PROMOTING INTELLECTUAL PROPERTY FINANCING FOR SUSTAINABLE DEVELOPMENT A REFORM STRATEGY FOR APEC ECONOMIES

Asia-Pacific Financial Forum (APFF) 2024



Johnson Kong, Michael Lin

Team

	ABAC Hong Kong, China	ABAC Singapore
•	Mary Huen, Chief Executive Officer, Standard Chartered	Elaine Lam, Head of Global Corporate Banking, OCBC
•	Peter Burnett, Senior Managing Director, Standard Chartered	Emily Loo, Director, OCBC

ABAC-APFF Coordination

• Julius Caesar Parreñas, Senior Advisor, Daiwa Institute of Research

APFF IP Finance for Sustainable Development Team (Sherpas & Contributors)

- Giuliano G. Castellano, Associate Professor of Law, University of Hong Kong (HKU) (Sherpa) Law Reforms and Financial Regulation Specialist
- Johnson Kong, Co-founder, International Intellectual Property Commercialization Council (IIPCC) (Sherpa) IAM Strategy 300: The World's Leading IP Strategists
- Michael Lin, President, International Intellectual Property Commercialization Council (IIPCC) (Contributor) Intellectual Property Law Specialist

Acknowledgments

This Report was prepared by Prof Giuliano G. Castellano (HKU) with Mr Johnson Kong (IIPCC) and Mr Michal Lin (IIPCC). The authors are extremely grateful to Ms Ruchira Gupta (IIPCC) and Ms Sangita Gazi (HKU) for their helpful assistance and thoughtful input throughout the project and to Yuko for continued organizational support.

Executive Summary



The overarching objective of this Report is to offer policy guidance to establish an enabling ecosystem for Intellectual Property (IP) finance in the APEC region. By leveraging the intrinsic economic value of IP assets, it is possible to bridge the financing gap small businesses face, thereby fostering sustainable innovation and economic growth.

The Report proposes a strategy to address the challenges hindering the widespread adoption of IP-based financing. This strategy focuses on identifying and resolving hurdles that limit the use of IP assets as collateral. To this end, specific secured lending products, from IP-backed loans to securitized instruments and blockchain-based solutions with secured data integrity, have been identified as suitable financing mechanisms for APEC economies. The proposed strategy is adaptable and scalable, accommodating the diverse legal frameworks and economic needs of APEC economies while ensuring alignment with international standards and promoting economic integration. It involves a three-phase roadmap: diagnostic, sandbox/pilot, and reform, with each phase involving key stakeholders such as policymakers, regulators, legal experts, and market participants.

The APEC Economic Committee's next steps include identifying and coordinating key stakeholders, such as key policymakers (governments and regulators) and international organizations (multilateral development banks and standard setters), identifying economies ready to implement the strategy, and defining an action plan based on the selected products.

The Report is divided into three sections. <u>Section I</u> introduces the role of IPRs in financing sustainable innovation and presents various credit products that use IPRs as collateral. <u>Section II</u> discusses the challenges to IPR-based finance, focusing on uncertainties regarding legal title over IP and coordination failures between different areas of law. <u>Section III</u> outlines the PRS, detailing its rationale, advantages, and mechanics. The Report concludes with a <u>Roadmap</u> detailing how the proposed strategy can be implemented and indicates the next steps to take to execute it.

Contents



Section I

Intellectual Property and Sustainable Innovation

Section II

Identifying Challenges

Section III

Addressing Challenges

Roadmap

Strategy Implementation: Next Steps

Resources

References and Annex



Section I

Intellectual Property and Sustainable Innovation

© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

Overview



Intellectual property rights (IPRs) are assets that can be used as collateral to secure financing. This is especially important for small and medium-sized enterprises (SMEs) that may not have physical assets to use as collateral and rely on innovation to remain competitive. The estimated financing gap for micro, small, and medium-sized enterprises (MSMEs) is \$5.2 trillion, and a \$13.5 trillion investment is needed in technology to achieve carbon neutrality. Financing with IPRs can help bridge this gap by allowing (M)SMEs to capitalize on their intangible assets, encouraging innovation, and facilitating the creation, distribution, and utilization of new knowledge.

