



# A Guide to Digital Trade Finance

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# A Guide to Digital Trade Finance

Efforts to digitise trade finance have continued to build momentum in 2023, with the removal of longstanding legal obstacles in the form of the Electronic Trade Documents Act 2023 serving as a key enabler. Unlike previous efforts, all the necessary jigsaw pieces – from legal frameworks and industry standards to technologies and cross-actor collaboration – are beginning to fall into place.

This *Guide to Digital Trade Finance*, published by Deutsche Bank in association with the International Trade & Forfaiting Association (ITFA), provides a snapshot of what today's digital trade ecosystem looks like, and the overall direction of travel.

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## Foreword – Deutsche Bank

Despite various initiatives to relieve trade of its paper burden, this was never going to be as straightforward a process as for the payments industry – there are simply too many cats to herd!

However, the passing of the UK's Electronic Trade Documents Act 2023, which is in alignment to the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Transferable Records, is a major step forward.

Certain key trade documents are now acceptable as electronic transferable records (ETR), including bills of exchange and promissory notes used for financing and payment, bills of lading, and warehouse receipts, to name but a few.<sup>1</sup> Done right, alongside more robust fraud detection processes and the broader use of compliant utilities and platforms, digitalisation could dramatically lower the cost of trade finance provision, thereby increasing its reach.

While this suggests that a bold new future for documentary trade may well be just around the corner, it will only get over the line if the industry works and moves together. We have already established that – while helpful indicators of what technology can do – vertical, proprietary proofs of concept do not move the industry forward by themselves.

This is where industry bodies and utilities such as Swift, ITFA, the ICC and BAFT play a pivotal role, as we report in this Guide. Only together we can bring the cats to play; only together we can get this done.



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## Foreword – ITFA

Efforts to digitalise trade finance documentation have now gained much-needed momentum. At ITFA, we have continued to advocate for the Model Law on Electronic Transferable Records (MLETR), with 2023's big success coming in the form of the UK's Electronic Trade Documents Act (ETDA).

Regions that had already adopted the legislation have continued to break new ground as well – with further developments being seen in Abu Dhabi and Dubai, which is creating a ripple effect extending beyond the region into Africa and parts of Asia.

To emphasise the importance of interoperability in the development and adoption of negotiable instruments that are compliant with MLETR, we have continued to leverage our digital negotiable instruments (DNI) initiative to provide guidance and templates for banks to start digital forfaiting, with the aim of fully digitising bills of exchange and promissory notes.

In addition, while digitalisation remains the key theme, the growing role of insurers in expanding the field of trade finance is another, highlighting trade credit insurance's role as a silent, but essential partner to bank lending. We are also seeing innovative new ways to bring more liquidity to trade finance, moving away from banks and accessing non-bank investors to purchase trade assets.

In order to attract this kind of investment – and to raise awareness about the trade finance industry as a whole – much more education is needed going forward. In general, investors can too easily be put off by trade, citing the multitude of instruments and structures that the industry requires. Education should, therefore, be at the forefront of trade finance conversations. Actioning this, the ITFA Trade Finance Investment Ecosystem (ITFIE) group continues to assess and tackle the obstacles preventing non-bank investors from purchasing trade assets.

Looking to 2024, we are confident that the momentum from the past year across digitalisation, integrating insurance and bringing non-bank investors to the space, will continue to build. We thank Deutsche Bank for their partnership and work on this white paper and believe it will prove a useful educational tool for readers in improving their understanding of the overall digital trade finance ecosystem.



Sean Edwards,  
Chairman,  
International Trade and  
Forfaiting Association  
(ITFA)

# Executive summary

Digitalisation has long been a priority for the trade finance industry, with a host of transformative benefits – from greater transparency, efficiency and risk mitigation to environmental gains and improved support for small and medium-sized enterprises (SMEs) – the expected prize. Despite this, progress has been sluggish for the past few decades – held back by legal obstacles, a lack of standards and the need for unifying technologies and platforms. The tide, it seems, is beginning to turn.

This *Guide to Digital Trade Finance* (the Guide) has been produced to identify what has caused the pace of change for trade finance digitalisation to be this glacial, as well as to examine what accelerants are in place to take the industry to the next level, such that trade finance participants can enjoy the operational efficiency benefits seen in the payments landscape.

Bringing together expert opinions from bankers, industry bodies and utilities, together with technology providers, the Guide examines:

- **Legal frameworks.** We look at how legal reform, centred around the Model Law on Electronic Transferable Records (MLETR), together with the Electronic Trade Documents Act (ETDA) is being brought in across the globe. The Guide explains how the MLETR aims to enable the legal use of electronic transferable records both domestically and across borders – and provides an update on adoption. It also looks at the impact of the ETDA on what constitutes an “electronic trade document” and the need for a “reliable system”.
- **International standards.** We explore the complex trade standards landscape, with comprehensive breakdowns of how trade finance actors can navigate the range of digital initiatives being worked on by industry bodies and utilities. These institutions include the International Trade and Forfaiting Association (ITFA); the ICC, Swift, the Bankers Association for Finance and Trade (BAFT); and the Digital Container Shipping Association (DCSA).
- **Innovative technologies.** We look at the use of emerging technologies in trade finance – from blockchain and AI to OCR and digital signatures – how they are being used and the lessons learnt so far from their application.
- **The bank perspective.** We outline why banks need to play a larger role in digitalisation initiatives, with a focus on ensuring interoperability across the trade ecosystem. We also look at the growing field of trade finance asset distribution in the wider secondary market and how improved digital processes can widen the reach of trade finance – both to investors in the asset class and borrowers.

In short, the Guide examines what has been achieved so far, as well as what is still needed on the road ahead. Its aim is to serve as a practical toolkit for the industry. As the various jigsaw pieces fall into place and a fuller picture of trade finance digitalisation emerges, it is clear the industry must not cease from sustained collaboration in getting the digitalisation of trade finance over the line.

# 1

## Digital trade finance: the state of play

In our *flow* special *Guide to Trade Finance*, published in May 2020, section 10, *Digitalisation* set out the digital trade finance journey with summaries of what at the time looked to be key enabling technologies. Four years on, the landscape looks rather different as it has become clear how complex the introduction of new instruments is to the field of trade finance market and why attempts to reinvent the traditional trade finance process have not met with widespread adoption. However, the events and circumstances of the past four years have energised developments in the global trade finance field and brought digitalisation into focus like never before.

This *Guide to Digital Trade Finance*, published in association with the International Trade & Forfaiting Association (ITFA), provides an update together with an explanation of what a digital trade finance ecosystem looks like, and a suggested outlook for the future.

### 1.1 Incremental digitalisation

In the context of financial services, “digital” has been described as “gaining an understanding of customer processes and their end-to-end needs, and then re-imagining what the banking provision should be, given these needs and the availability of new technological solutions”<sup>2</sup>

In the context of trade finance, there have been some impressive examples of innovation in recent years that have attempted to achieve this – though there have been varying levels of success. The widespread adoption of digital alternatives for mainstream trade finance documents remains the key sticking point, despite widespread agreement that the industry generates huge amounts of paper each year and transparency throughout the transaction journey would improve efficiency and reduce costs.

The difference between “digitisation” and “digitalisation” of trade finance is not always clear cut – with the two terms often being used interchangeably. Generally, however, it is understood that digitisation is simply a swap in/out solution based on digital alternatives (e.g., using OCR technology to digitise a paper document), while digitalisation looks at the end-to-end process to create new value in the whole transactional journey (e.g. using blockchain to create entirely new workflows for trade financing).

As André Casterman, Chair of the IFTA Fintech Committee puts it, “We have seen many attempts to create fundamentally new way of working that ignore the old practices – and that is where we have also seen the market say: “No, that it too impactful – we would prefer incremental effort”. That is what we are seeing today with the Model Law on Electronic Transferable Records (MLETR) and the Electronic Trade Documents Act (ETDA) – but this is an incremental effort that can have a revolutionary effect.”

By way of background, the idea of digitalising trade can be traced back to the beginning of the digital revolution from 1980 onwards. One of the first forays into the world of digital trade occurred back in 1998 with the development of trade cards by the World Trade Centers Association<sup>3</sup> – an attempt to create a credit card equivalent for global trade. While this initiative might seem worlds away from today's attempts to digitalise trade, the underlying challenges faced by those working on the project remain largely unchanged.

Since then, there have been multiple attempts to move the journey forward, but, whether through the emergence of new fintech providers, the use of new technologies or changes to legal and regulatory frameworks, the stars are yet to fully align. Why is this? What have we learnt so far? What does the ecosystem look like today? And how far away are we from a fully digital trade landscape?

As David Meynell, Founder of TradeLC Advisory, observes, "We are still at the early stages but many of the fundamental building blocks are now in place, bringing the world of digital trade finance nearer to achieving interoperability. The challenge is to digitally replace what is estimated by the ICC to be four billion paper documents circulating in the trade system."<sup>4</sup> This Guide brings together the collective expertise across the industry to document progress so far.

## 1.2 Digital payments vs. digital trade

As will become clear throughout the pages of this Guide, digital trade finance has been in high demand for many years – and ongoing efforts worldwide reflect this. But while these efforts have led to pockets of success, the prevailing opinion is that trade finance still has a long way to go on its digital journey.

One question that comes up regularly at banking events is: "The cross-border payments space has been able to rapidly digitalise over the past five years, why hasn't trade finance had the same trajectory?" But of course, the two sets of transactions are very different, and each has their own stakeholders.

### 1.2.1 The digitalisation of payments

A decade ago, cross-border payments, despite being sent and received electronically, were generally slow, opaque and costly – introducing a host of challenges for consumers and businesses alike. In 2017, Swift introduced the Global Payment Initiative (known as Swift GPI), which has brought speed, transparency and lower costs to the space.<sup>5</sup> This single standard has been able to work horizontally and revolutionise the entire payments space.

The reason for this success is that payments – even when performed cross border – are conceptually and comparatively simple. There is a sender, the sender's bank, the beneficiary, the beneficiary's bank and several correspondent banking providers. The transaction, and the facilitating data elements, are also transferred point-to-point. Other than the data contained in the payment messaging, no additional documentation needs to be transferred along or across the chain. In this way, the cross-border payment space is a relatively small ecosystem – and an organisation such as Swift, which has more than 11,500 financial institution (FI) participants, has the ability to overlay a solution that can have a transformative impact for all.



### 1.2.2 The digitalisation of trade finance

For digital trade, there is no single recognised and accepted definition, although the Organisation for Economic Co-operation and Development (OECD) states that “there is a growing consensus that it encompasses digitally enabled transactions of trade in goods and services that can either be digitally or physically delivered, and that involve consumers, firms, and governments”.<sup>6</sup>

To reach this destination, there are two broad approaches: a revolution or evolution. Proponents of the first approach will argue that the majority of trade processes have stood for centuries, and it is time to make these fit for the 21st century. The counter view is that these processes have remained in place for a reason, as they continue to work across a range of commercial, political, economic environments.

The latter view is not necessarily dismissive of change, it is rooted in the practical impact that changing the existing practices, standards and processes would have on global trade. Understanding this comes back to the fact that trade exists within a hugely complex ecosystem and involves a wide array of different parties (see [1.3 Scope of trade documentation and processes](#)). To arrive where we are today, a huge amount of effort has gone into creating standards and harmonising approaches across these groups (see [4. International standards](#)). The effort and cost involved in a complete digital trade revolution would be high – and achieving success not necessarily assured.

When compared to payments, the lack of a horizontal solution for trade finance (as payments had with Swift GPI) seems all the more acute.

**“The trade finance industry is still in its infancy to achieve digital business models that serve the industry at large. There are hundreds of very effective vertical solutions out there that are driving the industry forward, however, there is no horizontal solution that has prevailed so far”**

Daniel Cotti, Founding Partner, T3i Partner Network



Those advocating or providing new processes have, too often, been consortiums or fintechs that provide specialist vertical solutions for a specific part of trade or trade finance. While some of these solutions have had great success in meeting certain pain points (such as bills of lading), they are ultimately limited in scope and do not add up to a homogenous industry-adoptable solution.

So, what about a digital trade evolution? This approach is arguably more palatable from both perspectives. If you concede that the existing trade processes are not ideal – or, at the very least, there are huge opportunities being left on the table – then digitalising existing processes is a no brainer.

### 1.3 Scope of trade documentation and processes

Current trade documentation spans many papers and processes, with documentation for a single shipment requiring up to 50 sheets of paper that are exchanged with up to 30 different stakeholders. These documents play critical roles in ensuring the smooth flow of goods and payments in international trade transactions – providing transparency, assurance, and compliance with regulatory requirements. The specific documents needed may vary based on factors such as the nature of the goods, the payment terms and the countries involved.

Every document in this process is capable of being digitalised (and some already are, such as the electronic bill of lading), but the law and jurisdiction the document touches will determine whether a digital version of that document carries the same obligations as a paper one.

The three main areas of trade generating financial documents are: open account trade, documentary credit and documentary collections.



### 1.3.1 Open account trade

In general terms, open account is normally utilised when each party is known to the other and trusted. This is how it works: a seller sends goods to their buyer together with the applicable documents, including an invoice specifying the payment terms. As is apparent, the seller will be placing a great deal of trust in the buyer to pay, as the goods are shipped and are often available to a buyer in advance of when payment or acceptance to the seller has been arranged.

As it stands, around 80% of trade is done on open account. And this type of trade is becoming increasingly popular, with the ICC estimating that by 2031 open account products will make up 70% of trade finance revenues (up from 60% in 2022).

### 1.3.2 Documentary credit

A documentary credit – or letter of credit – is a written undertaking given by a bank (issuing bank) to the seller (beneficiary) on the instruction of the buyer (applicant) to pay at sight or at a determinable future date up to the stated amount of money. This undertaking is conditional upon the beneficiary's compliance with the terms and conditions stated in the credit issued in its favour and is satisfied by a "complying presentation. This process can be traced as far back as 3000 BC, where Ancient Babylonian and Egyptian civilisations would use a rudimentary form of the trade instrument to ensure payment between parties.<sup>7</sup>

### 1.3.3 Documentary collections

Documentary collections are used where there is an intention to obtain payment and/or acceptance of financial documents and/or commercial documents by delivering the documents under certain specified terms and conditions.

In a documentary collection, the exporter (seller) entrusts their bank, known as the remitting or presenting bank, to send shipping documents to the importer's (buyer's) bank, known as the collecting bank. The collecting bank then forwards these documents to the buyer with instructions for payment. The buyer can obtain the documents by paying the agreed-upon amount or accepting a bill of exchange (draft), which is a written order to pay the exporter on a specified date.

