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Study on the various intellectual property management strategies used and implemented by ICT firms for business intelligence

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Study on the various intellectual property management strategies used and implemented by ICT firms for business intelligence

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ABSTRACT Software technology is seeing enormous growth as it is used in all fields of technology. It is continuously evolving at a rapid pace and has a short span of the technological life cycle. The use of the software is not restricted only to information and communication technology but is used in all fields of technology. In many cases, the inventive step of a product or service lies solely in the software. Hence, the software plays a crucial role in all fields of technology. However, ease of copying poses a financial risk for the software industry, thereby creating major disincentives to the development of innovation. Still, the technology is changing very fast and firms investing in this technology expect quick returns on their innovation investments. Strategies for generating and managing intellectual property have subsequently taken center stage for information and communication technology companies, and patents have become an important feature providing maximum protection for any technology. Hence, intellectual property rights strategies in general and patenting strategies especially play a crucial role in the information and communication technology industry to be globally competitive. Firms never publish or disclose their intellectual property strategies; hence, this study makes use of the literature review to highlight various intellectual property management strategies used by information and communication technology firms for managing their intellectual property. These strategies can be offensive or defensive and may be used as proactive or reactive depending on various aspects such as market, territory, technology, or time. The insights provided in this work may help the research community from the IT domain in industry and academia to learn and modify their strategies for patent acquisition.

KEYWORDS Business intelligence, competitive intelligence, IP strategies, organizational performance, patents

1. INTRODUCTION

1.1 Information Technology

Information and communications technology (ICT) is often used as an extended synonym for information technology (IT). IT is the application of computers and telecommunications equipment to store,

retrieve, transmit, and manipulate data, often in the context of a business or other enterprise. IT encompasses the inputting, storing, retrieving, transmitting, and managing data through the use of computers and various other networks, hardware, software, electronics, and telecommunication equipment (IPO, 2013). The core elements in the application of IT are

computers and their peripherals consisting of hardware and software.

1.2 Intellectual Property

Intellectual property (IP) is an intangible asset created from a human mind and having some value (Kavida & Sivakoumar, 2008; Isa et al., 2009). Intellectual property rights are the rights conferred on the persons for exploiting their intellectual property within a specified territory for a specific period. The intellectual property rights framework provides various alternatives for protecting the intellectual property generated from a business or required for a business to be globally competitive (WIPO-b). The exploitation and management of this intellectual property is often linked with business sales, export quality and marketing needs, along with research direction strategies to ensure that a firm remains competitive in a business (Zhang & Yang, 2016; Mahajan et al., 2015; Debackere & Veugelers, 2005; Zahra & Nielsen, 2002; Torvinen, & Väättänen, 2014). The full value of IP can be perceived as an information source derived from its technical details available in patent data, its uniqueness, and its volume as over 100 million patent documents that are freely available online for use as early as 18 months after the filing of a technology (Khode & Jambholkar, 2017). Parr and Smith (2016) point out that the commercialization of IP involves annual revenues of at least 5 trillion USD. Managing IP in general and patents in particular, has thus become crucial for the IT industry to survive. It is continuously evolving, has a short technological lifecycle, and is hit by many legal challenges towards its protection, litigations, and trolls (Shaikh & Londhe, 2016).

1.3 Strategies

Strategies are futuristic plans conceived before execution, depending on a set of predefined rules or previous experiences. Krig and Sandra (2017) define strategy as “the determination of the basic long term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.” The main aim of strategies is to sustain long term competitive advantage in business via means of building defenses against competitive forces (Porter 1993). Strategies can be proactively planned or reactive, based on situations and market places.

