It takes a network

Ouida Taaffe looks at whether the promise of greater efficiency and productivity in trade finance from the Internet of Things will be met in the near term

International trade is not just about the exchange of goods and services. For trade to function, a lot of information has to flow and that flow is not a given. When trade finance first developed in the Middle Ages, almost all aspects of exporting were opaque: the solvency and willingness to pay of counterparties; the condition of the goods; the route taken; geopolitical risks; local tolls and taxes. That was why large mercantile companies grew up that acted as trusted counterparties, financiers and compliance officers. As trade grew, and finance became more specialised, trade banks stepped in to mitigate some of most important data gaps. If you are not sure that you will be paid for your shipment of goods, for example, a trade bank can guarantee that the funds will arrive. Now, the age of data holds out the promise of real-time information on anything that can be captured as an online data point. The question is what this will mean for trade finance.

The Internet of Things

We now take it for granted that we can log on to the internet from a range of devices but there was a time, and not that long ago, when individual devices were largely siloed. When the father of the Web, Tim Berners-Lee, started working at CERN in 1980, he found that: "There was different information on different computers but you had to log on to different computers to get at it. Also, sometimes you had to learn a different program on each computer. Often it was just easier to go and ask people when they were having coffee."

> *The Internet of Things in trade finance could lead to cheaper financing and developments such as payment automation*

Today, thanks to Berners-Lee, there are global software standards that allow us to access data from any networked device. The great leap forward from the early days of the web is in the range of those devices. They are no longer just computers. The ubiquity of wireless networks has let us build the 'Internet of Things' (IoT). 'High-tech companies are today able to design and build IoT tracking devices as small as a pill and as big as an airplane, thus making it possible to gather virtually any kind of data,' says Liliana Fratini Passi, chief executive of CBI Scpa, an umbrella body for the financial sector in Italy that helps develop interoperable payment infrastructures and foster digitalisation."IoT devices will increasingly be used in the import and export business," she says. "Shippers, customers and financial institutions providing trade finance products will soon be able to receive real-time data about goods being shipped through all kinds of sensors connected to the internet." Around 90m businesses will use cargo tracking solutions this year and that number will grow to more than 114m by 2025, according to Juniper Research.

Because the IoT provides data that was not available before, there is a lot of excitement around what analysing that data can deliver. A German maker of automation solutions reportedly boosted its performance by 40% and cut production time by 30% using radio frequency identification tags to make data on its internal processes transparent and accessible, according to McKinsey, the consultancy firm. And the applications cited are not just internal. Big companies are using data from the IoT to improve coordination with their suppliers. If the numbers talked about are typical of the efficiency gains that can be made, manufacturers and exporters will be highly incentivised to invest in the IoT.

Trade banks and the IoT

Trade banks, just like companies, expect data from the IoT to increase transparency. "In the past, credit decisioning was based on data like the balance sheet and the P&L of a client," says Shehan Silva, head of digital product, global trade and receivables finance at HSBC. "Online data allows banks to see data such as how long it took to ship particular goods, whether they were paid on time, or whether there were any issues with the shipment. All those components allow banks to extend credit. IoT enriches that even more with near real-time insights into trading activity."But there will be no immediate revolution. "The use of data from the Internet of Things is definitely of interest in trade finance, but much of it is still in the proof of concept stage," says Gulru Atak, global head of innovation at Citigroup. "The challenge for the IoT is not the technology, it is in creating the network effect."

Would a fully networked world change the structure of trade finance? Would it, in fact, mean less demand for trade finance? "For trade finance, in particular, the IoT could lead to developments such as payment automation, cheaper financing and more financing," says Silva. He says that one of the reasons why the IoT could make trade finance cheaper is that it could allow banks to analyse client creditworthiness using different parameters. "Those new parameters also open the door to different customers," says Silva. Some of those new customers could be the sort of small suppliers that are currently too costly to finance. "In trade finance, everyone is talking about pushing liquidity down the chain to the suppliers," says Atak. "The IoT can help enable that and almost in real time. In the auto industry, for example, some components can be tracked from the supplier to the manufacturer and you can provide financing at the time the component is delivered. That also makes the supply chain more sustainable as it is much more efficient."

Silva says that some banks are looking at using tokenisation for providing settlement in supply chain finance. "If you look at traditional trade finance products like a letter of credit, there is a guarantee of payment based on physical documentation. There will be a shift away from products like that, but digital solutions will either replicate their functions, or make them unnecessary," he says. The banks expect the analysis of aggregated data from the IoT to support some new business lines. "For example, could the analysis of data by AI in real-time lead to more proactive and predictive sanctions screening?" says Atak.

All together now

Compliance is not the only area of trade finance in which more transparency could change the way it functions. Globalisation has led to longer and more fragile supply chains, in which even large companies can be "as weak as the weakest link", as the Covid-19 crisis shows. (See Boissay F, Patel N and Shin H S (2020), 'Trade credit, trade finance, and the Covid-19 crisis'. *Bank for International Settlements Bulletin*, 24.) And Covid-19 has hit many emerging markets particularly hard. At the same time, trade tensions and protectionism are on the rise.

Could data from the IoT make supply chains less fragile and help boost financing to emerging markets? The trade gap – the difference between the appetite for emerging market trade finance and what is available – is estimated at about $1.5tn by the Asian Development Bank. That, however, is not the only gap between developed and developing economies. There is also a digital divide. In particular, it is often argued that emerging markets will be slow to give up the paper documentation of trade finance because administering that paper provides jobs.

"Emerging markets will not necessarily be slow to move on this," says Silva. "Yes, there could be some job losses, but there would be gains in other, higher value areas. This is because increased transparency and data points would make it easier for banks to close the trade finance gap and provide funding to previously unbanked customers. That should boost overall employment in many emerging markets."

But if even if the IoT does hold the promise of closing the trade finance gap, it may not be plain sailng. In particular, if data cannot easily flow cross-border, the IoT will remain limited in use. One issue is data protectionism, which could be a big barrier to trade financial services. (See Osborne M and Bholat D (2020), 'Why fragmentation of the global data supply chain poses risks to financial services'. *Bank Underground*, 25 June.) Another is security. "In the future, connectivity will be largely machine-to-machine, even on the bank side," says Atak. "So, we will have to know whether a particular machine is authenticated to initiate a particular transaction."

> *We are still a long way from having a comprehensive standardised framework to govern the use of IoT devices*

There is another hurdle that may be more fundamental than either protectionism or security: whether the IoT can even be built at global scale. "Standards, such as the one produced by ISO (International Organisation for Standardisation) in 2019 on the interoperability of the IoT systems, show us that we are heading towards the right direction. However, we are still far from having a comprehensive standardised framework to govern the use of IoT devices and infrastructures," says Fratini Passi.

Berners-Lee is among those trying to prevent fragmentation by setting up global standards for a Web of Things. Banks, too, are looking at how they might better share and communicate data using agreed standards and shared software. For example, Contour, the trade finance network, which aims to launch the commercial version of its digitised letter of credit on blockchain later this year, is backed by several large banks. But, even with Covid-19 providing a sharp push forward for digital solutions, many stars have to be aligned for the IoT to change trade finance in the short term.

"The Internet of Things is one of those technologies that does have a strong logic for how it will transform an industry," says Alastair Newton, research vice-president in the banking and investment services division of Gartner, a research and advisory company. "But it is one of those slower-burning technologies." ■

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