"There is a need to digitalise the 35 or 40 most commonly used documents in trade so that we can impact not only the financing piece, but other areas related to the end-to-end movement of trade goods, including logistics and customs clearance, among others. Because if any significant piece of trade remains paper based, then all the trade is going to remain paper based – it cannot be a halfway house in this respect"

Alexander Malaket, President, OPUS Advisory Services



## 1.4 A non-exhaustive breakdown of the parties involved

For trade financing, the banking industry relies upon the accurate and confidential exchange of documentation and data between the various stakeholders. One of the many challenges involved in this system – alongside the vast amount of documentation involved – is that there are multiple different parties involved. The main ones include:

- **Importer.** A person or business that brings goods or services into a country for consumption, resale, or use.
- **Exporter.** A person or business that sells and ships goods or services to foreign markets.
- **Importer's Bank.** The financial institution that handles the payment and documentation processes for the importer in international trade transactions.
- **Freight forwarder.** A company that arranges and manages the transportation of goods on behalf of exporters or importers, often including logistics and customs clearance.
- **Insurer.** A company that provides insurance coverage to protect against various risks, such as damage, loss, or liability, in exchange for premium payments.
- **Pre-shipment inspection.** An entity that conducts inspections of goods before they are shipped to ensure they meet quality, safety, and contractual requirements.
- **Export customers.** Individuals or businesses in foreign markets that purchase goods or services from an exporting company.
- **Document courier.** A service that specialises in the secure and timely delivery of important documents, contracts, or papers between parties involved in international trade.
- **Shipper.** The entity that prepares and sends out goods for transportation, which can be the exporter or another party responsible for packaging and delivering the goods.
- **Import customs.** The government agency responsible for regulating the entry of goods into a country and assessing applicable duties and taxes.
- **Correspondent bank.** A financial institution that provides services on behalf of another financial institution, often in different countries, to facilitate international financial transactions.



## 1.5 A non-exhaustive breakdown of the data fields involved

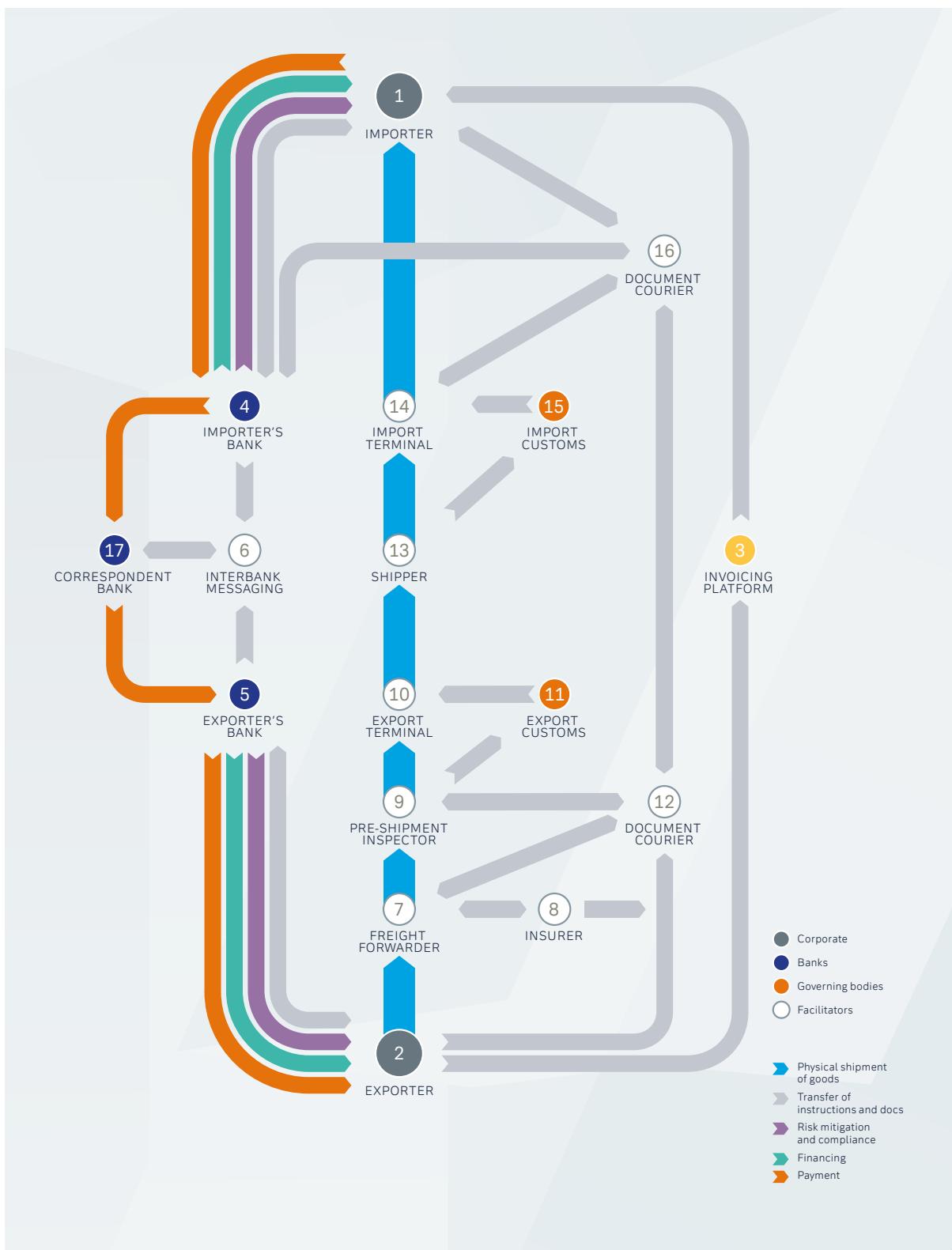
The UK Law Commission helpfully summarises the inefficiency of the current documentary landscape: “The process of moving goods across borders involves a range of actors including transportation, insurance, finance and logistics service providers. In a transaction covered by a bill of lading, for example, it is common to find 50 sheets of paper in a package of shipping documents that must be exchanged between as many as 30 different parties. Moreover, one trade finance transaction can require between 10 and 20 paper documents, totalling over 100 pages. We have estimated that global container shipping generates billions of documents a year. Across so many documents, the potential positive impacts of using electronic trade documents – including significant financial and efficiency gains, and environmental benefits – should not be underestimated.”<sup>8</sup>

As observed by the Boston Consulting Group (BCG) in the ICC’s 2018 report, *Global Trade – securing future growth*,<sup>9</sup> “All trade parties, from importers and exporters to banks, customs and logistics institutions, interact and collectively create a huge amount of data during the transaction, which varies by product. LCs are the most complex product: the end-to-end journey involves more than 20 players and more than 100 pages across 10 to 20 documents, many duplicated and transmitted multiple times. The interactions between these players and documents produce about 5,000 data field interactions, created from the interactions between two or more players.”

There is, clearly, significant room for improvement. BCG pointed out in the ICC report, “an integrated digital solution incorporating intelligent automation, collaborative digitisation, and future technology solutions would save global trade banks between US\$2.5bn and US\$6bn in cost savings on a cost base of US\$12bn to US\$16bn.” The report also points out that “a full digital transformation may also boost revenues 10%. For example, digitising operations may allow banks to more effectively cross-sell using front-end platforms, but the main benefit is cost savings”.

While these figures are five years old, the scale of potential gains speaks for itself. So, why do the efforts to digital trade continue to lag behind other areas of banking? Figures 2 to 4 (reproduced from this ICC report) helpfully set out the architecture of the trade finance transactional journey and the sheer amount and variety of documentation this generates. Note: although Figure 3 has largely been superseded by the publication of the International Chamber of Commerce (ICC) Digital Standards Initiative’s (DSI) Key Trade Document and Data Elements (KTDE) Working Group Batch 1 map set out in Figure 5, this is still a useful roadmap and a reminder why trade finance has been slower to digitise than, say, payments.

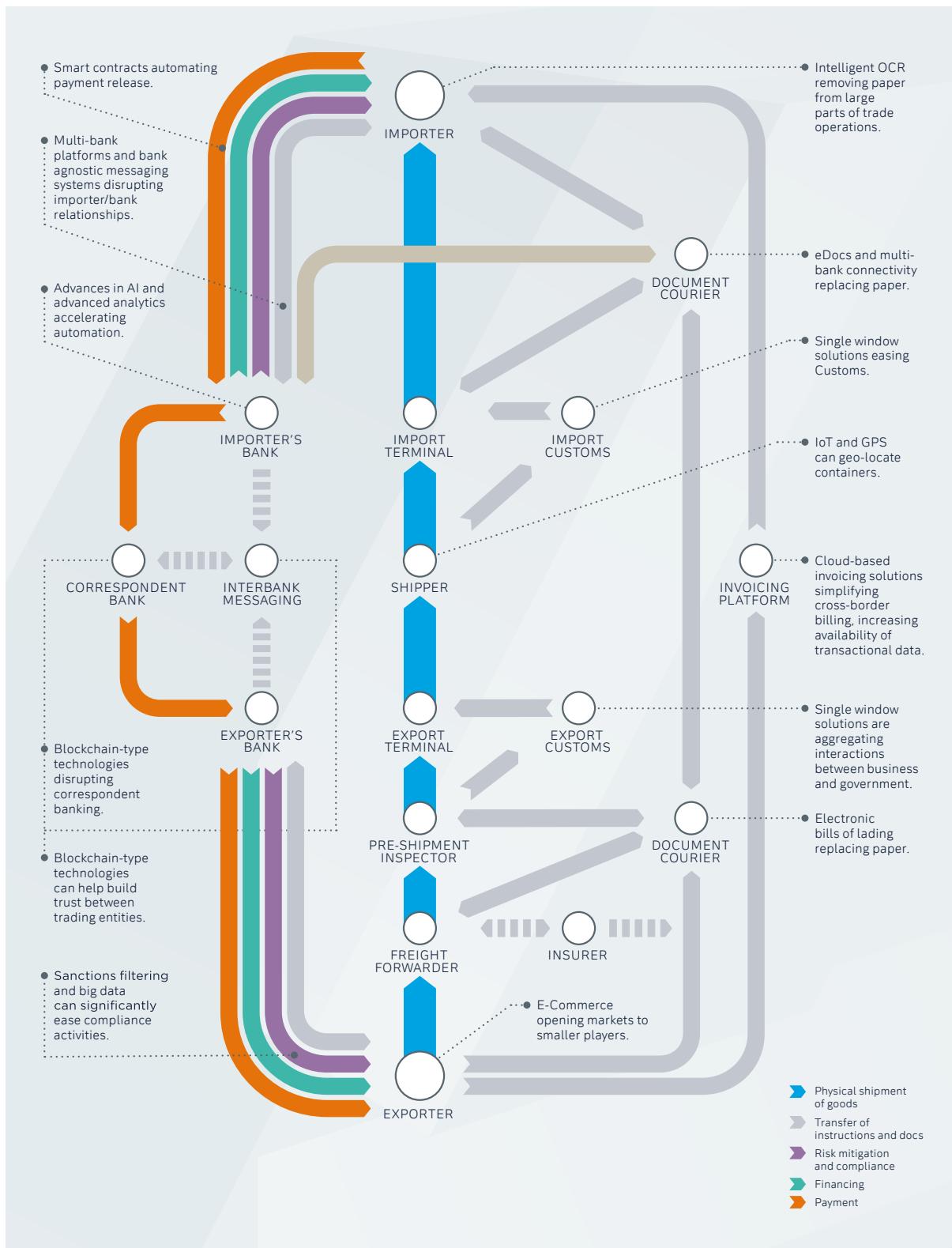
Figure 1: Trade and trade finance actor



Source: Global Trade – securing future growth, (ICC 2018)

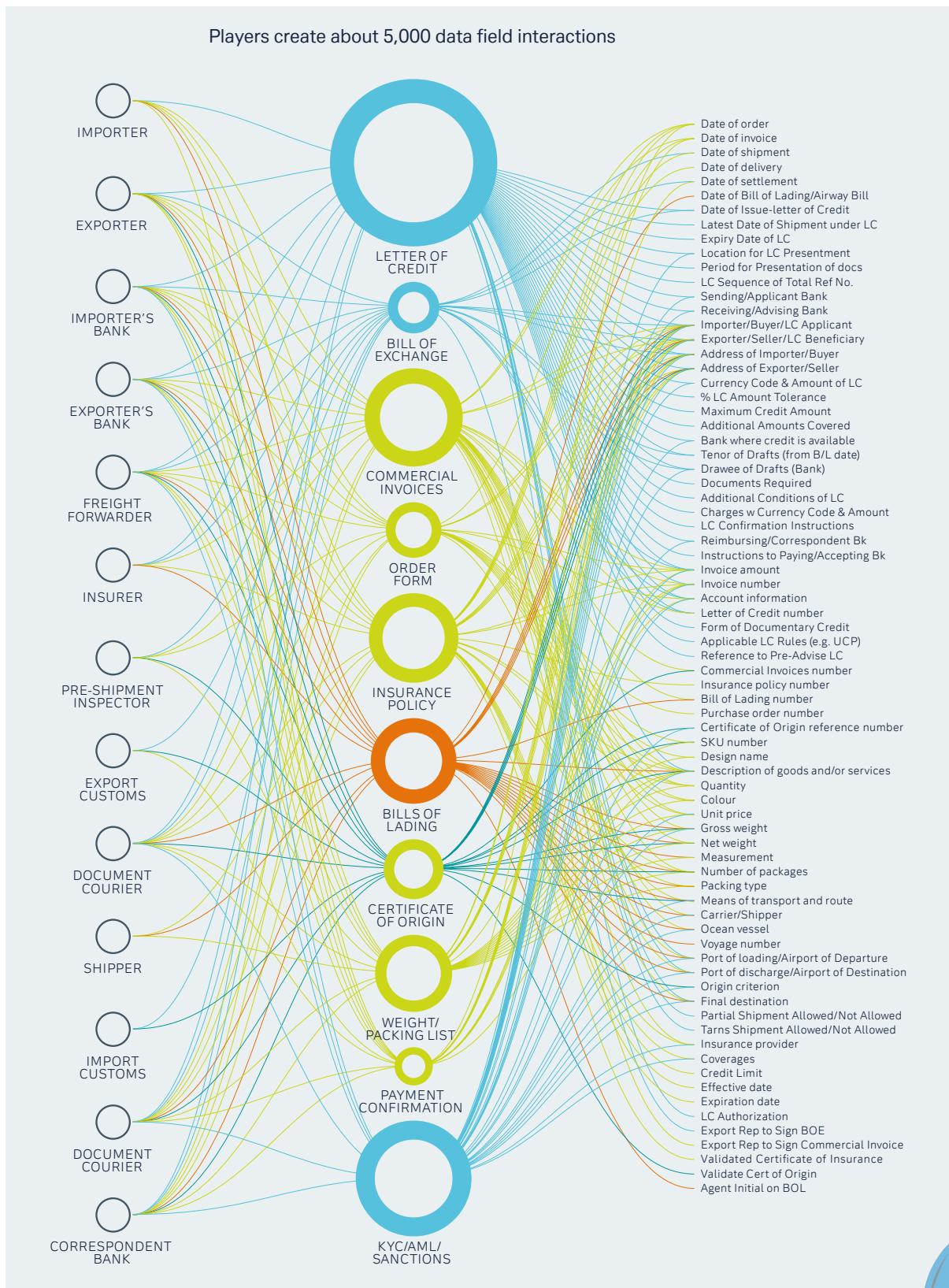


Figure 2: Digital disruptors of trade and trade finance



Source: Global Trade – securing future growth, (ICC 2018)

Figure 3: Parties, documents and data fields



Source: Global Trade – securing future growth, (ICC 2018)

## 2

# Digital trade finance: the opportunities and challenges

John Denton, Secretary-General, International Chamber of Commerce (ICC), has highlighted that enabling fair and equitable access to trade finance for companies of all sizes is essential for the future of trade and economic growth.<sup>10</sup>

As observed by the Asian Development Bank,<sup>11</sup> digitalisation can boost trade and spur sustainable growth, and is achievable through more public-private collaboration and building an enabling environment conducive to technology adoption.

