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SIBOS 2017:
Digital Innovation in Trade Finance
Have We Reached a Tipping Point?

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Have We Reached a Tipping Point?

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AT A GLANCE

Global trade faces a challenging period. But there are opportunities across the value chain to drive efficiencies and increase the overall market size. Processes that currently support the global trade finance ecosystem are labour- intensive and predominantly paper-based. They are estimated to generate four billion pages of documents annually. Trade finance is calling out for a digital solution that allows for many of these processes to be simplified, automated or eliminated.

Digitisation will not only improve the internal efficiency of banks but allow them to give their customers a better service at a lower price. This, in turn, will increase demand for trade finance products, especially from the currently underserved SME segment.

After years of hype and excitement followed by modest progress, digital innovation in trade finance appears to be top of mind. Given the large number of entities involved in a single transaction, and their widely differing levels of technological sophistication, change will not happen overnight. The digitisation of trade must be seen through a three-year and a five-year lens. In the former, banks and corporates must learn to thrive in a hybrid digital-and-paper world.

What is happening in Trade Finance?

The state of affairs

Trade flows grew from US$6.3 trillion in 2000 to US$15.6 trillion in 2008. The global financial crisis (GFC) in 2007-08 put an abrupt stop to this growth. Although there has been some recovery, pre-2008 growth rates have not returned. Trade flows hit a high of US$18.1 trillion in 2014 before the trend reversed in 2015. In 2016, trade flows contracted to near pre-financial crisis levels at US$15.8 trillion.

Growth rates have varied regionally:

- In the US, trade flows recovered steadily post-GFC from US$2.4 trillion in 2009 to US$3.7 trillion in 2014, but contracted to US$3.4 trillion in 2016.

- In the Asia Pacific, trade flows continued to grow strongly post-GFC from US$7.1 trillion in 2009 to US$11.9 trillion in 2014, and contracted to US$10.6 trillion in 2016.

- In the EU, trade flows were slower to recover post-GFC, growing from US$8.8 trillion in 2009 to US$11.6 trillion in 2014, before falling to US$10.2 trillion in 2016.

Nevertheless, BCG sees trade finance as a US$36 billion revenue opportunity for banks alone, and the outlook is positive. The BCG Trade Finance Model predicts that trade finance revenues will grow faster than trade flows, at approximately 4.7% per year, reaching US$44 billion by 2020. This opportunity will be realised as the industry becomes increasingly digitised, and complex, costly processes are rationalised.

The opportunity at hand

The numerous players (easily 20+) involved with each trade finance transaction interact with data fields captured in various documents (10–20 with 100+ pages altogether) throughout the end-to-end process, to create what we call data field ‘interactions’. These can be divided into five types: interactions that create value-adding data; that duplicate existing data; that endorse or sign off data; that read or process data; or simply that, ignore/ transmit to the next party.

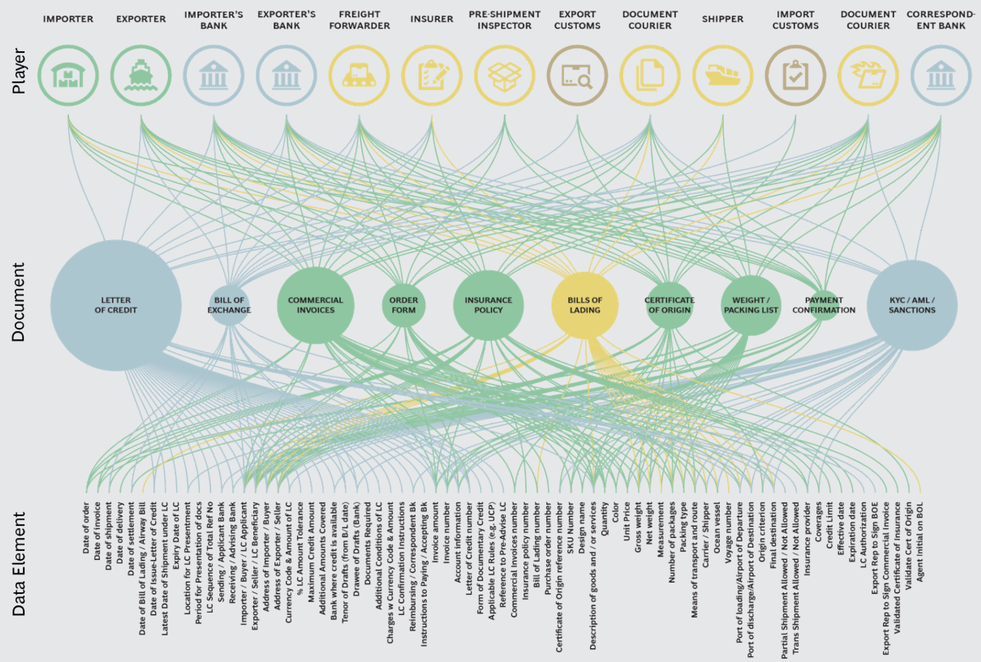
A review of the end-to-end trade finance process reveals that a single transaction can involve approximately 5,000 data field interactions (Exhibit A). As data flows through the end-to-end process, a decreasing share of data field interactions create value-

adding data (Exhibit B). Such interactions account for only ~1% of all interactions, with 85-90% being 'ignore/transmit to the next party'. On a global scale, this adds up to ~200 billion data field interactions, of which only ~2.8 billion create value-adding data.

At the root of these thousands of data field interactions we count no more than 60-80 unique data fields (e.g., dates, amounts, reference numbers) across the 10-20 documents (e.g., bill of lading, commercial invoices) and 100+ pages of material.