1.4 The need for IP strategies in IT

The IT industry has rapidly globalized (Cameron et al., 2006). As the software market started from the US, the US acts as a trendsetter for the protection of software via patenting. Other countries follow the US in protecting software via patents (Cameron et al., 2006) as this protection promotes a nation’s technological innovation (Wang et al., 2012). A fundamental problem for the software industry is the ease of copying, which often poses a financial risk (Rao, 2001). This even creates significant disincentives to the development of new and innovative software programs, hindering software development (McGowan et al., 2007). Robust R&D operations are undertaken if protection is provided, which leads to the start of profitable businesses. Failure to protect software firms’ developed products might affect a company’s ability to operate freely at the primary level in the global market (Clarkson & Dekorte, 2006), which in turn would threaten a firm’s own existence (Dedrick & Kraemer, 1993; Jyoti et al., 2010). Software innovations are usually incremental, fast-changing, and have a short lifecycle. Software is becoming more complex and sophisticated daily, with value-added features. Firms investing in this continually evolving and changing technology expect concrete protection for their IP and quick returns on their investments (Shaikh & Londhe, 2016).

In the field of information technology, trade secrets, copyrights, and patents are mainly considered for protection. While each of these has its advantages and disadvantages, patents are considered to provide the highest protection in the ICT sector, specifically for software (Shaikh & Londhe, 2016). Patents qualify the protection of the functional aspect of a product, process, or service, along with its underlying idea. The idea behind this is that software can easily be copied and independently developed when it comes into the market, and hence trade secrets, as well as copyrights, prove to be weak in protection. Additionally, copyrights are meant to protect the nonfunctional aspects and expression of ideas and not the functional aspects and ideas. Hence patent protection in the field of IT and mainly for software is gaining importance. At the same time, protecting software under patents also ensures that no one company can claim a monopoly under a particular innovation, thereby increasing competition (OECD, 2008; the United States. Federal Trade Commission, 2003). Many important

innovations have reached the marketplace with the help of the patent system (EPO, 2013). Different patent filing strategies are used by firms to gain a competitive advantage and survive and thrive in the market place (Shaikh & Singhal, 2018). This study focuses on patenting strategies of IT firms and uses it interchangeably with the term IP strategy.

2. IP STRATEGIES FOR BUSINESS INTELLIGENCE

An IP strategy is a subset of the business strategy (Barrett, 2002) that can be used to apply business intelligence for decision making. IP strategy plays an essential role in defining, creating, and sustaining a winning business strategy enabling value creation and strengthening multiple aspects of an effective IP strategy (Pargaonkar, 2016). In the current knowledge economy, intangible assets have gained more valuation, and hence a significant portion of enterprise value is presently governed by IP rights (Fisher & Oberholzer-Gee 2013). These IP rights, when governed wisely, yield value, and put a firm in a competitively advantageous position. The IP creation, its possession, and utilization can bring practical, long-term, and direct economic interest to nationals (Guo & Li-Hua 2008). IP strategies thus play an essential role in governing a firm's IP and are mainly aligned with the overall business strategy to successfully survive and thrive in the market place. IP rights are used to create income, to defend the firm's competitive status, and to address competitiveness (Davoudi et al., 2018). IP is a valuable financial and strategic resource that needs careful management by every organization. Without proper IP management, organizations may expose themselves to unnecessary risks and infringements as they may be unaware of the value and benefits of the IP they possess (Spruson & Ferguson, 2007).

IP strategies refer to planning related to intangible assets. Its management involves the formulation and execution of plans related to IP strategies. An appropriate IP strategy and its management enable smooth technology and knowledge transfer (Guo & Li-Hua 2008). In general, an IP management strategy includes:

1. Creating or acquiring intellectual property
2. Governing the owned intellectual property, and
3. Extracting value from the owned intellectual property

Amongst various IP rights, trade secrets, copyrights and patents can be used for protection in the ICT domain, especially for the software; however, patents are the preferred choice of firms as they provide stronger protection for the functionality of a product, the process of service (Shaikh & Londhe, 2016). Patent filing strategies can be to secure, enforce, exploit, or block, which depends on the level of innovativeness of the inventions (Süzeroğlu-Melchioris et al., 2017). Hence, patenting decisions are seen as important strategic considerations. Firms can gain maximum value from a patent depending on their ability to enforce the patent (Arrow, 1962; Holt et al. 2015; Dornelles, 2016). To enforce patents, firms need to prepare well in advance and create strategies to embed their business strategies with patenting strategies to gain a maximum advantage in the long run. Patent strategies encompass a set of resource allocation decisions and underlying "logic" of decision making about patents (Somaya, 2012). Firms seek patents to prevent copying, fence and build thickets, attaining licensing income, preventing hold-ups and rewarding R&D personnel, in addition to highlighting the innovativeness and competences of the firm (Cohen et al., 2000; Rudy & Black, 2018; Useche, 2014). Firms with active and systematic patent management outperform those that remain inactive and non-strategic (Soranzo et al., 2017)