## 2.1 The opportunity

Digitalising trade presents several opportunities that can help to alleviate several major challenges in the trade finance space. While teething problems are inevitable, the ICC and the Boston Consulting Group have predicted that trade digitisation could boost trade revenues by up to 20%, cut processing times by 60%, and save global trade banks up to US\$6bn annually. In a separate study, the ICC also found that paperless trade could create US\$267bn worth of additional exports among G7 countries.<sup>12</sup>

There are several key benefits to the digitisation process, which serve to create a more efficient and inclusive trading environment.

### The opportunity in numbers

- Up to 80% of global trade is supported by some sort of financing or credit insurance<sup>13</sup>
- 35–45 pages of documentation per transaction
- 600 million documents, 1.8 billion pages per year
- In 2022, only 2.1% of bills of lading and waybills in the container trade were electronic<sup>14</sup>

### 2.1.1 Improving efficiency and transparency

Digitalising trade can improve efficiency by reducing the role of manually intensive, paper-based processes. This, in turn, can lead to faster processing times, quicker order fulfilment, and lower transaction costs; further helped by the improved transparency that digital trade offers. Different stakeholders can receive real-time updates to payments and shipping statuses, thereby streamlining the overall transaction and providing reassurance throughout the supply chain.

In Kenya, for example, the United Nations Conference on Trade and Development (UNCTAD) implemented Trade Information Portals (TIP) that simplified document trade procedures. The process prompted the removal of 64 documents across 42 trade procedures, consequently saving 69 hours across each trade operation.<sup>15</sup>

### 2.1.2 Mitigating the impact of value chain disruptions

The economic impact of the Covid-19 pandemic and macroeconomic uncertainties have reaffirmed how fragile supply chains and trade flows can be. The McKinsey Global Institute, for example, found that, on average, companies can now expect supply chain disruptions lasting one month or longer every 3.7 years – and that shorter disruptions are even more frequent.<sup>16</sup> These challenges have helped to fuel the drive for trade digitisation.

Digitalising trade means that when supply chains are interrupted, the various parties can continue to share information – enabling more transparent communication in times of crisis. During Covid-19, for example, many containers in ports were left un-shipped because they lacked the proper documentation, causing large losses for businesses involved in the trade process.<sup>17</sup> Had they been able to leverage digital documents potentially many losses could have been avoided.

### 2.1.3 Risk mitigation

A major challenge for trade finance today is fraud. While the exact scale of the problem is not known, estimates suggest that losses could be as much as 1% of the value of all transactions. The current macroeconomic environment adds to the problem. Amid volatility and growing geopolitical uncertainty business behaviours have become less predictable; prompting a rise in fraud.<sup>18</sup>

Among the obstacles to fighting fraud is the fact that the majority of trade transactions are still paper based. This makes them highly susceptible to popular fraud techniques, including multiple financing, fake documents and vendor impersonation.

The digitisation of trade enables documents to be sent securely and immediately to the relevant parties, allowing for improved monitoring of the status of payments, shipments and other transaction processes by various stakeholders. Security measures are implemented by in-built authorisation protocols and bodies like the Global Legal Entity Identifier Foundation (GLEIF) are working to create a universal standard for trade documents (see [4.2.6 GLEIF](#)). Further work is needed to improve interoperability between platforms (see [2.2.3 Digital islands](#)), but digital documentation has the potential to enable transparent and secure operations and provide reassurance to investors.

### 2.1.4 Support for SMEs

According to a survey by the Asian Development Bank, the global trade finance gap grew to US\$2.5trn in 2022 (up from US\$1.7trn in 2020),<sup>19</sup> with SMEs among the most disadvantaged.<sup>20</sup> One reason for this is that traditional trade finance mechanisms are notorious for entailing copious amounts of manual processes, paperwork, and intricate communication channels among multiple stakeholders. This intricate web often results in prolonged transaction timelines and elevated administrative costs, particularly detrimental to SMEs operating on limited resources. In stark contrast, digital trade finance platforms offer a centralised hub for documentation, communication, and approval processes. This centralisation significantly expedites transaction times while simultaneously reducing the associated administrative overheads – both for the provider of financing and the recipient.



### 2.1.5 Positive environmental impact

The process of printing and couriering paper documents naturally produces a bigger environmental footprint than using an electronic alternative. Although it is difficult to accurately assess the environmental benefit of switching to electronic services because of the large number of stakeholders involved in the process, the Economic and Social Commission for Asia and the Pacific (ESCAP) conducted a study that estimated up to an 86kg of CO<sub>2</sub> reduction per end-to-end transaction when using digital rather than paper processes.<sup>21</sup> Similarly, in Timor-Leste, the United Nations Conference on Trade and Development (UNCTAD) implemented The Automated System for Customs Data (ASYCUDA) in 2015 and has since witnessed a 14,492kg reduction in CO<sub>2</sub> emissions.<sup>22</sup>

## 2.2 The challenges

There are several obstacles impeding the development of digital trade – from a longstanding reliance on paper to an increasingly fragmented technology landscape.

### 2.2.1 Dominance of paper

Paper-centric operations are often slow, manually intensive and prone to human error, which means that the dominance of paper in the existing trade scene presents significant challenges when trying to implement digital trade finance solutions. But why has paper persisted for so long?

The dominance of paper is deeply rooted in the trade process, with paper documents having been used to facilitate trade for centuries. Alongside this long history, the fact that paper-based documents work and remain globally accepted has also fuelled resistance to change. And while many businesses recognise the benefits of implementing digital trade systems into their operations, some believe that the gains do not justify the effort of moving from their established paper-based systems. Paper is so entrenched in trade finance operations that the cost and effort of digitising the entire process is daunting and off-putting to certain businesses and bodies.

Furthermore, John Bugeja, Managing Director, Trade Advisory Network, believes that although the disadvantages inherent in using paper are beyond doubt, there is a good reason for resistance to switching wholesale to digital alternatives. He observes that “paper has always been and remains the perfect ‘standard’. There are no restrictions regarding the data that is recorded on a piece of paper. The piece of paper can be transferred freely between different parties, none of whom need a special piece of software to read it or add content to it”.

## 2.2.2 Lack of harmonisation

A lack of harmonisation has been a long-standing barrier to the development of digital trade. Different countries have different legislative systems, many of which lack a framework for Electronic Transferable Records (ETRs). Companies that export their goods abroad can face a barrage of documents that must be filled in with the same information because of a lack of standardisation. This time-intensive process increases the likelihood of mistakes; for example, a case study conducted across two firms revealed that out of 562 transactions, 10% of consignments were missing a priority document.<sup>23</sup>

Progress has nonetheless been made on this front, such as the United Nations Commission on International Trade Law (UNCITRAL) introducing in July 2017 the Model Law on Electronic Transferable Records (MLETR), but efforts must continue to create a more unified system of standards (see [3: Legal frameworks](#) and [4: International standards](#)).

## 2.2.3 Digital islands

The lack of a unified effort to unlock digital trade has led to the creation of multiple different systems, platforms and solutions that are owned and operated by separate vendors. This has served to fragment trade – creating a series of “digital islands”, which each have their own standards and procedures.

To put this into perspective, The International Group of Protection & Indemnity (P&I) Clubs, which is comprised of twelve P&I Clubs that together provide marine liability cover (protection and indemnity) for approximately 90% of the world’s ocean-going tonnage, have authorised 10 different electronic Bill of Lading (eBL) platforms, none of which are connected or integrated. Parties looking to adopt digital trading practices must undergo the expensive and time-consuming process of onboarding to these different platforms and training their staff to use them. This becomes especially difficult for smaller firms without the resources and expertise to operate across multiple platforms. This system both negates some of the efficiency benefits offered by digital trade and also dissuades businesses from the digital process overall.

Commentators have for some time highlighted the problem of connecting “digital islands”. This is now about to change. It is time to overcome the “inertia of tradition”<sup>24</sup>, and make the leap from paper to data. And this is where many trade organisations have a central responsibility.

**“Consortia-owned and other bespoke platforms can, without doubt, deliver effective digital solutions. To make these work, however, all parties involved in a supply chain – including the non-bank parties (e.g. exporters, importers and carriers) – ideally need to be members of the same ‘club’ – effectively a closed user group. In practice, this makes them difficult to scale other than, perhaps, within defined industry sectors”**

John Bugeja, Managing Director, Trade Advisory Network



The future looks encouraging, as governing bodies look to enhance interoperability among digital trading services. For example, Swift has been working with eBL platform providers and the Future International Trade (FIT) Alliance (a combination of DCSA, International Federation of Freight Forwarders Association or FIATA, Bimco and the ICC) on developing a digital trade solution that will allow users to transfer data between different digital trading platforms (see [4.2.4 Swift](#) and [4.2.5 DCSA](#)).

Environments that promote interoperability will not only be more sustainable – saving time, cost and resources – but will also drive risk mitigation advances in the strength of supply chains.

#### 2.2.4 Pulling in opposite directions

Efforts to digitalise trade have arguably been held back by a lack of clear direction. While the introduction of new providers, technologies and solutions has moved the conversation forward, it has also served to thinly spread the attention of the industry. As many of these initiatives live and die on securing adoption and gaining critical mass, the lack of clear focus for the industry has made it harder to get projects off the ground.

"One of the challenges we persistently face is that we do not row in the same direction," explains Alexander Malaket, President OPUS Advisory Services International. "Even when we attempt to do it, there are always players that sign up, get all the right stamps and approvals that need to happen to adopt the new technologies or business models and then they stand on the sidelines and wait for someone else to do it. This time around, we need to tackle it together."

Added to this, even in instances where a relatively clear direction has been backed by a significant portion of the industry, it has not necessarily been focused on the most impactful areas. Previous efforts have, for example, tried to tackle the more complex conditional payment obligations and create entirely new instruments. "Creating new instruments, even in the right way through ICC standards and rules, is quite hard for banks and corporates to take on and adopt," adds Casterman. It has been a case of moving too fast, too soon.

This time around – through legislative initiatives, such as the ETDA – unconditional payment obligations are being tackled using the same instruments but in a digital format. "These unconditional payment obligations are very close to what the market has done with supply chain finance: delivering irrevocable payment undertakings to funders on the back of an approved invoice on the buyer side. And as with open account trade for supply chain finance, there is a lot of potential here," reflects Casterman.



## 3

## Legal frameworks

Over the past decade, major steps forward have been made to digitalise trade. New digital standards and emerging technologies have converged to help to bring the industry closer than ever to achieving this goal. This progress has been backed by significant demand and strong momentum.

Despite this, only 1% of global trade today is transacted electronically,<sup>25</sup> which begs the question: why do efforts to digitalise trade continue to stall? There are multiple obstacles to unlocking truly digital trade, but perhaps the biggest is that the existing legal frameworks used for trade around the world no longer reflect modern realities.

Put simply, the law in certain regions requires critical trade documents, such as bills of lading and bills of exchange, to be physical. Without reform, the law will continue to lag behind today's digital advances – and will, ultimately, hinder the adoption of electronic trade documents and stop the many associated benefits from being achieved. However, change on this front is underway.

This section explores efforts by the United Nations (primarily through UNCITRAL) to harmonise the laws that govern trade, as well as the efforts being made to implement its reforms worldwide. Figure 4 provides a summary of adoption progress to date at the time of this paper's publication.<sup>26</sup>

### 3.1 Bills of lading and other key trade documents: the possession conundrum

As the drive towards trade digitalisation accelerates, changing or adapting the legal language that governs global trade, with a view to enabling electronic documents to be used, has become a priority. The benefits of this are clear. According to a February 2023 press release by the Digital Container Shipping Association (DCSA), switching away from the transfer of physical paper bills of lading could save US\$6.5bn in direct costs for stakeholders, enable US\$30–40bn in annual global trade growth, transform the customer experience and improve sustainability.<sup>27</sup>



The challenge, however, is this: despite the size and sophistication of the market, certain commercial documents and instruments used in trade – including bills of lading, bills of exchange, promissory notes and warehouse receipts – have not been updated, in some cases, for hundreds of years. For example, other than the type of paper used and the goods being exchanged, a bill of lading taken from the 16th century – detailing the contents of the cargo, the origin of the goods and its destination – would not look too out of place in 2023. Just to put the importance of these documents in perspective, most bills of lading are still paper-based and apply to around 40% of all containerised trade transactions.<sup>28</sup>

As these documents – and the processes they involve – remain largely unchanged, the laws surrounding their use have also been lost in time. In the majority of cases, the legal wording for these documents hinges on concepts such as “possession” and “delivery”, which, given the context of the time these laws were enacted, presupposes the use of a tangible medium (e.g. essentially, paper).

As electronic documentation is not tangible, these digital alternatives are not legally permitted in many regions of the world. It means that the original bill of lading still requires many stakeholders to print, stamp and sign various paper copies before physically transporting them to their destination. The resulting manual processes involved in dealing with this physical documentation can take six hours, or more, across all stakeholders.<sup>29</sup> So, the race has been on to achieve legal and functional equivalence between paper-based documentation and digitally-based documentation.

In recent times, several electronic trade document solution providers have emerged, devising a novel approach sometimes known as the “walled garden.” This method circumvents legal barriers by requiring each party engaged in a trade transaction to enter into a contract, recognising the authenticity of the electronic trade document. This is often through a “club” of members who sign up to agreed terms and conditions to achieve this aim. Despite its ingenuity, the adoption of this approach has been hampered by its restrictive nature, complex procedures, and, in some cases, legal uncertainties.<sup>30</sup>

### 3.1.1 Model Law on Electronic Transferable Records (MLETR)

The events and circumstances of the past four years have energised developments in the global trade finance field and brought digitalisation into focus as never before.

English law, for example, is permissive of digital signatures and certain digital contracts, including so called “smart contracts” where agreement can be by way of “click to accept.” However, the appetite for this method in a trade or trade finance context has been limited up to now.

On 28 April 2021, the digital and technology ministers of the G7 leading world economies declared that they would work together to develop mutually compatible technology and digital reforms. One of the key interventions identified by the G7 was greater adoption of electronic transferable records<sup>31</sup>, and members agreed to identify the legal and regulatory barriers which prevent the use of electronic transferable records by business in order to make economic savings and to generate efficiencies in time, security, and data processing.

The UN has been working in this area for several years. In December 1966, the United Nations Commission on International Trade Law (UNCITRAL) was established with a mandate to further the progressive harmonisation and unification of the law of international trade. The original membership of UNCITRAL was comprised of 29 member states of the UN and by 2023 had expanded to a total of 70 member states.