This Section introduces the use of IPR to finance sustainable innovation in the APEC region. After introducing the role of IPRs in supporting sustainability goals, various families of credit products that use these as collateral are presented. These products are suitable for SMEs at different stages of development. For SMEs with specific innovations or structured businesses tied to the value chain, IP-backed loans, where IPRs are used as standalone collateral or as part of a pool of assets, are a good fit. For IP-intensive SMEs that have successfully completed the incubation stage, IP securitization, which involves issuing bonds backed by IP income, is suitable. IP tokenization, which leverages data integrity and blockchain technology to create digital tokens representing IP rights, can be suitable for SMEs at different growth stages looking to raise capital through initial coin offerings (ICOs) or traditional financing methods.

These financing mechanisms are in line with the APEC initiatives and the action plans devised in the region to promote sustainable innovation. By leveraging IP assets, APEC aims to facilitate SMEs' access to finance, fostering innovation, economic growth, and the transition to a net-zero carbon economy.

SMEs and Sustainable Innovation



(M)SMEs and APEC

(M)SMEs make up +97% of businesses. They employ more than half of the workforce and contribute to 40–60% of GDP (APEC 2024)



SMEs and Innovation

Small businesses generate **more patents per employee** than larger businesses. They thrive on innovation to **stay competitive**; they are **integrated locally**



Financing Gap

There is a global **financing gap** of \$5.2 trillion for formal MSMEs and \$2.9 trillion for informal MSMEs; \$2.1 trillion in East Asia & Pacific economies (IFC & SMEFF 2024)



Innovation Lag

A \$13.5 trillion investment is needed for technology to reach carbon net zero (WEF 2023). But global patent filings dropped by 2% (WIPO 2024a)

IPRs: Protecting and Financing Innovation

US\$61.9 trillion estimated global value of intangible assets held by firms globally

US\$13 trillion estimated investment needed to reach net zero

> US\$5.2 trillion is the financing gap for (M)SMEs

IPR & Sustainability

Patents and Trade Secrets provide key legal protections to inventions that contribute to sustainability efforts.

Design Rights are used to safeguard the appearance of new eco-friendly products.

Copyrights are deployed to protect technologies like software and algorithms, supporting the efficient use of resources and limiting waste.

Trademarks are key to protecting the brands and certifying environmentally friendly products.

IPR Financing

IPR as Engine of Innovation

- IPRs encourage innovation by allowing inventors to profit from their **investments**.
- IPRs facilitate the creation, distribution, and utilization of new knowledge.



03

01

IPR and Assets-based Financing

- IPRs are intangible assets. Intangibles can be used to secure financing through different financing schemes, using them as collateral (IP-backed loans), transferring rights to cash flows, or creating more structured products (securitization).
- IPRs can leverage new technologies, e.g., IP registries and counterfeiting systems on **blockchain**.

IPR and SMEs

- SMEs lack fixed collateral. **IPRs are their most valuable assets**, yet they are the most under-used.
- IPR financing enables MSMEs to monetize their intangible assets in addition to traditional equity-based financing.

IPR-based Credit Products

Debt-based financing using IPR offers advantages for SMEs. While it can be used in conjunction with equity-based finance, debt-based products are not equity-intensive for SMEs. For lenders, credit risk is controlled through different structures of scalar complexity. IP-backed loans are the simplest form, providing a foundation for more advanced securitization and tokenization financing mechanisms. Archetypical structures are grouped into three categories commonly used or emerging in APEC economies; each structure can be customized and adapted.



This product class is a basic form of loan-based financing. It involves different types of secured transactions. In particular, it involves the creation of security rights on specific IPRs, on a bundle of IPRs, or on a pool of IPRs (with or without other tangible assets). The use of IPR as a standalone collateral is suitable for SMEs with specific innovations. Loan-backed by a pool of assets suited for SMEs with a structured business tied to the value chain. This product category can be structured in different ways to ensure the monetization of future income from IPRs. In essence, securitization involves issuing securities (corporate bonds) from a special purpose vehicle (SPV). Such bonds are backed by the income and underlying IPRs. Privately offered bonds can be suitable for IP-intensive SMEs that have successfully completed the incubation stage. This new product category leverages blockchain integration with IP and sustainable finance systems. Tokens, fungible or non-fungible (NFTs), may represent authenticity, provenance, or real-world assets. Tokens can be used to establish secondary markets. Tokenization mechanisms can be suited for SMEs at different growth stages who are willing to raise new capital through ICOs or traditional financing methods.



