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**PROTECTING FINANCIAL INNOVATIONS: INTELLECTUAL PROPERTY
RIGHTS IN THE AGE OF DIGITAL BANKING IN INDIA**

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Abstract

From the age of technology till the present age of hustling humans, the perennial affair between life and technology has stood against the stubbornness of time. Artificial Intelligence plays a significant role in the modernization of the banking sector through technological advances. Technology advances a new era of financial services, with enormous repercussions for customer satisfaction, operational efficiency, and competition. In India, protecting these digital banking innovations through effective intellectual property rights (IPR) regimes is essential. The objective of the research is to look into the present scenario of intellectual property rights in India's online banking sector; assess existing barriers, and recommend methods for enhancing the ownership and monetization of financial innovation. This study adopts a qualitative research methodology here data is compiled from a comprehensive review of academic literature, industry reports, legal documents, and case studies on IPR in the financial sector. Comparative analysis with international IPR frameworks provides a benchmark for assessing India's position and identifying potential areas for improvement. The authors in this chapter find that India has made strides in developing intellectual property rights (IPR) regulations, but obstacles remain in securing digital banking inventions. Present laws include regulatory gaps that prevent them from properly addressing such specific difficulties, leading to inadequate safeguards and implementation. A precise balance between innovation and regulation is required since too strict restrictions can impede invention. Lack of understanding of intellectual property rights and protection measures among financial institutions and startups is also a source of worry. India falls behind industrialized countries regarding intellectual property enforcement and protection procedures, emphasizing the need for global

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best practices. This study's conclusions have substantial practical consequences for politicians, financial institutions, and entrepreneurs in India. Policymakers may use the findings to improve and reinforce intellectual property rules, ensuring they are strong enough to safeguard digital banking advances. Increased knowledge and understanding of intellectual property rights (IPR) may help financial companies and entrepreneurs safeguard their ideas and achieve a competitive advantage. Furthermore, implementing best practices based on global standards will help India's standing in the international financial market. Finally, while concluding the chapter, the authors have taken the liberty to gauge the feasibility and accuracy of the capacity of the current information on intellectual property rights (IPR) in digital banking in India. It provides unique insights into the issues and possibilities involved with safeguarding financial innovations in an increasingly digitalized economy. The study's findings inform future research and policy development targeted at establishing an environment conducive to innovation yet protecting sufficient intellectual property protection.

Keywords: Digital Banking, Intellectual Property Rights (IPR), Financial Innovations, India, Regulatory Frameworks

Introduction

Digital Banking or be better we can say Financial services in technology medium referred to as “Fintech” which has expanded in information science integrating innovative and artistic services, company strategies, and service providers. As it’s booming in today’s tech-based era the FinTech business could establish new markets or give an edge in competition over established competitors. Prominent financial institutions, insurance companies, hedging fund managers, investment companies, rating services, audit and accounting firms, regulators, scientific business entities, consortiums, non-profit organizations, and start-ups might all be impacted.

In this ever-changing world, intellectual property (IP) rights are critical to supporting innovation and preserving the numerous technical innovations emerging from the fintech sector. IP rights including patents, copyrights, trademarks, and trade secrets serve as essential equipment for protecting exclusive technology, software solutions, and innovative business models. For fintech firms, strong intellectual property protection is critical not just for sustaining a competitive advantage, but for attracting investment and fostering more innovation. As digital banking evolves, it's becoming more essential to

recognize and navigate the complexity of intellectual property rights to secure and leverage technical developments³.

Fintech relies on technology. With technology firmly embedded in providing financial goods and services to end users, safeguarding Intellectual Property (IP) assets has become a fundamental priority for fintech organizations seeking to optimize commercial value and establish a digital transformation plan. Fintech companies & financial entities might develop technological equipment in-house or buy it from other companies, team up with vendors & competitors, or acquire entities involved with fintech innovation.

The authors attempt to understand the reason behind such an enhancement in its demand and also, the impact that it has had upon the management strategies improvised to deal with the IP. Here is currently no developed significance for this term. It had previously been linked with computer technology used in the spine systems of banks, financial institutions, and trading organizations. However, it is currently offering more consumer-focused choices, such as chatbots and AI interactions, to assist consumers with straightforward tasks including identifying fraudulent activity and operational and human expenditure management. Digital currencies, cloud computing, data and analytics, mobile platforms, the Internet of Things, and security are among its most significant enabling technologies.

There are now over 2100 FinTech enterprises in India, the bulk of which were established during the last five years. It received more than \$8 billion in investments within its prior financial period.

This research will look at the nexus of intellectual property and digital banking in India, there with an emphasis on the challenges and opportunities involved with safeguarding financial innovations.⁴

Objectives of the research

To examine the existing state of IP protection in the fintech industry, identify important concerns and gaps, and make specific recommendations for improving IP frameworks. By exploring case studies and contrasting viewpoints, this research hopes to provide beneficial knowledge for fintech companies, policymakers, and legal luminaries, eventually leading to a safer and more creative digital financial services ecosystem in India.