**"Transferable documents and instruments are essential commercial tools. Their availability in electronic form may be greatly beneficial for facilitating electronic commerce by, for example, improving speed and security of transmission, permitting the reuse of data and automating certain transactions through 'smart contracts'"**

UNCITRAL<sup>32</sup>

As part of its ongoing efforts to harmonise trade, between 2011 and 2016 Working Group IV of UNCITRAL developed the Model Law on Electronic Transferable Records (MLETR), which aims to enable the legal use of electronic transferable records both domestically and across borders.<sup>33</sup> To this end, the MLETR acts as a template to promote greater legal harmonisation, which can be in the form of a stand-alone text, or as an add-on to existing legal texts.

Key features include:

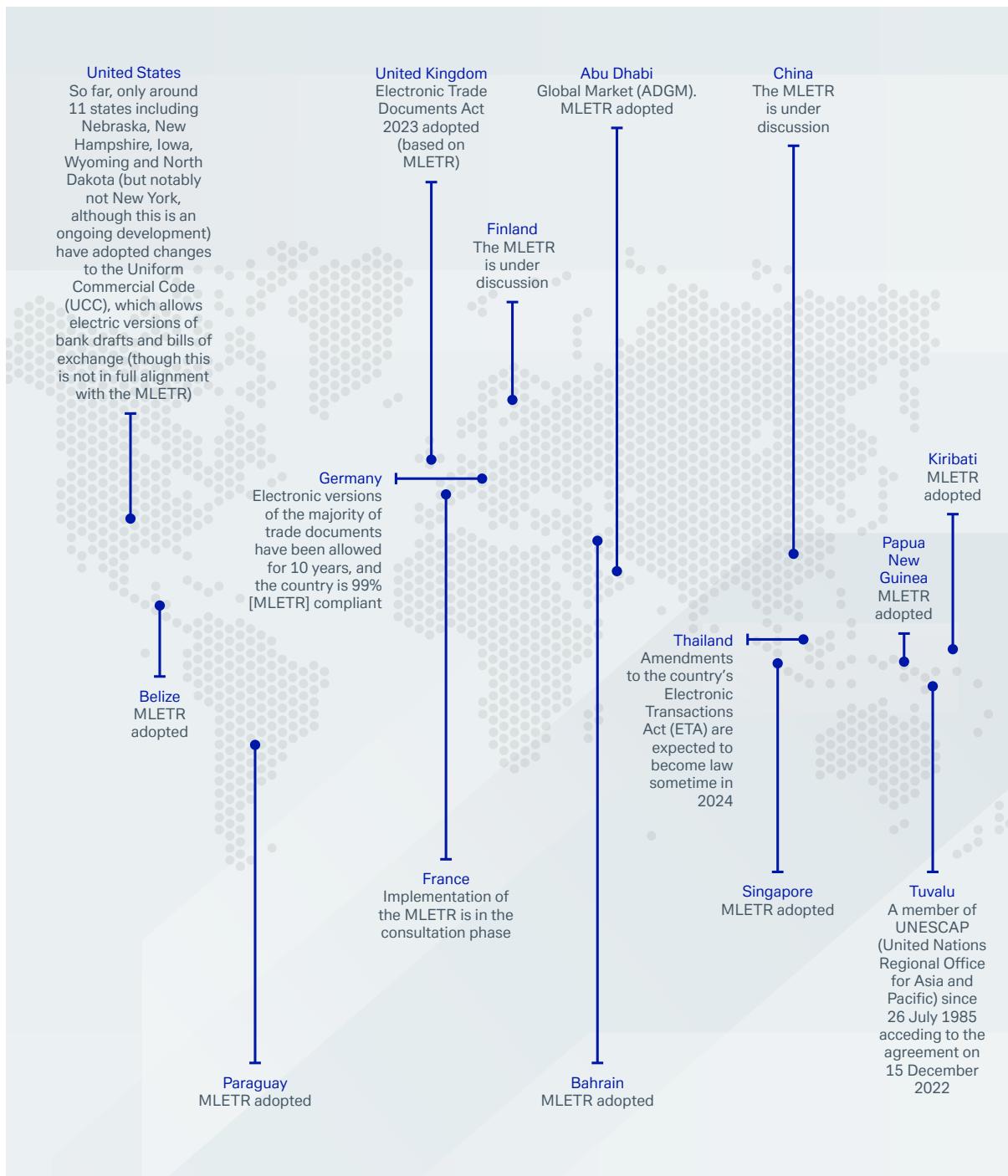
- **Functional equivalence.** Applies to both electronic and paper-based documents – meaning the use of either is functionally equivalent from a legal standpoint.
- **Enabling law.** No new regulation or prescription is required.
- **Technology neutral.** It is compatible with all technologies and all models, including registry, token and distributed ledger-based (blockchain) systems.
- **Safeguards against fraud.** By combining the notions of "control" and "singularity" the MLETR can help to prevent documentary credit fraud.

#### MLETR: adoption and action

Since its introduction in 2017, the adoption of the MLETR has been slow but effective – with Bahrain, Belize, Kiribati, Papua New Guinea, Paraguay, Singapore, the United Arab Emirates (the Abu Dhabi Global Markets) having already adopted the MLETR in some form.<sup>34</sup>

There are also already examples of the MLETR in action. In November 2021, Singapore's Infocomm Media Development Authority (IMDA), the Monetary Authority of Singapore (MAS) and the Financial Services Regulatory Authority (FSRA) of Abu Dhabi Global Market (ADGM), in collaboration with commercial partners DBS Bank, Emirates NBD and Standard Chartered, successfully concluded the world's first cross-border digital trade financing pilot. It has served to harmonise the legal recognition of digital documents, such as electronic bills of lading (eBLs), across jurisdictions.<sup>35</sup>

Figure 4: Digital trade law – adoption progress around the world



Source: Deutsche Bank

**"While digitalising bills of lading is an important step forward in terms of driving efficiencies, the real benefit for banks may come from digitalising bills of exchange and promissory notes. There is a real opportunity for us to connect these instruments to supply chain finance – and it is here, in the open account space, where there is likely to be a real growth impact for banks in the short term. This should help to drive adoption"**

André Casterman, Chair of the IFTA Fintech Committee



### 3.1.2 Electronic Trade Documents Act

In 1882, when Queen Victoria was 45 years into her historic reign and William Gladstone in his second term as prime minister, the "Bills of Exchange Act" – the legal framework for global trade, which would stand for the next 140 years – was passed.

More than a century later in 1992, when Queen Elizabeth II had been sovereign for 40 years and John Major won re-election as prime minister, the revised "Carriage of Goods By Sea Act" – the UK statute regarding bills for the lading of goods onto ships – was passed.

While these points of reference are historical, the laws, enacted 141 and 31 years ago respectively remained, until July 2023, very much in the present – governing the vast majority of global trade. As these laws remained static, it is not only the monarchs and prime ministers that have changed – the world has become increasingly digital in the intervening years. And, under these laws, being the "holder" or having "possession" of a trade document has special significance – and means that digital documentation cannot be used. As a result, the Law Commission estimates that global container shipping generates billions of paper documents a year – and using electronic trade documents instead would introduce significant financial and efficiency gains, as well as environmental benefits. In March 2022 it noted that the International Chamber of Commerce (ICC) had estimated that digitalising trade documents could generate £25bn in new economic growth by 2024, and free up £224bn in efficiency savings.<sup>36</sup>

In view of these challenges, the Law Commission was tasked with exploring how the law could be reformed to give electronic trade documents the same legal status as paper-trade documents. The Commission's recommendations were published in March 2022 and the Electronic Trade Documents Bill – based on the MLETR – was subsequently introduced to the House of Lords on 12 October 2022.<sup>37</sup>

On 12 December 2022, the government succinctly set out the aim of the legislation in its impact assessment: "the objective of the legislation is to put electronic trade documents on the same legal footing as paper trade documents. This will support the development of a global ecosystem for electronic trade documents, which are cheaper, simpler, faster, and more secure than their paper equivalents."<sup>38</sup>

Seven months later, on 11 July 2023 the Electronic Trade Documents Bill was given Royal Assent, making the UK the first G7 country to implement the standard, and providing an adoption framework for other countries looking to adopt the model law.

Thanks to this six-page piece of UK legislation – described by Lord Holmes as “one of the most important Bills you’ve never heard of” – certain electronic trade documents now have the same legal status as their paper equivalents in English law. While it might appear only a small piece of legislation, it is actually a game changer for world trade.

The impact of the Act extends far beyond the UK, a legacy of the UK’s historic role in trade.<sup>39</sup> Not just across The Commonwealth, but for every buyer, seller, insurer, financier and intermediary using English law as a basis for contract law or handling trade. According to David Meynell, Founder of TradeLC Advisory and Digital Rules Adviser, ICC United Kingdom, this has “allowed the industry to reach a synchronous connection between technology, practice, law and rules”.

Although a large percentage of trade is governed by English law, Pamela Mar, Managing Director of the ICC Digital Standards Initiative, warns that the ETDA will not capture all of this. “English law is the heritage of many legal systems, but UK law and any changes to it, still only applies to the UK,” she explains. Mar continues, “So, the passage of the ETDA might provide an example of how to deal with the legal issues raised by MLETR within English law, but each nation must still adopt it to its national legal framework, even if that’s based on English law.”

The key benefits of the Act, as outlined in the government’s “Impact assessment of the Electronic Trade Documents Bill”, include:<sup>40</sup>

- Costs saved by UK firms moving to electronic trade document systems.
- Entrance of additional UK firms into the international trade sector (due to lower entry costs to trade).
- Increased security and reduced incidence of fraud.
- Increased access to trade finance for UK companies, particularly SMEs.
- Environmental benefits (due to reduced use of paper, printing and courier services).

#### MLETR and ETDA in numbers

- Across the Commonwealth, it is estimated that legal reform aligned with the MLETR could bring in US\$1.1trn in economic benefits by 2026
- A 50% adoption of electronic bills of lading (it is currently less than 0.3%) would save more than US\$4bn per year
- In the UK, the ability to use digital documents would:
  - Improve SME efficiency by 35%
  - Reduce number of processing days by 75%
  - Create efficiency savings of £224bn
  - Generate £25bn in new economic growth for SMEs
  - Generate £1bn in new trade finance

Source: Blueprint Paper on Digital Trade and the UNCITRAL Model Law on Electronic Transferable Records



**"The big point around English law is it is not about England – this is about English law and its role in trade worldwide. With the Commonwealth countries using the same pieces of centuries old foundational law, the Bills of Exchange Act and Carriage of Goods by Sea Act, they should, theoretically be able to adopt the new bill wholesale or with minor changes. The potential is there to accelerate legal reform faster than any other global network"**

Chris Southworth, Secretary General, ICC United Kingdom



Yet while the law may now allow digital documents, there remains a question regarding the suitability of the technology solutions that are used to create and manage these documents. The question that potential adopters will ask is, "if I don't get paid, who do I sue and can I rely on the law to be on my side?". Disputes concerning paper trade documents have the benefit of centuries of legal precedents – and much work will be needed to build a similar level of confidence. Figure 5 outlines the next steps to tackle this challenge.

**"Though the law may allow digital documents, no-one can point to a long history of cases where a party has defaulted on an obligation enshrined in a digital document and has had satisfaction in a court of law. It may be necessary for some sort of accreditation of the technology solutions that are said to deliver the properties of singularity, possession and transferability in order to provide the level of confidence needed for finance provider to make the leap of faith into the wholly digital universe"**

John Bugeja, Managing Director, Trade Advisory Network

### 3.1.3 The need for “reliable systems”

While the Act gives digital documents the same legal status as paper ones within English law, there is a caveat. In its definition of what constitutes an “electronic trade document”, the Act outlines the need for a “reliable system”. Law firm Sullivan summarises the role a “reliable system” would need to play, as per the Act:<sup>41</sup>

- Identify the document as an original.
- Protect the document from any unauthorised alteration.
- Ensure that no more than one person can have exclusive control over the document at any one time.
- Allow the person (whether an individual or a company or any other entity) to demonstrate that they can exercise control of the electronic document.
- Allow the document to be capable of being transferred to a new holder, which then has exclusive control.

Although the Act is technology neutral, it also provides some guidance on what should be considered when determining whether or not a system is “reliable” – as summarised by Sullivan:

- Any rules of a system.
- Measures to secure the integrity of the information being held on the system.
- Measures to prevent unauthorised access.
- Security for the hardware and software used.
- How often a system would be independently audited.
- Any assessment of reliability of a system by a supervisory or regulatory body .
- Any industry standards or voluntary standards that might apply to the system.

Work is underway across the industry to ensure that there is legal clarity over what constitutes a reliable system as efforts to begin leveraging the new Act continue to ramp up (see Figure 6).

**“Solutions making use of the ETDA need to address two key elements required by the Act: namely creating and then giving exclusive control to the holder of the relevant electronic record (together with their ability to transfer rights to what is evidenced by that electronic record), all as verified by a reliable system. Any – and all – such digital solutions will need to address this.”**

Geoffrey Wynne, partner and head of  
Sullivan’s Trade & Export Finance Group, London



While there is some way to go, it is important to keep in mind what the ETDA has actually achieved in moving digital trade finance forward. “The passing of the ETDA is the legal gamechanger and digital enabler the industry has been waiting for,” says Dominic Broom, SVP Working Capital Technology, Arqit. “An opportunity now exists to use digital negotiable instruments – such as bills of exchange and promissory notes – more widely as a means to improve working capital and earnings by delivering financing flexibility to existing frameworks (including the option of post maturity finance). Further benefits include better access to liquidity for SMEs, enhanced data security, as well as attracting additional liquidity from non-traditional sources by accessing a broader range of financing partners.”

He makes the point that the ICC UK’s Centre for Digital Trade and Innovation (C4DTI) is consulting on what constitutes a ‘reliable system’. But, he added, “future proof DNI solutions are already available that meet the ETDA’s, and the MLETR’s, definition of a reliable system by passing key ‘possession’ and ‘reliability’ tests. Such solutions place quantum-secure digital seals around the DNIs and protect electronic digital signatures using quantum notary technology, thereby assuring the ownership and authenticity of an instrument. This allows DNIs to be sent across networks with the complete assurance that they can be accessed solely by the intended recipient – thereby satisfying legal specifications around a digital document’s acceptability.”

#### Figure 5: What are the next steps?

Within a year of the coming into force of the ETDA, on 20 September 2023, the Centre for Digital Trade and Innovation (C4DTI) aims to have established:

- A model for “reliable systems” as described in the Act such that any system wanting to badge itself as being compliant with the terms of the Act has a simple and straightforward mechanism for identifying the technical standards they would have to meet.
- A mechanism for the “assessment” of such systems as being reliable within the terms of the Act against that model.
- A model that is internationally aligned and promotes the uniform application of the ICC Digital Standards Initiative approved interoperability framework – legal, rules, standards, trusted technology principles.
- A public register for reliable systems that will enable any trader wanting to take advantage of the Act and the benefits that can flow from its digital provisions, can tell at a glance whether any given system has met the terms of the “voluntary scheme”.

In doing this, the C4DTI will work closely with the ICC Digital Standards Initiative and with industry and government to ensure our framework derives its authority and practical usefulness from consensus across industry globally and in the UK, harnessing where possible and desirable existing standards, good practice and capability that already exists in the market.