Section II

Identifying Challenges

© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

Overview



The limited deployment of IPR financing instruments and the resulting lack of knowledge and limited market depth stem from specific issues within the legal and regulatory frameworks. These issues do not necessarily flag a general inaptness of a given legal system. However, if left unattended, they may increase transaction costs and hinder the adoption of IPRs to finance sustainable innovation and bridge the credit gap for SMEs. Identifying these issues allows devising viable solutions for APEC economies.

This Section focuses on two interconnected categories of common challenges. The first set of challenges relates to the uncertainties on the legal title over IP. The 'prior art' and 'priority date' principles require granting legal protection only to novel and original inventions or creations. However, the difficulty in determining prior art for both registered IPRs (like patents and trademarks) and unregistered IPRs and their 'invention' priority dates (trade secrets) can lead to legal disputes and uncertainty, limiting the use of IPRs as collateral. Furthermore, the limited ability to confidentially protect trade secrets, which are foundational for any type of business innovation, can limit the commercialization of IP.

The second set of challenges arises from the intersection of commercial law, IP laws, secured transactions law, and financial regulation. This intersection, known as a "commercial law intersection" (CLI) (Castellano & Tosato 2021), can lead to coordination failures where inconsistencies and conflicts between these different areas of law create ambiguity and hinder the development of IPR-based financial products. For instance, there may be conflicting mechanisms for making security rights on IP enforceable against third parties (perfection rules). Similarly, loans secured with IPR might be treated as unsecured under capital requirements for banks, whereas licensing requirements for non-bank lenders may preclude the possibility of developing some IP-based products without necessarily reflecting policy choices.

Understanding the Challenges

In most economies, a **negative feedback loop** hinders the financing and the use of IPRs: the limited diffusion of these products fails to prompt policymakers to take action, leading to a lack of incentives to develop new IPR products (Castellano 2024b; Castellano & Dubovec 2025).

Various challenges emerge: Secondary markets may not be well-established as lenders do not invest in the knowledge needed to manage IPR collateral, while borrowers underestimate the need for legal protections to commercialize their inventions.

These challenges are compounded by a legal and regulatory framework that (despite its potential to accommodate such products) contains critical ambiguities. In particular, the lack of clarity in establishing legal titles on IPRs and the disharmonious interaction between the law of secured transactions, financial regulation, and relevant IP laws have a chilling effect.







Market Depth

- **Secondary Market**: The limited diffusion of IPR financing in some economies may limit the establishment of liquid secondary markets.
- **Collateral Realization**: Without a liquid secondary market, the pricing and the disposal of collateral may be difficult.

Supply Side

- Asymmetries of Information: Lenders may have limited knowledge of the IPRmanagement techniques borrowers use to protect their IP.
- Limited Experience: Owing to the general reliance on real estate collateral, practices to monitor and control IP assets are not common.

Demand Side

- General: Small businesses are less likely to secure bank loans than large firms.
- IP & Financial Illiteracy: Lack of knowledge and training on managing IP assets and on the legal protections provided by IPR lead SMEs to underestimate the commercialization potential of their inventions.

Legal and Regulatory Challenges

- **Uncertain Legal Title**: Without proper mechanisms, the legal title of IP might be challenged giving rise to litigations.
- **Coordination Failure**: the uncoordinated application of secured transactions law, financial regulation, and IP law results in an incongruous framework.

Challenges: Title and Prior Art

Under domestic laws and international treaties, IPRs are protected to promote economic activities. The legal framework delineates the nature of each IPR, its limitations, protection, and enforceability. For example, copyright typically provides a narrow, long-lasting right to express original, artistic creations; patents potentially provide broader protection to novel inventions but for a shorter period. The possibility of determining and protecting IPRs is the prerequisite for their deployment as collateral. Uncertainties, in turn, limit their diffusion.

