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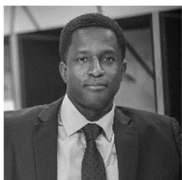
Accelerating Intelligent, Digital Trade in Latin America

The Pieces

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2

The Premise

Change, unparalleled in scale and velocity, has become the drumbeat of our times. And while these exciting times sing with unprecedented opportunity, they additionally unleash whispers of uncertainty, risk, and danger. Amid this change, Intel recognizes that Latin America's values are enduring and unwavering and have embodied one of the world's most successful multicultural coalitions. Intel applauds Latin America's balancing of centrality, regional integration, and global connectivity; applauds the region's steadfast belief in free and fair trade, investment, and the pursuit of multilateral free trade agreements and the modernization of regional trade infrastructures to this end.[1]

Of course, while the advantages of digital trade were already apparent before the COVID-19 pandemic, the COVID-19 crisis has brought digital trade into sharper focus, quickly accelerating digital transformation. These developments underscore the need for the region to further enable digital trade to mitigate global economic slowdown and support a more rapid recovery.

Today's digital economy optimizes technological innovations that touch nearly every person on earth. Intimately connected to our global economy is the evolution of technology. Over the last century, we've seen remarkable technological advances through four industrial revolutions – coal, gas, electronics, the internet, and nuclear and renewable energy. Such transformations at scale have made it conceivable to manage many phases of production from afar.

How big is a Yottabyte?

TERABYTE — Fits 200,00 photos or mp3 songs on a single 1 terabyte hard drive.

PETABYTE — Fits on 16 storage pods racked in two to four datacenter cabinets.

EXABYTE — Fits in 2,000 cabinets and fills a 4-story datacenter that takes up a city block

ZETTABYTE — Fills 1,000 datacenters or about 20% of Manhattan, New York.

YOTTABYTE — Fills the states of Delaware and Rhode Island with a million datacenters

Infographic Developed by Intel Corporation, International Trade Group

While intelligent machines have revolutionized the management and organization of production, significant opportunities exist in digitizing intelligent trade transactions, the fuel of our global economy. Nonetheless, despite concerted efforts to systemize automated mechanisms to process trade, i.e., electronic single windows, trade-related transactions remain reliant on paper and human resource-intensive processing. More importantly, security and data privacy concerns contribute additional challenges in coordinating the cross-border flow of data, especially when multiple actors participate in intercontinental trade transactions, further debilitating trade digitization.

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[1] https://www.zdnet.com/article/singapore-syncs-up-with-latin-america-on-multilateral-trade-agreement/

Coupled with these challenges is the matter of data itself. There is no doubt that the data-centric era is upon us. Big data generates nearly 1.7 megabytes (MB) per second for every person on earth. And while this data represents a monumental opportunity for governments around the world to drive new societal insights and business opportunities that are redefining our world, the movement, storage, and processing of all this data present additional challenges to government actors with a desire to leverage data as a strategic asset in the facilitation of intelligent, trustworthy, and vigorous trade.

The Promise

A few years ago, the Economist's Intelligence Unit published its Automation Readiness Index (ARI), which identified twenty-five governments that have demonstrated commitments to developing and driving technology & innovation policy for the greater good of society. [2] The index illustrated that "policies are required to help manage the transitions in the areas of innovation" and that "governments need to have a strategy for automation."

Argentina, Brazil, Colombia, and Mexico made the cut as Latin American countries that have exemplified nation-specific journeys towards an evolving age of intelligent automation. More importantly, the study illustrated an unyielding opportunity for other countries in the region to embrace, champion, and adopt the use cases, possibilities, and implications of trade-related automation technologies.

Paradoxically, a key takeaway from the ARI is that while data, digitization, and technology will help modernize trade, intelligent trade can and will enable digitization, close the data deluge, and evolve technology for the good of society. For instance:

Robust modernization of Latin America's trade infrastructures will reduce the cost of access to digital networks.	Latin America's adoption of more intelligent trade mechanisms will enable access to the devices through which the world connects to the Internet.
- As an illustration, telecom companies' efforts underpin this trend by increasing data limits to assist individuals in remaining connected during times of physical distancing. Lowering restrictions affecting trade in the telecommunications sector can help keep access costs down by encouraging competition.[3] - Reduced tariffs on network equipment also reduces maintenance and expansion costs of digital networks.	- Globally, 80% of the value added of computers and related equipment takes place outside of the U.S. – making this one of the most internationalized sectors.[4] - However, these digital enablers remain subject to tariffs, underscoring the importance of Latin America joining the WTO Information Technology Agreement (ITA) to ensure duty-free access to these goods.[5]

[2] The Economist Intelligence Unit, "Who is Ready for the Coming Wave of Automation," The Automation Readiness Index, https://www.automationreadiness.eiu.com/

[3] https://www.oecd.org/coronavirus/policy-responses/leveraging-digital-trade-to-fight-the-consequences-of-covid-19-f712f404/

