A Strategy for the Digitalization of Trade and Supply Chain Finance

An Undertaking of the
Asia-Pacific Financial Forum (APFF)

TO IMPLEMENT THE CEBU ACTION PLAN’S INITIATIVE 1A

DELIVERABLES
DEVELOP REGIONALLY CONSISTENT LEGAL, INSTITUTIONAL AND OPERATIONAL STRUCTURES TO FACILITATE THE FINANCING AND EXPANSION OF CROSS-BORDER TRADE AND SUPPLY CHAIN FINANCE.
EXPAND THE USE OF ELECTRONIC SUPPLY CHAIN MANAGEMENT PLATFORMS.
FACILITATE DIGITAL, MOBILE AND INNOVATIVE WORKING CAPITAL MANAGEMENT TECHNIQUES
A Strategy for the Digitalization of Trade and Supply Chain Finance

**TRADE AND SUPPLY CHAIN FINANCE: STATE OF DIGITALIZATION**

In banking, trade and supply chain finance is broadly divided into documentary and open account trade. Traditional or documentary trade that includes letters of credit continues to be largely a paper-based and manual process and thus unnecessarily costly and time consuming due to the need to check for completeness, reconciliation and other non-automated activities. A World Economic Forum report noted that the typical cost-to-income ratio in documentary trade is 50-60 percent that as a result, letters of credit and guarantees have become economically unattractive for banks to offer to lower value transactions and SMEs due to costs. As a result, volumes have been shifting from documentary trade finance to open account which implies an established trust between the buyer and seller.

Source: Trade Tech – A New Age for Trade and Supply Chain Finance, White Paper, World Economic Forum, January 2018

However, newly regionalizing enterprises and SMEs continue to rely on bank intermediated documentary trade – such as letters of credit – as a medium to build trust with their new counterparties located in other economies. Therefore, the costs and inefficiencies associated with paper-based manual documentary trade can become a higher hurdle in their efforts to access finance and cross-border commercial activities.

Consequently, the APFF’s work on the digitalization of trade and supply chain finance focuses on the area of documentary trade finance.

The cost factor associated with paper and manual documentary trade processing remains significant despite many attempts to digitalize and improve enterprises’ value through better inventory forecasts and management, generation of free cash flow, more liquid working capital, and other benefits.

---

For example, there are well-established third party industry platforms like Bolero and EssDocs that utilizes technology and digital documents among its participants to intermediate trade flows. In such cases, digital documents are accepted as a result of membership-based agreements. While digitalization in these cases have been successful, their network and scalability effects are not as optimal as they are hoped to be, as non-members would not be able to participate in such efficiency and cost-saving digitalization capabilities.

What is required is a method or methods that can support broader participation in the trade ecosystem. These and other experiences including the use of electronic Bank Payment Obligations (BPOs) show that even if banks invest into and accept digitalization methods for financing, the overall initiative’s success will still need the involvement of other trade and finance constituencies such as corporate buyers, sellers, shippers, ports, customs, logistics and insurance to successfully achieve digitalization and also to be on the same or similar technical standards. These other constituencies can have their own inertia, reluctance to invest due to a lack of scalability – a chicken and egg issue – or requirements to produce physical documents for legal and other reasons.

Inconsistent and unclear legal treatment of digitalized documents by different jurisdictions have also driven performance and enforcement uncertainties, such as for example with respect to whether judicial courts recognize title transfer documents that are not on paper and signed with a pen (“wet signature”), or how to perfect assignment and collateralization.

Implementation, scalability and the need for networks have also been the other challenges to wider adoption of digitalization. As a result, within the banking industry, organizational spaghetti bowls of manual and digital processes have emerged, creating cost hurdles that can drive away smaller enterprises. “Digital islands” of non-standardized ways of doing things have added new inertia.

Consequently, it has been relatively less costly and more prudent for participants to continue using paper artefacts, as heightened legal, regulatory and performance risks of transacting using digital cross-border trade title documents can outweigh the economic and efficiency benefits.