Establishing and Enforcing IPRs

Registered IPRs, like patents, trademarks, and industrial designs, require a formal application to designated registries to provide exclusive rights to IPR holders and allow enforcement.

Unregistered IPRs, like trade secrets, arise automatically from the act of creation or through inherent confidentiality. They don't require registration but rely on priority dates, proof of originality, and confidential maintenance for enforcement.

Prior Art and Trade Secrets

Legal actions can challenge the novelty and originality of any IPR if evidence of **prior art** is provided. However, the determinability of prior art can be contentious, as software (copyright), inventions (patents), and brands or logos (trademarks) are based on code, notes, previous technology, or products.

Similarly, **trade secrets** are the genesis of all IPs and often tie together businesses with their innovations. However, uncertain legal protections may fuel litigations.

Key Challenges

Given the probative requirements of any IPR, the prior art, and the priority date, their relative establishment and findability are dispositive. As such, definitive prior art databases and mechanisms to establish priority dates are required to lower transaction costs and provide greater certainty to financiers and investors. Similarly, the ability to register trade secrets without compromising confidentiality is key for the reliability and commercialization of IPR.

Secondary Market

Emphasis is commonly given to the difficulty of evaluating IP-assets, but in practice, valuation is subordinate to the existence of liquid secondary markets. Secondary markets for IPRs are critical, for they establish a transparent pricing mechanism and give certainty to financiers regarding the risk-mitigation effect of IPRs used as collateral.

If prior art is not discoverable and trade secrets are not protected, the certainty of IPR can be undermined, secondary markets cannot develop, and the possibility of taking IPR as collateral is limited.

Commercial Law Intersections & Coordination Failures



© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

COMMERCIAL LAW INTERSECTIONS (CLI)

From a legal standpoint, IP-based products are transactions and corporate actions that fall concurrently within the purview of at least three law branches, giving rise to a "commercial law intersection," which is a system of rules and logical deductions that govern the product (Castellano & Tosato 2021; Castellano 2024<u>b).</u>

COORDINATION FAILURES

For parties to carry out such dealings, rules within the CLI must be voided of conflicts and inconsistencies. However, "**coordination failures**" (Castellano & Tosato, 2021) and "**legal non-linearities**" (Castellano 2024b). While their intensity and impact vary depending on product and jurisdiction, key incongruencies are recurring in APEC economies:

IP & Secured Transactions Law: Different or conflicting mechanisms are prescribed to perfect security rights on IP and determine their priority against competing claims (Castellano & Tosato 2020, 2021)

Secured Transactions Law & Financial Regulation: Loans secured with IPR are treated as unsecured under capital requirements and loan-loss provisioning for banks (Castellano & Dubovec 2018, 2025).

Financial Regulation & IP Laws: The licensing requirements for non-banks offering products involving IP receivables may be uncertain. (Castellano 2024a; Castellano & Dubovec 2025)



Section III

Addressing The Challenges

© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

Overview



A new strategy is needed to address the key challenges. Hence, based on international experiences, a Product-Focused Reform Strategy (PRS) (Castellano & Dubovec 2025) is proposed to promote IPR-based financing. Unlike traditional approaches that focus on reforming the entire legal framework, PRS creates an enabling environment for specific secured lending products. This is particularly relevant for APEC economies, where overhauling existing laws may not be necessary.

This Section introduces the main rationale, the advantages, and the mechanics of a PRS. Regarding the rationale and the advantages for APEC economies, the proposed strategy is designed to promote regional economic integration, building upon existing domestic frameworks and promoting alignment with international standards. IP-based lending mechanisms are governed by the international norms adopted by the United Nations Commission on International Trade Law (UNCITRAL) and the International Institute for the Unification of Private Law (UNIDROIT) (Castellano & Dubovec 2024). The resulting approach is adaptable and scalable, accommodating different domestic needs. It allows for the gradual implementation of a range of products, from IP-backed loans to more complex securitization and secondary market practices.