³ Erik Feyen et al., *Fintech and the Digital Transformation of Financial Services: Implications for Market Structure and Public Policy*.

⁴ Aishwaryasandeep, *The Fintech Revolution in India: A Look at the Intellectual Property Trend* - Aishwarya Sandeep-Parenting and Law, (2023), <https://aishwaryasandeep.in/the-fintech-revolution-in-india-a-look-at-the-intellectual-property-trend/>, <https://aishwaryasandeep.in/the-fintech-revolution-in-india-a-look-at-the-intellectual-property-trend/> (last visited Aug 15, 2024).

Digital Banking Revolution

Digital banking is the utilization of the Internet and electronic systems to perform numerous banking activities and services, including checking account balances, moving payments, making transactions, applying for loans, and more. It reduces the need for consumers to physically visit brick-and-mortar banking locations by letting them access and manage their accounts through websites, mobile applications, and other online channels. The approach provides better ease and accessibility, allowing financial services to be accessed anytime from any location with an internet connection. Digital banking, an innovative movement in the financial industry, has changed the way people and organizations manage their finances. Digital banking, frequently referred to as electronic banking or online banking, marks an important transition out of conventional in-person banking services and towards an age of technology in which economic services and functions are handled electronically. At its foundation, electronic banking uses electronic means such as websites, smartphone applications, and even social media platforms to give users easy and fast access to various financial services. It includes tracking account balances, moving cash between accounts, paying bills, applying for loans, and investing.

Digital Banking Overview

The Indian digital banking scene has changed dramatically from the late 1990s to the early 2000s, introducing the Unified Payments Interface (UPI) in 2016. This technology revolutionized digital payments by allowing for quick and smooth financial transfers between bank accounts via mobile applications. The Indian government's push for a digital economy, which includes projects such as “Digital India” and the “Jan Dhan Yojana,” helped accelerate the adoption of digital banking. Fintech businesses developed in the mid-2010s, providing new payment, lending, and financial administration services while making money⁵ on India's massive unbanked and underbanked populations. The pandemic in 2020 emphasized the need for digital banking, as consumers turned to Internet transactions owing to lockdowns and safety concerns. Traditional banks have also embraced the digital change, improving their online and m-banking services.

The Reserve Bank of India (RBI) played a significant impact in developing the digital banking ecosystem by establishing policies and standards to protect the security of digital transactions and client data.

The need for digital banking in India became apparent in the early 2000s, as the country's economy expanded fast and there was a growing desire for ease and accessible financial services. Once

⁵ Evolution of Digital Marketing | History of Digital Marketing and it's Future in 2024, <https://www.simplilearn.com/history-and-evolution-of-digital-marketing-article> (last visited Jun 1, 2024).

technology and internet access became more widely available, banks and financial institutions realized the opportunity to provide online banking solutions to meet changing client expectations, which led to the development and acceptance of digital banking services in India.

Sources of Digital Banking & Key Technologies

Key technologies have been critical in moving this transformation along. Artificial intelligence (AI) is at the forefront, improving client experiences with tailored services, fraud detection, and automated financial advising. AI-powered chatbots and virtual assistants simplify client interactions, while machine learning algorithms improve credit risk assessment and transaction monitoring. Blockchain technology, with the potential for safety and openness, is revolutionizing payments and document management. Its decentralized structure is especially beneficial for improving the integrity and efficiency of online payments and cross-border transactions. Mobile solutions, which include mobile banking applications and digital wallets, have become crucial to the user experience, putting frictionless transactions and financial management capabilities at users' fingertips. The integration of new technologies is not only altering traditional banking procedures but also leading the way for innovative financial products and services.

- **Mobile Banking Applications:** Many Indian banks have mobile banking applications, which allow clients to access numerous financial services through smartphones.
- **Internet Banking:** Banks provide Internet banking services on their websites, allowing consumers to conduct financial transactions online.⁶
- **Unified Payments Interface (UPI):** UPI is a real-time payment system designed by the National Payments Corporation of India (NPCI) that enables immediate financial transfers between banks using mobile devices.
- **Mobile wallets** including Paytm, Google Pay, PhonePe, and others have popularity as digital banking platforms, allowing users to store money and make several payments.
- **Online Payment Gateways:** Razorpay, and CC-Avenue, among other payment platforms, allow e-commerce websites and enterprises to perform safe online transactions.
- **National Electronic Funds Transfer (NEFT) and Real-time Gross Settlement (RTGS):** These technologies enable electronic financial transfers between banks for numerous transactions. NEFT is a delayed settlement system that can handle small and big transactions, whereas RTGS is a real-

⁶ Navleen Kaur, Supriya Sahdev & Dr Sharma, *Banking 4.0: -The Influence of Artificial Intelligence on the Banking Industry & How AI Is Changing the Face of Modern Day Banks*, 11 INTERNATIONAL JOURNAL OF MANAGEMENT 577 (2020).

time settlement system designed for high-value transactions. The selection between NEFT and RTGS is based on the transaction size, urgency, and the individual needs of the sender and receiver.