These unique data fields are reused across documents some 8-10 times, and many of the documents are duplicated, increasing the risk of discrepancies, which can add significant delays to an already lengthy two-to-four-week process. If trade finance processes were to be fully digitised, BCG estimates that more than 90% of data field interactions could be simplified or eliminated altogether, creating a process that is not only faster but also less vulnerable to error and fraud.

Exhibit 1 | The 20+ Players interact with the data fields captured in the 10-20 Documents to create ~5,000 data field 'interactions'



Source: BCG Analysis

The total number of data field interactions easily exceeds ~5,000, with 'create value-adding data', accounting for only ~1% and 'ignore/transmit' accounting for more than 85%.

- Create value-adding data, ~1-2%
- Duplicate existing data, ~2-3%
- Endorse/sign off on data, ~2-3%
- Read/process data, ~7-10%
- Ignore/transmit to next party, ~85-90%

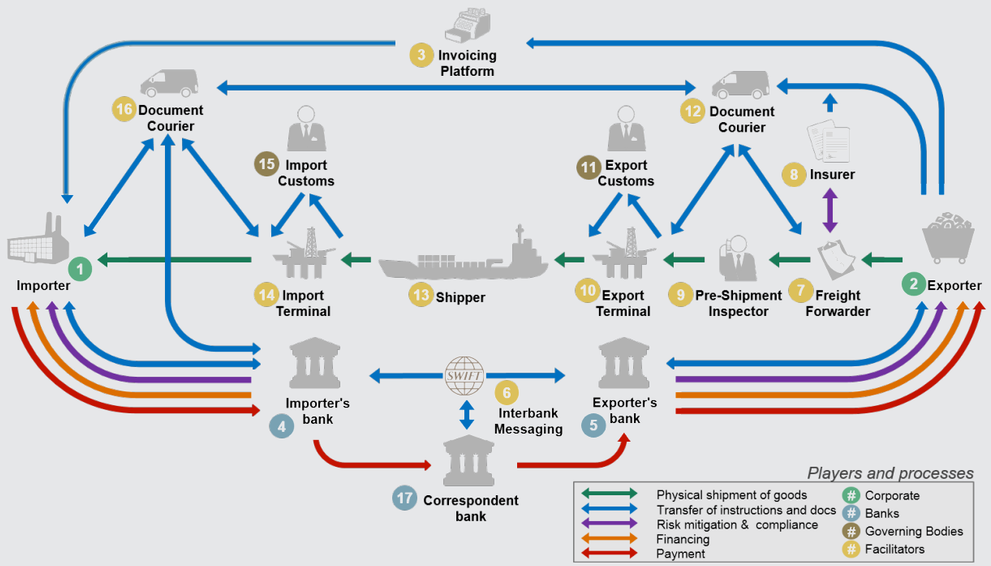
Exhibit 2 | As data flows through the process, a decreasing share of data field 'interactions' involve creating value-adding data

Source: BCG Analysis

Many of the complexities in trade finance are driven by the large number of players and documents involved in the facilitation and governance of a single transaction (Exhibit C). Each player has a unique mix of cumbersome and inconsistent internal and external requirements to adhere to (e.g., legal, risk, compliance). And the various entities involved (e.g, customs authorities, banks, corporates, insurers and shippers) are at very different points on the technology adoption curve. This has helped preserve paper as the safe, universally compatible go-to option in trade finance.

For these reasons, the digitisation of trade finance will not happen quickly. However, understanding the underlying information requirements (e.g., 60-80 unique data fields) and the extent of redundant activities is an important step in this direction. Chipping away at the fundamental problems by leveraging existing and emerging technologies could eliminate these data interaction inefficiencies over the next decade. Developing the roadmap to the future state will be a significant achievement on its own.

EXHIBIT 3 | Traditional Trade Finance ecosystem highly fragmented across multiple different entities and processes



Source: BCG Analysis

Even after new technologies become widely available, supporting legal frameworks and recognised standards may not be in place. These often take considerably longer to develop than new technology.

For example, one bank described Distributed Ledger Technology (DLT) as relatively simple technically, but the need for a globally agreed framework of standards, protocols and procedures makes it complex to adopt. If there is a dispute between SMEs located in Switzerland and Russia, for example, what is the resolution process? Which rule of law applies? A simple trade dispute could lead to years of legal back-and-forth.

UCP 600, the latest version of the rules that govern letters of credit (L/Cs) transactions worldwide, solves this for letters of credit. DLT-enabled smart contracts need an equivalent set of agreed rules.

However, even this may not be enough. Despite the International Chamber of Commerce (ICC) publishing Uniform Rules for Bank Payment Obligations (URBPO) standards, importers and exporters have been slow to adopt Bank Payment Obligations (BPO). Evidently, a lack of agreed standards is not the only impediment to the adoption new technologies.

Looking much further ahead

There is a concern that Industry 4.0 and its constituent technologies, such as the internet of things (IoT) and 3D printing, will make parts of trade obsolete.

IoT will connect goods in transit to the internet, reducing risk. Sensors fitted to goods and containers will track shipments door-to-door. These technologies will provide real-time information on the location and condition of goods, greatly reducing counterparty and compliance risk. IoT has the potential to significantly speed the shift to open account because mitigating these risks is part of the core value proposition of documentary trade.

In the meantime, IoT will create a wave of new unique data fields generated in the trade finance process, the most significant change to the trade information data sets in decades. Without digitising existing processes, players will struggle to react to this new information flow. Paper-heavy processes risk becoming even more cumbersome making it impossible to transfer information. Or the new source of data will be ignored altogether. Either way, this would represent a missed opportunity.

Industry 4.0 could also present new opportunities. One bank we spoke to is closely engaged with clients to see how they can embed themselves in new business models. For example, Industry 4.0 could revolutionise payment or financing terms for industrial goods (e.g., turbines) from a pay over time model to a pay per usage model. And performance guarantees could be based on machine uptime instead of the average life of the asset.