While today’s status quo could probably continue, it would mean that the activities of modern electronic commerce, trade and finance will be supported by 18th century legal requirements, much like a modern automobile travelling at high speed using wooden axles to hold the wheels together.

This is unlikely to be sustainable in the long run.

**KEY AREAS TO ADDRESS**

In progressing the digitalization of documentary trade documents and processes, there are 4 key building blocks that need to be addressed.

1. The first is the complexity of coordination as a result of the trade ecosystem’s huge size, the broad diversity of its participants and the multiplicity of various jurisdictional borders. Corporate buyers, suppliers, banks, logistic companies, warehouses, ports and shippers need to be equally engaged in order to sustain the momentum of efforts, together with public sector policy makers and regulators in the areas of trade and commerce, technology, justice and law, and finance.

This creates significant coordination challenges among the different trade constituencies within and across borders for the achievement of progress in the same direction and adoption of the same standards across the trade ecosystem.

2. The second is the necessary legal reforms to recognize data in digital forms despite the different types of technologies in the different areas of trade processing.
Such efforts will need to ensure that future laws and regulations are “fit-for-purpose” to address the issues and uncertainties in the intersection of technology and applications. As initial building blocks, laws such as those on electronic commerce or the recognition of data in digital form, electronic signatures and electronic title transfer documents aligned with the UNCITRAL Model Law on Electronic Transferable Records (ETRs) will be needed. Other associated and complementary laws and regulations can be in the area of cybersecurity and data privacy and confidentiality.

3. The third major area where synergies need to be established is the development of common international standards and the interoperability of market practices and process flows.

Existing process flows will likewise need to be reviewed. The following illustration succinctly highlights this need.
4. The fourth area is trade-based anti-money laundering (TBML) compliance, which needs to involve sharing of data among different participants in order to identify suspicious transaction patterns more efficiently and effectively.

A BAFT report highlighted that current banks’ TBML efforts, which are focused on documentary trade, may only be trying to intercept roughly 0.1 percent or less of total illicit fund flows while the larger potential areas of illicit fund flows are in the non-documentary and non-bank intermediated trades. However, in order to focus on the latter two areas in which there is a dearth of documents to check, data sharing and pooling is required. Digitalized data in trade and in payments can result in more precise TBML practices to also reduce costs and risks in the industry.

An important challenge is that human resources handling paper-based trade finance is a shrinking pool, due to its not being perceived as an attractive career for the 21st century. Within the next 10 to 15 years, the scarcity of the right type of people for these tasks will be exacerbated by the Baby Boomer generation’s reaching of official retirement age in many economies. Thus, the trade ecosystem is facing a medium-term need for digitalization and efficiency to mitigate the challenge of human resource availability.

**ONGOING INITIATIVES**

**Active Public-Private Sector Collaboration with Cross-Functional Teams**

---

2 Combating Trade Based Money Laundering: Rethinking the Approach, BAFT, Aug 2017
Various workshops convened jointly by APFF and other stakeholders in highlighted the comprehensive digital trade platform initiative that is being undertaken in Thailand by a coordinated effort of different public sector entities with a consortium of private sector representatives from different parts of trade value chains. An April 2019 workshop in Singapore highlighted cross-ecosystem digitalization progress in port, customs and documentary trade finance.

**A cross-ecosystem interdependent view of trade, supply chain and finance, and thus why digitalization in one sector of the ecosystem needs to be matched by adjacent sectors for effectiveness.**

![Diagram](source: GeTS Asia Pte Ltd)

Progress has been accompanied by senior-level public-private sector support, with cross-functional teams providing expertise, leadership and catalysts for sustainable transformative progress.

**Where Digitalization is Occurring – Examples and Real Benefits**

1. **Electronic Warehouse Receipts System**

   An electronic warehouse receipts system can be of particular importance to commodity trade and finance. A warehouse receipt is a negotiable title document issued against goods stored in licensed or accredited warehouses. As such, it improves tradability of such physical goods, which would be greatly facilitated by the digitalization of warehouse receipts. In turn, accessibility via digitalization can increase the liquidity and bankability of these goods.