- The Bharat Interface for Money (BHIM) app allows users to make payments via the UPI application. Anyone with a cell phone number, debit card, and a valid bank account can use the BHIM app.

Major players and market dynamics

The digital banking ecosystem in India is characterized by a diversified set of significant firms and changing market dynamics. Traditional banks, such as the State Bank of India and ICICI Bank, are embracing digital transformation to remain competitive, developing their digital platforms and investing in fintech collaborations. At the same time, a thriving ecosystem of fintech firms, like Paytm, PhonePe, and Razorpay, is disrupting the industry with innovative solutions that threaten traditional banking practices. These fintech businesses are pushing innovation and competition, frequently using venture funding to grow quickly and launch cutting-edge technology. The dynamic interplay between major financial institutions and nimble startups is resulting in a vibrant and competitive industry marked by fast technical breakthroughs and shifting consumer preferences. This competitive environment encourages a culture of continual innovation, which ultimately benefits customers by providing more options and better financial services.

Importance of Intellectual Property Rights in the FinTech Industry

Intellectual Property Rights are defined as the exclusive legal rights that are granted to the creator and inventor, to safeguard their original work and inventions. There are a few types of Intellectual Property Rights, that are described below.⁷

Copyright deals with the protection of original creative work of authorships, literary work, dramatic work, musical work, and artistic work. Trademark is related to the protection of brand names, logos, and other identifiers, it also distinguishes the goods and services of one company from that of the other. Patents deal with the protection of technological innovations and inventions and grant exclusive rights to the patent holder to use, make, sell, and distribute their invention for a specific period. Trade secrets protect the confidential business information that provides a competitive edge. All of these ensure fair competition and encourage innovations in the marketplace.

⁷ www.ETLegalWorld.com, *Intellectual Property - Latest Intellectual Property , Information & Updates - Legal -ET LegalWorld*, ETLEGALWORLD.COM, <https://legal.economicstimes.indiatimes.com/tag/intellectual+property> (last visited Aug 15, 2024).

Relevance of IPR in Financial Innovations

The protection of Intellectual Property Rights has become increasingly crucial for the rapidly evolving digital banking landscape, which provides incentivizing innovative techniques to reward and recognize further research and development. Fintech companies and financial institutions can maintain a competitive edge and benefit from holding exclusive rights that prevent the unauthorized use of their innovations, this is only possible if the creations are protected through Intellectual Property rights. It fosters a competitive environment along with safeguarding the interests of both innovators and creators. There is a monetizing opportunity available through licensing agreements, partnerships, and business arrangements, with applications like mobile banking, digital payment, and AI advisory there has been a huge development in the research and development.

FinTech innovations can be complicated in nature, since a single solution may consist of several interconnected hardware and software components with sophisticated mathematical algorithms, some of which may execute on a backend server and others on the consumer device. Various IPRs may coexist in the same solution, depending on the nature of the technology and invention involved, including:⁸

1. Software Source code

Trade secret protection for software/source code is available provided it fits specific legal standards, such as maintaining secrecy and limiting public access. This protection is provided automatically without registration and may be lost if the owner fails to take proper precautions. India does not have particular legislation for trade secret protection, yet it is granted sufficient safeguarding via numerous legal rulings. Unauthorized disclosure, acquisition, or use of trade secret-protected source code may result in civil and criminal penalties. The creator of a software copyright also has the “commercial rental right.” Unauthorized storage, replication, distribution of duplicates, or adaption of copyrighted software may constitute a copyright infringement within a FinTech application.

2. Algorithm

An algorithm is a software component that uses a set of rules to solve a specific issue. It is usual for algorithms in FinTech solutions to include mathematical formulae and, in instances, artificial intelligence (AI) as an element of the “secret sauce” behind the solution. An algorithm may be protected as a trade secret, giving the owner the right to seek legal remedies (depending on the country) against disclosure and certain unfair business acts by workers and third parties.

⁸ admin, *Intellectual Property Rights For Fintech* | IIPRD, (Oct. 14, 2022), <https://www.iiprd.com/intellectual-property-rights-for-fintech/> (last visited Aug 15, 2024).

3. Creativity Base

The creative base of a FinTech solution is protected by patents, which go beyond the literal representation of computer instructions or software code. This protection is critical because it represents the technical answer to the current problem or difficulty. FinTech innovations are generally concerned with computer-implemented processes, which entail technical operations carried out by a computing device and its associated systems and devices. Copyright protects computer code, but not the original technological concept or method connected with FinTech invention. A patent protects the innovative core, preventing a third party from exploiting the protected idea, even if the computer program was created separately or independently.

4. Visual Design and Graphical User Interface (GUI)

Industrial layouts are another type of intellectual property that may be used to protect the visual elements of tangible goods and products including payment cards, equipment, and accessories, as well as graphical user interfaces for computer or mobile apps. To provide protection, an industrial design must be registered.