Source: Taken from “Delivering the Electronic Trade Documents Act Provisions: English Law Reliable Systems Assurance Model”, by the ICC and C4DTI.<sup>42</sup>



Demonstration of a “reliable system” being in place is important, explained ITFA Chair Sean Edwards, because if you don’t have this “your electronic document does not qualify under the ETDA.” While this sounds like a lot of work, the standard required by the ETDA was not meant to be higher or more difficult to prove than respectable systems can demonstrate today. There is no ‘trap for the unwary’ here and while systems vendors do have to show their credentials, this is no more than they are used to doing for customers today. Several vendors have commissioned legal opinions, while others have commissioned technical reports.

ITFA has given advice on the use of legal opinions. They are useful wrappers or containers they say and are a convenient place to collect all of the different issues that need to be tackled together.

As ITFA have said in a market communication: “The Act does not require systems providers to provide legal opinions, and these are not compulsory. Legal opinions are, however, a very good vehicle for bundling together the information that providers will need to demonstrate to the right standard to show reliability. In many cases, it will include a technical report by an appropriate expert on matters such as, for example, cybersecurity and this will normally be a key assumption in the legal opinion. Legal opinions will, of course, include opinions on purely legal issues as well but are unlikely to be in the form of classic banking legal opinions and will, and should draw, on third party expert input. With this limitation borne in mind, they can be a valuable tool as providers deal with this aspect of the Act.”

ITFA has also published an update to its DNI Handbook setting out some useful interim wording to use in electronic negotiable instruments. This is available on the public part of the ITFA Digital Negotiable Instrument Handbook.<sup>43</sup>

Ultimately, as trust builds, ITFA says this wording may no longer be necessary.

**“In ITFA’s view, a legal opinion properly supported by a technical dossier dealing with the largely technical criteria indicated by the Act is the ideal approach. In addition, ITFA is working closely with the C4DTI and ICC UK to develop a certification process that will ensure the integrity of digital negotiable instruments, while providing legal certainty and trust for parties involved”**

Sean Edwards, Chairman of ITFA

## 4

## International standards

In the trade finance space, various trade bodies – also known as industry trade groups, trade associations or industry bodies – are working on guidance and initiatives to future-proof the industry. These are funded by businesses that operate in the specific industry and aim to deliver efficiencies, enable innovations and support the growth of the sector.

The three most prominent and influential groups are the International Chamber of Commerce (ICC), the Bankers Association for Finance and Trade (BAFT) and the International Trade and Forfaiting Association (ITFA).

The central role of these bodies – at least from a digital trade perspective – is to help the industry come together in the pursuit of making the journey from paper to digital a reality.

**"Trade organisations can provide support, link parties, facilitate interaction, advocate for change, lobby regulators, and critically, liaise with relevant government departments in order to initiate legislation and safeguard a common agenda"**

David Meynell, Founder of TradeLC Advisory and Digital Rules Adviser, ICC United Kingdom



### 4.1 Rules and standards

The need for standardisation in trade is a common rallying cry within the industry – and an oft quoted prerequisite for digital trade. But why exactly is this the case? Isn't digital trade already possible? The answer is "sort of, but not really".

Proprietary platforms, club-based solutions, and private rulebooks have had some success in circumnavigating the need for legal frameworks or harmonised standards. These developments rely on each party involved in a transaction signing up to a defined set of standards that only apply within the closed loop of participants. While they have played an essential role in advancing digital trade, the barriers to involvement in such initiatives – including but not limited to the cost of onboarding – have deterred and isolated many SMEs.<sup>44</sup>

And this is where trade organisations have a central responsibility: making access to trade fair for companies of all sizes, which will be, in the long term, an essential driver of future economic growth.<sup>45</sup> Rules and standards help to safeguard applicability and guarantee relevance for traditional trade instruments. As the world of trade continues to digitalise, these rules are expanding to explicitly and unambiguously support the usage of electronic records. Such an approach ensures conformity and congruence as opposed to divergent local, national and regional practices, leading to a shared understanding of terminologies and objectives.

In the following section, we outline the core rules and standards that are providing the foundations needed to transform trade finance.

#### 4.1.2 ICC: URDTT and eRules

The ICC produces universally accepted rules and guidelines to help businesses access the financing needed to import or export goods. While existing ICC rules, such as UCP 600 and URC 522, remain invaluable in a paper-based world, they provide limited protection when applied to electronic transactions.

In response to this challenge, the ICC is increasingly focused on aligning corporates, banks, service providers and fintechs to address the changing needs of trade finance in a digitised world. To this end, new ICC rules have been published over recent years that focus primarily on digital trade finance, including:

- **eUCP Version 2.1.** The Uniform Customs and Practice for Documentary Credits (UCP 600) Supplement for Electronic Presentations (eUCP) is a supplement to the UCP 600 in order to accommodate presentation of electronic records alone or in combination with paper documents.
- **eURC Version 1.1.** The Uniform Rules for Collections (URC 522) Supplement for Electronic Presentation (“eURC”) is a supplement to the URC 522 in order to accommodate presentation of electronic records alone or in combination with paper documents.
- **URDTT Version 1.0.** The Uniform Rules for Digital Trade Transactions (URDTT) are in place in order to provide a structural framework for all parties (or persons) that participate in a Digital Trade Transaction. The rules serve as an overarching framework for high-level guidelines outlining obligations, rules and standards for the digitalisation of trade finance, thereby providing global standardisation, consistency and conformity.

The eURC and eUCP established rules for electronic records associated with existing, well established, trade finance products. These rules, however, are not fully digitalised owing to an ongoing market reliance on manual reconciliation processes.

The URDTT on the other hand envisages transactions that are evidenced in a manner that is totally digitalised. This is why the approach taken in the drafting of the URDTT was to produce rules that are agnostic as to the medium used to handle the digital trade. One important stipulation is that the trade must be conducted using electronic records and not paper.

User Guides to eUCP/eURC<sup>46</sup> and the URDTT<sup>47</sup> have been made available free of charge with the aim of encouraging adoption of electronic documents/records.

Furthermore, a series of Digital Commercialisation Briefing Papers is being issued with the first now available, “Risk of email presentations and file attachments under Documentary Credits subject to UCP 600”.<sup>48</sup> As highlighted in the Briefing, the Covid-19 pandemic led to banks and corporates alike adopting innovative solutions to support the processing of trade finance transactions. This led to an increased use of email as a means of presenting documents under documentary credits subject to UCP 600. The content raises awareness on risks associated with the practice.

**“Driving adoption is still a major challenge, however, as it does not relate to a ‘product’. URDTT does, however, deliver a set of rules which can be applied to any number of financing solutions, the only real constraint is that they must be ‘documented’ and progressed entirely in the digital space. As technology companies, fintechs and banks build financing solutions in the digital space, the adoption of URDTT should be seen as an enabler”**

John Bugeja, Managing Director, Trade Advisory Network

#### 4.1.3 Swift MT 798 and APIs

In trade finance, there are several bank-to-bank and corporate-to-bank messaging systems which allow for the flow of information relating to trade finance transactions: MT 799, MT 760 and MT 798. These messages are part of the Swift MT standards, which are a set of standardised message types that enable the secure exchange of financial information between financial institutions.

The FIN MT 798, system (the 'Trade Envelope') caters for the following instruments:

- Import letters of credit;
- Export letters of credit; and
- Guarantees/standby letters of credit.

Using Swift Category 798 messages (for Letters of credit and guarantees), corporates can apply to their bank for a letter of credit or guarantee, and receive an advice of LC or guarantee back from their bank. The bank can then notify the issuance of an LC or guarantee or notify an amendment. These messages have been used successfully by corporates since inception, especially for high-value payments and when working with new suppliers.

After consulting with its community, Swift overhauled MT 798s for letters of credit in 2018 and for Demand Guarantees and Standby Letters of Credit in 2021 – and continues to work with the community on enhancements and alignments to suit changing market requirements.

According to Swift, there is currently no immediate plan to migrate trade messages to ISO 20022. In fact, to ensure that the industry is future ready, Swift have developed the first trade ISO-compatible Corporate to Bank API for Guarantees, in collaboration with the ICC.<sup>49</sup>

**"We want to help promote standardised APIs for use by corporates, banks, and platforms, instead of consuming and developing propriety APIs which will create further fragmentation in the ecosystem. Standardised APIs will help provide a light footprint and real-time visibility to corporates and banks. While we are cognisant that trade is evolving from documentary credit based to more open account trade (particularly in Europe and the Americas), there is still strong demand for letters of credit and we will continue to evaluate the situation and consult with the industry as we develop more trade APIs"**

Avanee Gokhale, Global Lead for Trade Strategy, Swift



## 4.2 Initiatives and working groups

Trade bodies often form working groups or task forces, or collaborate on initiatives, to focus on specific industry issues and develop practical solutions to solve them.

**"I think trade bodies are an excellent way to get people to work together. They provide a neutral environment in which institutions feel happy to meet, discuss, and work together to discover multiple concepts from a range of different industry perspectives – from banks and fintechs, to law firms, and consultants"**

André Casterman, Chair of the IFTA Fintech Committee

### 4.2.1 The ICC

The ICC is the institutional representative of 45 million companies in more than 170 countries, making it easier for businesses to trade internationally. The ICC actively advocates both industry and governments to implement interoperable legal, rules and standards frameworks across all trade platforms, systems and processes. Alongside the standards they create, the ICC also has various initiatives, working groups and committees that are working to maintain the standards and drive the conversation forward.

#### 4.2.1.1 The Digital Standards Initiative (DSI)

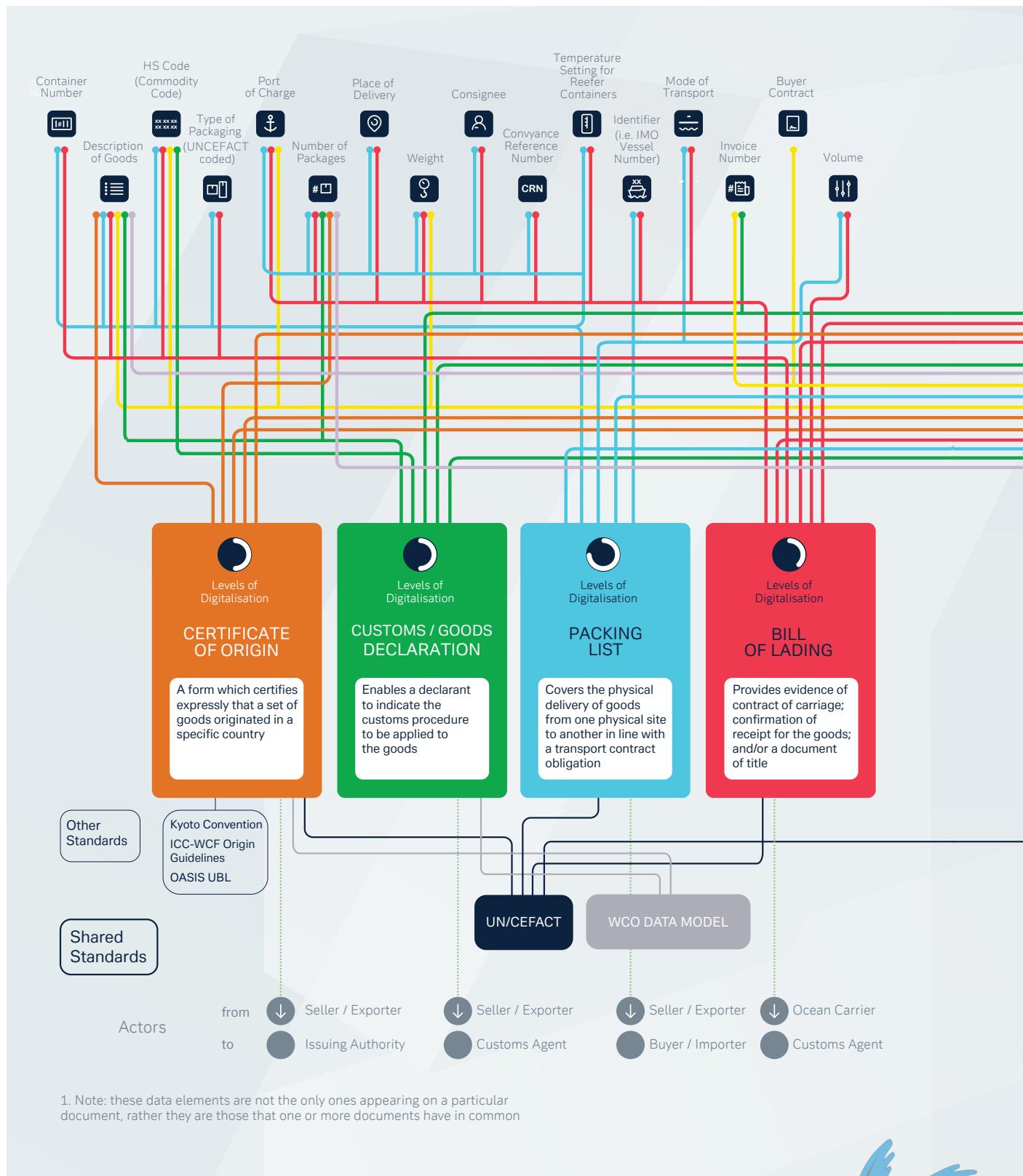
Obstacles to digital trade include the lack of an enabling policy environment, the proliferation of multiple digital trade practices and standards, as well as shortage of capacity to undertake the necessary changes at all levels. The ICC Digital Standards Initiative (DSI) was established to address these obstacles and accelerate the development of a globally harmonised, digitalised trade environment. The DSI has mobilised the private sector on standards harmonisation and adoption through its Industry Advisory Board and Key Trade Documents and Data Elements groups.

The Digital Standards Initiative (DSI) and the World Trade Organization have jointly produced a "Standards Toolkit for Cross-Border Paperless Trade",<sup>50</sup> which provides an overview of existing standards to help drive adoption, identify potential gaps and promote interoperability. It is essential for the trade finance world to be equipped with a shared understanding of digital language and standards, rather than disparate interpretations.

