



**AMERICAS
PARTNERSHIP FOR
ECONOMIC
PROSPERITY:**
Potential Framework Components

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Abbreviations

- A**
APEP: American Partnership for Economic Prosperity
API: Active Pharmaceuticals Ingredients
ARTIS: APEP Regional Technology and Innovation Sandbox
- C**
CFR: Council on Foreign Relations
CONOCER: National Skills Board
CRM&REE: Critical Raw Materials & Rare Earth Elements
- D**
DFS: Digital Financial Services
DRM: Domestic Resource Mobilization
- E**
ECLAC: The United Nations and the Economic Commission for Latin America and the Caribbean
EI: Electronic Invoice
EV: Electronic Vehicle
- F**
FDA: Food and Drug Administration
Fintech: Financial Technology
- G**
GBA: Global Battery Alliance
- H**
HLED: High-Level Economic Dialogue
- I**
ICT: Information and Communication Technology
IDB: Inter-American Development Bank
ILO: International Labor Organization
IMF: International Monetary Fund
IP: Intellectual Property
IPEF: Indo-Pacific Economic Framework
- L**
LAC: Latin America and the Caribbean
- M**
MLEC: UNCITRAL Model Law on Electronic Commerce
- N**
NAPAPI: North American Plan for Animal and Pandemic Influenza
NAWB: National Association of Workforce Boards
- O**
OECD: Organisation for Economic Co-operation and Development
OEM: Original Equipment Manufacturer
- Q**
QMM: Quality Mature Management
- R**
RTAs: Regional Trade Agreements
- S**
SEZs: Special Economic Zones
SMEs: Small and Medium Enterprises
SPZs: Shared Prosperity Zones
- U**
UNCITRAL: United Nations Commission on International Trade Law
UN Electronic Communications Convention: United Nations Convention on the Use of Electronic
USMCA: United States-Mexico-Canada Agreement
- W**
WBL: Work Based Learning

1. EXECUTIVE SUMMARY

The Americas Partnership for Economic Prosperity (APEP) initiative aims to establish a sustainable and significant economic partnership between the United States and a set of reliable trading partners in the Western Hemisphere. The Biden administration recognizes that the region should remain a strong economic partner: a strategic goal neglected in recent years. The proposal is built on the premise of increasing engagement with Latin American and Caribbean (LAC) countries, by providing concrete economic incentives and means to diversify supply chains, build new paths to prosperity following the pandemic induced recession and reduce dependence on geo-economic rivals, such as China. APEP has the potential to generate progress toward these objectives.

One of the key challenges in building APEP is the heterogeneity of the governments in the Western Hemisphere. The diversity of stakeholders and audiences impacted by APEP is vast. Nevertheless, APEP aims to draw the region closer together and center cooperation on a forward-looking framework. To do so, APEP must embrace initiatives that build stronger links between partner countries and economies; agree on shared objectives, mechanisms, norms, and approaches, build vibrant public-private partnerships, and generate incentives to sustain and expand partnerships as the region faces rigorous international competition.

To better unlock the potential of APEP, this report recommends that the governments of Barbados, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Mexico, Panama, Peru, the United States, and Uruguay take specific actions to increase sustainable development in the Western Hemisphere and strengthen resilient, strong, and diverse economic ties through several target initiatives that have potential strategic benefits that can generate prosperity.

The authors spoke with various experts and industry leaders, analyzed a wide selection of studies and policy publications, and looked at raw data. Building on President Biden's initial announcement at the Summit of the Americas and the updated joint initiative agreement released at the end of January 2023, the team recommends the following priorities, frameworks, and negotiation points:

- 1. Diversifying and Securing Supply Chains:** Promoting Shared Prosperity Zones (SPZs) based on agreed norms, standards, and commitments. These SPZs would generate an enabling environment for regionalizing robust critical supply chains, such as critical minerals and rare Earth elements and medical supplies. They would enforce strong labor and environmental standards in supply chains, encourage sustainable methods to increase transparency in EV battery production, seek to expand research and development for clean technologies and enhance the skills of workers associated with supply chains. By offering a series of tax, access, and other incentives, SPZs would attract private investment, build public-private collaboration and facilitate trade along strategically important supply chains with higher norms becoming standard practice. This proposal can go hand in hand with a renewed approach to expand pharmaceutical collaboration that would increase supply chain resilience.
- 2. Building Prosperity through the Digital Economy:** Facilitating the implementation of digital regulations and promoting consumer protection in a digital landscape is an essential component of any modern economic agreement. APEP should begin with feasible and short-term practices that members can adopt to facilitate commerce and inclusion that are already widely recommended and that many members should be able to adopt with relative ease. Establishing a network of technology and innovation sandboxes would also promote innovation and the protection of IP within the APEP framework. An APEP working group would continue working to implement best practices as agreed in USMCA, IPEF, and other key fora.
- 3. Expanding Financial Access and Inclusion in the Hemisphere:** Develop regulations and programs to increase fintech activities in the region, work towards digitalizing government payments to citizens, increase transparency in public systems, and encourage national strategies for financial literacy. These initiatives would aim to foster SME growth and to build public-private partnerships on digital literacy. These initiatives could also be integrated into the SPZ project model.

4. **Integrating SMEs into an increasingly Competitive Regional Framework:** APEP can be used to apply best practices for encouraging SMEs to play bigger roles in regional value chains. One pillar would be to incorporate SME participation into the SPZs, providing them with skills and capacity building initiatives, as well as steps to increase access to capital. APEP efforts need not be limited to SPZs, however, ensuring this work be an on-going area of APEP collaboration.
5. **Developing the Workforce for Shared Prosperity:** Workforce development should also be an on-going pillar of APEP cooperation through partner nations agreements to invest in Work-Based Learning programs. These would adapt best practices in skill-based learning programs to the local economies and agree on a set of criteria for labor standards. APEP should develop digital workforce skills through expanding consistent digital training opportunities and working towards agreement on a set of criteria to support worker reskilling. Additionally, share workforce data by opening regular and transparent dialogue regarding best practices and agreeing on a common language for credentials. This cooperation would be built on enhanced government-academic-private sector collaboration adapted to the industries and locations.

The successful implementation of the proposed frameworks depends on good collaboration with partner governments and serious multi-stakeholder involvement. Successful coordination will be challenging with the diversity of APEP member countries. However, the authors believe in the need to strengthen ties with our neighbors and create an area of economic prosperity for all nations involved. We think that the proposed work areas can provide strategic, commercial, and social benefits to generate the incentives for strong, mutually beneficial partnerships. We also underscore the need for greater cooperation with non-affiliated Member States to provide a more robust and mutually beneficial agreement that builds on similar investments and goals already established in the region, and ideally to attract more partners to join APEP going forward. We hope the recommendations described in this report support the State Department in its APEP negotiations.

2. INTRODUCTION

The Americas Partnership for Economic Prosperity (APEP) has enormous potential to foster a more competitive, equitable, and sustainable Western Hemispheric economy. Launched by President Biden at the IX Summit of the Americas in Los Angeles, APEP's full potential has yet to be harnessed. The partnership currently includes twelve members: Barbados, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Mexico, Panama, Peru, the United States, and Uruguay. Together, these partners have created a base from which to generate growth opportunities, economic security and strengthen their alliances.

This alliance comes at a time when authoritarian regimes are challenging U.S. leadership. The extra-continental regime's preference for predatory economics and the creation of parallel multilateral institutions risks the disappearance of sustainable growth and the rules-based order. It is particularly damaging that critical supply chains to the American and other APEP economies are highly dependent on these regimes' industries to function, leaving the U.S. and the region exposed to new vulnerabilities. Following the COVID-19 pandemic, vulnerabilities in these supply chains were highlighted. The pandemic linked recession also underscored the value of enhancing the ability of SMEs to participate vigorously in national and international production and supply chains.