Patent Challenges in Financial Technologies

Traditional banks continue to dominate the financial sector, but with the introduction of new technologies including AI and machine learning, Fintech's arose as a merger of financial operations and technology solutions. FinTech's started in India during 2007-08 and increased prominence during the Corona pandemic, which limited human travel and forced people to rely on technology-based financial solutions. Based on research, youngsters are becoming more intrigued by financial services offered by IT companies, and electronic banking is predicted to become the most popular alternative to conventional financial services.⁹ Financial services are widely accessible, simpler, and available 24 hours a day, seven days a week, driving the sector's exponential expansion. Financial services strongly dominate start-ups, and they're seen as the predecessors of India's desire to become a production-led sector. New fintech companies must have an equitable stake in the market while also protecting service providers and consumers from illegal activities such as data theft, privacy control, and laundering cash.¹⁰

Fintech's are idea- and technology-driven enterprises, and intellectual theft is frequent due to increased competitiveness. To flourish, fintech start-ups must protect their idea, innovation, and identity.

⁹ Brigitte Vézina, *Topic 1: Introduction to Intellectual Property*.

¹⁰ History of Indian Patent System | About Us | Intellectual Property India | Government of India, <https://ipindia.gov.in/history-of-indian-patent-system.htm> (last visited Aug 15, 2024).

Development of Fintech's

FinTech is one of the most developing ways, driven by the fast use of cutting-edge technology in the financial industry, including money transfers, digital payments, financing platforms, alternative loans, and financial software. Here are some of the primary trends that explain why Fintech is rising.

Technology

The introduction of new technologies such as AI, ML, AR/VR, Blockchain, and Cloud Computing has significantly accelerated the expansion of the fintech business. These technologies have altered financial services, enabling them to automate operations that were previously undertaken by humans. This has resulted in higher efficiency and enabled conventional banks to focus on innovation and strategy.¹¹

Fintech services have also made traditional banks more cost-effective, allowing them to offer digital banking features while maintaining high production levels. This has resulted in lower employee requirements and more efficiency. Such advantages are driving growth in the worldwide fintech business. Fintech adoption has also made financial services more accessible to everyone, with banks now offering a variety of services through smartphone applications and websites. It has eradicated intermediaries including bank managers and brokers, resulting in direct utilization of financial services and information. In general, fintech has had a substantial influence on the financial sector's adaptability and growth.

COVID-Driven Electronic Payments:

Fintech investment has seen significant benefits following the epidemic. COVID has radically transformed the FinTech sector. In 2020, financial institutions experienced the largest wave of new accounts in mobile payment and banking apps. Governments throughout the world are supporting contactless payments to protect against infection with COVID. Furthermore, the rising use of eCommerce, telemedicine, and e-learning has added to the need for online payments.

Regulatory Agencies

Regulations are a key driver of fintech growth. Every institute in the financial industry is subject to regulatory duties, although some of these rules are more flexible, allowing financial technology businesses to develop new fintech products with more flexibility. Furthermore, governments in many different nations are actively pushing digital banking.

¹¹ Insights into the Rise of AI: Patent Trends for 2023, <https://indiaai.gov.in/article/insights-into-the-rise-of-ai-patent-trends-for-2023> (last visited Aug 15, 2024).

Development across Conventional Financial Services

With the growing need for digital banking solutions, several financial technology businesses are looking into new technologies and services that may provide basic banking services at cheaper costs. These companies include a specialized R&D part to satisfy exploring approaches to a new disruptive, high-growth technology. The basic purpose of all of this is to provide customers with greater foundations from which to conduct their banking activities while also assisting banks with fintech funding.¹²

Maturing

As the fintech business grows, a new phase of growth emerges. The financial technology business has matured because financial software development companies are growing more sophisticated and have better access to funding. In addition, the organizations are looking for fintech experts who can work with cutting-edge technology such as artificial intelligence, blockchain, and cloud computing in developing financial applications for customers.

What does a patent protect?

A patent is an exclusive right awarded for an idea, product, or technique that introduces a new way of doing something or gives a novel technological solution to a problem. Any invention must meet specific criteria to be patentable, including usefulness, novelty, and non-obviousness. It protects the innovation of the patent owner for a limited time, i.e. 20 years.

Other than software in its computer language form, all other features, such as hardware, software-attached hardware, semiconductive materials, specific machine arrangements, and so on, are eligible for patent.

Patents for FinTech's

While science, art, and technology drive human development, Intellectual Property (IP) protects individual inventiveness through IP rights. Intellectual property rights have encouraged artists, innovators, and inventors to tackle real-world issues using their ideas and ingenuity. The Indian Patent Office (IPO) does not have distinct criteria for evaluating AI-related discoveries.¹³ These innovations are reviewed by the “*Computer-Related Innovations Rules 2017 (CRI rules)*. Which is, AI-related innovations are evaluated using the subject matter exclusions outlined in Section 3(k) of the Indian Patents Act, 1970.”

¹² amlegals, *Challenges in Patent Development and Patent Litigation in India*, LAW FIRM IN AHMEDABAD (Dec. 6, 2021), <https://amlegals.com/challenges-in-patent-development-and-patent-litigation-in-india/> (last visited Aug 15, 2024).