   However, most developing APEC economies lack specific warehouse receipt laws. Some do not have the legal concept of warehouse receipt. Others do not have laws that recognize digital signatures, electronic title documents and “possession” in electronic forms. There is still a long way to go before real central warehouse receipt systems, where warehouse receipts afford priority over any other claims on goods except warehousing fees, can be functional in these economies.

---

3. "Digital Trade Transformation” Workshop, Bangkok, January 2019 and "Financial Inclusion Driven by Digitalisation of Trade and Supply Chain” Workshop; Bangkok, June 2019

4. "Driving Digitalisation of Trade and Supply Chain Finance in the Asia Pacific Region” Workshop; Singapore, April 2019

5. "Digital Trade Transformation”, Mr Mohamed Uvaise, Senior Product Manager, GeTS Asia Pte Ltd

6. "Digital Trade Transformation – Start with the “Whys” and Determine the “How”, Mr Alexander Goulandris, CEO, Essdocs; January 2019 Bangkok

China is currently setting up a central electronic warehouse receipt system, and the Philippines is in the process of legislating a warehouse receipts law.

2. **Reuse of Trade Data for Trade Declaration**

Digitalization can enable the reuse of trade data for both export and import declarations between two economy’s customs system. In one case, before digitalization, data entry for filing declaration with invoice containing about 300 items typically required more than 4 hours to complete and entailed significant operational errors and time to make corrections and resolve related issues such as chasing down a better copy of a physical form. After digitalization, the time required was reduced to less than an hour, while operational errors and time spent on manual processes were significantly mitigated.

A second case study in another trade corridor showed that despite trade activities being e-commerce facilitated, the process of data preparation and entry for filing declarations with invoice containing 800 items continued to be largely manual and required about three business days to complete, not including time spent on correcting operational errors. After digitalization, the time required was reduced to about half a business day, with significantly reduced operational errors and manual processes.

Improvements included the prevention of HS Code misclassification after automatic population was enabled and data reusability for other documents was made possible through the digitization of data. Downstream financial activities also benefited from better HS Code classification, which is an important element in countering financial crime and trade-based anti-money laundering. Reduced risks of HS Code misclassification and the digitalization of trade data will greatly support the downstream banking industry’s efforts to reduce compliance costs in trade and supply chain finance.

3. **Marine Port Digitalization**

A case study from a start-up company on marine port digitalization highlighted the potential to save as much as USD150 million annually, through digitalization by individual parties. The digitalization of a port establishes an “anchor” platform for further integration with dependent sectors such as logistics and supply chains to create benefits. Financial benefits are estimated to grow to an additional USD245 million when each individual party’s system in a port community are integrated.

---

8 Trade declaration between Singapore and Indonesia. “Digital Trade Transformation”, Mr Mohamed Uvaise, Senior Product Manager, GeTS Asia Pte Ltd

9 Trade declaration between Singapore and China. “Digital Trade Transformation”, Mr Mohamed Uvaise, Senior Product Manager, GeTS Asia Pte Ltd

10 Mr Antonio De Lorenzo, Founder, Kapsool

11 Based on a Port of Rotterdam report. Source: Kaspool.
Port digitalization seeks to re-engineer and streamline manual workflows before applying digital tools to documents, processes and communication.

Port digitalization would benefit multiple adjacent sectors including customs, logistics and banking. For example, digitized data can yield insights on services and suppliers used. Once integrated with port regulatory filings, data can provide a rich source of information on a vessel’s profile including port visits, cargo carried, services received, identity of service providers and time required. It can facilitate customs data reuse (as mentioned above in previous case studies). Improved transparency and reliability of data, it would enable more effective compliance with anti-money laundering and countering terrorist financing rules, while bringing down the cost of trade and supply chain finance.

4. Digitalization in Supply Chains

Two case studies highlighted the uses and benefits of digitalization in supply chains. Demand forecasting and inventory management is core to the management of working capital for companies, affecting cash flow management and the company’s finances. In the case of an Australian company, the use of distributed ledger technology (DLT) in this area improved decision making and facilitated better business decisions.