Additive manufacturing, popularly known as 3D printing, will convert raw materials into final products where they are needed, foregoing the need to ship final goods

between locations. Future trade may be more heavily weighted towards commoditised materials and printable digital blueprints, at least in some industries.

3D printing is more efficient for small-scale manufacturing as it allows for small batches of goods to be made on demand, and uses fewer raw materials than traditional manufacturing.

A portion of physical trade flows will gradually be replaced by trade in intellectual property rights for 3D printing specifications, and will start to resemble buying an app from iTunes or an eBook from Amazon. Purchases would be near instantaneous.

Payment terms may be immediate or remain longer (e.g., 30 or 90 days), and still require financing. To participate, all parties would need to join the same digital ecosystem (e.g., a platform like Amazon or Alibaba for larger goods) potentially eliminating the use of documentary trade altogether.

However, there could be alternative models, as there will always be the need to transport physical goods, such as raw materials, produce and livestock, from one country to another.

How is digital impacting the different entities involved in Trade Finance?

BCG and SWIFT see at least four types of entity that have traditionally been involved in a typical trade finance transaction: corporates, banks, facilitators (e.g., cargo carriers, interbank messaging facilitators such as SWIFT) and governing bodies such as regulators, NGOs, customs authorities (Exhibit D).

Increasingly, a fifth kind of entity is also involved: namely, disruptors (e.g., FinTechs) that have identified an opportunity to break into the ecosystem given its slow digitisation progress over the last decade.

Disrupters are innovating to compete with legacy players, and they are finding roles somewhere between banks and facilitators. The step-change in available technology is forcing banks to ask strategic questions regarding technology investment, and how to position themselves in the market with respect to the competition.

Corporates continue to switch towards simpler, more cost-effective open account trade in preference to complex and expensive documentary trade processes. This is especially true in countries with high levels of trust (e.g., U.S.A., France and Germany), and for closed ecosystems, such as niche industries where all the players know each other. Increased legal certainty and improved communication channels mean that importers and exporters are more confident about trading without the financial reassurance a bank provides. Furthermore, as corporates become increasingly cost-focused, they are exercising market power to drive down pricing and margins on banking products, including trade finance.

Banks are struggling with reduced volumes and lower margins, and a higher cost base primarily driven by increased demands from financial crime compliance. Digital will become increasingly important to banks as they seek to navigate these challenges, and capture potential growth over the next five years. Achieving scale and a lower unit cost will matter more in a digital world where trade becomes more commoditised and customers increasingly focus on cost.

Governing bodies (e.g., regulators, NGOs) are setting new standards of compliance for banks. Regulation is becoming more stringent, because with funds and goods crossing borders, trade finance carries an inherent risk of sanctioned or criminal activity. Governing bodies must keep pace with industry change, and avoid becoming bottlenecks or barriers.

For example, new technologies such as DLT and cryptocurrencies require new standards and rules across all geographies. NGOs are helping to shape the future by setting common standards and driving consensus across legacy and new industry players. The ICC-led working group of industry leaders is an example.

Exhibit 4 | There are five types of player active in the trade finance ecosystem with the recent addition of disruptors

Players		Examples	Role
	**Corporates**	Importer, Exporter	Buy and sell goods and / or services across borders
	**Banks**	Importer's bank, Exporter's bank, Correspondent bank	Provide risk mitigation and financing
	**Governing Bodies**	Import customs, Export customs	Set the rules and standards
	**Facilitators**	Invoicing platform, SWIFT, Freight forwarder, Insurer, Pre-shipment inspector, Import /Export terminals, Shipper, Document courier	Provide services to support Trade Finance ecosystem
	**Disruptors**	FinTechs, AI / ML tech companies (Not shown in traditional Trade Finance ecosystem diagram)	Introduce tech-enabled solutions to the world of Trade Finance

Source: BCG Analysis

Facilitators are forced to keep pace with the change in the trade finance industry coming from banks, disrupters and corporates. This is particularly challenging for legacy facilitators in the value chain, such as customs authorities and shipping companies, where change has historically been slower. At the same time, facilitators are facing their own cost pressures and the need to adhere to increasingly stringent regulatory compliance.

Regardless of where players sit on the technology adoption curve, digital innovation is top of mind. Of all the players BCG and SWIFT spoke to, not one is sitting on the side-line. All expect that digital innovation will, in one way or another, disrupt trade finance in the near future.

What are the digital technologies disrupting Trade Finance?

BCG and SWIFT see a step change in attitudes and initiatives related to digitisation in trade finance. This is due to a change in attitudes around the importance of technological innovation, a maturing of technologies that support viable solutions, and an emerging threat from FinTechs eager to disrupt the existing model.

Previous attempts to digitise trade finance have fallen short, in part, because solutions required significant upfront investment and benefits were highly dependent on widespread adoption across all players in the ecosystem or 'network effects'.

One bank we spoke with suggested that the upfront investment required players to adopt the necessary technologies to materially digitise their trade finance operations is so significant that they would need to reduce processing costs by more than 20% to achieve break even.

Another bank explained that the Intelligent Document Recognition (IDR) technology they are implementing requires 18–24 months of training before it operates at full capacity and accuracy. It is anticipated that vendors will continue to refine and improve such products, ultimately leading to shorter ramp up periods.

Another change in the digital landscape of trade finance is that players are realising that they cannot go it alone. Banks, FinTechs, shippers, logistics companies, etc. are forming partnerships to drive innovation. Some banks are looking to pool their resources (e.g., R3 Corda Platform, Digital Trade Chain Consortium), while others seek access to specific technology (e.g., Barclays and Wave).

As a result, it is likely that the trade finance landscape will look very different in the next 5–10 years, with reduced costs and complexity giving international trade a much needed boost.

