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FINTECH INNOVATIONS: FORGING AHEAD

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I. Introduction

1 Financial technology, or "fintech" for short, describes innovative technology applied in the provision of financial services. These include, but are not limited to, electronic payment systems, investment platforms, insurance technology, blockchain technology and transaction authentication. Such new technologies are transforming the way business processes and transactions are carried out in the financial services sector.

II. Overview of the fintech patent landscape

2 Global investment in fintech companies hit US$8.7bn in Q4 2017, with the final figure for 2017 at about US$31bn across various deals,[1] signalling that the fintech market continues to experience significant drivers for consolidation and innovation. Some of this investment has gone into fuelling the competition between start-ups and traditional financial services providers to develop the latest disruptive technologies, and this has led to a spike in global fintech patents by 49% in the past five

* Any views expressed in this article are the authors' personal views only and should not be taken to represent the views of their employer. All errors remain the authors' own.

1 Ian Pollari & Murray Raisbeck, "The Pulse of Fintech Q4 2017 – Global Analysis of Investment in Fintech" (13 February 2018) <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2018/02/pulse_of_fintech_q4_2017.pdf> (accessed 18 July 2018).

years, reaching 9,545 in 2016.[2] Patents are perceived to form a valuable component of a company's intangible assets because a granted patent gives the patent holder a right to exploit his invention, and therefore can potentially increase the company's revenue stream and profile. It is also indicative of the company's strategic approach to IP protection, which is valuable to investors. Patenting in fintech is currently spread out over various entities including banks, large financial services corporations and fintech companies.[3] While no single entity holds a large majority of patents, large financial institutions, such as Visa, Bank of America and MasterCard, do appear to be leading the patenting activity in this area. Interestingly, technology giants such as Alibaba and Google are also entering the fintech space. Payment processing technology has seen the most activity, garnering more than half of fintech patents.

3 Closer to home, according to the Singapore Patent Landscape Report 2016,[4] fintech patenting activity in Singapore is also experiencing steady growth. Singapore innovators' patent filings show a heavy focus on fintech, which is reflective of Singapore's status as a global financial hub, with technology relating to payment architectures, schemes and protocols receiving the most filings. Among these Singapore innovators, established financial institutions with subsidiaries in Singapore, such as MasterCard, Visa and Global Blue, are leading the patenting activity in fintech. However, there are also a significant number of locally-registered small-scale enterprises which develop technologies in specific niche areas that are actively patenting in fintech to compete with the incumbents. For instance, Singapore innovators such as Crayon Data Pte Ltd and Einnovation Technologies Pvt Ltd contributed about 8% to 10% of the total fintech patent applications filed in 2017. The Singapore Government, through various agencies including the Monetary Authority of Singapore, continues to

2 Felix Dodd, "'FinTech Patent' Applications Jump Sharply – As Innovation in Financial Services Continues" (18 April 2017) <https://www.emwllp.com/latest/fintech-patent-applications-jump-sharply/> (accessed 14 July 2018).

3 Relecura IP Intelligence Report, *FinTech – An IP Perspective* (October 2015) <https://www.relecura.com/reports/FinTech_an_IP_perspective.pdf> (accessed 26 July 2018).

4 *Singapore Patent Landscape Report 2016* (August 2017) <https://www.ipos.gov.sg/docs/default-source/resources-library/patents/infopacks/singapore-patent-landscape-report-2016.pdf> (accessed 26 July 2018).

roll out different initiatives to incentivise and nurture the local Fintech start-up ecosystem. With these initiatives in place, there is potential for more innovation and further growth in patent filings by Singapore innovators in the next few years.

III. FinTech Fast Track: Objective and benefits

4 Against this backdrop, the Intellectual Property Office of Singapore ("IPOS") has launched a FinTech Fast Track ("FTFT") initiative to encourage fintech innovations in Singapore, as well as to enable businesses to commercialise their products and services more rapidly. This is also in line with the industry transformation map for financial services and to advance Singapore's Smart Nation agenda. The FTFT provides an expedited patent file-to-grant process for fintech innovations. Under this initiative, an applicant can expect to get a patent granted in as quickly as six months, compared with at least two years for normal national applications. The FTFT will be available for 12 months starting 26 April 2018. The set of criteria for FTFT was established in consultation with stakeholders from various industries to encourage greater participation in the development process and to better understand business needs. In order to avoid any possible delays in the application, applicants are to exercise due diligence in meeting the formality and patentability requirements.

5 Speed to market is essential for fintech, given that it is a fast-paced and dynamic industry. An accelerated prosecution can provide early certainty to applicants on patentability and enable better alignment of IP protection with product development. Moreover, with a fast grant, applicants can use the Singapore patent as a launchpad to obtain patent protection globally. This may be done through work-sharing programmes such as the Global Patent Prosecution Highway and ASEAN Patent Examination Co-operation, to which IPOS is a participating IP office. Applicants can utilise these work-sharing programmes to expedite the grant of corresponding patent applications outside Singapore.

6 The FTFT further accentuates IPOS's recent emphasis on the importance of IP commercialisation. Companies can only reap real economic benefits through commercialisation of its intangible assets. Fintech patents tend to have a shorter commercial lifecycle – most of which drop off at the sixth

renewal year and few renew up to the 20-year patent term. As technology advances quickly and software is upgraded expeditiously, fintech companies should make full use of this initiative in order to maximise return-on-investment.