The other case highlighted the deployment by a Thai company of procurement automation in its concrete supply chain. According to its estimates, transaction speed and resource efficiency were improved by up to 50 percent. These savings arose from the automation of procurement throughout the supply chain and the reduction of paper-based and manual processes.

5. Digitalization in the Trade Ecosystem

In the case of Thailand, a typical cross-border trade can involve up to 25 different parties, generating 30 to 40 trade documents of which 60 to 70 percent of information is manually re-entered at least once. This has encouraged various initiatives to digitalize the trade ecosystem.

Examples of digitalization developing in trade, supply chain and finance including attempts to digitalize title documents like the Bill of Lading (Project Voltron), financing undertaking like a Letter of Guarantee (Thailand BCI e-LG) or national digital trade platforms.

---

12 Mr Carl Wegner, Managing Director and Head of Asia, R3
13 Mr Ranon Keowsuddhi, Senior Director, the Thai Bankers’ Association
Each digitalization project has its own participants or members, and operates as a closed environment with its own agreed rules and practices. Depending on the eventual size of the participant network, the benefits would accrue, grow and can together eventually add to the overall ease of doing business. However, as each project is targeted to solve specific issues in the trade, supply chain and finance value segments, they will need to be interconnected (as an interoperable network) so as to prevent becoming stand-alone “digital fortresses” in the future.

Although having multiple “digital fortresses” could be better than the present paper-driven and manual process, private sector participants would need to maintain multiple platform memberships. This would raise new costs, new barriers to financial inclusivity and new risks. To synergize the efforts of each of these projects and lower the possibility of having multiple “digital fortresses,” the industry is promoting a central trade platform for Thailand that can be an interoperable hub-and-spoke system.

*A National Digital Trade Platform that can allow all communities in the trade, supply chain and finance ecosystem to connect; with two or more interconnecting trade platforms to service cross-border trade activities.*
Another example is TradeTrust, an integrated platform in Singapore that seeks to combine harmonized legal frameworks in the recognition of electronic trade documents, governance and standards development together with a complementary technological infrastructure.

**The Way Forward: A Strategy for the Digitalization of Trade and Supply Chain Finance**

The following are recommended to implement various deliverables of the APEC Cebu Action Plan (CAP) related to trade and supply chain finance:

1. **Legal and Regulatory Reforms**

Digitalization of trade and supply chain finance involves electronic or digitalized documents that will be used by different parts of the trade ecosystem, such as customs data used by banks for compliance purposes. As a result, the legal recognition of electronic data, electronic communications in international contracts, electronic commerce, electronic signatures, electronic title documents and other related aspects is necessary. Reforms are needed to clarify various issues such as whether the law requires signature in writing and how such requirements can be met by digital equivalents such as a cryptographic hash.

These reforms need to be coordinated across economies, to clarify, for example the recognition of qualified electronic signatures as legally binding among them, without which electronic signatures may need to be converted back to paper and physical signature the moment they cross borders. Legal notions such as “possession” and “delivery” are relevant for documents that entitle the holder to obtain payment or the receipt of goods. In trade, these documents include bills of lading, warehouse receipts and bills of exchange. How these legal notions would apply in the digital trade space also becomes important for the enforcement of rights.

Today, many of these legal challenges are handled by private agreements on trade platforms’ members. While it is practical and has served the industry well, as more digital platforms are

---

14 Mr Loh Sin Yong, Director (Trade), Singapore InfoComm Media Development Authority

15 “Some Legal Aspects of Digitalisation”, Mr Sean Edwards, Chairman International Trade & Forfaiting Association; Head of Legal & Special Adviser, Trade Finance Department, Sumitomo Mitsui Banking Corporation; Bangkok, January 2019.