Protection of IP does not happen automatically and may require active measures to enforce IP rights and at the same time, defend and preserve those (Spruson & Ferguson, 2007). Patent filing strategies can be used to secure, enforce, exploit, or block competition, depending on the level of innovativeness of the inventions (Süzeroğlu-Melchioris et al., 2017). Firms that remain inactive and non-strategic for patent management are outperformed by firms that have an active and systematic patent management system in place (Soranzo et al., 2017). The survival of the firms is based on how they perceive IP and patents, in particular, generate it and then utilize it further. It has become essential for firms to exploit their technologies internally as well as externally to avoid losing their value to competitors (Chesbrough, 2003). Firms can gain maximum benefit from a patent by their ability to enforce the patent (Arrow, 1962; Holt et al. 2015; Dornelles, 2016). Patent strategies include all decisions involving resource allocation along

with the logic of decision making about patents (Somaya, 2012). Firms also need to ensure that the IP they perceive and generate is aligned with their business needs and strategies to achieve long term objectives. A valid IP management strategy assists firms in capturing and protecting the outcomes of their investment in innovation. Management of intellectual property involves:

1. An understanding of what intellectual property is,
2. When the intellectual property has been created,
3. The value of the created knowledge,
4. And how to protect intellectual property that has value.

Competitive advantage over rivals is achieved by firms depending on how well they align their IP strategies with business strategies. This paper highlights the various strategies used by firms for protecting and managing their IP as available in the literature of the work carried out by researchers. It also brings forth enablers, which may be the outcome of the strategies implemented by ICT firms along with indicators of organizational performance.

2.1 Intellectual Property Management Strategies

Motohashi, (2008) defines a firm's IP strategy as "strategic use of its technology pool, which is a firm's capacity for innovation output, such as new products or processes, based on in-house R&D or acquired technology from external sources." The core purpose of an IP strategy is to develop an IP economy (Guo & Li-Hua, 2008). Without appropriate strategies, firms that are not patenting will be unable to capitalize on their investments, and researchers may be prevented from conducting even the most basic research (Clarkson & Dekorte, 2006). Hence, the role of patent management has changed from creating a purely legal barrier for competitors to a sophisticated utilization of patents to achieve maximum returns on innovation (Süzeroğlu-Melchioris et al., 2017).

IP management is the use of systematic processes to understand the intellectual property of others and to generate your own (Spruson & Ferguson, 2007). IP management strategy needs to address organizations' needs to achieve commercial goals successfully. The firms may use IP as a tool to:

- Block competing products
- Generate income from commercialization
- Deter potential infringers
- Defend an infringement action
- Attract investment
- Raise the organization's profile, or
- Increase the sale price of the organization's shares or business

IP management strategies can be viewed as offensive or defensive, depending on where and how they are applied (Spruson & Ferguson, 2007; Fisher & Oberholzer-Gee, 2013). An offensive IP strategy is generally to take action against an infringing party, while a defensive strategy is intended to obtain IP to minimize the risk of being sued by others for infringement. Striking the correct balance between being offensive and defensive is a complex task. It may depend on the market place, market size, number of players, and the technology in question. New entrants in the markets, as well as old players, can exercise both these strategies. Different strategies are listed under these two main categories are highlighted below.