[4] https://www.mckinsey.com/

[5] https://www.wto.org/english/tratop_e/inftec_e/inftec_e.htm

The Puzzle

Where multilateral trade rules exist, fair international competition is encumbered by persistent prohibitive impediments where trade-related regulations have evolved slower than the rate of changes to global, digital economies. Such a delta indeed beckons the need for transformation and modernization. As such, while the premise of an automated global trade facilitation infrastructure is promising, Intel applauds the Latin America's desire:

1. for increased engagement and collaboration between private and public sectors[6]

2. for the coordination and simplification of customs processes in the region through intelligent automation

3. for the development of altruistic approaches to the sharing of knowledge and best practices in modernizing customs regimes based on the existing use cases and technology-related best-practices

However, despite these aspirations, the World Trade Organization (WTO) noted that the pandemic has not only underscored the importance of digital technologies in general, but also vulnerabilities, including the digital divide and trade barriers not only in Latin America's region, but across the globe. In light of COVID-19, the need for G2G, G2B, and B2B collaborative approaches to solving the world's greatest challenges has never been more apparent. Data and information play a crucial role in helping to track, diagnose and treat this pandemic and will continue to do so as we look to get ahead of future global challenges.

Finally, bureaucracy continues to lead to impediments in the coordination and simplification of automation of customs processes like non-tariff barriers, including licensing, excessive cargo manipulation, red tape, and bureaucratic procedures, which can increase the cost of trading goods up to an additional 60% of the cost of cargo at origin.[7] Intel understands that facilitation in the current environment equally requires a balanced approach towards enhanced border security through the use of intelligent technologies.

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[6] https://www.worldbank.org/en/events/2022/07/06/acuerdos-comerciales-profundos-america-latina
[7] Jonathan Koh and Andrea Feldman Mowerman, The 3rd EU Reader, https://www.degruyter.com/document/doi/10.1355/9789814620628-057/html

The Path

Greater inclusion, equality, and prosperity for everyone in the global trade system is the goal of intelligent international trade. In addition, there is tremendous promise in the mutual exchange and sharing of data across borders. Underscoring this potential, the WTO positions that "data flows facilitate information sharing among entities in the trade logistics chain and lower the coordination costs of moving goods from conception to production to consumption." Improved access to data reduces information asymmetries and decreases transaction costs. While threats of tariff wars and the vitality of global trade stability have dominated the world stage as of late, innovative technologies are transforming trade by making processes more inclusive and efficient.

> Greater inclusion, equality, and prosperity for everyone in the global trade system is the goal of intelligent international trade.

Moreover, once viewed as a burden, governmental data stockpiles have evolved into vast untapped digital intelligence for governments. For example, the United States federal government has openly embraced "federal data as an asset that provides the public with knowledge of government, society, economy, and environment – past, present, and future." To help society realize this opportunity, public sector actors should shift significant resources in delivering breakthrough data-centric solutions that can tap data for increased societal impact. Specifically, governments should strive toward data-centric transformation focused on three key elements:

- ✓ **Decentralization** – The broader distribution or decentralization of computing infrastructure is necessary to reduce the time and costs associated with sending large amounts of data back to a centralized data center.
- ✓ **Depth of data processing** – With the help of advanced analytics, high-performance computing, and artificial intelligence, applications are becoming increasingly data and compute-intensive. This depth of data processing requires an intelligent infrastructure that effectively and efficiently feeds vast amounts of data into processing and inferencing units.
- ✓ **Speed of innovation for data processing application development** – agents of trade should update their technology stack quickly and bring ideas to market in the shortest amount of time possible.

In this new era, success is measured by how well actionable data-based insights are generated in critical moments of human need. But to fully unleash the potential of data, it must be moved, stored, and processed faster and more securely than ever before. Intel long ago recognized the promise of this opportunity and underwent a strategic shift in silicon innovation towards a data-centric infrastructure that will move, store and process data from core data centers to the intelligent edge and everywhere in between.

Innovations like Optical Character Recognition (OCR) to read container numbers, Radio Frequency Identification (RFID) and QR codes to identify and trace shipments, and essential digitization of trade documents have improved international trade reliability and efficiencies. At the same time, from trade agreements written before digital commerce, transactions accompanied with large amounts of paperwork, to trade financing that still depends on traditional banking methods, the global trade system continues to fall short of fully embracing cutting-edge technologies that could make trade more efficient, more inclusive, and less costly.
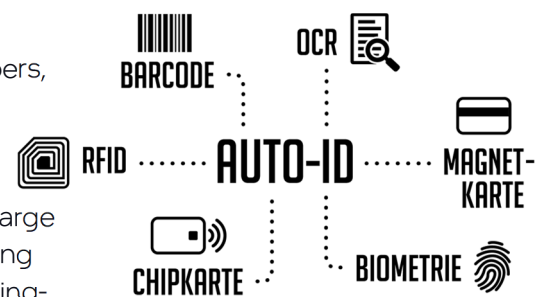
The good news is that we may be on the brink of change. Different technologies in different parts of the technology adoption life cycle, when combined, could fundamentally improve the allocation of resources and the adoption, operation, and execution of intelligent international trade. Consider the case of emerging technologies like the Internet of Things (IoT).