¹³ A1999-47.pdf, <https://www.indiacode.nic.in/bitstream/123456789/1993/1/A1999-47.pdf> (last visited Aug 15, 2024).

Benefits of Patents in Fintech

- Increase market share.
- Patent filings offer considerable value and can attract investors.
- Patents, unlike copyrights, can protect the functioning of an innovation. A FinTech patent forbids third parties from using the method, process, or device covered by the invention. This gives patent holders a monopoly on their inventions in terms of commercialization or licensing. It generates an attractive revenue stream and raises the company's profile significantly.¹⁴
- Because changes in FinTech legislation are highly dynamic, it is usually recommended to obtain a patent because it allows for some flexibility in the techniques of using technology.
- A patent owner has the following alternatives to assert their rights in India:
 - An Anton Piller Order - the legal system may nominate a local commissioner on the plaintiff's request or otherwise to retain or seal infringing items or accounts on the defendant's premises.
 - A Mareva Injunction - the Court can prevent the Defendant from disposing of its assets inside India until the trial concludes or judgment in the patent infringement case is rendered; or
 - A John Doe Order - the Court may order a search and seizure of an unknown Defendant, with the help of the local commissioner and police, if necessary, to raid any premises where infringing actions are alleged to be taking place.

Challenges Encountered in the Development of Patents in India

- During the patent examination procedure, the patent office reviews the application to ensure that the invention fits all applicable statutory criteria. In fintech, this frequently entails a thorough examination of whether the innovation is patentable subject matter. For example, in India, the Patents Act of 1970 prohibits business processes, mathematical procedures, and algorithms from being patentable unless they result in a technological impact on an answer for a technical issue. It presents a challenge for financial advances, which are frequently based on algorithms or business procedures, in demonstrating that they provide a technological answer.
- According to *“Section 104 of the Act, a District Court is the initial occurrence court in cases involving patent infringement claims. Furthermore, if the Defendant lodges a counter-claim for patent cancellation, the matter would be referred to the High Court for determination. Within the original jurisdiction, only five High Courts can hear lawsuits within their initial stages.”* Furthermore, under the Commercial Courts Act, not all District Courts have jurisdiction over

¹⁴ Home | PatentPC, <https://patentpc.com/> (last visited Aug 15, 2024).

business litigation, which must be handled by the High Court. One of the most significant obstacles in patent litigation is the absence of judicial officers capable of dealing with technical patent worries. The key issues associated with patent litigation are:

- Enforcing patent rights is hampered by a backlog of litigation in the courts. Though the “*Commercial Courts Act in 2015*” was meant to speed up IP processes, the substantial queue remains an obstacle to invention conflicts quickly.
- Subject matter experts: “*Section 115 of the Act authorizes the appointment of an advisor to assist the courts in providing technical assistance and direction. However, because such an appointment is rarely utilized, it has no impact on the decision-making process. The clause offers a chance to apply technical and legal skills, but it has yet to be utilized.*”
- Opinions differ: Patent awarding has a subjective aspect, which is at the discretion of the patent examiner. However, in the context of litigation, such subjectivity merely adds to the complexity and length of the proceedings. Understanding the notion of IPR as a whole necessitates technical understanding, which is rarely addressed in litigation. As a result, disagreements on subjective factors might lead to issues, which will further exacerbate litigation. “*Section 115 of the Act stipulates that a scientific adviser might be appointed to assist the courts in offering technical views as needed. However, the courts often use such a provision.*¹⁵”