16 “Introduction to the UNCITRAL Model Law on Electronic Transferable Records”, Mr Luca Castellani, Secretary UNCITRAL Working Group IV (Electronic Commerce), UNCITRAL Secretariat; Bangkok, January 2019.
launched, participants can face a more complex legal environment as a result of different conditions in
different private agreements. Legal risks can be further added if the underlying legislations are not
able to adequately address digitalization-related issues. Over time, legacy legislations risk being
barriers to cross-border digital trade if the tasks of updating them to be fit-for-purpose to serve digital
trade and supply chain finance are not undertaken.

With clarity, updating legal foundations in the digital trade space can lead to other benefits, such as in
digitalized secured transactions systems that underpin supply chain financing like receivables
financing. Secured transactions laws are critical for the transparency and certainty of rights, allowing
more efficient access to credit by businesses, especially small and medium-sized enterprises. When
complemented by digitally enabling legislations such as the Model Law on Electronic Transferable
Records, they would add paperless scalability, reach and benefits of speed to such financing. Digitally
enabling laws are equally applicable to traditional financial methods such as factoring.

Free Trade Agreements (FTAs) will also need to be reviewed for relevant sections related to
electronic commerce, electronic signatures, cross-border trade documentations, location of computing
facilities and services in financial services and other related sections. This is to avoid situations
where, for example, an economy’s legal framework allows paperless trade and electronic signatures
while its FTAs with its trading partners still specifically require paper-based information.

Parallel to the establishment of the APFF Digital Trade Lab initiative, legal and regulatory reviews
and reforms need to be undertaken to address the challenges of legal uncertainties associated with the
digitalization of documentary trade. These reviews and reforms should include areas related to the
promotion and use of digital trade finance title transfer documents and digital trade-based anti-money
laundering, referencing the associated UNCITRAL Model Laws, such as those on e-commerce,
e-signatures and electronic transferable records.


Related to key legal and regulatory reviews and reforms, a review of existing market standards,
including identifiers and requirements for inter-operability in order to support the legal and regulatory
reforms, should be undertaken.

Areas needing standardization include technology protocols like message formats which will need to be
agreed, established and adopted.

Market convention and protocols will also need to be reviewed, as the digitalization of documentary trade will
require changes in manual process-based concepts that are driving much of today’s practices. For
example, the industry standard ICC UCP600 that sets out the rules and operations around
documentary trade addresses acceptance protocols that establishes validity of trade finance documents
such as the place of presentment of a paper-based letter of credit and original documents, among
others. This leads to the question of what the place of presentment would mean if letters of credit
become digital and advanced technologies like blockchain or distributed ledger technology are used.

---

17 “Possible reforms based on the UNCITRAL Model Law on Secured Transaction”, Mr Lee Jae Sung, Legal Officer,
International Trade Law Division, Office of Legal Affairs, United Nations; Bangkok, January 2019

18 Mr Christopher Wohlert, Business Leader, Commercial Distribution Finance (Asia), Wells Fargo; Singapore, April 2019

19 Mr Lee Kheng Leong, Regional Director (South & South East Asia), Head Office FCI; Singapore April 2019

20 “Driving Digitalisation of Trade and Supply Chain Finance in the Asia Pacific”, Professor Locknie Hsu, Professor of Law,
Singapore Management University; Singapore, April 2019

21 This includes the current SWIFT MT798 standard. How should it be adopted and inter-operated with emerging technologies
like Distributed Ledger Technology and digitalised trade documents will be important for banks, corporates and other
participants to re-use existing investment into the MT798 capabilities.
Other aspects of standardization can include corporate identifiers.

3. Cross-Ecosystem Coordination and Communication

To address the challenges of cross-ecosystem communication and developing the expertise required for the digitalization of trade and supply chain finance, a virtual industry cross-agency, cross-ecosystem, private-public sector “lab” should be established using the APFF platform (“APFF Digital Trade Finance Lab”). This platform will focus on documentary trade, and on coordinating and facilitating communications among the different constituencies involved in this effort. Policy makers, regulators and the private sector are invited to collaborate with the Lab to explore the intersection of local laws and market practices, technology and documentary trade and supply chain finance products, highlight detailed legal and regulatory challenges, develop knowledge and assist in the formulation of specific next steps to be taken by stakeholders.