The Internet of Things & Blockchain

IoT is a network of connected devices with sensors powered by software, which enables IoT devices to transfer data. The ability to gather real-time data at the edge introduces many benefits for businesses and governments alike, better enabling such actors to automate processes, enhance productivity, and improve customer experiences. Because of this, Statista forecasts that there will be an astonishing 29.4 billion connected devices in use by 2030.[8]

There is tremendous benefit in leveraging the power of IoT for digital trade acceleration invitiatives – at the port, for cargo container management, and for inspections, to name a few. However, one of the biggest challenges for those working with IoT technology is security — with every IoT device acting as a potential entry point for hackers. A breach could give away sensitive information on a massive scale, or leave IoT devices vulnerable to hijacking by hackers. When you apply these vulnerabilites to intelligent trade, a promising answer to such security concerns is blockchain.
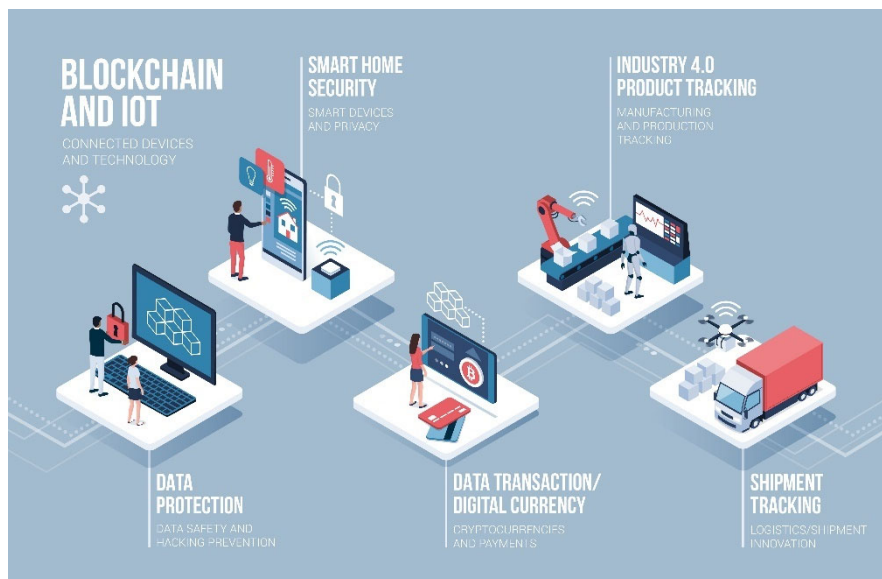
Blockchain is a transformative technology that uses shared ledgers, also known as distributed ledgers, to automatically store data across multiple locations, rather than maintaining the information in one central repository, making it much more secure. Leveraging blockchain as the basis for IoT devices substantially mitigates the risk of penetration by bad actors by reducing the potential points of entry and eliminating a central authority in IoT networks, enabling these networks to protect themselves. IoT devices in a common group could automatically cease working or alert other users if they are asked to carry out any tasks that appear suspicious because they are outside of their usual remit, significantly reducing the risk of IoT devices being hijacked by hackers.

Furthermore, blockchain as a compliment to an IoT technology strategy offers an indisputable, immutable, easy to track record in the "chain of block." Additionally, using encryption and distributed storage means that prevents human interference by eliminating any possibility to overwrite records is perfectly suited to business processes involving trade, finance, auditing, or tracking of a supply chain. Such transparency also makes blockchain ideal for smart contracts where agreements can automatically be executed upon certain conditions being met, such as when a shipment is delivered or received.

There are already a number of initiatives aimed at developing blockchain for Customs officials. As well as offering hardware that can support blockchain technology, Intel has teamed up with Pinary[9] and KYG.Trade[10] in the development of prototypes aimed at developing standards and technology to make it easier for governments to use networks like the Polygon Blockchain Network.[11]

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[8] Statista says more than 29 billion connected "things" will be in use by 2030, up from 9.7 billion in 2020
[9] https://www.pinaryinc.com/
[10] https://www.kyg.trade/
[11] Polygon is a decentralized Ethereum scaling platform that enables developers to build scalable user-friendly dApps without ever sacrificing on security

Protecting Confidential Customs Data

An Intel and SAP Joint Solution to Help Secure Data Shared Between Companies and Customs Agencies

Exchanging Customs Data with Accuracy and Privacy

Both customs agencies and their trading partners can benefit from simplifying and automating what is currently a complex and cumbersome process for both parties. For example, some customs agencies require that companies located in bonded zones provide access to detailed manufacturing data, including confidential bills of materials (BoMs), in order to perform tax calculations. This process is generally complex and can be error-prone, as it involves onsite visits and manual reviews of reports. As a result, the agency might more easily miss duty fees that it is entitled to collect.