The mechanics of the PRS involve a two-step process. First, it identifies the hurdles affecting "core elements" and "critical enablers" (Castellano 2024b, Castellano & Dubovec 2025) for each product. Core elements are the legal and regulatory building blocks necessary for product adoption; resolving the hurdles affecting critical enablers entails establishing clear methods to determine the title on IP (prior art free) and resolving coordination failures. Critical enablers are non-legal components that can be introduced to reduce uncertainties further and stimulate secondary markets. These include public or private guarantees, electronic platforms to trade IPRs, and pricing mechanisms. Second, the PRS tests these products in a sandbox environment to reduce credit risk, collect data, and generate an imitation effect.

Product-focused Reform Strategy (PRS)



IP-based products are piloted to stimulate **adoption**, address challenges, and facilitate the **diffusion** of IP-based lending to finance sustainable innovation

Piloting and Sandboxes

Products are **tested** in a sandbox. The purpose is threefold:

- (1) to reduce credit risk,
- (2) to collect **data**, and
- (3) to generate an **imitation effect**.

Reforms and Policy Actions

Reforms and policy actions are implemented in a two-step process:

- (1) correct **immediate impediments** affecting the deployment of selected products, and
- (2) as product products are tested, alignment with **international standards** is ensured.

PRS

A PRS is a **harmonized methodology** for executing law reforms that facilitate new financing mechanisms (Castellano & Dubovec 2025).

The overarching objective is to induce a change in lending behaviors and eliminate existing obstacles.

A PRS is designed to stimulate the **adoption** (first) and **diffusion** (subsequently) of **credit products** that cater to the needs of small innovators.

Reforms are incremental (as needed), coordinated, and aligned with **international standards**. (Castellano & Dubovec 2025)

Mechanics: PRS Components



- Private guarantee and insurance can be used to reduce risk;
- Sandbox to pilot products
- IP market enablers and training
- Electronic platforms to trade IPR can establish pricing and valuation systems.

Pricing & Valuation

Sandbox

- Secured transactions law and IP laws: IP/collateral registries, priority;
- Secured transactions law, IP law, and financial regulation: product structure to meet existing regulatory standards (licensing, exposure classification, risk mitigants);
- Coordination with critical enablers.

Applicability for APEC Economies

ADVANTAGES

Supporting Secured Transactions in APEC Economies

Many APEC economies have reformed or are reforming their secured transaction laws. A PRS strategy builds upon and supports these efforts, offering use cases, addressing potential practical impediments, and unlocking new credit.

Adaptability and Scalability

A PRS offers a harmonized framework that can be adapted to different domestic laws and economic needs. Ranging from domestically focused IP-backed loans to more articulated securitization and secondary market practices, each product is scalable and can be expanded to different sectors and assets.

Regional Integration

A PRS promotes regional economic integration through alignment with international standards. The selected products are governed by the standards elaborated by UNCITRAL and UNIDROIT.





ADDRESSING CHALLENGES

Resolving Coordination Failures in Core Elements

Targeted interventions are enacted to support current reforms, establish sound regulatory frameworks, and promote innovation. Specific adjustments in statutes, guidelines, and stakeholders' cooperation ensure coordination between IP laws, secured transactions laws, and financial regulations.

Promoting Certainty of Title

Mechanisms to establish irrefutable evidence of the actual date of IPR creation ("prior art free") can be implemented to determine "prior user rights" and verify the existence of trade secrets, thus mitigating the risk of disputes. Addressing these issues and coordination failures promotes the scalability and diffusion of IP-based lending.

Creating Secondary Markets

Ensuring certainty of title and resolving coordination failures promotes secondary markets. Training and capacity building ensure familiarization with new lending practices. Furthermore, electronic platforms and public mechanisms to price and trade IPR can be established.



Roadmap

Strategy Implementation and Next Steps

© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

Overview



© Copyright 2024 All Rights Reserved Giuliano G. Castellano, Johnson Kong, Michael Lin

This Section presents a roadmap and the next steps. The roadmap articulates in three phases (Castellano 2024a; Castellano & Dubovec 2025):

1. **Diagnostic Phase:** This initial collaborative effort focuses on selecting the participating economy(/ies) and the specific IP-based lending product(/s) to be tested. It also involves identifying the legal and regulatory impediments to implementing these products.

Key stakeholders: APEC Economic Committee, domestic policymakers, law reform experts, IP commercialization experts, and market participants (financial institutions, business associations, SMEs).