Not everyone is convinced, however. One bank BCG and SWIFT spoke with predicts that significant digitisation in trade finance is unlikely in the next 15 years, since the need for documentary trade with counterparts in developing and remote economies will continue.

An American multinational energy corporation we spoke with is even more sceptical, and understandably frustrated by the recent hype around DLT, citing the big banks' inability to deliver basic technological innovation. This energy corporation has asked the dozen global banks it holds a relationship with for a granular breakdown of L/C fees to no avail. One bank offered to send the requested information for the thousands of transactions by fax. This impractical solution (the team in question has not had access to a fax machine in years) reinforced the corporate's view that banks will be slow to innovate.

Digital technologies in Trade Finance

Digital technologies are disrupting trade finance in three ways:

Operational enablers: making paper-based trade easier

Operational enablers make the existing model of trade cheaper and easier. In the current market, they are a lifeline for banks. While they add value in the short- to medium- term, few operational enablers are game-changing. Nevertheless, they represent the key focus of bank investment today.

Intelligent OCR learns to recognise document templates and automatically transfers text from paperwork into back-end fields. Enhanced with AI-supported pattern recognition, this technology can help banks improve risk & compliance processes and reduce cost.

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A more advanced version of Intelligent OCR technology is OCR enhanced with robotics, which automatically transfers paper- based content into back-end fields, screens documents for consistency and compliance, and feeds data into issuance systems. This has the potential to reduce marginal transaction costs to near-zero for a bank that serves both ends of a transaction. Intelligent OCR can help banks reduce processing times, errors and cost while achieving an improved customer experience.

After implementing this technology, banks have reported achieving up to 50% faster processing times, an 80% reduction in manual validations, and a 70% reduction in data entry FTEs.

According to one bank BCG and SWIFT spoke to, the simplest technologies often offer the best results. Robotics in trade finance may sound dull, but effectively copying and pasting relevant data from one system to another delivers significant

efficiencies compared to manual data entry, improving accuracy and timeliness of response.

More recently, banks have been combining Intelligent OCR with AI to enable straight-through-processing in data capture for trade finance. Such technology can learn how to map printed text, and automatically fill back-end data fields by recognising recurring patterns in document templates. This can reduce the need for manual intervention in transaction processing and significantly reduce unit transaction processing costs for banks. Many banks have reported over 80% of documents being recognised and up to 50% of fields being auto scanned.

Industry tools, such as WorkFusion, IBM Watson, use OCR combined with AI to streamline trade operations. In our experience, such tools can develop automated capability by shadowing processing operators and learning repetitive patterns or actions in the background over a significant period of time. Once trained, evidence suggests these tools can execute high quality automated processing for trade operations.

From a compliance perspective, such technologies are being used not only to improve efficiency, but also effectiveness. Robotics and AI can better screen transactions close to the source, and shift attention towards higher-risk transactions that require manual approval, without the high false-positives that are common artefacts from older, pre-existing solutions. Banks may try and apply the same AI decision-making capabilities to commercial decisions or checks when originating trade transactions.

Digitising the flow of information in trade

In general, technologies that have tried to digitise the flow of information in trade have struggled to reach critical mass and growth has stalled.

MT798, the standardised SWIFT messaging protocol for direct-to-bank origination from within a client's enterprise resource planning system, reduces process complexity and allows companies to buy from multiple banks with ease. However, some banks fear that this will undermine the stickiness of the trade finance business, since MT798 can work on multiple platforms, reducing dependence on bank channels. Rather than promoting MT798, banks have waited to assess corporate demand. Now that more corporates are requesting it, banks are feeling pressured to add MT798 capability.

Electronic Bills of Lading (eB/Ls) have been around since the 1980s, but in recent years functional solutions from Bolero and essDOCS have become available. These digital document platforms aim to lead the journey toward paperless trade by transferring shipping documents instantly between parties.

The adoption of eB/Ls is constrained by the familiar obstacles. Many participants in the trade ecosystem are, for reasons of size or lack of sophistication, unlikely to invest in the technology, and as long as adoption is far from universal, banks have little to gain by investing in it while they still need to maintain their old paper-based processes.

Changing how trade works

Bank Payment Obligation (BPO) uses electronic data matching to facilitate payments between the importer's bank and the exporter's bank. It is quicker than L/Cs and usually cheaper for companies, while still avoiding the settlement risk of open-account trading.

However, there are obstacles to BPO adoption: the parties at each end of the transaction must be BPO-enabled but installing this capability can be costly. It requires an overhaul of well-integrated and long-standing processes. Furthermore, some banks fear that it will cannibalise their fee-rich L/C business. These obstacles limit the possibility of a network effect and, as long as uptake is low, firms and banks have little incentive to adopt BPO.

Despite these challenges, BPO has had some successes depending on the characteristics of the trade. BPO works well with shorter trade routes and when there is a high level of trust between trading partners.

One facilitator BCG and SWIFT spoke with believes BPO is set to make a comeback as some of the underlying barriers to adoption are being addressed. Vendors are introducing tooling to minimise the requirements and effort needed to become BPO-enabled. Although this is progress, constraints remain. Also, from a regulatory perspective, BPOs do not have the same favourable treatment as Documentary Trade under Basel capital adequacy rules. Hence BPOs are actually less capital efficient for banks.

Distributed ledgers: Industry hype around DLT has fuelled a new wave of trade finance disrupters. Coupled with other maturing technologies (e.g., APIs, OCR, AI, Machine Learning), DLT offers the strongest potential digital trade finance solution to date. For the first time, the hype may be justified.

Potential benefits of a DLT platform include increased cybersecurity, reduced waiting times, transparency, ease of revenue payments, low infrastructure investment, easily auditable transactions, efficient accommodation for additional participants, immutability and automatic bonding and payments through smart contracts.