Conversely, companies that interact with customs agencies for import/export of materials want to reduce the hours spent creating reports and preparing for manual audits. Businesses that import components for assembly into finished goods also want to ensure that they receive any available duty exemptions that they are entitled to for those components. In addition, customs agencies and private businesses both want to reduce complexity for exchanging customs data. However, there can be tension between the two entities over the customs agency's requirement to provide fully transparent and auditable records and the company's need to protect confidential information.

Commonly available electronic reporting solutions typically come up short of meeting these challenges because they often don't secure data sufficiently. As a result, they might expose companies to security threats and Intellectual Property (IP) breaches. Additionally, many solutions leave gaps in required functionality that can add to manual effort and result in additional hours spent on reporting.

Intel SGX Helps Ensure Data Integrity

Intel SGX is a set of instructions that increases the security of application code and data, giving them more protection from disclosure or modification. Developers can partition sensitive information into enclaves, which are areas of execution in memory that provide hardware-assisted protections to help prevent access from processes at higher privilege levels.

A confidential data reporting solution from Intel helps address these challenges by combining the Intel® Software Guard Extensions (Intel SGX) hardware-based Trusted Execution Environment (TEE) with Hyperledger Avalon and Hyperledger Fabric blockchain, in addition to using SAP Business Technology Platform (SAP BTP) as the development platform and integration framework. The joint solution streamlines and automates government customs agency processes to improve data accuracy, transparency, and security.

Kim Huat Ooi, Vice President in Manufacturing and Operations and General Manager of Intel Products Vietnam, adds, "The solution has the potential to eliminate up to 5,000 person-hours previously spent by the Intel operations team preparing manual reports and audits."

Plus, the solution assists Intel in meeting Authorized Economic Operator (AEO) requirements, which helps the company avoid paying 10% import duties from accidental non-compliance. By reducing exposure to potential compliance excursions, large businesses like Intel can avoid significant penalties for inadvertent errors.
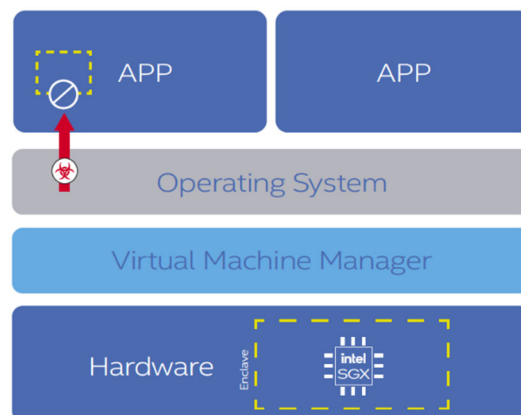
A Partnership between Intel & GDVC

Intel and the General Department of Vietnam Customs (GDVC) has established a partnership to explore what is possible based on the following components:

- ✓ SAP Business Technology Platform (SAP BTP), as the integrated platform to develop applications, orchestrate cross-systems integrations, and provide enterprise grade analytical capabilities
- ✓ Hyperledger Fabric, for the blockchain data path
- ✓ The confidential data reporting solution from Intel, consisting of:
- ✓ Hyperledger Avalon to offload blockchain processing from the main blockchain to dedicated computing resources
- ✓ Intel SGX to encrypt data in motion for protecting the confidentiality and integrity of sensitive IP
- ✓ Intel® Xeon® Scalable processors to help ensure high levels of performance and support for the Intel SGX TEE

As Figure 1 illustrates, confidential BoM data, including material components and finished goods transactions, are stored in an off-chain database, shown in red. Only hashes of the BoM data are processed on the blockchain. When a transaction validation request requires BoM data, the request is forwarded to the off-chain confidential data reporting solution running on servers built with Intel Xeon Scalable processors and Intel SGX. The BoM data is only decrypted in a security-enabled Intel SGX enclave.