The authors of this report believe that APEP has the potential to: 1) increase the U.S.' geopolitical standing in the world by positioning us as the established, responsible leader of the Western Hemisphere, 2) advance the U.S.' geo-economic interests by promoting initiatives that work to diversify critical supply chains away from extra-continental authoritarian regimes and closer to our industry hubs in the continent; 3) to increase interconnectedness across the Americas to an unprecedented level, opening new markets and growth prospects for U.S. companies and workers; and 4) to enhance prosperity among U.S. neighbors in a system that highlights the value of regional interconnectedness. The authors also believe that the geo-strategic, geo-economic, and

commercial benefits can be achieved along with a greater framework for all countries in APEP that encourages responsible growth, driven by the principles of shared prosperity, an international policy for the middle and working classes, and respecting vital climate and environmental goals.

This report seeks to analyze areas of regional importance, identify the obstacles hindering APEP goals, and provide innovative ideas to overcome shared challenges, particularly pertaining to economics and public health initiatives and build sustainable partnerships. The report focuses on five key areas: Diversifying and Securing Supply Chains; Building Prosperity through the Digital Economy; Expanding Financial Access and Inclusion in the Hemisphere; Integrating SMEs into an Increasingly Competitive Regional Framework; and Developing the Workforce for Shared Prosperity.

While many of these proposed initiatives address many of the outlined concepts, the success of APEP will depend on issues outside this report's scope. However, the authors believe the five areas identified are essential and challenging issues that can be addressed with innovative ideas. Therefore, each issue has its own subsection in the framework and addresses multiple key concept areas within that scope.ⁱ

3. APEP STRATEGIC FRAMEWORK

The recommendations that follow stem from several sources. Our methodology consisted of reviewing literature, data collection, and best practices. In addition, we consulted with experts for the different identified areas of our proposed framework; interviewed alliances; and held roundtable discussions with experts from unions, NGOs, think tanks, the World Bank, the IMF, and in Academia.

Through the U.S. alignment of geo-strategic, geo-economic, and commercial goals, we identified five areas and provided recommendations that aim to bridge the fragmentation in the region and generate an engaged, prosperous, and strategic hemisphere.

3.1 Secure Supply Chains Through Diversification

CFR Fellow Shannon O'Neil writes that "The path to stronger and more inclusive growth isn't less globalization, it is more regionalization."¹ Along with the reshoring of industry back to the U.S., we have witnessed the reappearance of "nearshoring," which is the practice of bringing specific supply chains to countries physically close to the one executing the policy; and "friend shoring," which is the practice of applying the same policy in countries friendly to and aligned with similar interests and goals or with whom they have established a specific partnership agreement. Nearshoring and friend shoring are comparatively more optimal than reshoring because they allow the participants to take account of comparative advantage. While some optimal countries might be excluded from the supply chain due to national security issues, near- and friend-shoring give private companies the flexibility to find the best opportunity cost amongst a set of options that respect both national interests and capacities.

In line with these principles, the Inter-American Development Bank provided an assessment of how nearshoring can benefit the regional economy's exports and overall growth.² Table 3.1.1 analyzes the benefits that the APEP countries would reap from nearshoring, and we can see how each APEP member state benefits more from either U.S. or other LAC-induced benefits.ⁱⁱ This study found Mexico to be the top beneficiary of U.S.-led nearshoring (over 30 bn USD) due to its status as a member of the USMCA Treaty, which already gives the country an established and comparatively advantageous position in bilateral trade with its neighbor. However, by excluding Mexico's results, we found that smaller countries reap more LAC-induced benefits, while larger countries and those with existing U.S. Free Trade Agreements gain more U.S.-induced benefits.

ⁱ This project was completed by six American University students at the School of International Service as part of the Department of State's Diplomacy Lab program. The authors worked under the guidance from Diplomat in Residence Earl Anthony Wayne to prepare a report for the state Department's Bureau of Economic and Business Affairs (EB) as a Capstone Project in the spring of 2023.