Trade finance has been touted as a Corporate Banking product with potential to benefit significantly from DLT, given that it is based on trust and transparency and has a wide array of inefficiencies to be removed. Interest in its use for trade is growing as companies and organisations recognise that antiquated trade systems are overdue for restructuring.

DLT has the potential to overhaul how different parties trade across borders, potentially threatening the central role banks play today. Technology companies, big and small (e.g., IBM, Microsoft, Bloq), are betting on a DLT solution for trade, believing that it can help optimise trade finance and logistics. A platform could allow for secure and transparent sharing of trade information between parties, streamlining processes and speeding up response times.

But one bank BCG and SWIFT spoke to doubts that DLT will accelerate digital adoption in trade finance.

According to this contributor, technology is only one piece of the puzzle, and the most significant challenge is to agree new industry standards, for example, regarding the legal status of electronic documents.

There is general consensus, however, that even if DLT falls short on its promise, it has put the topic of digital in trade finance firmly on the agenda. Senior managers are engaged and ready to embrace change.

Regulatory Compliance

A common challenge for the above technologies is whether they can address the growing costs and complexities of complying with financial crime regulations in trade finance. For banks in particular, technologies must support regulatory compliance requirements for:

- **Know your customer** (**KYC**): Banks are responsible for knowing and verifying the identity of their clients to minimise risks of fraud, corruption/bribery, money-laundering, financing of terrorism, and identity theft

- **Anti-money laundering** (**AML**): Inaccuracy in the price, nature, volume, and quality of goods on an invoice could inadvertently enable money laundering across borders. Trade banks are responsible for verifying transactions, to spot and prevent such activity

- **Sanctions**: Banks are responsible for screening all aspects of the transaction for conflicts with any sanctions regimes, including both parties, the counterparty bank, transport company, vessel, all ports involved, and the goods being shipped

One FinTech explained that, although the term AI is used loosely, ultra-sophisticated AI solutions do exist. This FinTech uses AI to tackle costly money laundering monitoring processes at banks. The FinTech claims that their bank clients employ several thousands of employees to monitor up to one million transactions per month, but that 98% of these investigations result in false positives with no findings of money laundering activity. Following the integration of their AI technology, the number of transactions to review dropped by 25%, with a higher hit ratio than the human-led process.

Furthermore, they estimate that these efficiencies will deliver US$50 million to US$200 million in operational costs savings over four years.

Although many technologies help banks with aspects of regulatory compliance, there remains significant scope for improvement, particularly as challenges continue to grow. One bank explained that the decision to invest in and adopt new technologies is driven primarily by increasing risk and compliance requirements (driving approximately 80% of the decision) rather than operational cost savings.

One corporate BCG and SWIFT spoke with shared their experience of a bank's imperfect compliance processes on business activity. A false positive sanctions hit led to disruptions in trade, and the need to anchor hundreds of millions of dollars' worth of goods around the world until the issue was resolved.

This caused significant knock-on issues to the corporate's supply chain.

SWIFT is taking a big step towards reducing the KYC burden associated with on-boarding correspondent banks by launching a KYC Registry and making it available to all supervised financial institutions, regardless of whether they are connected to SWIFT. Existing members will benefit from a broader coverage of correspondent banking and funds distribution network while allowing them to shed due diligence activities and costs. Smaller banks will benefit from industry-agreed standards and best practices in KYC compliance.

This has the potential to boost trade, especially for underserved SMEs in developing markets, by including their local banks in the global trade finance ecosystem.

Despite the hype around DLT, no single technological innovation will eliminate paper in trade finance. Instead, a combination of several now mature technologies (e.g., DLT, APIs, OCR, IDR, AI, Machine Learning) have come together to offer the strongest possibility yet. While each of these technologies has made significant progress over the last few years, the complete solution remains elusive.

How are players responding?

Corporates, banks, facilitators, governing bodies and disruptors vary in their appetites and abilities to embrace digital change in trade finance.

Corporates

The uptake of digital innovation by corporates in trade finance has historically been slow, as we have seen with MT798 and BPO. This has been largely due to banks' conservatism, which in turn has limited awareness and thus demand from Corporates. For example, the operational burden of paper-based, documentary trade finance is far less an issue for corporates than it is for banks, because banks do most of the processing. Corporates have less of an incentive to invest in and adopt new solutions.

For corporates, the key value differentiators for trade finance solutions and providers are those that offer time- and cost-efficiency, while mitigating risk sufficiently.

According to the BCG and BNP Paribas Corporate Treasurer Survey,1 import and export L/Cs continue to be the dominant choice for mitigating risk in high-value international trade, despite the emergence of digital payment instruments. Treasurers are expected to continue favouring L/Cs in the near term.

Many corporates are beginning to embrace more digitised open-account trade, moving away from documentary trade finance, especially when transacting with well-known large corporates.

However, many will continue to rely on documentary trade for the foreseeable future, for example, when big ticket items, commodities, or unknown SMEs in the developing world are involved.

An increasing number of these corporates recognise that they will continue to use documentary trade finance products for some time, and are looking to digital solutions to enhance how documentary trade works for them.

SMEs represent an often-overlooked segment of the trade ecosystem that is embracing digital initiatives to increase their access to documentary trade. SMEs have a history of struggling to access trade finance solutions due to their size and the manual intensiveness of documentary trade.

The World Bank estimates that up to 50% of SMEs have limited or no access to formal credit channels, leading to a global credit gap as a large as US$2.6 trillion.1

However, SMEs may help drive a wider adoption of digital innovation in trade finance. Banks are forming partnerships with disruptors to develop digital solutions geared towards the SME market, which represent 50% of global GDP and two-thirds of global employment.2

1 Source: The World Bank
2 Source: World Economic Forum

Growing bank-mediated supply chain finance would be a win-win for banks, SMEs and the global economy.

