Enabling digital trade: a scoping study

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Synopsis

- Digital trade provides significant supply chain benefits for participants.
- For those participating in New Zealand digital supply chains in APEC, benefits could be between US$250 million and US$560 million per annum over ten years. These benefits accrue in both the importing and exporting nations.
- There are challenges. Supply chain actors benefit from paper-based trade, and resistance from these participants is significant. There are also capability issues for firms and governments: system development, interoperability complexities and legal issues.
- Pathways need to be found to demonstrate the benefits since many are ongoing.

Breathing new life into trade in a post-COVID world

Digital trade can improve the efficiency of world trade. We have developed an initial understanding of the "mechanics" of digital trade and made approximate estimates of digital trade benefits for the New Zealand supply chain.

Digital or paperless trade is about digitizing the information flows that enable the transit and exchange of goods and services (United Nations 2017). The replacement of paper-based systems generates the benefits.

The benefits drive the growth of digital trade

The critical benefits are cost savings. For APEC economies, the cost savings could be between 15% and 45% depending on each country's current stage of digital trade initiatives (United Nations 2014; UNCTAD 2020; Duval and Menjing 2017; WTO 2015).

Reduced trade costs will increase trade, profits, and government revenues. According to Lopez-Gonzalez (2021), the benefits include increased traditional trades (lower trade costs) across all sectors (natural resources, agri-food, low-tech and high-tech manufacturing and services), more digitally ordered parcels domestically and crossing borders, with implications for micro-, small and medium-sized enterprises (MSMEs) and small and medium-sized enterprises (SMEs).

Cost reductions are significant. Examples at a virtual APEC seminar in Wellington (2021) showed that a single shipment could pass through 30 different organizations, with up to 200 communications about that shipment.

Trust is a critical component in realizing the benefits

Providing the multiple benefits described above requires complete trust in the systems used. Without trust, the benefits are severely curtailed or cannot be realized. Trust is the lubricant that improves trading conditions (Lorenz, 1988).

Digital trading techniques can reinforce trust with structured payments as goods move from one part of the supply chain to another. Zhang and Hou (2013) further find that

trust relationships are crucial for supply chain integration and can be mutually reinforcing, opening up other trade opportunities.

COVID has created an opening

Trading under pandemic conditions was/is a major challenge for governments. There has been a significant slowdown in the supply chains as lockdowns and illness stopped staff from coming to work, and freight capacity was severely reduced.

In 2020, planes virtually stopped flying overnight. With the curtailment of air services, goods were stuck in ports all over Asia without proper paper documentation and with little chance of paper documents reaching their intended destination.

An encouraging consequence of the disruption of the processing of paper-based trade information flows has been the rapid introduction of digitalized trade initiatives under temporary (crisis) legislation and the urgent roll-out of automated processes underpinned by new technology.

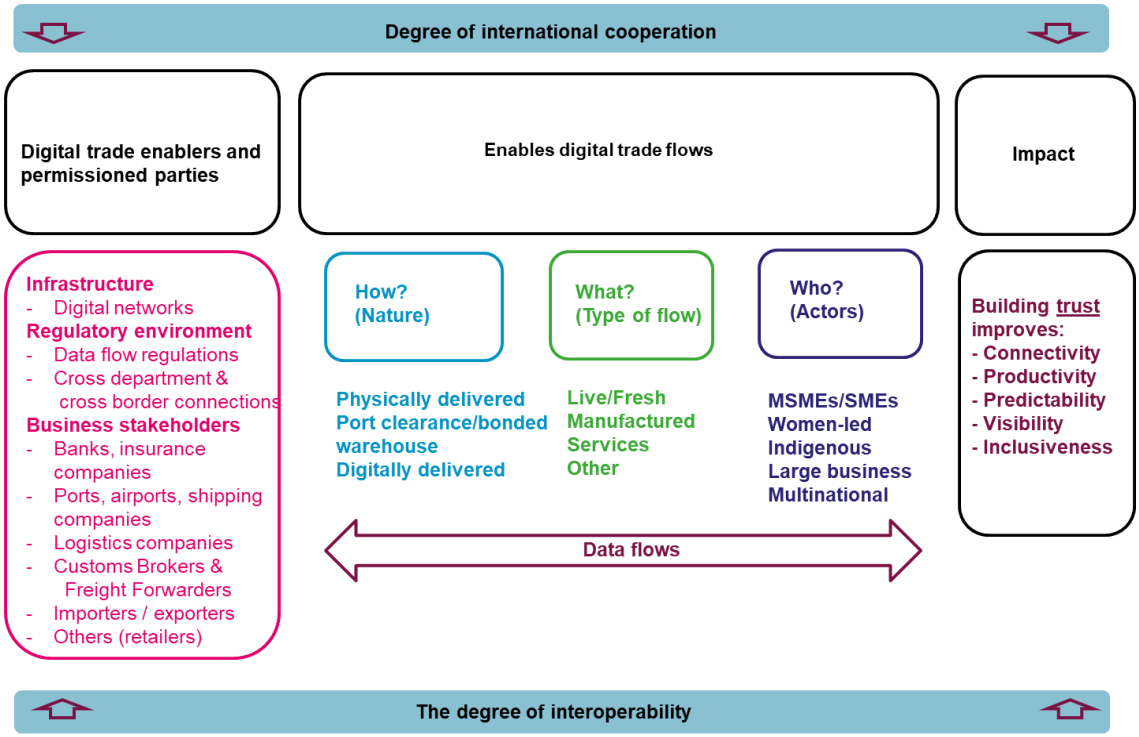
COVID has accelerated the adoption of digital trade. McKinsey & Co assert that the pandemic has pushed digital transformation forward by at least three years (McKinsey & Co 2020).