ⁱⁱ [Appendix 1](#): Table 3.1.1 & Charts 3.1.1 & 3.1.2 – The Benefits of Nearshoring

Thus, there is clear potential for the U.S. and LAC to benefit from a more resilient supply chain, to increase shared prosperity. Richard Feinberg, a professor emeritus at UC San Diego, however, warned that national governments should not tackle this situation alone: as they require the know-how and expertise of the private sector, reaching out through a new form of private-public partnerships.³ Building on this insight our group explored the concept of “Shared Prosperity Zones” (SPZs) to attract and build strong and beneficial public-private collaboration in key sectors, to promote important norms and practices, and to enhance resilience in specific sectors such as the notion of agreed crisis management protocols for pharmaceutical supply chains.

3.1.1 Shared Prosperity Zones for Economic Resilience

Similar to the widely used Special Economic Zones (SEZs), APEP’s own Shared Prosperity Zones would be delimited areas such as land, buildings, or roads subject to incentivizing fiscal and regulatory regimes. Unlike SEZs, however, SPZs would require compliance with demanding labor, corporate social responsibility, ESG, and environmental standards that would ensure the principles of shared prosperity heralded by the White House on January 27th, 2023.⁴ These standards would be negotiated among partner governments.

The SPZs would be integrated into a network of areas with agreed-upon standards, trade regimes, and benefits (to attract investment) within the APEP framework. These SPZs would incentivize an increased growth of trade and investment in the Americas for several critical supply chains (described later in this paper). Additionally, the SPZs would act as a catalyst of growth in the local economies, generating employment in the region and developing new industrial growth in that territory. In our conversation with Shannon O’Neil, she encouraged these SPZs to be “context-specific,” with clear goals of alleviating a specific supply chain or several of them.⁵

The project team thus identified supply chains that were the most critical to the U.S. national interest. Using the White House’s 100-Day Supply Chain Review and other materials, we identified critical minerals, EV batteries, and medical supplies to be the products in highest need for U.S. supply chain resilience.^{6 7}

To encourage higher rates of private sector involvement and sustainable investment in critical minerals, EV battery, and medical supply industries, we suggest that the State Department, and the USG in general, incentivize these actors by incorporating in the SPZ framework criteria including but not limited to (please see Appendix 2.1 for further detail):ⁱⁱⁱ

- **Corporate Tax Reductions:** Reduce annual corporate reductions to a dignified amount would incentivize further investments into strategic areas.
- **Income Tax Reduction:** Combine tax reduction on annual personal incomes and cut taxes on bonuses to attract talent to the SPZs’ operations.
- **Streamlined Administration Processes:** Significant reduction in overhead costs by integrating administrative work and eliminating duplications will attract investment.
- **A Single Source Label:** Adopt a clause by which the Critical Raw Materials, with the possible expansion, are treated equally across APEP, which can liberalize this strategic market.
- **SPZs Integration and Spillovers into the Local Economy:** Ensure that the SPZs act as catalysts for local economic empowerment and growth abiding by strong environmental and social justice principles.

ⁱⁱⁱ See [Appendix 2.1 Criteria for SPZs](#) for a breakdown of SPZs function.

We recommend the following be negotiated through an established working group in APEP:

1. Create a network of Shared Prosperity Zones spread across APEP countries, targeted at integrating the critical supply chains of Critical Minerals, EV Batteries, and Medical Supplies.
2. Create and adopt a framework by which the potential locations SPZs are negotiated between the APEP member states. This must be done in close consultation with the private sector.
3. Create a policy framework with strong environmental and labor provisions under which the SPZs and spillovers into local economies will be governed under agreed principles of Shared Prosperity.
4. Adopt a “single source” label for SPZ-processed critical minerals, reduce administrative process duplication, and grant corporate and income tax breaks.

3.1.1.1 Critical Minerals and Rare Earth Materials SPZs

In 2021, President Joe Biden mandated its government to conduct a thorough Supply Chain Review within 100 days.⁸ The review focused on the status of four supply chains deemed by the White House as “vital to national security.” Within said timeframe, the U.S. Department of Defense released its assessment of the Critical Raw Materials and Rare Earth Elements (CRM&REE) supply chain, explaining that key products in the operability of the armed forces such as night-vision goggles were at risk.⁹ The production of critical raw materials is currently divided into four stages: beneficiation (mining), hydrometallurgy & electrolysis (refining), and finishing. APEP is uniquely positioned to act as a framework by which Member States and their companies gain access to these vital products.