2.1.1 Defensive IP Strategy

Defensive strategies seek to provide a firm the freedom to operate and commercialize its invention without hindrance from patents that belong to others (Rudy, & Black, 2018; Somaya, 2012). They are helpful when there is high fragmentation in the market for patentees, and firms are unable to arrange licensing due to transaction costs (Jell et al., 2017). Defensive strategies are thought to be reactionary, focused on protecting the current value of IP (Somaya, 2003; Rudy & Black, 2018). Various defensive IP management strategies, as highlighted below, are implemented by business firms for enhancing their organization's performance.

- a) **Legal Privilege:** Legal privilege can be asserted by firms that do not own IP in a technology (Rudy & Black, 2018). Firms attempt to affect their competitors' patent holdings by using opposition and re-examination proceedings (Somaya, 2012). They can use legal suits to either defend the legality of the use of a technology or altogether challenge the validity of the patent holder's claim on the technology.

However, defensive litigation is a rare option as there is a high cost of litigation, along with an emotional toll. Even if a firm wins, other competitors in the market are also free to capitalize on the success, and if litigation is lost, damage awards can be huge (Fisher & Oberholzer-Gee, 2013).

- b) *Invent Around:*** Firms mainly chose to commercialize their IP possessions using in-house development and supply of goods or services based on “inventing around” a said technology. Inventing around a said technology provides an alternate way to tackle technology blockage (Cohen et al., 2000; Fisher & Oberholzer-Gee, 2013). It helps firms to increase their R&D capabilities, forms a basis for the investment in new products, a defense against others’ business strategies, and a competitive advantage in the market place (Lang, 2001). However, it requires huge investments, manpower, and resources. The time taken to bring a product into the market is also longer.
- c) *Collaboration:*** Instead of inventing around solely, firms can share R&D resources by collaborating with other firms via universities, intra, and inter-industry partners who are seeking an alternative, complementing technology for the technology in question. Collaboration helps firms benefit from external knowledge partners, which facilitates the blending of external and internal ideas into new products, processes, and systems (Belderbos et al., 2014). It also helps reduce the financial burden and also distributes the risk in case of failures (Fisher & Oberholzer-Gee, 2013; Holgersson, 2012). Firms also collaborate with competitors to infiltrate their intellectual knowledge and learn about their technological skill sets (Krig & Sandra, 2017). Firms work with government and foundations in bringing out new manuals and standards in technological development. Through such collaboration, firms may emerge as leaders in technology, which maintains those standards (Krig & Sandra, 2017). Blocking patents are also common in

the context of standard-setting, because once a standard is picked, any patents necessary to comply with that standard become truly essential and each patent can confer significant market power on its owner, and the standard itself is subject to holdups if these patent holders are not somehow obligated to license their patents on reasonable terms (Shapiro, 2000). Firms also collaborate to form alliances within the industry. Collaboration is built for transferring, bifurcating, or reducing the consequences of potential risk via failure in R&D output. Collaboration may also be formed in cases when there are fewer resources available for delivering technology. Collaboration efforts trigger opportunities for value creation and at the same time, also present substantial challenges in seeking to appropriate this value (Belderbos et al., 2014).

- d) *License-In:*** Licensing-in comprises procurement of required technologies under license from an IPR owner. Licensing-in is a way to acquire products or technologies without expending the time and resources necessary to develop them independently. In some cases, licensing-in is required to gain access to technologies that are proprietary but standardized in products of interest. Licensing-in reduces the time to market and might also be used to legalize infringement. For faster entry into the market place, it is recommended to license technology from the market leaders. It helps a firm to operate freely in the market without the fear of litigation. The difference in cost between acquiring knowledge from another person and originally creating that knowledge is substantial (Lindberg, 2008). Licensing can also be sought by companies for allied services required for the functioning of their product or service. By doing so, firms concentrate on the core product development and license the other dependencies from outside. Firms also license-in technology for operational freedom even if they have developed a technology in-house in case its IP is held by others. A patent license is, in

such cases, seen as “a simple means of collecting money in exchange for agreeing not to sue” (Feldman & Lemley, 2015). Licensing-in helps firms increase their business values and profits and also avoids litigation (Krig & Sandra, 2017). Firms can also coordinate the acquisition of multiple related patents using licensing to create patent fences or thickets, which later can be used as a bargaining chip in cross-licensing negotiations (Reitzig, 2007).