Case Study on the Power of Fintech Innovation

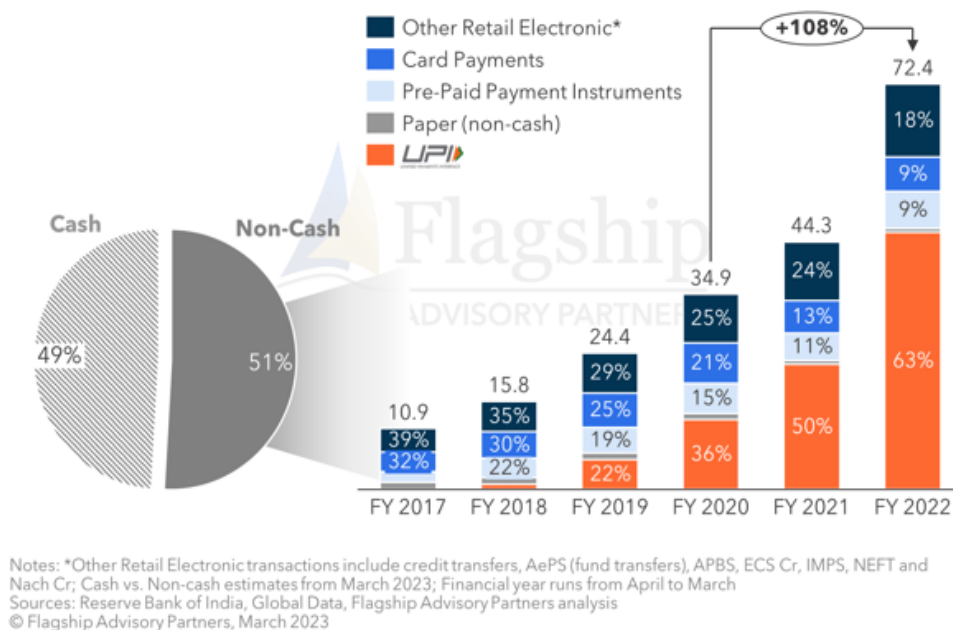
a. Mobile Payment Disruption

Before UPI, Indian Fintech’s were already propelling the industry toward mobile payments, beginning with the launch of digital wallets powered by prepaid accounts, such as the Paytm Wallet, in 2014. Such mobile wallets were spurred by India's demonetization program, a large-scale macroeconomic operation launched by the government to eliminate corruption and promote digital payments. In November 2016, the Indian government abruptly stopped accepting all old currency notes (greater than Rs. 500) to replace them with new ones. The approach resulted in an abundance of currencies in the country, driving customers to seek digital alternatives. It presented an ideal opportunity for fintech’s like Paytm to fill the gap by providing digital solutions for both consumers

¹⁵ Sagacious IP-Editorial Team, *Why Is It Important to File Patents in FinTech* | Blog, SAGACIOUS IP (May 27, 2020), <https://sagaciousresearch.com/blog/why-important-file-patents-fintech/> (last visited Aug 15, 2024).

and merchants. As customers become more comfortable with mobile payments, the popularity of digital wallets increases dramatically.¹⁶

Figure 1: Retail Payments in India
(FY 2017-2022; by number of transactions in bil.; payment mix by instrument)



b. UPI Payments Explained

The advent of UPI accelerated the speed of innovation and disruption in India. The National Payments Corporation of India (created by the Reserve Bank of India) unveiled the Unified Payments Interface (UPI) in 2016. UPI is an account-to-account payment system that allows consumers and merchants to make and receive payments with real-time settlement. Currently, UPI accounts for about two out of every three retail non-cash transactions in India. UPI is not an end-user product (i.e., a mobile app), but rather a payment network used by Fintech's and banks to create and distribute mobile apps that enable UPI payments. Users may simply enable this payment option by generating a unique UPI identification key that is connected to their bank account and mobile phone. Many mobile payment applications, like PhonePe, Google Pay, and Paytm (among others), allow users to register or sign up for UPI and initiate or receive payments to and from their bank accounts. For P2P transactions, customers may just utilize their cell phone connected to a UPI ID to send money instantaneously, keeping the user's interface especially fast and easy.

¹⁶ India: Case Study on the Power of Fintech Innovation, <https://insights.flagshipadvisorypartners.com/india-case-study-on-the-power-of-fintech-innovation> (last visited Aug 15, 2024).

Copyright and Software Protection in Digital Banking

Copyright is assigned at the point that the item is created. It presents numerous advantages for individuals who contribute or produce it, but it also constitutes concerns for people who control the information and want to track public interest in their efforts, which are also made public. Until recently, writers could have permitted artists to publish their works. Users of this domain can freely perceive and use the protected content. When other people who utilize intellectual property accuse the owners of violating their rights, the owners are always allowed to defend their rights. Because software is a type of copyrighted work and is considered high technology, regulations governing software intellectual property rights are sometimes inadequate. Most countries have laws regarding copyright that protect software intellectual property. Patents can be filed for designing software values that have a strong connection to hardware. Although contemporary software protection measures address a significant amount of the security of computer software and systems, there are still specific vulnerabilities.¹⁷

Copyright Legislation- Overview

Copyright is an intellectual property right granted to writers for their literary and creative works. It enables both new and seasoned artists to exhibit their work to the world while also providing a self-description. Use the copyright symbol (©) or the phrase “copyright” near the beginning of the notice. The notification should indicate the year of publication, but in cases where the information frequently changes and covers several decades, the entire period might be displayed. Copyright applies to computer code, graphic interface components, music, video, and API structure. Copyright extends to specifications such as source code, pseudo code, machine code, and firmware/hardware. Copyright is a valuable asset for Fintech companies, especially when the software design provides computational and usability benefits. To improve security, Fintech businesses might use digital locks on replicas of their works, as circumventing these locks may be unlawful in some areas. Erroneously integrating third-party copyright should set off concerns since it might jeopardize technical ownership and freedom of operation.¹⁸

¹⁷ Copyright Protection for Computer Software An Indian Prospective - Copyright - Intellectual Property - India, <https://www.mondaq.com/india/copyright/262564/copyright-protection-for-computer-software-an-indian-prospective> (last visited Aug 15, 2024).

¹⁸ Copyright Protection Of Software And Copyright Notice: Why Is It Important?, CLEARTAX, <https://cleartax.in/s/copyright-protection-software> (last visited Aug 15, 2024).