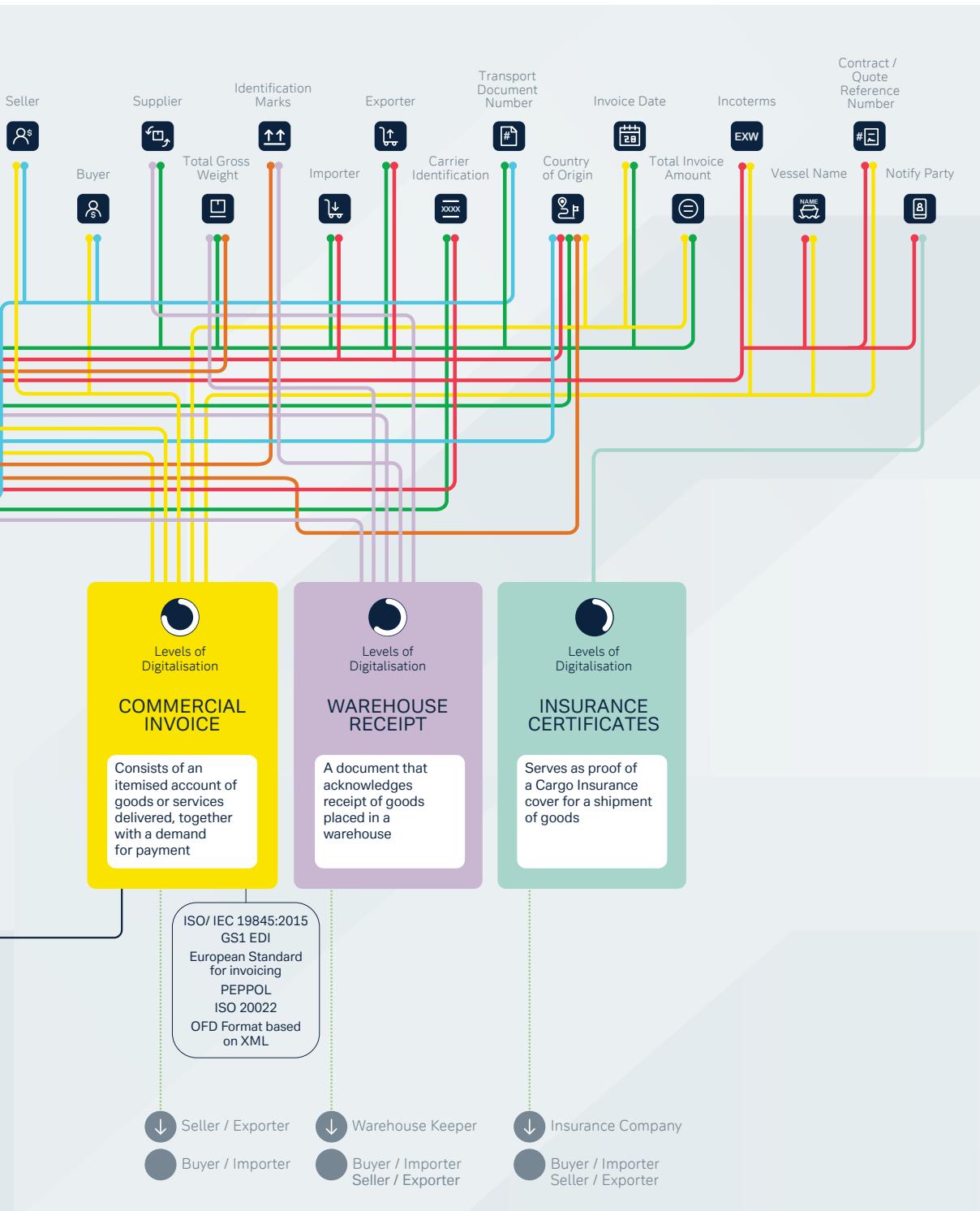
At the March 2023 ICC Future Trade Forum in Singapore another major step forward was taken to align the industry behind a common vision, with the release of new guidance to enable digital trade at scale.

Released at the Forum, the DSI's Key Trade Document and Data Elements (KTDDE) Working Group report, Key Trade Documents and Data Elements',<sup>51</sup> analysed seven key trade documents and their respective digital versions, seeking to define, map and align their data elements. Analysing the repeated data elements in the seven key trade documents – certificates of origin, commercial invoices, warehouse receipts, packing lists, bills of lading and customs declarations forms and insurance certificates – revealed and confirmed several patterns, enabling a mapping of gaps in standards (see Figure 6).

Figure 6: Entity Relationship Map of the shared data elements in the seven key trade documents



Source: The ICC DSI Key Trade Documents and Data Elements Report



This process concludes that digital trade is feasible without the creation of entirely new standards and taxonomies, but rather, by adapting and building on practices already in place. To this end, the DSI provided four “cross-cutting” recommendations on how common data approaches and digital standards could facilitate data sharing and interoperability:

1. Ensure that platforms and systems are designed to be compatible with at least one of the major recognised standards, and preferably able to work with multiple standards.
2. Issuing and acceptance organisations, and relevant regulators, should align to best practice definitions of Key Data Elements where they exist.
3. Issuing and acceptance organisations should pursue a “digital by default” strategy. Default to a 100% digital issuing process, eliminating manually issued documents where possible and reducing the use of wet stamps and printed documents.
4. Governments should leverage existing trade relationships to collaborate on new regulations for the issues that are likely to define the future of digital trade.

While the original report only contained an initial batch of seven commonly used trade documents, the DSI unveiled its expanded digital standards recommendations under DSI’s Key Trade Documents and Data Elements (KTDE) practice in November 2023. The launch of the baseline analysis for these additional 14 key trade documents – covering transport and logistics, finance and payment processes and documents of title – adds to the existing set of seven documents. The enhancement includes a new key trade data glossary and data sharing map across the 21 documents developed by the KTDE working group.<sup>52</sup>

At the same Forum, the DSI Trusted Technology Environment (TTE) working group outlined the “Trust supply chain” in its Trust in Trade paper to complement existing physical, financial and information supply chains. The trust supply chain will simultaneously improve speed, efficiency, and data interoperability.

**“Our vision is a world where goods and services flow across borders without undue administrative burden, where a common dataset shared by supply chain partners offers the vaunted “single source of truth” that is adhered to, protected and verified by agreed technologies and used to enable finance to flow to those players who today lie on the other side of a well-known trade finance gap”**

Pamela Mar,  
Managing Director of the ICC Digital Standards Initiative



#### 4.2.1.2 The Centre for Digital Trade and Innovation (C4DTI)

The Centre for Digital Trade & Innovation (C4DTI) was set up to address the market failure that has worked against the large-scale adoption of digital processes in trade in the UK and globally.<sup>53</sup> The C4DTI is led by ICC United Kingdom. Partners include the Department for International Trade, Department for Digital, Culture, Media and Sport, Cabinet Office, HM Revenue and Customs, DSI, Institute of Export and International Trade and British Chambers of Commerce.

The Centre's mission is to provide an impartial framework that brings industry and government together in order to accelerate the adoption of digital processes based on three types of interoperability:

- Legislation and policy;
- International standards; and
- Technology.

As a public/private partnership the C4DTI framework enables the legislative, policy, standards and rules elements of trade to proceed at the same pace. The C4DTI deliver this mission through a range of practical services:

- Six-week pre-pilot challenges to identify issues and solutions.
- End-to-end cross-border supply chain pilots to test the application of international frameworks, the functionality of standardised systems and processes and technology solutions.
- Research to provide thought leadership and identify potential barriers and solutions to digitalisation.
- Training courses to support SMEs and global supply chain ecosystems.
- Campaigns to promote the benefits of digitalisation and adoption of international standards.
- Legal assistance to support low to middle-income countries to remove requirements for the use of paper commercial trade documents and align legal systems to the UNCITRAL Model Law on Electronic Transferrable Records.
- Events to showcase and share best practice adoption and implementation.



#### 4.2.1.3 Digital Trade Roadmap

In 2017, the ICC Banking Commission launched the “Digitalisation in Trade Finance Working Group”, with the aim to identify strategies that overcome the constraints of digitising trade finance. The Working Group was the coordinating body on all work by the ICC Banking Commission related to the digitalisation of trade finance, with a mandate to identify ways to overcome the associated obstacles. The Working Group has since been disbanded, but its important work on the Digital Trade Roadmap (see Figure 7) has been taken forward by the ICC’s Digital Standards Initiative. The main objectives of the Working Group included:

- To evaluate existing ICC rules in order to ensure that they are “e-compliant”.
- To develop a set of minimum standards for the digital connectivity of service providers.
- To examine the legal and practical issues related to the validity and value of data and documents in digitised form.
- As part of these efforts, the Working Group developed a Digital Trade Roadmap setting out concrete policy changes that will promote the global digital agenda, with a first version issued in 2017 and an update in 2022. The Roadmap is intended to help provide a framework for digitalisation, setting out three pillars of action required to digitalise trade; legal reform, standardisation, adoption and implementation (see Figure 7). It also sets out how the trade system operates today, how it will operate in future and what needs to be implemented now to achieve this vision.
- The Roadmap has identified that the prevailing system is inefficient, costly and complex, existing in a fragmented environment with digital systems, processes and platforms that do not connect or interoperate.<sup>54</sup> This prevents data and information from flowing between participants in standardised formats. Significantly, technology solutions are rarely able to scale effectively across borders.
- The aim is to ensure trade platforms, systems and processes are fully interoperable, supporting the global flow of data and information in standardised formats between the public and private sector.

Figure 7: ICC Digital Trade Roadmap: Reaching the destination



Source: ICC Digital Standards Initiative

## 4.2.2 ITFA

Founded in 1999, the International Trade and Forfaiting Association (ITFA) is a representative body made up of circa 300 members from all over the world. ITFA brings together banks and financial institutions that are engaged in originating and distributing trade related risk and finding creative ways to mitigate risks. Expanding from its original focus on the purchase and discounting of simple but robust payment instruments, such as negotiable instruments and letters of credit, the forfaiting industry has embraced new instruments and created new structures to become a prominent part of supply chain finance. ITFA acts as a valuable forum for its members to interact and transact business together profitably and safely.<sup>55</sup>

### 4.2.2.1 The FinTech Committee

The FinTech Committee of ITFA aims to help the ITFA membership keep abreast of and embrace technology innovations impacting the trade finance and risk distribution spaces. It promotes the use of FinTech capabilities to transaction banks, insurance companies and capital market firms. The focus is on automating trade finance and on establishing trade finance – in particular, receivables – as an investible asset class that can address the current Trade Finance gap. The FinTech Committee concentrates on four market-level themes:

1. Collaboration between regulated financial institutions and FinTech companies.
2. Platforms providing new business eco-systems and practices.
3. Infrastructure initiatives aimed at introducing new digital highways.
4. Use of transaction data to drive decision making and increase client satisfaction.

### 4.2.2.2 Digital Negotiable Instruments (DNI) Initiative

ITFA has emphasised the importance of interoperability in the development and adoption of negotiable instruments that are compliant with MLETR. To support these efforts, ITFA has launched a Digital Negotiable Instruments (DNI) Initiative, with the aim of fully digitising bills of exchange and promissory notes (PN). In order to achieve this, they have identified the need to combine advanced document technology with electronic signatures and distributed ledger technology (DLT) whilst developing the appropriate contractual schemes and, where needed, lobby to change the law. The initiative, and ITFA more widely, have, for example, played a central role in the passing of the ETDA in the UK – and are continuing to advocate for MLETR adoption at a national and European level.

As part of this initiative, ITFA published the second edition of its manual on Digital Negotiable Instruments, which sets out the Digital Documents (dDOCs) standards and how to practically implement the digitised instruments.<sup>56</sup>

### 4.2.2.3 URTEPO

In 2013, ITFA and the ICC published the Uniform Rules for Forfaiting (URF 800): a set of rules designed to better regulate the primary and secondary markets in such transactions. Due to increasing levels of digitalisation, as well as accompanying changes in the law, there are new ways to both create, or re-create, these traditional instruments in a digital form, as well as use new ways to transfer them.

In view of this, ITFA took the decision to publish new rules covering the transfer of electronic payment obligations that can be used to support the financing of international trade, as outlined in *Uniform Rules for Transferable Electronic Payment Obligations (URTEPO), Version 1.0*.<sup>57</sup>

Both the URTEPO and URF 800 will co-exist, with the former catering for fully or partially electronic transactions and the latter catering for traditional paper-based transactions. Important aspects to note include:

- Both set of rules deal with the transfer of trade finance instruments and NOT creation.
- They are versatile as can be used in relation to the ever-expanding range of instruments, e.g., digital letter of credit.
- The rules are designed to be technology neutral and to be consistent with the principles underlying much of the new breed of legislative innovation in this area, such as MLETR and the ETDA.
- The rules do not specify what constitutes a reliable system (as per the ETDA). Practitioners will need to refer to other industry practice, legal and regulatory guidance and the applicable law of the transfer when determining these matters.

#### 4.2.2.4 ITFA Trade Finance Investment Ecosystem (ITFIE)

The financing of international trade has long been the domain of banks with bulk of the global market share historically concentrated amongst industry members. Trade finance is experiencing a level of visibility unparalleled in its long history and there is clear recognition of the need to widen the trade financing ecosystem and bridge the trade finance gap to support the global supply chains that are the arteries of trade. This includes SMEs based in developing and emerging markets, where the challenges in accessing affordable trade finance are most acutely felt.

It is widely acknowledged that banks alone will be unable to address global unmet demand for trade financing, as a result of balance sheet constraints and limitations in risk appetite. This presents a clear and compelling need to create an ecosystem and enabling framework to facilitate access to trade finance by advancing its evolution as an asset class for alternative investors. These may include asset managers, insurance companies, pension funds and others who seek a risk/return profile that aligns with the character of trade finance portfolios.

ITFIE brings together bankers, lawyers and fintechs – combining the expertise needed to open trade finance to alternative investors. The fintech community, richly represented in ITFA, is building the digital tools and platforms that the market needs, drawing on experience from both the capital and trade finance markets. Finally, some of the market's most in-touch lawyers are working on the necessary rules and legal principles.



### 4.2.3 BAFT

The Bankers Association for Finance and Trade (BAFT) is another trade body that engages with policymakers on the need to rationalise laws and regulations that best address emerging technology and business models that affect financial services worldwide. As stated in The BAFT white paper, *Progress on Trade Digitization 2021*, the two major obstacles standing in the way of more digital adoption are interoperability and standards or legal frameworks.

#### 4.2.3.1 The Distributed Ledger Payment Commitment (DLPC)

The Distributed Ledger Payment Commitment (DLPC) was established by the BAFT to address the payment commitment within the context of trade instruments being processed on a distributed ledger network. The intent is to produce standardised rules for the transformation of a payment commitment, the common core of all negotiable trade instruments, into a digital asset to be used in any trade finance solution sitting on any distributed ledger technology platform.

### 4.2.4 Swift

Swift is a global member-owned cooperative and the world's leading provider of secure financial messaging services.

**"Payments are and will continue to be the core of what Swift does, and given global trade underlies more than 50% of cross-border MT 103 payments, trade will always be an important area for Swift. We are in a unique position to be able to engage the entire ecosystem end-to-end, to drive efficiency as well as ensure resiliency and security"**

Avanee Gokhale, Global Lead for Trade Strategy, Swift

#### 4.2.4.1 Swift initiatives

Swift is continuing to do more in trade and is currently working on several initiatives that leverage on their strengths in standards. The aim is to:

- Improve quality of reach.
- Reduce friction by providing a single connection to third parties.
- Develop an ecosystem that will provide identity, security and non-repudiation.
- Leverage the wealth of data that Swift has to provide more and richer insights and transparency.