Banks

Most larger trade banks are investing heavily in operational enablers to drive down costs and improve efficiency and turnaround times.

Some banks (e.g., HSBC) are adopting OCR technology with advanced robotics to digitise manual global trade processes and improve accuracy. According to HSBC, an average trade transaction includes 65 data fields, 15 different documents and 40 pages, although some can reach up to 1,000. Performed manually, this data entry and management process can be costly, time consuming and prone to errors, increasing the bank's credit and compliance risk.3

This new technology can assess documentary risk and uses logic and context-sensitive analysis to classify documents. It also extracts relevant data to support auto-population, allowing trade finance employees to focus on value-adding tasks.

A number of banks are partnering with, and investing in, FinTechs (e.g., HSBC, Barclays, Deutsche Bank) to ensure their own footprint in the future of digital trade. According to one bank BCG and SWIFT spoke to, FinTechs come in one of two forms, either providing interesting technology or new business cases. Banks are ramping up their investments in both models in an effort to be on one of the winning teams once the disruption dust settles.

One bank is developing a platform that uses DLT to ensure that all parties can see and transfer title, shipping and other original trade documentation through a secure decentralised network, eliminating many of the current inefficiencies. The application manages ownership of documents on the distributed ledger, eliminating disputes and forgeries, and reducing the seven-to-ten day process to four hours.

As larger banks increase their investments, smaller trade banks, with less ability to invest in new technology or to provide significant backup to prominent start-ups, are likely to fall behind.

Despite the number of non-banks trying to establish themselves in the trade finance space, few are gaining the critical mass that is vital to success. Bank-led consortiums (e.g., R3, DTC), on the other hand, have the power, influence and investment to drive real change, even if faced with the on-going challenge of needing consensus across a large number of banks. They are even more powerful when supported by government to build credibility and deliver working proofs of concept.

Governing bodies

Although traditionally considered inhibitors of digital adoption, some governing bodies are eager to get involved.

3 Source: IBM

Regulators

Regulators are beginning to pick up speed in supporting digital change in trade finance at a global level, despite significant variation between countries. However, regulatory compliance remains challenging and is not always practical within the confines of existing technology (e.g., price verification requirements for AML).

Looking forward, the robustness of regulatory compliance will continue to be prioritised over practicality of implementation and ease of transacting. Corporates, banks and facilitators will need to find acceptable solutions to overcome these challenges. This is not to say, however, that there is no value in regulators working with technology companies, corporates, banks and facilitators to facilitate compliance activities.

Customs authorities

Customs authorities around the world are starting to embrace single-window systems to allow international traders to submit regulatory documents at a single location. This reduces the time and cost of dealing with government authorities to obtain the relevant clearance and permits to move cargoes across borders. In the traditional, pre-single-window environment, traders dealt with multiple government agencies in multiple locations to obtain papers, permits, and clearances. Beyond the efficiency gains, single-window systems will allow customs to plug into DLT-enabled platforms through APIs.

Some partnerships have emerged between customs authorities and tech companies (e.g., IBM's DLT initiative with Dubai Customs and Dubai Trade) to integrate key players from the ordering stage, in which the importer obtains a letter of credit from the bank, through the intermediary stages of freight and shipping, and ending with customs and payment.

Current processes involve many separate documents and bi- directional information flows between the different stakeholders coupled with long processing times, due to waiting times and 'waste' activities, such as data re-entry. New processes offer aligned standards, defined data security, and one main bi-directional information flow for all information sharing purposes, significantly reducing processing times.

Governments

Some governments are trying to establish FinTech and DLT hubs. The government of Singapore has secured DLT investments (e.g., IBM's DLT innovation centre) as the island city-state, and owner of the world's 2nd largest container port, strives to become Asia's dominant financial technology hub. However, Singapore's status as the regional hub will not go unchallenged. Other countries, including Australia, are also looking to compete for this title.

NGOs

The International Chambers of Commerce (ICC) is well-positioned to help the industry define new rules related to digital trade. Earlier this year, they launched a working group, comprising industry leaders from banking, FinTech and corporates, to help accelerate digitisation in trade finance. It aims to:

1. Ensure ICC rules enable digitisation
2. Increase the acceptance of digitisation within financial institutions and corporations
3. Establish a set of minimum standards for FinTechs to connect with core financial infrastructure

Facilitators

Many facilitators embrace the digital opportunity as a way to defend their position in the trade finance ecosystem of the future.

Shippers

Shipping companies, such as Maersk and Singapore's Pacific International Lines, are also looking to digitise, partly in response to cost pressure on the industry. A DLT platform, designed to track shipments around the world, will be able to capture end-to-end supply chain information and help manage and track the paper trail of tens of millions of shipping containers.

According to Maersk, a simple shipment of refrigerated goods from East Africa to Europe can go through nearly 30 people and organisations, including more than 200 different interactions and communications across the network of shippers, freight forwarders, ocean carriers, ports and customs authorities. With 90% of goods in global trade carried by the ocean shipping industry each year, IBM estimates potential savings for carriers globally of US$38 billion per year.

Disruptors

The newest members of the trade finance ecosystem are also the most eager to accelerate digital innovation. They are putting pressure on legacy players to engage and respond.

In the freight-forwarding world, some start-ups (e.g., Flexport) are attempting to crack the approximately US$400 billion freight- forwarding market. Technology and data enable these nimble players to help companies better manage their end-to-end supply chains and find the most efficient way to get goods from origin to destination.

Others are attempting to provide a DLT-enabled asset registry for all containers globally. A platform could capture real-time locations of these containers to create efficiencies and reduce greenhouse emissions by significantly reducing the transport of empty containers, estimated to be between 35% and 45%.