The APFF Digital Trade Finance Lab (APFF Lab) will aim to accelerate the digitalization of trade and supply chain finance in the Asia-Pacific region. It will seek to fulfill this mission by:

- Providing a voluntary platform to strengthen support for existing initiatives and undertakings, such as, for example, those by the ICC Banking Commission, Asian Development Bank, IFC/World Bank, Bankers Association for Finance and Trade and the UN ESCAP’s Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific, UNCITRAL, among others, to promote legal, regulatory and institutional reforms and standardization, and to advance collaboration, coordination and synergy among stakeholders undertaking these initiatives.
- Engaging the APFF’s broad network of finance, trade and foreign ministries, regulatory authorities, multilateral institutions, private sector firms and industry associations and academic and research institutions to support and contribute to these initiatives.
- Undertaking activities, as needed, both at the regional level and at the domestic level, the latter in collaboration with domestic stakeholders intending to translate ideas into concrete laws, policies and actions.

The APFF Lab invites the voluntary participation of experts and representatives of private and public sector institutions and organizations who are able, based on availability, to contribute to the fulfillment of its mission and are actively engaged in promoting the adoption of legal, regulatory and institutional reforms and standardization to facilitate trade and supply chain financing.
ATTACHMENT

APFF Digital Trade Finance Lab
Terms of Reference
Draft as of 2019-06-10

1 **Mission:** The APFF Digital Trade Finance Lab (“APFF Lab”) aims to accelerate the digitalization of trade and supply chain finance in the Asia-Pacific region. It will seek to fulfill this mission by:

1.1 providing a voluntary platform to strengthen support for undertakings to promote legal, regulatory and institutional reforms and standardization, and to advance collaboration, coordination and synergy among stakeholders undertaking these initiatives.

1.2 engaging the APFF’s broad network of finance, trade and foreign ministries, regulatory authorities, multilateral institutions, private sector firms and industry associations and academic and research institutions to support and contribute to these initiatives; and

1.3 undertaking activities, as needed, both at the regional level and at the domestic level, the latter in collaboration with domestic stakeholders intending to translate ideas into concrete laws, policies and actions.

2 **Membership:** The APFF Lab invites the voluntary participation of experts and representatives of private and public sector institutions and organizations who are able, based on availability, to contribute to the fulfillment of its mission and are actively engaged in promoting the adoption of legal, regulatory and institutional reforms and standardization to facilitate trade and supply chain financing.

3 **Governance:** The APFF Lab will be led on a voluntary basis by a Sherpa, supported by several Co-Sherpas. The Sherpa and Co-Sherpas will be appointed by the APFF Chair. They will be responsible for:

3.1 initiating the annual goal-setting and strategy development for the APFF Lab;

3.2 participating in the annual APFF planning and strategy meeting;

3.3 coordinating activities to implement agreed activities; and

3.4 drafting a brief annual report to APFF for inclusion in the annual Progress Report to APEC Finance Ministers.

4 **Funding of activities:** Engagement of leaders and members will be funded by their respective institutions and organizations. Events such as meetings, conferences and workshops will be funded by hosting institutions and/or sponsors, as has been the usual practice in APFF.

5 **Working methods:**

5.1 **Organizational structure:** The APFF Lab Sherpa and Co-Sherpas may create subgroups or task forces as needed.

5.2 **Meetings:** The APFF Lab will have at least one meeting per year, ideally in the 1st quarter and with the physical presence of the Sherpa and Co-Sherpas and key members, to share information on ongoing or planned activities of participating institutions and agree on the work program, including objectives and activities for the year. Other meetings during the year may be undertaken through conference calls, or physically in conjunction with activities where key members are participating.

5.3 **Sharing of information:** The APFF Lab may establish a mechanism for sharing of information among members and with the wider public such as through social media or a dedicated website.

6 **Review:** The APFF Lab’s Terms of Reference should be reviewed every 2 years by the APFF
Chair and the Sherpa and Co-Sherpas to identify needed updates.