"If we set, as a foundation, that for trade digitalisation to work there needs to be an industry-wide, accepted, and scalable solution, there is an obvious case that Swift should be in the middle of this – and could help to solve a lot of the data-and technology-associated obstacles. Whether all the relevant parties can come together to define what it needs to look like is the important work that still needs to be done"

Atul Jain, Global Co-head for Trade Finance and Lending, Deutsche Bank

#### What is underway at Swift?

Among key trade initiatives that Swift is working on:

- **ISO 20022 and trade.** In collaboration with the ICC, Swift has developed the first ISO 20022-compatible Corporate to Bank Guarantee API for the full cycle of a guarantee. This forward-looking approach guarantees a future-proof implementation while supporting the urgent need for standardisation in the trade API space.
- **Enabling electronic bills of lading.** Swift has performed a second proof of concept for eBLs, using APIs that leverage the Digital Container Shipping Association's industry specifications. In collaboration with four authorised eBL providers (Wave, TradeGo, CargoX and Edoxonline) and two banks, including Deutsche Bank, Swift conducted a series of interoperability trials in early 2023 to understand the solution's potential in enabling timely and secure interactions between eBL platforms in a typical bill of lading lifecycle – creation, transfer and surrender – with Swift as a connecting network.
- **Data and digitisation.** Swift works with the community to provide data analytics on trade, payments and securities, as well as with industry bodies such as ICC to provide analytics around traffic and market trends. Swift actively works with its community to encourage the use of FileAct – its automated messaging service – for the exchange of large data volumes, and to help institutions reduce their reliance on paper and reduce transaction costs.

Source: Swift

## 4.2.5 DCSA

The Digital Container Shipping Association (DCSA) develops digital standards and drives necessary changes that enable end-to-end digitalisation of the container trade documentation process for all stakeholders. Their ultimate aim is paperless international trade, starting with a secure, standardised electronic bill of lading.

### 4.2.5.1 Electronic bills of lading (eBL) gaining momentum

Although eBLs have been in commercial use since 1999, adoption has been slow. As already indicated in this paper, at 2022 only 2.1% of all bills of lading (BL) were digital (see [2.1: The opportunity](#))

The glacial progress is unsurprising given the many obstacles that stand in the way, including the lack of interoperability, the complexity of the multiple stakeholders involved and the legal challenges surrounding digital acceptance in certain jurisdictions worldwide.

And yet it is perhaps somewhat surprising that more progress has not been made given the huge potential eBLs could unlock – both from an efficiency and cost-saving perspective. For example, according to McKinsey, the introduction of a universal eBL could:<sup>58</sup>

- Save the industry US\$6.5bn in documentation costs vs. physical BLs;
- Unlock over US\$7bn in gains by reducing inventory and financing costs and enabling new business model ;
- Unlock US\$30–40bn in global trade growth by reducing trade friction, especially for emerging markets; and
- Save 28,000 trees per year and significantly reduce carbon emissions by eliminating paper usage.

In view of the challenges and opportunities – and spurred on by legal changes, such as the ETDA – there is growing engagement from the shipping community to help drive eBL adoption. For example, in February 2022, DCSA, BIMCO, FIATA, ICC and Swift formed the Future International Trade Alliance (FIT), signing a memorandum of understanding to standardise the digitalisation of international trade.<sup>59</sup> Not to be confused with standardising the whole of international trade, the intent is, quite specifically, to collaborate on the development and adoption of relevant standards to facilitate the use of eBL.<sup>60</sup>

This was followed in February 2023 by further support, with DCSA announcing that nine of the world's major ocean carriers (MSC, Maersk, CMA CGM, Hapag-Lloyd, ONE, Evergreen, Yang Ming, HMM and ZIM), representing nearly three-quarters of global containerised trade, made a formal commitment to 100% usage of the eBL by 2030. As a first step, the members have committed to converting 50% of original bills of lading to digital within the next five years.

In September 2023, the FIT Alliance also announced a declaration of eBL adoption, with supply chain stakeholders from across the globe signing up to digitise.<sup>61</sup> DCSA's work has already led to an increase in eBL adoption in 2022 to 2.1%.<sup>62</sup>

In parallel, the DCSA also began work on cross-platform compatibility in May 2022, with the goal of allowing shippers and beneficial cargo owners to opt for any of the growing number of eBL providers in the market while continuing to be able to exchange electronic documentation with carriers, banks, and other parties that may use different platforms.

With the proof of concept (PoC) supported by seven DCSA carrier members, oil and gas company ExxonMobil and four eBL solution providers – CargoX, edoxOnline, essDOCS and WAVE BL – the initial phase demonstrated the technological feasibility of mutual connectivity. The final phase, which was announced in July 2022, demonstrated that an interoperable setup had been achieved – a significant step forward in meeting the expectations of the PoC participants.

DCSA is currently working in collaboration with both its members and eBL solution providers to add a control mechanism. This addition is essential to further enhance the requirements outlined in the MLETR, specifically with regard to determining who has control over the eBL. This initiative not only ensures compliance but also adds an extra layer of security and trust to the eBL ecosystem.

#### Importance of the eBL

The introduction of the eBL offers several benefits to the shipping industry:

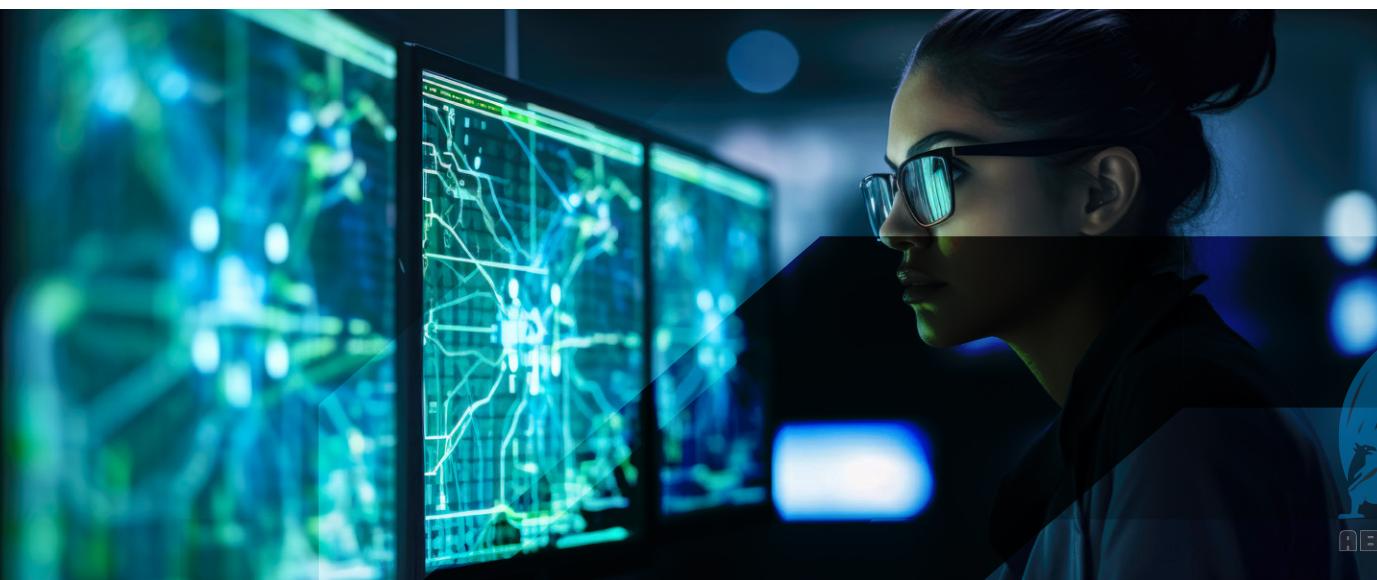
- **Operational efficiency.** Reduction of manual handling and interventions, reduction of errors.
- **Fraud reduction.** The eBL is the single source of truth (thanks to control tracking).
- **Speed in execution.** Digital transmission instead of sending via courier will speed up execution.
- **Sustainability.** Reduction of paper documentation, with the ultimate aim of removing it completely.

Container carriers are taking the lead in bringing digitalisation to their industry – and are working closely with solution providers, as well as crucial stakeholders like banks, freight forwarders, and shippers, to make this transformation a reality. This collective commitment represents a significant advance in the industry's digital transformation.

#### What about banks?

Banks have played a limited role in the eBL landscape to date. This is due to a lack of substantial eBL volumes flowing through their digital channels. The prevalence of digital islands, along with minimal efforts across the supply chain to embrace digitalisation, and a lack of new tech adoption by corporate clients, have collectively deterred banks from taking significant steps towards digitalisation.

The landscape is evolving however, and it is promising. Common standards and interoperability are now in development, and these are crucial factors for achieving mass scaling and successful adoption within the trade ecosystem. Banks are positioned to play a pivotal role in further developments, as these key elements significantly lower barriers to adoption and pave the way for the creation of a true digital network.



**"With their extensive network, spanning both financial institutions and corporate clients, banks are called upon to drive adoption and collaborate to foster a more seamless and effective global trade ecosystem. Scaling eBL and aiming for 100% adoption by 2030 necessitates cross-industry collaboration. This collaborative effort is critical in making paperless trade a reality, underlining the importance of collective action to usher in this transformation"**

Chris Sunderman, Program Lead Banks at DCSA



#### 4.2.6 GLEIF

Established by the Financial Stability Board in June 2014, the Global Legal Entity Identifier Foundation (GLEIF) is tasked to support the implementation and use of the Legal Entity Identifier (LEI). The foundation is backed and overseen by the Regulatory Oversight Committee, representing public authorities from around the globe that have come together to jointly drive forward transparency within the global financial markets.<sup>63</sup>

##### 4.2.6.1 Legal Entity Identifier

A key asset to ensuring interoperability within trade finance – and more broadly – is the Legal Entity Identifier (LEI). The LEI is a 20-character, alpha-numeric code – based on the ISO 17442 – that enables the clear and unique identification of legal entities participating in financial transactions. It connects to key reference information that provides clear and unique identification of legal entities participating in financial transactions. Each LEI contains information about an entity's ownership structure and thus answers the questions of "who is who?" and "who owns whom?".

Simply put, the publicly available LEI data pool can be regarded as a global directory, which greatly enhances transparency in the global marketplace. The Financial Stability Board (FSB)<sup>64</sup> has emphasised that global adoption of the LEI underpins multiple "financial stability objectives" and also offers "many benefits to the private sector".

## 5

## Leveraging innovative technologies

Technology is a fundamental driver of trade finance digitalisation – and has, in part, been driven by the rise of fintechs operating within trade finance.

By leveraging technology – often focused on a particular pain point – to streamline processes, enhance accessibility, and reduce risk, these fintechs have started to reshape trade finance. Of course, they are not achieving this alone. The rise of fintechs has created a more competitive landscape and has forced a change of attitude within banks as well. As a result, banks are increasingly looking to leverage these technologies themselves, or partner with fintechs that provide these technology solutions, to drive change within trade finance.

The following section explores the interplay between standards and technology, as well as some of the key technologies being leveraged today.

**Figure 8: Benefits of trade digitalisation and technology**

Technology	Addressing Challenges of Trade Finance				
	Challenge 1: Process inefficiency		Challenge 2: Regulatory requirements		Challenge 3: Information asymmetry
	Decreased human errors	Improved speed of transactions	Improved flexibility to changes in market and/or regulatory requirements	Improved AML and KYC efforts	Improved credit scoring tools
Cloud-based invoicing solutions	✓	✓			✓
Optical character recognition	✓	✓		✓	
Electronic bills of landing	✓	✓			
Distributed ledger technology such as blockchain-based platforms	✓		✓	✓	✓
Artificial intelligence and big data	✓	✓	✓	✓	✓
Single window	✓	✓	✓		
Internet of Things and GPS	✓	✓			
Application programming interfaces	✓	✓	✓		

AML = anti-money laundering, GPS = global positioning system, KYC = know-your-customer

Source: ADB and UNESCAP

**"The technology is not the challenge; it is a great enabler for creative and value-added solutions. The challenge is coming up with the right business models and motivating and encouraging all parties to participate. To this end, more collaboration is certainly needed between the fintech community, who can then jointly work with the banks on a broader value proposition to serve the corporates and end-users of these solutions"**

Daniel Cotti, Founding Partner, T3i Partner Network

## 5.1 The interplay between standards and technology

Technology is an imperative enabler but, without common standards and aligned legislation, remains a closed shop. Choosing which technology is likely to have the greatest impact is not feasible in a constantly evolving digital environment. It is no coincidence that legislation such as MLETR and ETDA, and trade rules such as the eUCP and the URDTT, are entirely agnostic and neutral when it comes to endorsing any specific technology.

By avoiding technology-specific terminology or solutions, future practices will emerge in many different forms using new technologies within the framework of the law and the rules.

As an example, the ICC Uniform Rules for Digital Trade Transactions (URDTT) are intended to govern across a digital landscape taking into account developments not only in distributed ledger technology/blockchain, but also in the usage of artificial intelligence/machine learning/natural language processing, optical character recognition, data analytics, smart contracts, smart objects/IoT, cloud computing, all of which will have a material impact on the manner in which we will do business in the future.

At this juncture, any solution is to be separately agreed by the parties involved in a specific transaction. The choice of technology platform and messaging standards is to be established distinctly by the buyer and seller. It is strongly recommended that parties transact on the same platform, otherwise practical issues such as interoperability would require attention.

As evidenced in a recent transaction, digital technology continues to develop in order to meet market requirements and overcome potential threat assessments. An international consortium of industry and technical experts, supported by government, business and other organisations completed the world's first quantum-secure cross-border electronic trade document transaction,<sup>65</sup> delivering a verifiable, secure, and legally recognisable solution for future digital trade transactions. A quantum-secure "seal" was placed around the electronic trade documents using symmetric key agreement and quantum notary technology, ensuring that the documents were protected from current and future cyber threats including the risk posed by quantum computers.

## 5.2 Integrating APIs

While several key technologies could enable digital trade finance, application programme interfaces (APIs) are front and centre of the discussions. APIs enable systems to communicate with each other – without human intervention – and serve as a way to exchange data quickly and securely.<sup>66</sup> This allows financial institutions to integrate new products into existing systems at a low cost with minimal effort.

In the digital payments space, APIs are already one of the most common ways to offer payment processing solutions and are fully integrated across the board. However, when it comes to trade finance, much work still remains.

Several financial institutions have already started to leverage APIs, but much education and collaboration will be needed before they can realise their full potential in trade finance.<sup>67</sup> Until the use case for APIs has been better defined, businesses still reliant on legacy systems will inevitably encounter problems when attempting to integrate new software.<sup>68</sup>

Once the API approach to digital trade finance has been refined and standardised, financial institutions using them will be more flexible, agile, and faster to the market.<sup>69</sup>

## 5.3 OCR as a temporary bridge

Optical character recognition (OCR), in its simplest terms, is a technology that converts printed text into machine encoded text – effectively digitising paper documents.<sup>70</sup> This allows the user to electronically edit documents that were previously in print, while simultaneously eradicating the need for the documents be stored physically and reducing costs in terms of both printing and storage.

OCR currently acts as the bridge between the world of physical paper and the digitised future.<sup>71</sup> However, while many institutions are already using OCR in their day-to-day processes, it has its limitations. Currently, OCR only has a 70%–80% accuracy rate – with 100% accuracy restricted to a standardised document with pre-agreed fields.<sup>72</sup> Naturally, this means that human intervention is still needed for double checks and tidying up documents.