The validation result, including hashes of the BoM data used during validation, is then provided to the blockchain, where it can be matched to the blockchain data that includes material data, finished goods data, and the BoM hashes. The hashes are used to help ensure the integrity of the BoM data being used for validation. A confidential data reporting solution from Intel helps address these challenges by:

- ✓ combining the Intel® Software Guard Extensions (Intel SGX) hardware-based Trusted Execution Environment (TEE) with Hyperledger Avalon and Hyperledger Fabric blockchain
- ✓ using SAP Business Technology Platform (SAP BTP) as the development platform and integration framework
- ✓ streamlining and automating government customs agency processes to improve data accuracy, transparency, and security

Blockchain Network with Intel Confidential Data Reporting Solution

Figure 1
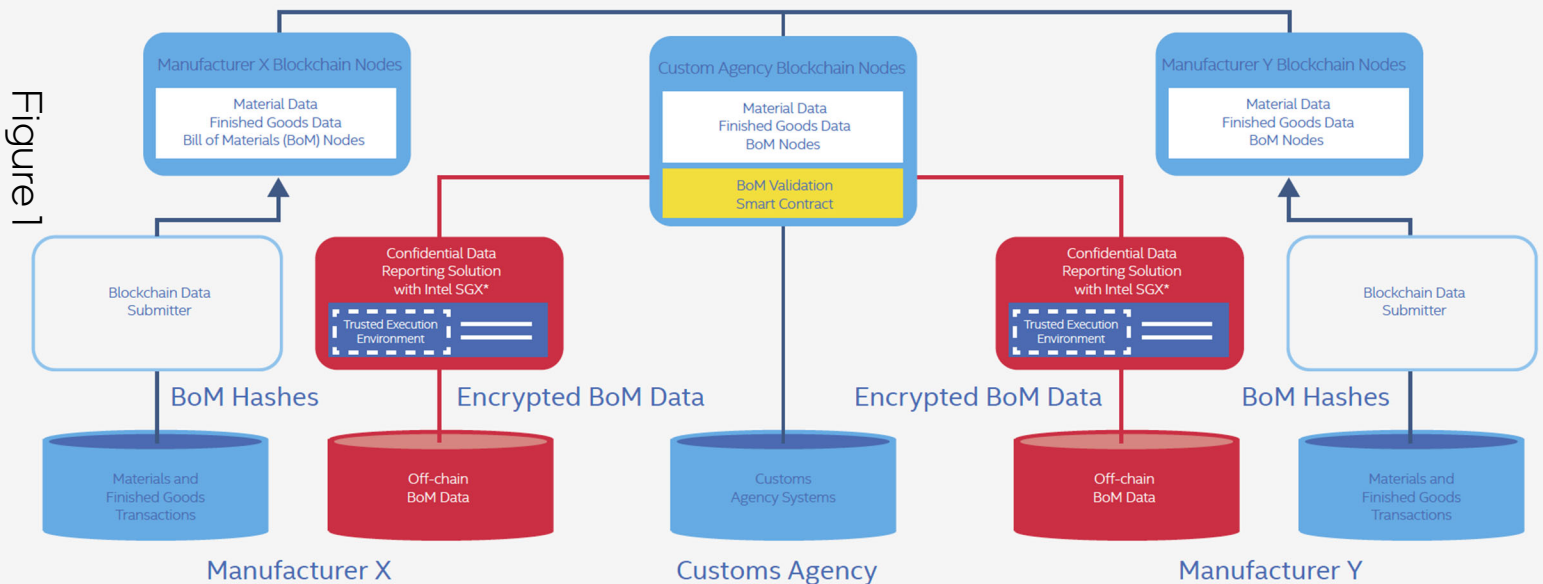
* Intel SGX

- ✓ Confidential data reporting solution validates requests performed off-chain on servers built with Intel Xeon Scalable processers and Intel SGX
- ✓ BoM data is decrypted in the security-enable enclave only

Meeting the Needs of Customs Agencies and Businesses

Automating Processes While Protecting Confidential Information

The confidential data reporting solution helps solve several challenges for both customs agencies and the private businesses they interact with.

For EU member state customs agencies, this same type of solution can help streamline reporting through automation; increase the overall efficiency of processes; improve the transparency, auditability, security, and accuracy of the data the agencies collect; enhance fraud-detection capabilities; and improve the ability of agencies to collect tariff revenues that often go unclaimed due to reporting errors.

For captains of industry, the solution simplifies accurate sharing of required information while helping to protect sensitive data. These private sector actors can also more easily assess compliance gaps to quickly remediate errors. In addition, they can eliminate thousands of costly person-hours spent preparing reports and avoiding costly penalties for inadvertent errors.

For both the agencies and trading partners, the solution speeds the overall process by enabling instantaneous report filing. In addition, report data is reconciled automatically. The moment a report is submitted, errors are detected and reported, which helps reduce discrepancies and the resulting back-and-forth interactions.

Table 1. Benefits of the confidential data reporting solution

Customs Agency	Private Business
Simplify processes	Reduce manual reporting hours
Enable instantaneous reporting	Enable instantaneous reporting
Increase accuracy/reduce errors	Increase accuracy/reduce errors
Improve transparency	Protect IP
Reduce lost tariff revenues	Reduce non-compliance fees

An Exploration Exercise With GDVC

Intel and the GDVC together explored the feasibility of a confidential data reporting solution, working with the General Department of Vietnam Customs ("GDVC") and SAP. The exploration exercise offered the GDVC access to detailed manufacturing data from companies, including confidential manufacturing BoMs, in support of GDVC duty-free material consumption validation.