2.1.2 Offensive IP Strategy

Offensive patenting, on the other hand, is mostly exercised by firms having a broad patent portfolio or those owning patents of high quality. Offensive IP management strategies are thought to be proactive, focused on protecting the future value of IP (Somaya, 2003; Rudy & Black, 2018). The various offensive IP management strategies are highlighted below.

a) *Exercising Market Power:* As patents authorize the creation of monopolies, firms exercise market power by ensuring that no other firm infringes on its technology. The most valuable patents are not those likely to be used by the patent holder but those likely to be infringed upon by competitors because the primary role of the patent is as a bargaining chip to buy the freedom of action (Hanel, 2006). Although a patent provides its holder a right to commercialize or license its product, firms make use of enforcement mechanisms via litigation in pursuit of profits (Nerkar et al., 2007). Generally, the value of the patent right reflects the power of the patent to contribute to the profitability of the company in some manner (Holt et al. 2015). Firms employ patent litigation to detect imitation and aggressively enforce their patent’s rights against possible infringement (Somaya, 2012; Rudy & Black, 2018). The use or threatened use of litigation helps a firm to protect its IP and at the same time gain competitive advantage (Rudy & Black, 2018) by enforcements with a desire to take out competition, encourage infringers to stop using patented

inventions, pay higher royalties, or to build a fierce reputation (Somaya, 2012). Firms also make use of external attorneys to file patents while following a “maximization approach,” resulting in more claims, filing in more countries, and more PCT applications (Süzeroğlu-Melchioris et al., 2017). Exercising market powers through litigation is high in the software industry compared to other sectors. Patent litigation is undertaken by patent holders to both dissuade and economically punish the patent infringer (Reitzig, 2007). However, patent infringement is often challenging to detect, and enforcing a patent through litigation can be extremely costly, disruptive, time-consuming, and unpredictable (Somaya, 2012).

b) *Sell:* Instead of capitalizing on the value of innovation, firms may also need to make trade-offs in their patent strategies to allow their technologies to create greater value in the marketplace and out compete other innovative solutions (Somaya, 2012). An outright sale is another option that can be exercised by the industry if the value of the technology is high in the hands of others (Krig & Sandra, 2017). This enables an increase in competition. Inventors can transfer their technologies to other firms within the same industry that are better suited to make the application, production, and marketing investments that are necessary to turn inventions into commercially successful innovations, by enabling combinations of resources of different types (Holgerson, 2012). Selling can also be an attractive strategy for firms if the innovator firms lack manufacturing or marketing facilities (Fisher & Oberholzer-Gee, 2013).

c) *License Out:* Licensing-out requires that the owner of IP, licenses its IP to a licensee in return for royalties and/or other considerations. It allows maximizing license revenue, thereby fully exploiting a firm’s R&D capabilities (Parr & Smith, 2016). Many software vendors prefer to license the use of their product rather than sell

them, thereby retaining ownership. Licensing-out is also an enabler to ensure that the competitive firm becomes dependent on a firm's technology and does not invest in its R&D, thereby locking out the option of inventing around by competitive firms and impeding innovation (Reitzig, 2007; Krig and Sandra, 2017; Fisher & Oberholzer-Gee, 2013). Licensing-out also helps reduce the transaction costs and at the same time, may also certify invention quality to potential technology partners, thus encouraging them to license the patented technology (Somaya, 2012). Most of the time, firms patent technology with a motive to improve its bargaining position in patent licensing (Mihm et al., 2015).