Framing up the digital future

The framework focuses on the interaction between the enablers (infrastructure, policies and regulation) and the practical physical flows: the how (a product moves), the what (type of product or service), and the who (the entities that move the product).

Figure 1 shows these activities are constrained or enabled by the degree of international cooperation and interoperability between counterparties. To maximize the benefits, digital systems need to be interoperable, and there needs to be a willingness to cooperate domestically and internationally.

Figure 1: The framing of digital trade



Source: Adapted from OECD (2019), González and Jouanjean (2017)

Developing the benefits

Table 1 summarizes the impacts. We chose the countries/regions likely to be receptive to digital electronic processes and practices, i.e. Taiwan, Singapore and countries involved in or soon to be involved in the Digital Economy Partnership Agreement (DEPA), which provides the international architecture for digital trade. The DEPA consists of Singapore, New Zealand and Chile. At least "+2" countries want to join the DEPA (South Korea and Canada). Very recently, China has also asked to join the DEPA.

An annual average present value impact of APEC joining was also calculated over ten years.

We estimate benefits of between US$250 billion and US$560 billion annually over ten years for APEC. The size of potential benefits suggests prioritizing digital trade initiatives.

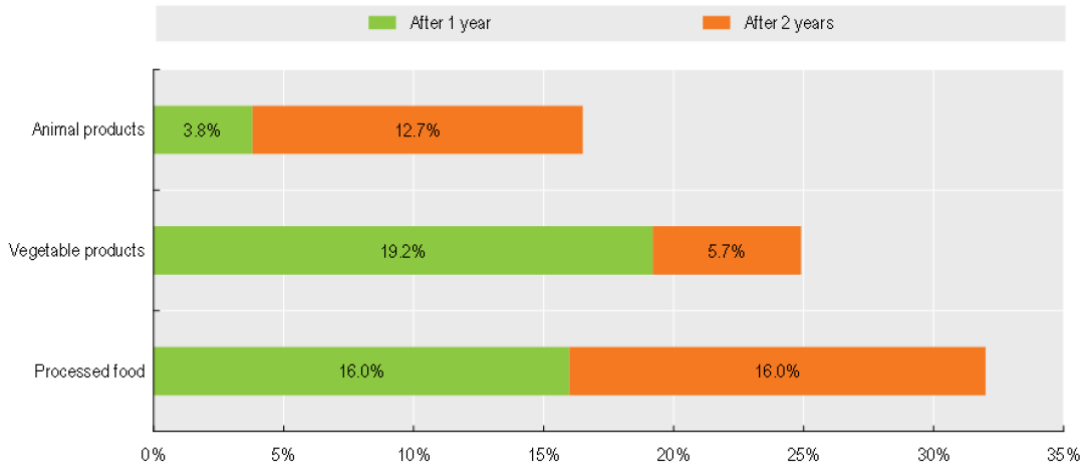
Table 1: Potential size of the digital supply chain prize

	Present value		Average yearly gain		Comment
	Low	High	Low	High	
Taiwan	153	310	19	39	Wants to engage
Singapore	154	315	15	40	Legal green light
DEPA + 2	430	865	53	108	Architecture
Staggered APEC			250	560	Per year

Note: (1) Gains occur along the supply chain. (2) Calculations are done over ten years, US$ millions per annum. (3) Assumptions: (a) New Zealand food exports only (b) 40% of benefits already taken up.
Source: NZIER

Dynamic efficiency (innovation) will drive digital trade benefits over time. For example, Figure 2 shows the impact on perishable goods of introducing e-certificates in the European Union.

Figure 2: The importance of dynamic efficiency: Export values increase after the introduction of e-certificates in the European Union



Source: OECD estimates in Van Tongeren and Baragwanath (2021)

The costs are significant

The United Nations (2017) found only 39% of economies had instituted paperless trade initiatives. It is a fragmented picture with “digital islands” across APEC and the world.

There are barriers both at the firm and government levels that need to be further understood and mitigated before digital trade becomes universal.

At a firm level, there is fear of the unknown coupled with a lack of capability, particularly in small firms. MSMEs and SMEs lack the capital to make the necessary changes to the back office.

Governments need to further support firms with courses, working guides and a better understanding of the product offerings. Physical goods may only be part of indigenous companies' offerings. They may be interested in exporting intellectual property, which needs to be protected. More understanding of the products involved by customs authorities would increase confidence that this could be traded securely.

Governments are focused on overcoming interoperability between government entities domestically and externally, digital system design, developing legal frameworks that support digital trade, and how they overcome resistance to digital trade.

Summary

Results suggest substantial benefits for supply chain partners, including:

- Large "one-off" benefits from digital trade
- Ongoing efficiency and connectivity benefits as barriers to trade are removed
- Data generated at low cost can improve the predictability of likely demand
- Increased inclusiveness as more businesses become involved in trade
- Costs associated with tooling up and learning new systems
- Costs for governments in designing systems and backing them up with legislation.

To fast-track success, governments must think of creative ways to encourage firms along the digital trade route. This will require a degree of outreach challenging even the most digitally proactive government.

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