Sandbox and Pilot Phase: In this phase, financiers and SMEs are selected to participate in a 2. pilot program to test the chosen IP-based lending products. The pilot aims to clarify legal ambiguities, align practices with international standards, build capacity, and disburse funds to SMEs participating in the pilot.

Key stakeholders: all domestic policymakers and experts participating in the diagnostic phase, particularly domestic regulatory and supervisory agencies.

Reform Phase: Based on the pilot's results, specific reforms are implemented (if needed) to 3. address the identified impediments (e.g., acceptable/approved prior art data source, a repository of the priority date of IP genesis, coordination secured transactions perfection rules, and clear regulatory treatment). Subsequently, actions are taken to facilitate a broader diffusion of IP-based lending outside the pilot. This phase involves aligning domestic laws with international standards and disseminating the knowledge gained from the pilot.

Key stakeholders: market participants, regulators, IP offices, and governments within APEC.

The expected outcomes include the successful deployment of IP-based lending, the disbursement of funds to SMEs, the testing and improvement of laws and secondary markets, and, ultimately, the expansion of the IP-based lending market through an imitation effect. 20

Phases, Outcomes, and Stakeholders



Next Steps



- Identifying and coordinating key stakeholders: This involves bringing together domestic policymakers, regulators, legal experts, IP commercialization experts, and international organizations to collaborate on the implementation of the PRS.
- Identifying economies ready to implement the plan: This involves organizing events and presentations to connect decision-makers and stakeholders from different economies and assess their readiness to adopt IP-based lending.
- Defining an action plan based on the selected products: This involves creating a detailed plan with specific tasks and milestones for each phase of the PRS, starting with a diagnostic to identify and address the specific challenges in each economy.

Execution

Resources

References and Annex

References

Asia Pacific Economic Cooperation (APEC) (2024) Small and Medium Enterprises

-----(2023a) <u>Study on Techniques to Implement International Secured Transactions Standards in Civil and Common Law Jurisdictions</u> (APEC Economic Committee)

-----(2023b) <u>A Study on the Harmonization of the IP Financial System</u> (APEC IP Rights Experts Group)

Castellano GG (2024a) 'Don't Call It a Failure: Systemic Risk Governance for Complex Financial Systems' Law & Social Inquiry. 2024, 1.

-----(2024b) 'A "Product-Focused Reform Strategy" to Finance Sustainable Development: IP Financing in APEC Economies' (ABAC Roundtable, Standard Chartered Bank, 9 May)

Castellano GG, Dubovec M. (2025) Getting Credit (Cambridge University Press, forth.).

-----(2024) 'Unidroit Access to Credit Instruments' in The Elgar Companion to UNIDROIT (Edward Elgar), 249.

-----(2018) 'Credit Creation: Reconciling Legal and Regulatory Incentives' (81) Law & Contemporary Problems, 63.

Castellano GG, Tosato A. (2021) '<u>Commercial law intersections</u>' (72) Hastings Law Journal, 999.

----(2019) 'Personal Property Security Law: International Ambitions and Local Realities' in International Business Law, 283.

European Bank for Reconstruction and Development (EBRD) (2023) <u>New Finance Support: Receivables Finance for MSME Resilience and</u> Economic Growth

International Finance Corporation and SME Finance Forum (IFC & SMEFF) (2024) (MSME Finance Gap)

International Intellectual Property Commercialization Council (IIPCC) https://www.iipcc.org/

World Economic Forum (WEF) (2023) Net-Zero Industry Tracker

World Intellectual Property Organization (WIPO) (2024a) 'IP Facts and Figures'

----(2024b) '<u>Trade Secrets</u>'

-----(2020) 'Priority Claims and Prior Art' (by Mailänder L)

-----(2014) <u>'Prior Use'</u>

© Copyright 2024 All Rights Reserved Giuliano G. Castellano,

International Standards, Policies, and Reforms

International Standards

International legal standards governing security rights in tangible and intangible assets (including IPR).





<image>



Product-focused Reform Strategy (PRS) enacted across the EBRD region to stimulate post-COVID-19 economic recovery through receivables-based products.



Global Policies

Coordination framework for enacting secured transactions law, financial regulation, and blockchain technology to promote secured lending and receivables-based products (including IPbased receivables.