Impact of Software Licensing in Digital Banking

Software licensing is a significant instrument for controlling the usage and distribution of financial software in the digital banking sector. Licenses specify the rules under which software can be used, updated, and distributed, giving financial institutions control over how their software is used by other parties. Several types of software licenses apply to digital banking, including proprietary and open-source licenses. Proprietary software licenses often limit access to the source code and users' rights to alter or redistribute the product. Financial organizations that place a premium on security, control, and monetization of their software products frequently favour this arrangement.¹⁹ Open-source licenses, on the other hand, empower users to access, alter, and share source code, encouraging cooperation and innovation in the financial technology sector. However, open-source software brings several issues, such as ensuring compliance with licensing conditions and the possibility of security flaws if the software is not adequately maintained. The decision to use open-source versus proprietary software has important ramifications for digital banking innovation. While proprietary software offers more control and security, open-source software could encourage creativity by allowing developers to build on current technology and contribute to the growth of the financial ecosystem.²⁰

Barriers to Implementing Copyright within the Financial Sector

Enforcing copyright in the financial industry involves several difficulties, notably regarding the issue of software infringement and illegal usage. Software piracy, or the unlawful copying and distribution of software, is a widespread problem that weakens the value of intellectual works and reduces the income of financial organizations that engage in software development. Unauthorized software utilization in the digital banking industry can pose substantial security issues since pirated software is more prone to cyberattacks and infection. Financial institutions must consequently employ strong tactics to prevent and combat software piracy, such as the use of digital rights management (DRM) technology²¹, frequent audits, and legal action against infringers. In India, the legal framework for protecting copyright comprises the “Copyright Act of 1957²²”, which offers consequences for copyright violation, such as injunctions, damages, and monetary penalties. Still, the efficacy of these remedies is dependent on financial institutions' capacity to discover and establish cases of infringement, which may be difficult

¹⁹ Rights in Fintech Data - Finance Unlocked, <https://financeunlocked.com/videos/fintech-data-rights-in-data-1-4> (last visited Aug 15, 2024).

²⁰ Software Intellectual Property 101: IP Protection & More | Thales, <https://cpl.thalesgroup.com/software-monetization/protecting-software-intellectual-property> (last visited Aug 15, 2024).

²¹ Digital Rights Management (DRM), <https://studylib.net/doc/5217347/digital-rights-management--drm-> (last visited Dec 26, 2023).

²² Copyright basics - 10 facts everyone should know about copyright, <https://www.linkedin.com/pulse/copyright-basics-10-facts-everyone-should-know-azeezat-periola> (last visited Aug 15, 2024).

given the worldwide nature of software distribution and the complexity of contemporary pirate strategies. Furthermore, the high speed of technological development in the financial industry needs the continuous modification of regulatory techniques to keep up with emerging types of infringement and illegal use.

Trademarks and Branding in Digital Banking

Trademarks are essential for developing brand identification and generating trust in the financial sector, where customer trust is critical. In the digital banking scene, trademarks protect the names, logos, slogans, and other brand characteristics that set a financial institution's products and services apart from rivals. A powerful trademark is not only a statement of quality and dependability, but it also plays an important role in marketing and client retention. As digital banking systems gain popularity, the importance of trademarks in keeping a consistent and identifiable brand across several digital channels cannot be emphasized. Trademarks assist consumers in distinguishing between financial services, building brand loyalty, and safeguarding the reputation of a financial institution in an increasingly competitive market.

Developing a digital brand identity

- Designing an effective digital brand identity requires numerous steps:
- Understanding the Market and Audience: Thorough market research is necessary to grasp the intended audience's demands and preferences. This aids in developing a brand identity that resonates with the target audience.
- Innovative Branding Strategies: To stand out in the digital arena, brands must be inventive. This involves employing distinctive marketing methods, compelling content, and new digital experiences.
- Using Digital Tools Effectively: The selection & usage of digital tools - such as blogs, social media accounts, e-commerce sites, and so on - is critical in brand development.²³

Trademark Registration in India

The trademark registration procedure in India consists of various phases aimed at guaranteeing that a brand is both unique and legally protected. The procedure begins with a trademark search to see if the intended mark is already in use or registered by another organization. If the mark is accessible, the applicant may file a trademark application with the Indian Trademark Office, which contains

²³ Christopher Buccafusco, Jonathan S Masur & Mark P McKenna, *Competition and Congestion in Trademark Law*.

information about the mark, the products or services it represents, and the applicant's intention to use the mark. Once filed, the application is evaluated by the Trademark Office for legality and any problems with existing trademarks.²⁴

The Use of Trademarks in Online Branding for Startups

Securing a trademark early on is critical for entrepreneurs, particularly in the digital realm, where market saturation is rapid and ubiquitous. A trademark protects the brand while also providing a geographic and licensing advantage. In the digital era, when domain names and social media presence are crucial, brand protection becomes even more important.

Marketing Without Trademarks.