IV. Patenting of fintech innovations

7 Fintech innovations are typically software-driven and involve the use of computers and related systems in delivering financial services. While the approaches adopted by various jurisdictions towards the treatment of software or computer-implemented inventions are different, there appears to be a convergence of these approaches in recent years. In the US, the landmark Supreme Court decision in *Alice Corp v CLS Bank International*[5] had imposed on software-related claims the requirement that such claims must contain an element that amounted to "significantly more" than the abstract computer program in order for them to be patent eligible. Subsequent decisions at the Federal Circuit, such as *Enfish, LLC v Microsoft Corp*[6] and *Amdocs (Israel) Ltd v Openet Telecom, Inc*[7] further clarified that causing a specific improvement to the way computers operate, or causing computers to operate in unconventional ways to achieve an improvement in functionality, could be considered as elements amounting to "significantly more". The considerations are the same for software used in finance or in methods of doing business.

8 In Europe, computer-implemented inventions have consistently been required to demonstrate a further technical effect going beyond the "normal" physical interactions between the software and the hardware on which it is run. This was the position taken in T 1173/97 *Computer program product/IBM*, and later affirmed by the Enlarged Board of Appeal in G 3/08 *Programs for computers*. In assessing the patentability of computer-implemented inventions, the approach taken in T 641/00 *Two identities/COMVIK* is applied, which prescribes that the non-technical features of the invention cannot be used to support the presence of an inventive step.

5 134 S Ct 2347 (2014).
6 822 F 3d 1327 (Fed Cir, 2016).
7 841 F 3d 1288 (Fed Cir, 2016).

9 In the UK, inventions implemented in software must make a technical contribution in order for them to be considered patentable. The Court of Appeal decision in *Aerotel Ltd v Telco Holdings Ltd*[8] prescribed a four-step test for the assessment of patentable subject matter, which also applies to computer programs. *AT&T Knowledge Ventures and CVON Innovations v Comptroller General of Patents*[9] subsequently provided five signposts for the assessment of the technical contribution of software. The signposts generally relate to improvements in the operation of the hardware on which the software is run, such as the consideration of whether the claimed technical effect of the software results in the computer being made to operate in a new way, or whether there is an increase in the speed or reliability of the computer.

10 At IPOS, developments in software are considered to be inventions if they make a contribution beyond the regular workings of the computer hardware executing the software.[10] Such inventions are assessed to determine the extent to which the computer or other technical features contribute to the inventive concept, and whether it is sufficient that the technical features may be considered integral to the inventive concept.[11] Software relating to finance and business may therefore be eligible for patent protection if certain criteria are met. Business methods *per se* are not considered to be inventions and thus are not eligible for a patent; however, the technology behind the business method can be patented. The invention must also fulfil the general requirements of novelty, inventive step and industrial application.

11 In the case of a computer-implemented business method, if it is demonstrated that there is sufficient interaction between the steps of the method and the physical hardware, such as computers, servers and the like, implementing the method to address a specific problem, then the computer-implemented business method would be

8 [2006] EWCA Civ 1371.

9 [2009] EWHC 343 (Pat).

10 At present, there are no Singapore court decisions that have specifically addressed patentable subject matter in respect of computer-implemented inventions. In examining such inventions, the Intellectual Property Office of Singapore has adopted a position that is generally consistent with that of the US, the UK and Europe, as indicated in the paragraphs above.

11 *Examination Guidelines for Patent Applications at IPOS* (October 2017 version) ch 8A.

considered an invention and is eligible for patent protection. For fintech, this may be, for example, a new transaction platform that employs encryption to increase network security for a transaction, a unique software for processing and storing finance-related data that greatly enhances computer resource usage, or an innovative interface utilising machine learning for providing automated advice and wealth management.

V. Alternatives to patenting

12 Obtaining patent protection allows patent holders to enjoy exclusive rights to exploit their fintech inventions, offering them a competitive advantage in the marketplace and increasing the worth of the patented technology to collaborators and investors. Businesses can consider patent protection for their most valuable innovations, given the relative high cost and time involved, as well as taking into account the time-limited monopoly of 20 years conferred in exchange for full disclosure of the invention to the public.

13 If the technology is proprietary information that should be kept confidential, trade-secret protection may be a variable option. As most fintech are software-based, and where the algorithms in the software cannot be reverse engineered, protecting the secrecy of key aspects of the technology may be preferred to pursuing patent protection. Moreover, trade-secret protection is indefinite[12] so long as the confidential information is not publicly disclosed.

14 Another form of IP protection is copyright, which extends to computer code. Open collaboration between financial services corporations and fintech players is gaining traction recently to allow for more competition and innovation in the fintech space. However, businesses should be aware that open-source licensing may have an impact on ownership of technology and freedom to operate.

12 *IPOS website* <https://www.ipos.gov.sg/understanding-innovation-ip/other-ips/confidential-information-trade-secrets> (accessed 17 August 2018).

VI. Conclusion

15 Fintech is one of the fastest-growing sectors of the modern economy, providing innovations that can help modernise financial services and vastly improve customer experience. While such ideas and innovations are valuable, the legal and regulatory framework for protecting them may not be evolving rapidly enough to keep pace with the technological developments. The FTFT initiative is an example of how a patent office can offer a fit-for-purpose regime so as to support innovation in fast-moving industries such as fintech. By shortening the patent file-to-grant process for fintech innovations, businesses are able to obtain protection for their innovations under the existing legal framework and commercialise their products and services more rapidly, thereby maximising returns on fintech innovations over their relatively short commercial lifecycles.