Committing*, available at <http://www.rethink-wireless.com/2012/11/05/sisvel-lte-patent-pool-emerges-all-majors-hold-committing.htm> (last accessed 09 December, 2012)

66. Shankar Pandiath, *Sisvel Launches Patent Pool for 3G Long Term Evolution (LTE)*, available at <http://next-generation-communications.tmcnet.com/topics/nextgen-voice/articles/314957-sisvel-launches-patent-pool-3g-long-term-evolution.htm> (last accessed 09 December, 2012);

launch of the LTE Patent Pools has been met with approval by the *NGMN*⁶⁷, but given the nascent stages in which both of these pools find themselves, it would be premature to comment (without first observing for a few months) the likelihood of their success or failure and how they would play out against each other.

The TD-SCDMA and the TD-LTE

Reportedly, China has spent several billion dollars on the import of analog and GSM technology,⁶⁸ and the country's mobile communications industry continues to be dominated by foreign players.⁶⁹ Therefore, in continuation of a purportedly *growing trend*⁷⁰ in the area of telecommunications as well, domestically developed systems are being preferred and developed over standardized technologies that enjoy strong patent protection outside China.⁷¹ Besides the avoidance of paying royalties to foreigners, the idea is also to use China's strong market presence and have more participants in China's home grown technology.⁷²

Time Divisional- Synchronous Code Division Multiple Access (TD-SCDMA), developed by the *China Academy of Telecommunications Technology (CATT)*, in collaboration with *Datang* and *Siemens*⁷³ is a Chinese indigenously developed 3G technology standard developed by China to reduce its dependence on western standards.⁷⁴ Interestingly however, it has been reported that the Chinese hold core patent technology only about 7% whereas most of the rest of it is taken by other foreign organizations.⁷⁵ In 2000, an industry consortium, the TD-SCDMA forum was established. The participants were *China Mobile, China Telecom, China Unicom, Huawei,*

67. *NGMN Board Welcomes Launch of LTE Patent Pool*, available at <http://4g-portal.com/ngmn-board-welcomes-launch-of-lte-patent-pool> (last accessed 09 December, 2012).

68. ELSPETH THOMSON AND JON SIGURDSON (EDS.), *CHINA'S SCIENCE AND TECHNOLOGY SECTOR AND THE FORCES OF GLOBALIZATION 17* (2008, World Scientific Publishing Company, Singapore)

69. Cong Cao, *Challenges for Technological Development in China's Industry*, available at <http://chinaperspectives.revues.org/924> (last accessed 11 December, 2012)

70. Peter Zura, *China Launches TD-SCDMA Telecom Standard*, available at <http://271patent.blogspot.in/2006/01/china-launches-td-scdma-telecom.html> (last accessed 10 December, 2012)

71. *Id.*

72. *Id.*

73. *TD-SCDMA (time division synchronous code division multiple access)*, available at <http://searchmobilecomputing.techtarget.com/definition/TD-SCDMA> (last accessed 07 December, 2012)

74. SHAHD AKHTAR AND PATRICIA ARINTO (EDS.), *DIGITAL REVIEW OF ASIA PACIFIC : 2009-2010 8* (2010, Sage Publications, New Delhi)

75. *Supra* note 1 at 2. See Appendix 2 for the breakup of patent holding. However, see details on *Infra* note 78 for a contradictory view, wherein China claims to own 30% of all TD-SCDMA patents.

Motorola, Nortel, and Siemens, with the objective of developing and supporting this technology. Government support was received in 2002, following which the *TD-SCDMA Industry Alliance* was founded by well known market players including *Datang, SOUTEC, Holley, Huawei, LENOVO, ZTE, CEC* and *China Putian*. There has also been the creation of various joint ventures with international giants such as *Alcatel, Ericsson, Nokia*, (erstwhile) *Nortel, Philips, Samsung* and *Siemens* have also been created.⁷⁶

Information about the existence of patent pools in this technology has been hard to come by. One of the few to write about patent pools in his 2008 paper,⁷⁷ *Dazheng Wang* proposes patent pools as a solution to the problem of commercialization of TD-SCDMA. He suggests that the framework of this patent pool should be on the industry principles of fair, reasonable and non discriminatory licensing terms for essential patents, with the end result being one of increased innovation and competition and an overall increase in market presence. Interestingly, a few articles⁷⁸ on blog posts on the internet speak about the existence of patent pools and their apparent misuse⁷⁹ as well.