Players vary in their appetites and abilities to embrace digital change in trade finance, but all are attempting to stay ahead of the curve. As the ecosystem is disrupted, those that fall behind may struggle to keep up with the pace of change.

What will it take to get there?

It is important to see the digitisation of trade through a three-year and a five-year lens. In the short to medium term, banks and corporates must learn to thrive in a hybrid digital- and-paper world.

Establish Standards and Interconnectedness

BCG and SWIFT believe that technology alone will not do much to bring about digitisation in trade finance. New industry standards need to be agreed for the technological solutions to work. As one bank put it, technology cannot achieve consensus on its own. Industry leaders will need to work together to establish a new framework that works in a digital world. Unlike previous attempts to digitise, the new framework must work for all players and not prioritise the interests of some over others.

DLT's most significant contribution so far has been to put the topic of digital in trade finance firmly on the agenda of senior managers across all ecosystem players. DLT has proved that it can work as a Proof of Concept (POC), but as one bank put it, anything can work in a controlled POC environment. Digital solutions can work in silos, but if there is a lack of interconnectivity, processes quickly revert back to paper.

Understand the Underlying Information Fabric

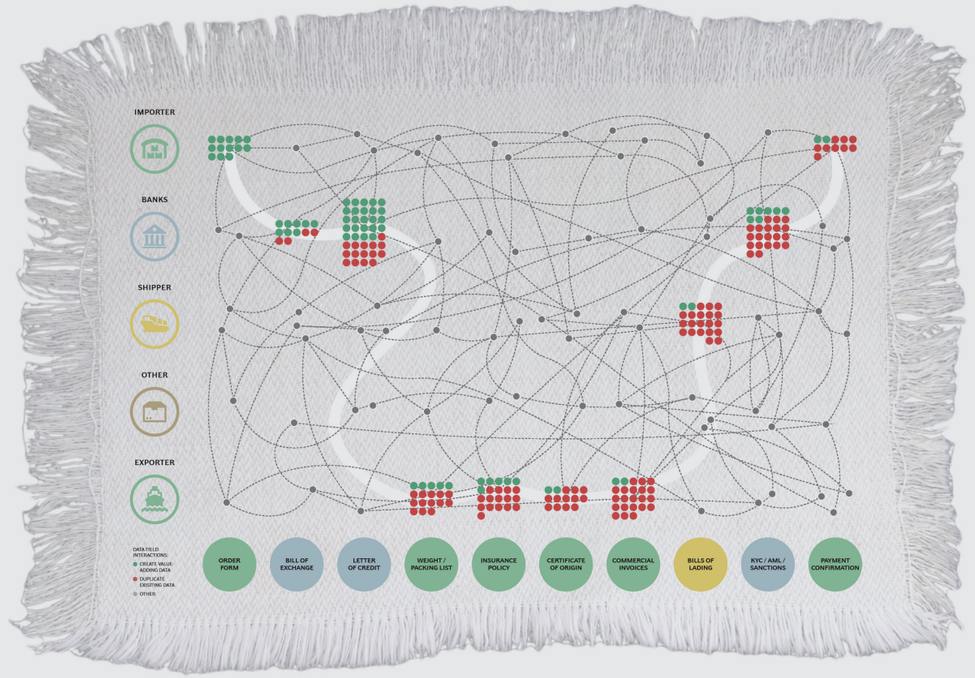
To evaluate which data field interactions are value-adding, players must understand the underlying "information fabric" that supports transactions: that is, the purpose and path of data flows (Exhibit E). In parallel, processes need to be redesigned and approved to support a digital model that works. Some of these processes fall outside the control of individual players, such as the legal status of digital invoices.

Bring SMEs into the Mix

Technology will help drive efficiencies through the ecosystem to improve the end-to-end process for all players while significantly lowering its cost. As the marginal cost and effort required to serve clients continues to drop, banks will look to SMEs to build scale. Lower trade finance costs for SMEs are simultaneously expected to increase demand, in the way that low-cost carriers increased demand for the airline industry.

Before a solution can become more widely accepted, BCG and SWIFT believe a new industry standard is required. While there is little doubt about the potential of new technologies, there is scepticism about the feasibility of rapidly establishing a new digital standard across players and countries.

Exhibit 3 | Traditional Trade Finance ecosystem highly fragmented across multiple different entities and processes



Source: BCG Analysis

Conclusion

After years of hype and excitement followed by modest progress, digital innovation appears to be top of mind. Regardless of whether DLT lives up to its potential, other technologies can begin eradicating paper and associated manual processes from the ecosystem.

SWIFT and BCG urge all players to build on this momentum and to take the conversation to the next level, but also to take action. If players wait for the perfect, complete solution, we anticipate that we will be having the same conversations a decade from now. The technology is nearly there, but technology alone cannot create consensus and industry standards.

Players should continue to work together to establish a new framework that works in a digital world. Unlike previous attempts to digitise, the new framework must work for all involved, rather than prioritise the interests of some.

What are the calls to action, and what potential can be unlocked?

Calls to action

Transforming trade is not the role of banks alone. Large-scale, industry-wide change requires consortia of different entities to build critical mass across the end-to-end value chain. Despite inevitable volatility, global trade is certain to grow over time, particularly as the economies of developing nations continue to prosper. New trading partners will continue to need to mitigate risk and gain access to funds and working capital to fuel their growth. The digital revolution will open doors to new, non-bank players focused on serving customer needs cost-effectively. The role of banks as central to trade is therefore less certain. Banks must adapt to succeed.

Corporates can see digital trade as an opportunity to cut costs and to transact more easily with new and existing business partners across the globe. Corporates need to work with banks to identify the best mutual solutions – in terms of products and how the parties transact with each other. Ideally, this will involve a shift away from paper. Furthermore, large corporates should work to establish consensus amongst themselves.