Intel was well positioned to develop and help drive the discovery phase of this exploration because Intel ships components to Vietnam, where the components are assembled into goods that are later exported. As a result, the company is both a technology provider for the solution and a beneficiary of its adoption by the GDVC. This trusted collaboration presented a unique opportunity for Intel to work with the GDVC to test the solution's ability to help:

- ✓ Automate processes to reduce errors and decrease lost revenue from data inaccuracies
- ✓ Use near-real-time reporting to prevent misuse of tax breaks and leaking of raw materials into local markets
- ✓ Protect confidential information for companies operating in Vietnam

Currently, the GDVC requires all companies to submit manufacturing BoMs to validate duty-free material consumption. The PoC solution demonstrated that Intel was able to maintain confidentiality for the list of components in its manufacturing BoMs. Now, the GDVC and Intel are partnering to review and propose new business processes to simplify and accelerate duty-free reporting.

The collaborative solution additionally helps companies maintain AEO status by confidentially reporting product inventories, movements, and manufacturing BoMs to the GDVC in near real time for duty-free materials tracking. This benefit is critical because the penalties for not meeting AEO status are high: non-compliance results in significant financial penalties and delays, increasing customs clearance times from nearly instantaneous to as long as two days.

The Chip Made for Blockchain

A few years ago, Intel began shipping of the Intel® Blockscale™ ASIC, a near-microscopic accelerator that tackles cryptographic functions. According to Intel Vice-President of Accelerated Computing Systems and Graphics Group, Ajat Hukkoo, each Blockscale chip "contains hundreds of little math engines, originally developed within Intel labs."
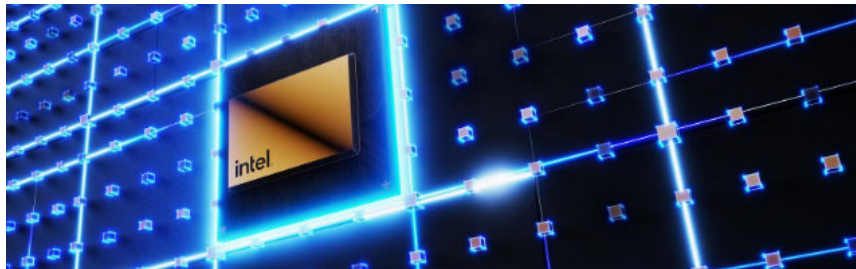
According to Hukkoo, the speed and quality of the Blockscale™ project is a "completely off-roadmap product for a new-to-Intel market. Furthermore, Intel didn't just build a chip but also architected the boards that marry as many as 100 chips together, a controller that orchestrates them all together, and the software that runs it. An end-to-end solution.

Intel is keen to architecting such emerging hardware technology with software in mind. On the hardware side, the priority is not limited to "faster math," but also is saving power, with less than half the voltage of a typical Intel chip. As a result, the Blockscale™ ASIC is both fast and flexible, can run at a wide range of frequencies, and enable system designers to balance performance and efficiency.

> "Momentum around blockchain continues to build. It is the enabler of decentralized and distributed computing, making way for innovative business models. To power this new era of computing, Intel is delivering solutions that can offer an optimal balance of hashing throughput and energy efficiency regardless of a customer's operating environment. Intel's decades of R&D in cryptography, hashing techniques and ultra-low voltage circuits make it possible for blockchain applications to scale their computing power without compromising on sustainability."
>
> –Balaji Kanigicherla, Intel vice president and general manager of Custom Compute in the Accelerated Computing Systems and Graphics Group

Blockchain Stats

- 6,300% growth of the global blockchain technology market is projected between the periods 2015 to 2024.
- As of July 15, 2022, there are nearly 85 million total blockchain "wallet users.
- By the end of 2022, worldwide spending on blockchain solutions will surpass $11 billion.
- As of July 15, 2022, there have been nearly 750 billion total transactions on Blockchain.com.
- In 2021, $6.6 billion was spent on blockchains solutions
- The U.S. is expected to spend more than $2.5 billion over the next few years on blockchain technology.
- By 2025, 55% of healthcare applications will have adopted blockchain for commercial deployment.
- The blockchain market is expected to generate $20 billion in revenue by 2024.
- Blockchain was the third most disruptive technology in 2020, behind only machine learning and AI.
- Blockchain is being adopted by both industry and government due to its security, flexible modeling, and value chain.
- More than 80% of the world's central banks have considered creating their own cryptocurrency.
- Over $270 billion worth of transactions have been conducted using secure blockchain technology.
- The business value of blockchain is expected to grow to $3.1 trillion by 2030.
- 90% of governments have plans to invest in blockchain technology.