It is submitted that these inconsistencies regarding the division of patents between various patent holders, where the percentage of patents held by each company have been pegged differently,⁸⁰ and about the existence of a patent pool or not raise pressing concerns about the payment of royalties and how licensing works in such a situation. On a very basic level, in order to be able to pay royalties and enter into licensing agreements, the existence of an identified, non disputed patent holder would be the *sine qua non*, which seems to be missing in the case of patents for TD-SCDMA. This problem is only further compounded by the lack of clarity on the very existence of patent pools. Had there been specified patent pools, the issues of determination

76. Pierre Vialle, *On the relevance of Indigenous Standard Setting Policy: the Case of TD-SCDMA in China*, 2nd International Conference on Economics, Trade and Development, (2012) 36 IPEDR 184-185 (IACSIT Press, Singapore)

77. Dazheng Wang, Patent Pool: A Solution to the Problem of TD-SCDMA's Commercialization, <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5076744&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F5076660%2F5076661%2F05076744.pdf%3Farnumber%3D5076744> (last accessed 11 December, 2012)

78. *China Owns 30% of TD-SCDMA Related Patents*, available at <http://www.cn-c114.net/582/a310685.html> (last accessed 11 December, 2012)

79. *The Legal Regulation on Patent Pool Misuse*, available at <http://www.socpaper.com/the-legal-regulation-on-patent-pool-misuse.html> (last accessed 11 December, 2012)

80. *Supra* notes 75 and 78.

of essential patents and the setting of royalties and licensing fees would have been standardized, a situation that cannot be invoked, without dispute, in the present Chinese context.

It is further submitted that despite China being the world's largest market for mobile communications, and its progress from a mere importer to a developer of some parts of technology,⁸¹ the Chinese experiment with TD-SCDMA seems to have met with limited success, in comparison to what was envisaged. For instance, while an agency had forecast that the number of TD-SCDMA subscribers in 2010 would be 34 million, by April, 2010 there were only 8 million or (even lower) subscribers.⁸² One of the reasons for preferring other standards, for instance, the W-CDMA is the number of handsets compatible with the same and the consequent variety that is available to the consumer. To illustrate, one could look at the figures from June, 2010. At this point of time *China Unicom* had 94 models for W-CDMA from twenty four manufacturers including nine foreign ones, whereas *China Mobile* had only twenty eight models that were compatible with TD-SCDMA.⁸³ Interestingly, if one were to measure popularity in terms of sheer numbers, TD-SCDMA would emerge the winner over W-CDMA by a couple of million subscribers, but if the growth rate were to be considered, W-CDMA would come out on top. While TD-SCDMA grew only by 24%, W-CDMA has grown at 32% monthly since the start of its service is October, 2009.⁸⁴

China's experiments with creating its home grown telecommunication standards have not stopped with the development of the TD-SCDMA, with the country being on track in the development of the TD-LTE. Reports suggest that although the systems are in 'trial' mode officially, the 4G spectrum situation remains uncertain.⁸⁵ It is submitted that although this is in the nascent stages as compared to the TD-SCDMA, the concerns expressed earlier about TD-SCDMA and the suggestions made therein for the technology to realise its full potential would be equally applicable in this scenario as well.

81. Tomoo Marukawa, *Chinese Innovations in Mobile Telecommunications: Third Generation vs. "Guerrilla Handsets"*, Paper presented at the IGCC Conference: Chinese Approaches to National Innovation, La Jolla, California, June 28-29, 2010 at 1.