Some banks comment that some of the challenges associated with implementing new technologies stem from a lack of focus and direction from their big clients.

Banks may feel threatened by some digital initiatives, but their role will evolve. Smaller banks may find it difficult or uneconomical to invest in digital infrastructure and may decide to give way to their larger counterparts as scale becomes increasingly important.

In the short term, banks will benefit from focusing on 'being better at their core', improving service, reducing risk, and critically reducing cost-to-serve in documentary trade, which could result in demand growth as underserved SMEs look to join the trade finance ecosystem.

Banks should focus on creating a digital ring-fence with internal systems digitised and built around the flow of data. As paper declines, SWIFT and BCG believe that banks will be able to re-work the interfaces, rather than create entire new business processes, systems and data flows from scratch. Banks should see start-up technology firms and FinTechs as potential partners rather than as threats.

BCG believes digital trade finance can cut costs by between US$2.5 billion and US$6 billion (or 35%) over three to five years, driven by:

- Intelligent automation (e.g., intelligent OCR, artificial intelligence programs)
- Collaborative digitisation (e.g., e-docs and electronic bills of lading)
- Emerging digital solutions (e.g., DLT and smart contracts)

In the medium-term, banks must defend their share and capture business from the 'digital wave' in trade finance. The only way to be sure of this is to focus on customers' needs, and support them with innovative, mutually beneficial products, such as products that tap into supply chains.

BCG also believes that banks have the opportunity to increase their revenues from trade finance by 10%. Given the labour intensiveness of paper-based documentary trade and historically less information available than large corporates, it is challenging for banks to profitably serve SMEs in trade. As a result, more than 50% of SME trade finance requests are rejected, compared to around 7% for multinational companies. As digitisation reduces the cost to serve, banks will be able to unlock the value of the SME trade finance market.

Governing bodies, such as regulators and NGOs, could prove the most significant roadblocks to digital innovation. They must prioritise keeping trade safe, secure and compliant. But they should view digital as an opportunity to improve security and compliance.

Some regulators in Asia and the Middle East are attempting to become agents of change but efforts to accelerate digitisation in trade finance will require a more coordinated international approach, especially when it comes to new international rules and standards. An equivalent to UCP600 that governs letters of credit transactions worldwide, must be established for DLT-enabled smart contracts before there can be widespread adoption.

Facilitators should work with corporates and banks to drive the industry forward. The priorities vary by type of facilitator (e.g., private vs. public entities), but all must be open to change. In more competitive parts of the value chain (e.g., shippers and insurers as opposed to customs authorities), facilitators should consider 'ease of transacting' a key success factor and differentiator.

Given the size of the task, many individual players are reluctant to attempt to take it on. Global organisations and consortia, such as ICC, SWIFT, R3 and DTC, are better placed to propose solutions.

Disruptors have the most to gain, but niche technologies will not digitise trade in isolation. Power will reside in large, influential groups, focused on delivering solutions that meet the needs of corporates, the incentives of banks, and the concerns of governing bodies. Disruptors should continue to innovate and act as a force for change. They should also remain open to partnerships as they cannot single-handedly disrupt an industry with so many legacy players.

The overarching call to action for all players is to continue to work together and build on existing successes. A digital end-state holds enough benefits to make this potentially long and painful journey worthwhile.

Value to be unlocked

Little is certain, but BCG's Trade Finance Model predicts that global trade flows will grow 4.3% p.a., from US$15.8 trillion in 2016 to US$18.7 trillion in 2020.

This will enable Trade Finance revenues to outpace the trade flows, growing 4.7% p.a. due to growth in markets that rely on documentary trade:

- **Bull case**: Trade flows grow 6.1% p.a. to US$20.0 trillion in 2020 and Trade Finance revenues grow at 6.0%, on par with trade flow forecasts, to US$46 billion in 2020
- **Base case**: Trade flows grow 4.3% p.a. to pass the 2014 peak of US$18 trillion in 2020 and Trade Finance will slightly outpace growth in trade flows to reach US$44 billion in 2020
- **Bear case**: Trade flows grow 2.4% p.a. to US$17.3 trillion in 2020 and Trade Finance revenues will grow at 3.4% p.a. to US$42 billion in 2020

Glossary

API - An API is a set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service

BPO – Bank Payment Obligation is a standardised, irrevocable payment instruction that offers buyers and sellers a way to secure and finance their trade transactions, regardless of size, geography or industry

IDR - Intelligent Document Recognition interprets content and patterns in documents to automatically classify paper and electronic documents into different document types, and determine the beginning and end of a document

IoT - Internet of Things refers to the interconnection, via the Internet, of computing devices embedded in everyday objects, enabling them to send and receive data

KYC - Know Your Customer is the process of a business identifying and verifying the identity of its clients

URBPO - Uniform Rules for Bank Payment Obligations are the rules adopted by the International Chamber of Commerce for Bank Payment Obligations

AI - Artificial Intelligence is intelligence exhibited by machines, rather than humans or other animals

AML - Anti-Money Laundering refers to a set of procedures, laws or regulations designed to stop the practice of generating income through illegal actions

DLT - A Distributed Ledger a database that is consensually shared and synchronised across networks spread across multiple sites, institutions or geographies. One of the underlying technologies is blockchain, which is used by bitcoin.

ICC - The International Chamber of Commerce is an international business organisation with member companies in 130+ countries spanning every sector of private enterprise. The ICC has three main activities: rule setting, dispute resolution, and policy advocacy

ML - Machine Learning is the subfield of computer science that gives computers the ability to learn without being explicitly programmed

OCR - Optical Character Recognition involves the identification of printed characters using photoelectric devices and computer software

UCP600 - UCP 600 is the latest rules of the letter of credit transactions issued by ICC

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