- d) **Cross Licensing:** Cross licensing is another form of barter of technology which may be royalty-free, or with a flow of royalties (Hanel, 2006). Cross licensing occurs when two competing firms with different R&D strengths take advantage of each other's intellectual assets. Cross licensing creates the same sort of synergy as a joint venture without the inconvenience and delay of setting up joint operations. These are relatively common in high technology and knowledge-led fields. Cross licensing can be a remedy to cut through patent thickets. If two patent holders are the only companies capable of manufacturing products that utilize their intellectual property rights, a royalty-free cross-license is ideal (Shapiro, 2000). Cross licensing is the preferred means by which large companies clear blocking patent positions amongst themselves or settle outstanding patent disputes (Shapiro, 2000). It is also seen as an alternative strategy for building large patent portfolios that helps to ward off patent infringement and gain access to rivals' technology (Motohashi, 2008; Fisher & Oberholzer-Gee, 2013; Rudy & Black, 2018). Patents can also be used to negotiate a cross-licensing agreement that helps in reducing the cost of acquiring the needed technology (Lang, 2001; Cockburn & MacGarvie, 2011).
- e) **Donate:** Technology in the hands of a few helps personal gains, but when it is in the public domain it helps society. Citing this example, software companies like IBM, Google and Redhat try to donate some of their patents in the public domain (Wen et al., 2015). However, this is often done to understand how technology can be used and led further or is perceived by others. This also opens the doors of bigger firms to identify targets to acquire or collaborate in the future. Innovators may also choose to provide their innovation freely in cases where there is low return from licensing of patents due to weak protection or involving high transactional costs (Harhoff et al., 2003). It can also be disclosed freely to increase one's reputation in the market place. Donations can also act as signals of a firm's R&D capabilities, which in turn may attract financial capitals (Fisher & Oberholzer-Gee, 2013).
- f) **Signaling and Disclosure:** Signalling technological advancements or disclosure of technology in the public domain sends signals to competitors about a firm's commitment towards a technology. This influences rivals to exit R&D competition and redirect their R&D efforts (Gill, 2008; Somaya, 2012). This may also be done by firms to generate prior art, so rival innovative firms may find it harder to obtain patents in the same technology domain, and the focal firm may be able to catch up with competitors in the race to own critical patents (Baker & Mezzetti, 2005; Somaya, 2012; Reed & Storrud-Barnes, 2011). Firms may patent "bad" inventions to mislead rivals in their efforts to build on the technologies disclosed in patents (Somaya, 2012). Specific patent actions may also be undertaken to signal the firm's patent strategy and intentions credibly. Signaling and disclosure can be done through article publication (Holgersson, 2012) using a companies' official website or web-based online publication portals such as *IP.com* or *Research Disclosure*. It is an efficient, effective, and inexpensive strategy to prevent competitors from patenting in

the technological space described in the publication disclosure (Barrett, 2002).

g) *Patent Fencing:* Individual patents are often ineffective as others can build technology around them (Jell et al., 2017). Firms, therefore, file patents with the sole aim of blocking competitors, ensuring freedom to operate (Hanel, 2006; Guellec et al., 2012; Weatherall & Webster, 2014). Firms try to patent not only the technology but also all related technologies of said technology, thus creating large patent portfolios (Shapiro, 2000; Lang, 2001; Weatherall & Webster, 2014; Rudy & Black, 2018). Known as “patent fencing”, “patent pools”, “patent stacking”, “blocking”, “clustering and bracketing”, “blitzkrieg, consolidation”, “blanketing and flooding”, “fencing and surrounding”, “patent harvesting and ramping up”, “portfolio and network arrangements” (Jackson, 2007) or “patent thickets”, the combination of multiple patents makes it costlier to invent around, and they block competitors thereby forcing competitors to license and pay higher royalties (Cohen et al., 2000; Jell et al., 2017). These patent pools help firms when threatened (or sued) over another firm’s patents, as the focal firm can threaten back with its patents, leading to a situation of mutual holdup that forces a faster resolution of the standoff (Somaya, 2003; Ziedonis, 2004). Firms also use the “block to fence” strategy by acquiring a substantial number of patents not only for their core innovations but also for related processes and substitute products, hoping to drive up the cost of “inventing around” (Fisher & Oberholzer-Gee, 2013). Studies have also pointed out that the broader a firm’s patent portfolio, the more likely it is to develop new products (Rudy & Black, 2018). This private strategic value of patents may be increased in the presence of ‘thickets’ which can help in the growth of R&D activities by constraining the ability of firms to operate without extensive licensing of complementary technologies (Noel & Schankermann, 2013) and outsiders may consider that a company with additional patents in

their portfolio will have a higher future performance than a company without patents. Patent fencing is an expensive but powerful strategy to discourage or stop competitors as this tool makes it difficult for a competitor to expand on their patent portfolio without infringing on patents held by this strategy implementer (Jackson, 2007).