82. *Id* at 8.

83. *Id* at 9.

84. *Id* at 9.

85. *China to Speed Up TD-LTE Process*, available at <http://www.tdsdma-forum.org/en/news/see.asp?id=11998&uptime=2012-11-29> (last accessed 08 December, 2012)

Therefore, in light of this discussion it would not be fallacious to conclude that while the TD-SCDMA, and now more recently the TD-LTE standard might still be in its nascent stages, on a fundamental level it seems to have not fulfilled the objectives with which it was developed, especially given that a sizeable portion of its patents continue to be owned by foreign corporations. In addition to the challenges of attracting subscribers, it would also need to streamline its system of patents, royalties and licensing, if it wants to have a truly global or even national presence. To this end perhaps patent pools structured along the lines of those being developed or in place for other mobile communication technologies might provide a viable solution meriting consideration.

CONCLUDING OBSERVATIONS

One of the fundamental concerns that plague most downstream organizations in the mobile communications sector is the prevalence of high licensing fees that need to be paid on essential patents, the cost of which often trickles down to the customers. A study on the licensing arrangements prevalent at the moment⁸⁶ reveals that as of the moment, the result of royalty rate caps is that they save money for downstream manufacturers, but this is at the expense of upstream licensors. The most significant savers are the ones downstream with no IP to trade, and vertically integrated companies while losing some revenue, are able to save significantly more in reduced expenses.⁸⁷

Therefore, it comes as no surprise that efforts at limiting aggregate licensing fees have been at the forefront over the past couple of years. It is in this scenario that patent pools have developed, with operators such as *Via Licensing* and *Sisvel* even promoting themselves as being able to put together patent pools that would greatly limit licensing fees.⁸⁸ However, some owners of intellectual property continue to find bilateral licensing and cross licensing to be more profitable as opposed to patent pools.

One of the key concerns when it comes to fore when dealing with how patent pools are structured is about the distribution of income received from royalties within the members of the pool, which ties in with the bigger question of classifying patents as essential and non essential.

86. *Supra* note 23.

87. *Id.*

88. *Supra* note 23.

More often than not, patent pools also have to grapple with the problem of members having conflicting interests. For instance, manufacturers have the incentive to cap aggregate royalties of certain essential patents that they would use in manufacturing, in order to reduce their licensing costs. However, these manufacturers could have also brought their own essential patents to the pool, perhaps of a new way of doing things, and would certainly be averse of having caps imposed on these royalties.

One of the key other considerations that patent pools need to take into account include the royalty rates affixed. In an interview some time ago, the founder of *Sisvel*, went on to state that while affixing these royalty rates, there could be no discrimination against licensees, since that would be a sure fire way of ensuring the collapse of the patent pool.⁸⁹ Additionally, patent pools also need to account for the difference in regulatory mechanism and their execution that exists across jurisdictions. For instance, customs officials in France pay a lot more attention to counterfeit goods than they would to patent infringing products, whereas those in Germany would have a keen eye on the latter.⁹⁰

Various other concerns have also been identified with regard to patent pools over time. One of these is that they could potentially eliminate competition that comes from outside of patent pools.⁹¹ Additionally, patent pools are not all inclusive, since participation is entirely voluntary. Therefore, patent pools would not even be reasonably expected to cover all essential patents required to make a standardised product. This problem is rendered even more complex as a result of the presence of multiple patent pools around the same technology, as in the case of DVDs and more recently, LTE technology.

In sum, while portfolio cross licenses and patent pools can be helpful in resolving issues created by patent thickets by reducing transaction costs for licensees, while preserving to a definitive extent financial incentives for inventors to commercialize their existing inventions and undertake new research, the significant shortcomings of these pools also need to be taken into account before they can be heralded as the solution to problems presented by complex patent

89. *Sisvel's Patent Strategy*, available at <http://www.managingip.com/Article/2400452/Sisvels-patent-strategy.html> (last accessed 12 December, 2012).