Ultimately, the very nature of OCR means that it will act as the architect of its own downfall: as the shift away from physical documentation gains momentum, OCR will eventually render itself obsolete – but in the interim it remains an extremely useful transitional technology.<sup>73</sup>

## 5.4 Digital signatures

The introduction of digital signatures has already transformed the world of trade finance.

Undoubtedly, digital signatures – defined as a set of letters or characters represented in an electronic format (or similar means) and adopted by a party intending to authenticate a document – will continue to play a central part in our ever-evolving technological world.<sup>74</sup>

In the context of a global business transaction, the process of exchanging physical documents for individual parties to sign is both laboured and time-consuming. Digital signatures significantly increase efficiency, reduce costs, and improve security – while reducing the amount of travel needed.

As it stands, the only setback for digital signatures is a lack of standardisation across jurisdictions in terms of legislation and legal frameworks.



## 5.5 Artificial Intelligence to alleviate workloads

As artificial intelligence (AI) and machine learning (ML) technologies continue to grow and evolve, they will clearly have a useful role to play in the digitalisation of trade finance. AI's capacity to check documents for discrepancies will prove invaluable going forward, given this is traditionally one of the least efficient, most expensive services that banks provide for clients.<sup>75</sup> That said, trade finance is still far from being fully automated: software is useful for spotting issues, not solving them.

The emergence of generative AI could also have a big role to play in the future of trade. Michael Vrontamitis, Founding Partner, T3i Partner Network, said “we have seen a lot of progress in this space already, particularly around regulated processes”. He continued, “I think that is really where the thematic “how do you connect this whole ecosystem together now that you have got the legal framework?” is going to be around. It is about reducing the cost per connection for banks to onboard to numerous solutions – and this means not connecting point to point, but multi to multi.”

## 5.6 Blockchain/DLT

Blockchain – a type of distributed ledger technology (DLT) – has been heralded as one of the most transformative technologies in trade finance, making it possible for documentation to flow transparently yet securely among banks, trading companies and other network participants like insurance companies. All transactions are immutably recorded on the blockchain with a timestamp and unique cryptographic signature. Everyone with the right permission can access the right or same information for complete transparency, which helps increase trust and prevent fraud.

**“When it comes to blockchain use cases, let us take the example of eBLs. If these are not performed on the blockchain – or some equivalent – I do not believe they will have the desired impact. Simply because, without a secure and transparent platform, there is nothing to mitigate the risk of duplicate financing”**

Atul Jain, Global Co-head for Trade Finance and Lending, Deutsche Bank

## Case study

### The demise of certain blockchain consortiums

When the world's first blockchain-based letter of credit was issued in 2016 and reduced the time needed for the transaction from 20 days to less than four hours, "the blockchain revolution" in trade finance seemed inevitable.<sup>76</sup> This was further backed up in 2018, when the World Trade Organisation heralded blockchain as potentially "the biggest disruptor to the shipping and international trade since the invention of the container."<sup>77</sup>

And in subsequent years, several industry consortiums, pilot programmes and fintechs emerged, promising to bring all the benefits of blockchain to the trade finance space – in areas of LCs and BLs but also in fraud detection, KYC processes and cross-border payments.

Fast forward to 2023, the promise of blockchain has yet to be fulfilled in trade finance. IBM and Maersk's TradeLens was discontinued in late 2022 after six years of operating, the Marco Polo Payment Commitment has been shelved and the we.trade platform has been abandoned.

**"There are a lot of companies out there that have a solution that are looking for a problem. So I think the reality with what I call the "fintech winter", is a lot of these companies that had problems that they were looking for, have since disappeared. Unless you can get a profitable company growing, you are going to struggle to raise funding. And we have seen that happen time and time again"**

Michael Vrontamitis, Founding Partner, T3i Partner Network



For the projects that have been led by banks, business model challenges and low corporate uptake have been the most significant obstacles – unable to onboard enough corporates to make them sustainable and no longer a priority against a backdrop of macroeconomic challenges.

Other routes to a secure and transparent platform (a 'blockchain equivalent' to quote Deutsche Bank's Atul Jain (see [page 53](#))) needed to inspire confidence have been taken, such as data repositories to deal with issues such as the risk of duplicate financing from invoices and trade finance documents.



## 5.7 Smart contracts

Smart contracts are digital contracts stored on a blockchain that are automatically executed when predetermined terms and conditions are met. Not only do smart contracts reduce costs for gathering and processing information, drafting and negotiating contracts, monitoring and enforcing agreements, they enable parties who might not always trust in each other to collaborate without the need for a trusted intermediary like a bank.

Smart contract records are encrypted and – because they typically run on blockchain – are theoretically immutable, with limited potential for manipulation or fraud. Each party involved in a smart contract also has ongoing, real-time access to transaction records, ensuring a high degree of transparency.

Looking ahead, smart contracts could secure trust among parties in open account trading, enhance transparency in trade transactions, guarantee data reliability, reduce the risk of errors or fraud, and facilitate the exchange of payments.

## 5.8 Smart containers

Smart containers are much like regular containers but come equipped with Internet of Things (IoT) sensors and devices that continuously monitor and transmit critical data about the container's location, condition, and contents. This real-time information is a game-changer for trade finance – and is not only helping to streamline the logistics of shipping, but also enhance transparency, security, and efficiency in global trade.

For example, smart containers can eliminate the need for manual tracking and monitoring, which has historically been a cumbersome and error-prone process. Now, banks and financial institutions can access up-to-the-minute data on the status of shipments, reducing the risk of fraud and ensuring that the goods are in transit as claimed. By making the information easily accessible and verifiable on secure digital platforms this also helps to remove the need for costly and time-consuming inspections and audits, as well as significantly reduce the associated paperwork and administrative overhead.



## 6

# The bank perspective

## 6.1 What can banks do that they have not done already?

Banks have done a huge amount to collectively unlock digital trade, not only by updating their own systems, and embracing cloud-based technologies to do so, but also in playing an active role in pilot projects, such as the we.trade platform, the Trade Information Network and Marco Polo to name just a few. Although a number of digital trade initiatives have not come to full fruition, many important lessons have been learnt, not least the importance of standards and interoperability. Interoperability is essential for ensuring that different digital trade finance platforms and systems can work together seamlessly, thereby allowing businesses to share data and processes more easily.

This, however, brings us back to the point that ITFA Fintech Chair André Casterman makes at the beginning of this paper of “many attempts to create a fundamentally new way of working that ignores the old practices”. Banks are now fully aware that initiatives must be developed on the basis of an in-depth understanding of the specific needs of businesses in mind, thus ensuring that the solutions are not only useful, but they also address the real challenges that businesses face.

Corporates, explained Stewart Pace, Vice President Trade Finance Sales at Deutsche Bank, on Trade Finance TV, continue to present a challenge to digitalisation in the documentary trade space.<sup>78</sup> “A letter of credit offers them a lot of protection and covers management, payment, country risk, and a lot of bases from a payment perspective,” he said. “Now, they are given a clear and precise instruction that if they produce credit-compliant documents, they will get paid and they can use those documents to receive financing. There is probably a reluctance on the corporate side in making sure they have that confirmation of payment when they produce documents. In addition, there is a big challenge in the sourcing of documents with multiple partners and providers.”

Importantly, added Pace, “If you are in a situation producing documents under letters of credit you want universal acceptance”. In other words, it may not work to have some being presented digitally and others manually. This underlines the urgency for the wider industry to work together.

## 6.2 Proprietary systems/utilities

Though bank-owned, proprietary trade solutions, technologies and platforms have played a key role in the modernisation of trade finance so far, they also pose certain challenges and limitations. Proprietary solutions can add to the interoperability issues faced by the trade finance ecosystem – creating further fragmentation and inefficiencies. This, in turn, can hinder the smooth flow of information and documentation between different parties involved in a trade transaction.

Take optical character recognition (OCR) technology, for example. While the technology is proving its worth in overcoming several challenges associated with paper-based trade, it has not yet achieved the ubiquity needed to drive widespread changes. One obstacle to progress is the many proprietary solutions that exist, which is holding back the development of models that could be standardised and scaled up by all participants in the ecosystem.

As the world increasingly shifts toward digitalised and standardised trade, there is a growing need for greater collaboration to ensure that interoperability and shared models can be achieved not just for some banks and their clients, but for the entire ecosystem.

## 6.3 Managing fraud

The financial impact of trade-related fraud is significant, with the ICC estimating that the cost of realised fraud from business disruptions amounts to around US\$5bn annually.<sup>29</sup> The fundamental challenge for trade finance participants is that to ensure security, you need to know who is involved, what is being financed, where the documents and goods are, and what value is involved. This ensures the trade is not unknowingly – or knowingly, in the case of fraud – being over financed; a task less straightforward than it might seem.

"The trade of goods is complex: multiple parties, multiple jurisdictions, multiple banks, are, for the most part, looking at only financing a singular portion of that value chain," says Atul Jain, Global Co-Head, Trade Finance & Lending, Deutsche Bank. "And it is largely opaque to most financial institutions how that end-to-end chain looks, which makes it rife for falsifying documents, altering otherwise valid documents, withholding documents or deleting them."

So what is being done in response to these challenges? New technology solutions are helping to drive digitalisation – making the entire trade financing chain more transparent and less manual, which, in turn, is helping compliance teams to seamlessly access the information they need to manage fraud risks. At the same time, changes to the law – as seen in the UK with the ETDA – have the potential to drive these digitalisation efforts to the next level.

Digitalisation and legislation, while significant, are not necessarily the silver bullet for trade finance – and the human element remains critical. The onus is on banks to ensure they can maintain experienced, capable people who can identify patterns, detect the risk and curate a deep understanding of clients – all while developing and training the next generation of trade finance professionals.

At the same time, more robust punishments and deterrents for actors in the chain that perpetrate the fraud would help to deter further instances. "While the obligation of banks is undeniable in terms of owning the due diligence process, I believe we need a more forceful way of prosecuting and punishing those who are actually committing the fraud," adds Jain. "It is not about absolving the banks of responsibility, but just saying that they cannot be uniquely or signally responsible. We can – and do – invest in new technologies, better portals, improved processes, but I feel like actually enforcing the law is an equally elegant way to solve some of the challenges."

## 6.4 Trade finance asset distribution

### 6.4.1 Digitalising trade finance assets

Turning to the secondary market, and trade finance as an asset class – a unique issue faced by this market was identified by Jonathan Lonsdale, Global Head of Trade & Working Capital Solutions, Private Debt Mobilisation, Santander Corporate and Investment Banking, on Trade Finance TV. "A lot of banks have sub-asset classes classified differently and use different terminology. On top of that there is a tendency to bespoke things for corporate clients, so when you come to distribution, you are not picking up the phone saying this is the same as the one we did last week."

While bodies such as BAFT and ITFA have "done a really good job to standardise legal documents and streamline the negotiation process" the fact remains, added Cláudia dos Santos, Director, Trade and Working Capital Sales, Lloyds Banking Group that trade finance distribution, "remains very much a manual process from offer, acceptance and pricing negotiations to the daily management of the assets themselves". Bringing in technology such as artificial intelligence and machine learning, she added, "can help us digitise the assets as well as streamline the distribution".

Standardisation, in other words will help to reduce costs, improve interoperability, and make it easier for businesses to adopt new solutions. Furthermore, the recent UK Electronic Trade Documents Act, and similar emerging law around the world, will facilitate and support further ambitions whilst promoting an open environment.

#### 6.4.2 Investor attraction

Trade finance as an asset class has emerged as a growing trend. It refers to the packaging of trade finance transactions into investable securities or funds – with the ultimate aim of unlocking liquidity to a wider range of investors. These assets have become attractive due to their relative stability – and where certain assets may underperform due to the underlying market conditions, trade finance assets can act as a counterbalance.

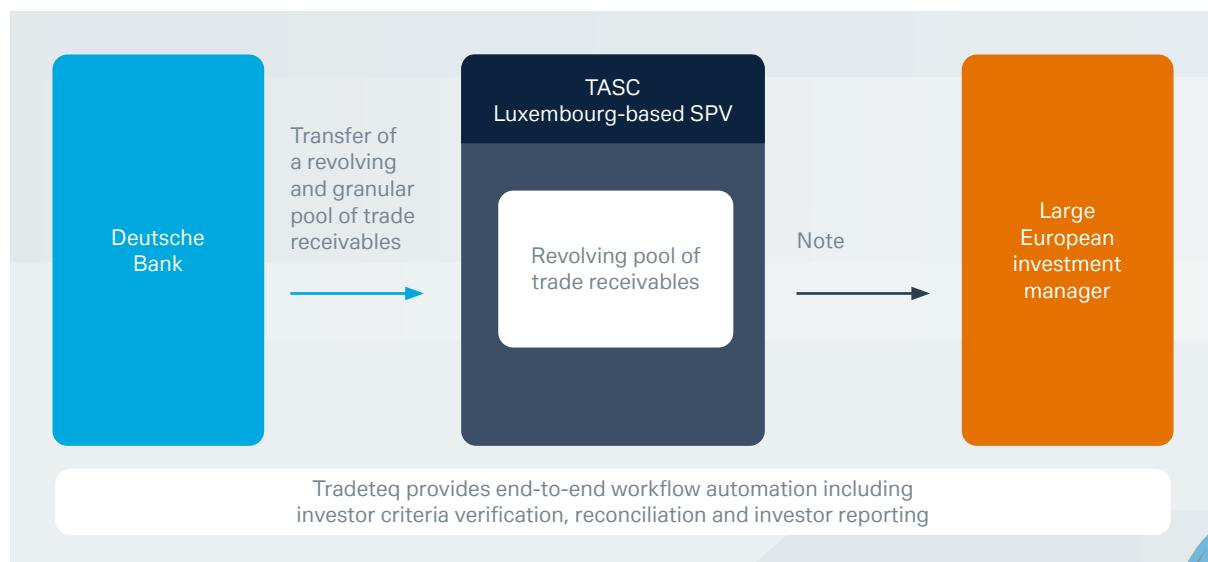
Despite these positives, some investors continue to have reservations around the transparency and traceability of the parties involved in the transaction, which is becoming increasingly important as environmental, social and governance (ESG) considerations play a larger role in investment strategies around the world. Digitalisation could help to create more standardisation within the industry and make the investment process less resource-intensive, which, in turn, could help to drive investment.

#### 6.4.3 Case study – Tradeteq

There are already some fintechs, such as Tradeteq, that are working to make trade asset distribution easier and more efficient for investors and originators alike by providing automated transaction servicing for trade portfolios, including end to end workflow automation, reporting and Securitisation-as-a-Service.

In one use case, Deutsche Bank leveraged Tradeteq's platform to transfer a granular and revolving pool of short-term receivables relating to an investment grade purchaser into Trade Asset Securitisation Company S.à r.l. (TASC), which, in turn, issued a note to a large European investment manager (see Figure 9). For the investment manager, this streamlined the investment processes with uniform documentation, reduced costs, and on-demand reporting, while for Deutsche Bank it provided more underwriting capacity – allowing the bank to better serve its customers.

Figure 9: Tradeteq in action with Deutsche Bank



Source: Tradeteq and Deutsche Bank

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