Source: https://techjury.net/blog/blockchain-statistics/#gref

Data Sharing Agreements

Cooperative Data Sharing Agreements epitomize data altruism, as they do not create domestic or international legal instruments binding member states to obligations under the law. Rather, it establishes an innovative and inclusive framework for bilateral and multi-economic collaboration and cooperation: innovative in how it confronts the recent global trend of data localization; inclusive in member states' intentions to share information on developments related to typical issues, and, as appropriate, encourage third parties to adopt policies consistent with these types of initiatives.

International trade produces vast amounts of data, which is valuable as a resource for the digital economy. It is used as a prized raw asset to give rise to data services and applications and brings greater efficiency in delivering public services and evidence-based decision-making. A few years ago, Intel postured that governments should lead the charge in defining open data strategies for the public and private sectors to embrace; to provide the tools and guidance to support global adoption. This joint agreement exemplifies a collaborative approach for other countries worldwide to consider as they enhance their data policies to foster innovation and improve public sector services.

Cooperative Data Sharing Agreement

Governments and businesses need to understand the current trends to stay ahead of the curve. For example, while Intel has long urged governments to promote access to data., countries like Singapore and the U.S. are both walking the talk. Last year, officials from Singapore's Monetary Authority and the U.S. Department of Treasury convened in Singapore to discuss the importance of the free flow of data across international borders, specifically concerning financial services (FinTech). The two countries ultimately issued a joint statement supporting cross-border data transfers while broadly opposing data localization requirements, two key drivers in the evolution of global trade facilitation. The agreement between these two "digital trailblazers" signals each country's commitment to promoting the adoption and implementation of policies that:

- safeguard cross-border electronic data transfers
- resist constraints against the movement, storage, and processing of data (assuming regulators have access)
- remediate against a lack of access to data (before the implementation of data localization requirements)

The joint statement outlined a commitment by both countries to "expand the use of data in financial services" as a way to offer "greater consumer choice, enhanced risk management capabilities, and increased efficiency." Moreover, the position outlined in the joint statement aligns well with trade-related industry perspectives on cross border data flows:

"Data localization requirements can increase cybersecurity and other operational risks, hinder risk management and compliance, and inhibit financial regulatory and supervisory access to information. Data mobility in financial services supports economic growth and the development of innovative financial services and benefits risk management and compliance programs, including by making it easier to detect cross-border money laundering and terrorist financing patterns, defend against cyberattacks, and manage and assess global risks."

LAR, Singapore Trade Agreement

In 2022, the Pacific Alliance (PA), comprised of Chile, Colombia, Mexico, and Peru signed a multilateral trade agreement with Singapore. (Singapore was also recognized in the aforementioned, Automation Readiness Index).

The agreement not only establishes Singapore as this Latin America coalition's first "associate member," but also enables both "parties" to cooperate in matters of mutual interest, including the digital economy, trade, supply chain logistics, and infrastructure. This is a significant development, given that this LAR alliance:

- is "the world's eighth largest economy
- has a combined GDP of more than $2 trillion
- accounts for 40% of the Latin America and Caribbean region's total GDP
- collectively have a population of nearly 230 million
- offers opportunities for Singapore across key areas like technology, digital economy, and infrastructure

Among the key benefits of the multilateral agreement is the "removal of tariffs for the majority of tariff lines. A superb example of cross-border data altruism and cooperation.

The Prescription

Policy Drivers to Fuel Intelligent Trade

Operational policy drivers are needed to fuel the trifecta of data, digitization, and technology. Doing so will set public sector actors on a path towards the necessary journey of experimentation as humanity bravely marches towards solutions for society's most significant challenges and a more intelligent, technology-neutral public policy, regulatory, and government investment environment. Hence, there are primary policy drivers to cultivate trust, innovation, and velocity that will help to materialize the potential described herein.

Embrace and Invest in Intelligent Trade and Technologies

To keep pace with both evolving regulatory and technological environments, access to information should not only be complete, but immediate as well. The application of data analysis and AI to risk management, separation of release from clearance, audits, and the analysis of release times is paramount to intelligent trade.

Accelerate Post-Covid-19 Trade

Relevant pandemic data, while abundant, are dispersed throughout different platforms. Thus, policymakers and trade operators need timely access to such information. Intelligent trade mechanisms adopted to maintain the flow of safe cross-border trade will continue to be a key policy tool to address the challenges of the global pandemic.

Robust TFA Support and Implementation

Intel strongly supports the Trade Facilitation Agreement (TFA) agreed to by the 160 member nations of the WTO which encourages expediting the movement, release, and clearance of goods, including goods in transit, establishing measures for cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues, and improving transparency, increasing possibilities to participate in global value chains, and lessens the capacity for corruption.

Minimize Existing and Growing Barriers to Digital Trade through Data Altruism

International collaboration is challenged by outdated rules and new forms of protectionism.[12] Last-mile delivery logistics to secure cross-border payments will persist in presenting additional challenges for policymakers to navigate. To ensure a trustworthy, robust, and vigorous global supply chain that benefits the public sector, traders, and consumers in every geography, national and international data offers a significant opportunity to reach cooperative agreements on provisions that meaningfully combat barriers to trade-related data flows.