90. *Id.*

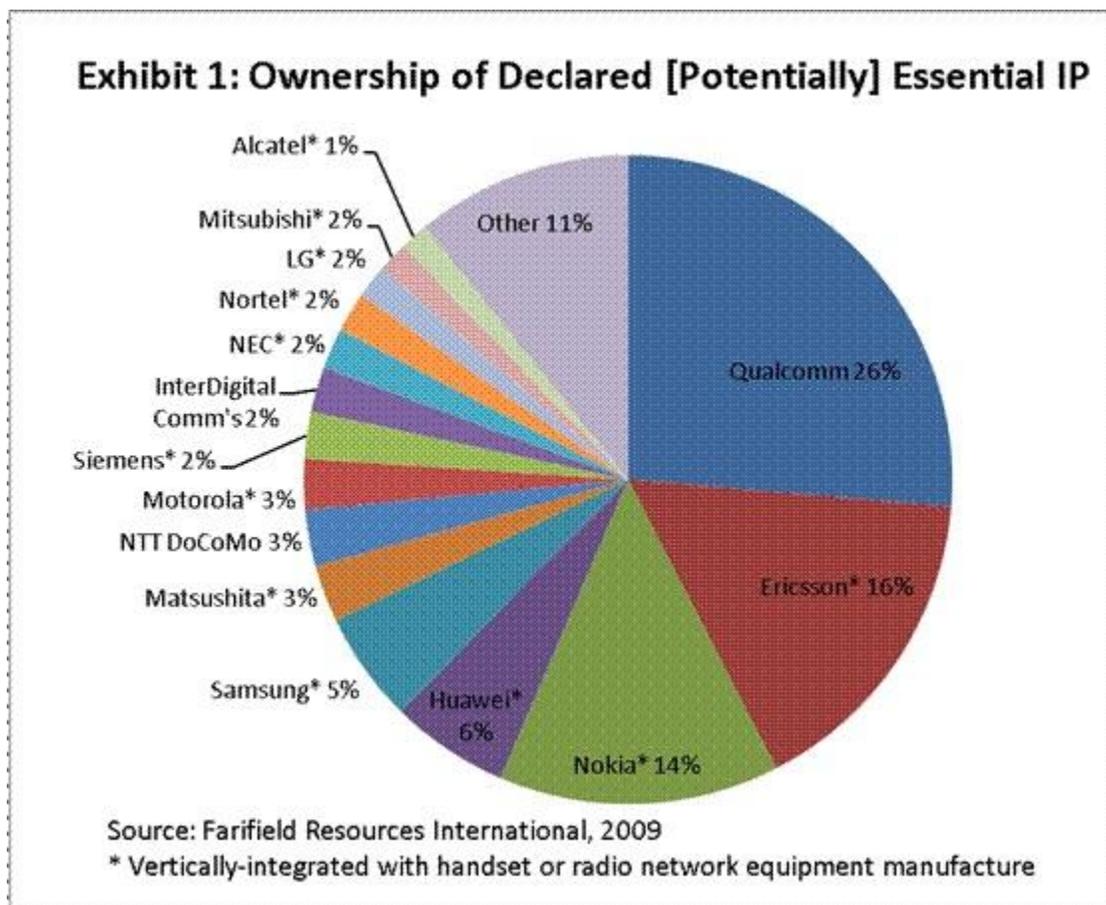
91. *Supra* note 23.

landscapes. While voluntary patent pools might have proved to be beneficial in some respects, the imposition of patent pools would be a fallacious approach to undertake.