Branding in the digital environment entails more than simply registering a trademark. It entails creating a distinct identity and vision for the firm. Effective digital branding combines corporate and product branding methods. Branding is about connecting the brand with the company's basic principles, increasing its value, and providing a competitive advantage in the market.

To summarize, trademark and branding within the digital environment require negotiating a complicated terrain of legal, marketing, and technological problems. As the digital landscape evolves, companies must modify their tactics to preserve their trademarks and establish a strong digital identity. Companies may develop and thrive by recognizing the subtle aspects of online marketing and utilizing new methods.

Emerging Trends and Future Directions

Influence of new inventions on intellectual property rights in digital banking.

Blockchain, artificial intelligence (AI), and big data are fundamentally changing the digital banking sector, presenting both new possibilities and difficulties for intellectual property rights (IPR). Blockchain technology, with its decentralized and transparent nature, is transforming how financial transactions are done and recorded. This technology not only improves security and efficiency for online banking but also complicates the process of securing inventions produced on open and dispersed networks. Similarly, AI is propelling the creation of innovative financial goods and services, ranging from predictive analytics to automated trading platforms. However, AI-generated discoveries pose distinct issues for intellectual property rights, notably in assessing ownership and patentability of AI-driven ideas. Big data, which powers many AI applications, raises concerns about data ownership,

²⁴ Trademark And Branding In The Digital Space - Trademark - Intellectual Property - India, <https://www.mondaq.com/india/trademark/1449856/trademark-and-branding-in-the-digital-space> (last visited Aug 15, 2024).

privacy, and the security of proprietary algorithms that analyze massive datasets. As these technologies grow more interwoven into financial institutions, established IPR regimes might be unable to keep up, demanding new approaches to intellectual property protection in an era when complexity and interconnectedness fuel innovation.

Regulatory Developments and Policy Implications

Recent developments in Indian intellectual property laws are influencing the protection of digital banking technologies, demonstrating the necessity to adapt to the changing technology landscape. The Indian government has launched many attempts to broaden its IPR protection, such as amendments to the Patents Act and attempts to simplify patent examination processes. These reforms are designed to encourage innovation in high-tech areas, including fintech, by establishing clearer regulations regarding what constitutes patentable subject matter, notably for software and business method patents. However, the quick speed of innovation in digital banking has revealed weaknesses in the present legal framework, such as the difficulties of protecting AI-driven innovations and the issues created by blockchain's decentralization. To address these issues, policymakers are increasingly focused on developing regulations that balance the need for robust IPR protection with the demands of a dynamic and fast-moving industry. Policy recommendations for improving IPR protection in the financial sector include enhancing collaboration between the government and the fintech industry, fostering greater awareness of IPR issues among innovators, and exploring new legal mechanisms for protecting AI and blockchain-based innovations. Additionally, there is a growing recognition of the need for international cooperation to harmonize IPR standards across borders, given the global nature of digital banking.²⁵

International Perspectives on Intellectual Property Rights in Financial Innovations

A comparative review of IPR protection in major worldwide marketplaces finds considerable disparities in nations' approaches to financial invention protection. In the United States, for example, the patent system has historically been more accepting of software and business method patents, resulting in a significant amount of creativity in fintech. However, this has raised worries about patent thickets and the possibility of litigation stifling competition. In contrast, the European Union has taken a harder approach to patenting financial technology, requiring stronger evidence of a technological effect. It has affected the growth of fintech in Europe, where businesses frequently rely on trade secrets and trademarks to protect their discoveries.

²⁵ IPR : game changer for fintech companies and start-ups - iPleaders, <https://blog.ipleaders.in/ipr-game-changer-fintech-companies-start-ups/> (last visited Aug 15, 2024).

Conclusion

The study highlights comprehensive research providing valuable insight into the evolving landscape of digital banking in India and the robust IPR protection provided to it. The transformation in the digital banking sector has seen remarkable growth. The creation of vibrant ecosystems has been possible through the combination and non-banking facility that is driven by the product, service, and technology. As there has been a major source of competitive advantage through financial innovation that is helping to generate income for market participants, hence needs to be protected through IPR. Although there is an ambiguous legal interpretation and challenges in the current IPR ecosystem that have resulted in inefficient enforcement mechanisms, that can be improved through coordination among regulatory authorities. This research also shows the comparative analysis of the protection of IPR through an international perspective to help in adapting the changes learned from the countries and apply the proactive measures to strengthen the IPR framework. The research also shows the need for a multi-pronged approach to help reform and reinforce the IPR framework. It also recommends some policies that foster collaboration to ensure a balanced regulatory approach. The long-term sustainability is possible through the creation of new and transformative financial solutions that keep pace with the rapidly evolving digital banking sector in India. Although there has been a significant achievement in the digital banking sector in India with the protection of Intellectual Property Rights there has to be a lot more done to maintain its leadership position which can be gained by implementing international best practices and also by encouraging cooperation between stakeholders. The journey ahead would not be without challenges but with the help of a collective effort, the Indian financial sector has to overcome the challenges and solidify its position by bringing sustainable growth along with technological advancement.