h) *IP insurance:* The need to address IP issues increases with the success of organizations as such organizations are increasingly monitored by competitors for possible infringements (Spruson & Ferguson, 2007). Business needs to protect its IP risks in-house via a legal compliance program and also by outside means via insurance. Apart from traditional insurance policies to manage risk, firms should effectively use other risk management devices, such as legal compliance programs, to ensure freedom to operate, new types of litigation insurance, and net loss insurance (Simensky & Small, 2000). Legal compliance can be used by firms to avoid infringement of others' IP and at the same time to protect their IP from infringement by others to maximize their value. However, legal compliance is rarely used in offensive or defensive roles. The cost of IP enforcement in the software domain is too expensive, and hence it is suitable for firms to insure against the financial costs of enforcement proceedings considering the significant amount of time, effort, and resources spent in creating and protecting the IP. Depending on the type of insurance and its cover, the IP insurance may cover the costs of bringing legal action to prevent or stop IP infringement by unauthorized users along with costs of legal expenses to enforce the IP right and costs of defending cross-claims brought by the alleged infringer. It may also cover the costs of proceedings brought against an organization for infringement of IP owned by a third party, including damages payable by the organization. IP insurance is advisable to firms in the early stages of IP creation, and it helps the firms to spread the risks and financial costs involved in IP lawsuits and at the same

time, acts as a deterrent to potential infringers (Spruson & Ferguson, 2007).

An offensive IP strategy is generally to exercise market power and take action against an infringing party, while a defensive strategy is intended to obtain IP to operate freely in the markets and minimize the risk of being sued by others for infringement. Having a correct balance between offensive and defensive strategies is a complex problem as it is dependent on the market place, market size, number of players, and the technology in question.

Industries are more inclined to undertake offensive or defensive strategies to enjoy positive performance outcomes (Somaya, 2003; Ziedonis, 2004; Rudy & Black, 2018). The patent strategy of firms is usually tied with its business strategies depending on its market place, market size, players involved along with the technology, and its protection. While the average patent may be a weak and porous instrument, carefully crafted patents and combinations of patents may become more effective tools for a firm’s strategy (Somaya, 2012). Firms’ IP strategies are evolving, and licensing decisions may be due to patent infringement, or a firm involved in a patent infringement case may adopt a serious view of IP management (Motohashi, K. 2008).

Generalizing, it can be concluded that initially, when firms do not have patents or are new entrants in a technological market, they should use a defensive approach and follow generic patenting strategies while trying to accumulate a patent portfolio. When a

significant patent portfolio is available in hand, firms should try to use a more proactive offensive approach with strategic patent management that could lead to a competitive advantage (Figure 1). IP management strategy thus leads to an increase in a firm’s value and its performance.

This study has several significant implications not only for IT firms but also for academics and practitioners involved in IPR, specifically in R&D and patenting. An IP strategy is driving businesses to align their business strategy with IP strategy to survive and thrive in the market place and set future goals along with competitive advantage. The present research explores various offensive and defensive IP management strategies IT firms are deploying to gain a competitive advantage in the market place. These highlighted strategies may provide the managers with an insight into various options they may deploy within their organizations to achieve a competitive advantage.

3. CONCLUSION

IP in the field of ICT is gaining importance with the advent of new emerging technologies. Creating and managing IP in the field of ICT has become a key differentiator for the success of ICT firms as the industry is moving with a rapid pace of innovations that have a shorter life cycle. The exploitation of IP and patents in particular is often linked with business sales, export quality, and marketing needs, along with research direction strategies to ensure that a firm remains competitive in business.