Minimize Requirements to Localize the Storage and Processing of Data

Private sector actors should have the opportunity to locate data storage and processing centers where it makes the most technical and commercial sense. Thus, governments should minimize, to the extent possible, forced local storage and processing of data. Intel recommends that interstate and international

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[12] Office of USTR, https://ustr.gov/about-us/policy-offices/press-office/fact-sheets/2017/march/key-barriers-digital-trade

coalition agreements be established to inhibit requirements for the localization of research & development, intellectual property, and manufacturing within their borders as a condition of market access, as such measures are counterproductive, undermining competition and innovation while reducing global trade by more than $90 billion each year.[13]

Minimize Commercial Encryption Regulation

Robust encryption technology is necessary to protect digital devices and networks. While the number and seriousness of cybersecurity attacks continue to grow, regulatory barriers applied to the use of cryptography run the risk of decreasing the overall security of computing devices and the internet. A trade policy best practice is the US Commerce Department's Bureau of Industry and Security (BIS) revision of the US Export Administration Regulations (EAR) to implement export control changes regarding Export Controls for Conventional Arms and Dual-Use Goods and Technologies. These revisions were accomplished with the goal of reducing the regulatory burden on software and hardware developed under export controls. An aspiring framework for other public sector actors to harness and unleash.

Prohibit Technology Transfer Requirements

Broad compulsory licensing requirements or requiring unnecessary confidential information as a condition of product approvals and market access are on the rise in many emerging markets. Removing, prohibiting, and preventing such barriers to international trade, especially while evolving towards intelligent trade through the modernization of trade facilitation infrastructures, is paramount.

Contribute to International Trade Facilitation Based on Voluntary Standards

Global variations of regimes governing privacy, data sovereignty, localization, and cross-border transfer practices often cultivate disharmony in common regulatory approaches. Such variety ignites deviation from practices of embracing regulations that rely on voluntary standards to address evolving technical requirements for data use cases. Standards and guidelines play a vital role in developing approaches for access to data. Hence, access to large, reliable datasets is essential to accelerating the digital facilitation of intelligent trade. Therefore:

- Close alignment should be achieved with WTO Technical Barriers to Trade Agreement Principles in order to base government technical policy and regulatory measures on international standards that aim to eliminate obstacles to trade.[14]
- In areas highly affected by privacy and security regulations, international standards have a vital role in defining useful mechanisms and techniques to support a harmonized approach to achieving regulatory objectives. Examples of such standards include the Do Not Track standard (under W3C) and cybersecurity, data security and privacy protection standards (under ISO/IEC JTC 1 SC 27).

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[13] Intel Corporation, https://www.intel.com/content/www/us/en/policy/policy-cloud.html

[14] WTO, Technical Barriers to Trade, https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm

The Pinnacle

In closing, the digital divide between developing and developed countries remains a top priority. Greater investment in digital infrastructure, connectivity and technical education would benefit the region significantly more than misguided policies such as data localization and tariffs on digital goods and services. Furthermore, both private and public sector actors should bolster efforts to construct trusted technologies, especially for the facilitation of intelligent trade. Data, digitization, and emerging technologies have the potential to reach more people, lower costs and reduce inefficiencies.

However, Intel's Chief Trade Officer, Jeff Rittener, reminds us that "the digital trade system will only work if people trust it, especially in the absence of human interactions. We must build trusted technologies for all participants, including fierce data privacy protections, better online dispute systems, and algorithms that don't discriminate against minorities and smaller actors. This approach requires a genuine public-private partnership with a focus on a human-centered approach."

Intel welcomes the initiatives of Latin America's thought leaders. As a working group addressing global trade challenges, the output of this region is paramount in promoting the concept of intelligent trade presents a significant opportunity to lead by example and serves as a catalyst in facilitating trade operations from North America to South America, and around the world. Secure re-use of data within the region and beyond, as well as between relevant stakeholders involved in the respective import and export transactions, will eliminate unnecessary duplications, delays, and costs. Thus, ongoing G2G, G2B, and B2B collaboration in this area should go beyond smart and secure trade lane pilots that have already been established.

The convergence of AI, Confidential Computing, and Data-centric, high-performance computing is an enormous opportunity to address some of the world's biggest challenges and an important catalyst for economic opportunity, especially as it relates to the facilitation of intelligent trade. The most exciting technology innovations on the planet are primed to move society forward, helping both public and private sector innovators of the world do more. By empowering government to transform its technology infrastructures with solutions and innovations previously thought beyond reach and by providing the backbone for a smart, connected, and data-centric world, we can and will, push possible forward.

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Intel technologies may require enabled hardware, software, or service activation.

No product or component can be absolutely secure.

Your costs and results may vary.

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