APPENDIX 1

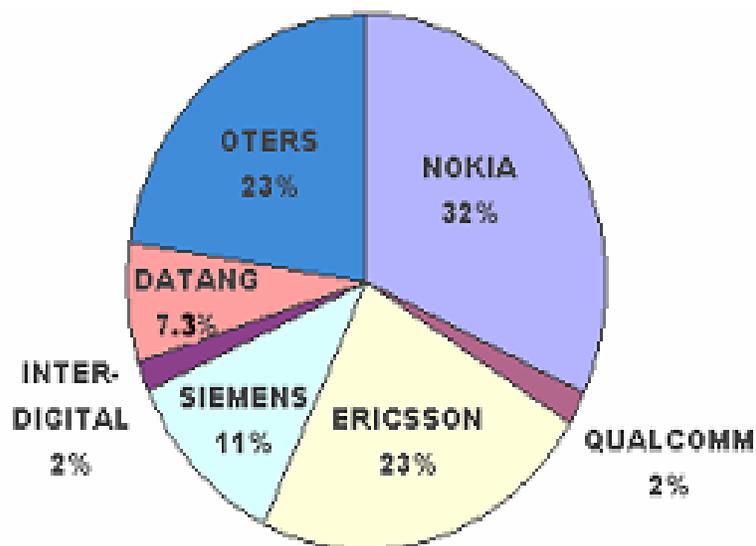
Source- Keith Mallinson, *Fixing IP Prices with Royalty Rate Caps and Patent Pools*, available at <http://ipfinance.blogspot.in/2011/07/fixing-ip-prices-with-royalty-rate-caps.html> (last accessed 10 December, 2012)

Data is for the year 2009.



APPENDIX 2

Source- Hui Yan, *The 3G Standard Setting Strategy and Indigenous Innovation Policy in China: Is TD-SCDMA a Flagship?*, DRUID Working Paper No 07-01, available at <http://www2.druid.dk/conferences/viewpaper.php?id=1454&cf=9> 11 (last accessed 07 12 2012)

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APPENDIX 3

Source- Nir Kshetri et al., *Chinese Institutions and Standardization: The case of government Support to Domestic Third Generation Cellular Standards*, available at <http://dx.doi.org/10.1016/j.telpol.2011.03.005> (last accessed 11 December, 2012)

ITU selected TD-SCDMA as one of the three global 3G standards. The other two standards are U.S. based CDMA 2000 and Europe's Wide band CDMA (W-CDMA) (Table 1).

Table 1. A comparison of the three 3G cellular standards.

	CDMA 2000	W-CDMA	TD-SCDMA
Developed by ^a	Qualcomm Inc (US-based)	Nokia Oyj and Ericsson AB (Europe-based)	Chinese Academy of Telecommunications, Datang, Huawei, ZTE, Siemens (China-based)
First launched, operator, country, (year) ^b	SK Telecom, South Korea (October 2000)	NTT DoCoMo's FOMA, Japan (October 2001)	China Mobile Communications (Soft launch in April 2008)
2G version	CDMA One	GSM	None
Standard accepted by	The 3rd Generation Partnership Project 2 (3GPP2): The participating associations are ARIB/TTC (Japan), China Communications Standards	The 3rd Generation Partnership Project (3GPP): The groups are the European Telecommunications Standards Institute, Association of Radio Industries and Businesses/Telecommunication Technology Committee	3GPP
	CDMA 2000	W-CDMA	TD-SCDMA
used	countries, 275 million subscribers (September 2006) ^d	countries, representing almost 70% share of all 3G networks (June 2007) ^e	Mobile Communications (June 2008)
Major markets	The Americas	Europe and Japan	Likely to be China
Availability of handset products	950-plus (February 2006) ^f	Over 650 (June 2007) ^f .	About 100 (May 2008) (developed by 20 vendors) ^g . 30 manufacturers had TD-SCDMA handset production licenses (May 2008) ^b .
Duplexing scheme used	Frequency Division Duplex (FDD) (supports two-way radio communication by using two distinct radio channels).	Frequency Division Duplex (FDD) (supports two-way radio communication by using two distinct radio channels).	Time Division Duplex (TDD) (uses a single frequency to transmit signals in downstream and upstream directions).