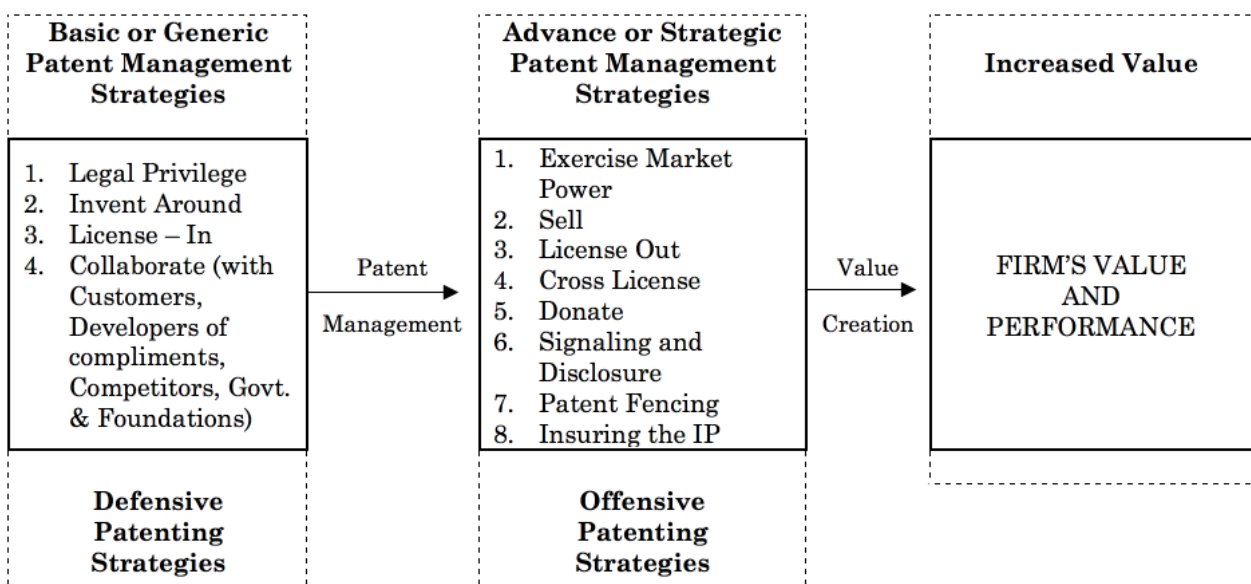


Figure 1 Patenting strategies and firm’s value.

Firms have started looking and opting for various IP management strategies to achieve success and competitive advantage. IP strategy has thus become a force for organizational performance, and businesses have begun aligning their IP strategy with their business strategy to successfully survive and thrive in the market place. Amongst various IP rights, trade secrets, copyrights, and patents can be used for protection in the ICT domain, especially for software; however, patents are the preferred choice of firms as they provide stronger protection for the functionality of a product, the process of service. It is also seen that firms with active and systematic patent management outperform those that remain inactive and non-strategic.

Various offensive and defensive IP strategies exist with the aim of attaining a competitive edge in the market place. Defensive strategies seek to provide a firm the freedom to operate and commercialize an invention without hindrance from patents that belong to others. Defensive strategies are thought to be reactionary, focused on protecting the current value of IP. Offensive patenting, on the other hand, is mostly exercised by firms having large patent portfolios or those owning patents of high quality. Offensive IP management strategies are thought to be proactive, focused on protecting the future value of IP. Industries are more inclined to undertake an offensive or defensive strategy to enjoy positive performance outcomes.

IPR in general and patents in particular serve as a barter system that helps promote innovation and research by putting innovation in the public domain in exchange for exclusive rights over the said technology for a limited period. The creation, protection, and enforcement of IP can bring direct, practical long-term economic interest to nations. Firms seek to gain and maintain a competitive advantage by managing and protecting IP as they accumulate patent portfolios to gain market share or increase profits via multiple strategies. The study puts forth various IP strategies used by firms. Many of these strategies are still evolving and are implemented proactively or reactively depending on various scenarios and situations.

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