From our research, we identified several Critical Raw Materials whose supply chains are optimal for integration in APEP out of a list of demanded CRMs made by the Defense Department. These minerals have been selected because at least two APEP Member States are highly relevant in their export, production, or reserve holding.^{iv}

- | | | |
|-------------|-------------|-------------|
| - Aluminum | - Scandium | - Lithium |
| - Arsenic | - Fluorspar | - Steel |
| - Bismuth | - Graphite | - Strontium |
| - Neodymium | - Lanthanum | - Tin |
| - Niobium | | |

To do so, we suggest that the State Department spearheads a negotiation process by which the APEP states distribute the production of Critical Raw Materials among the Member States’ regions as described in Appendix 2.2. This Appendix outlines a set of criteria and objectives for the development of stage specific SPZ placing, with suggestions on location, human capital, and characteristics of each SPZ. We encourage the State Department and APEP partners to create SPZs and programs that are specific to regions and stages in the supply chain. While it would be optimal for the following SPZs to be coordinated together, these are completely separable ideas with the ability to make a substantial impact in the supply chain, even if adopted alone. We also encourage the State Department to work with actors from the private sector and scientific community to map and identify potential new sources and reserves of CRM&REE across the Americas. These suggestions would require close coordination with partner governments as well as with key members of the private sector.^v

^{iv} See [Annex A Critical Mineral Breakdown](#)

^v See [Appendix 2.2 Stages of Integrating the CRM & REE Supply Chain](#)

We leave the modalities of the negotiation for the State Department to decide but recommend they:

1. Establish working groups bringing together stakeholders from the private sector, the scientific community, and national and regional governments to build agreement on the benefits, standards, and most advantageous locations of SPZs.
2. Advocate for the creation of SPZs with commitments, infrastructure, locations, and human capital specific to their stage in production: Mining (beneficiation), Refining (hydrometallurgy & electrolysis), and Finishing. The goal would be to have them spread throughout the continent to increase competition and diversify the supply chain.
3. Create joint working groups to identify new sources of Critical Raw Materials and Rare Earth Elements and map their potential extraction points in the Americas them.

3.1.1.2 Electric Vehicle Batteries SPZs

The Biden Administration sees necessity in the transition to e-mobility. In 2021, electric vehicle (EV) sales surpassed 6.5 million units, increasing by 120% from 2020 sales.¹⁰ This indicates an exponential increase in the demand for EVs. However, China currently dominates the EV manufacturing market. In 2021 China sold 3.5 million units of EVs out of global EV sales of 6.9 million.¹¹ The Biden administration's goal of half of all new vehicles by 2030 to be zero-emission indicates a potential future increase in the demand of EV batteries. Additionally, other governments within APEP have developed similar goals for the reduction of carbon emissions and increased adoption of EVs. Due to the weight, structural issues, and supply chain vulnerabilities associated with EV batteries, it is cost effective to have production take place closer to the market of consumption. The five major challenges in adopting EV battery production are a lack of infrastructure, high upfront costs, lack of consumer knowledge, visibility, and product quality guarantees.¹²

There is a unique opportunity to strategically strengthen the EV battery value chain by implementing measures to increase readiness for the projected demand within SPZs. Commercial attractiveness would also expand with the increase in projected demand for EVs and increased potential access to global markets. The SPZ framework can incorporate battery manufacturing plants using tax incentives (mentioned above) to increase foreign direct investment and build necessary infrastructure. Through achieving economies of scale, APEP would reduce the high barrier costs to market entry of EV battery production in the region. Additionally, according to the Department of Energy (DOE), "In general, it can cost about half as much to drive an electric vehicle (EV) as an equivalent gasoline vehicle."^{vi} This could increase supply chain resilience through price stability within a transition to e- mobility.

To support environmental commitments of countries, APEP can utilize recycling and repurposing initiatives to counteract the eroding impact of EV supply chains. Establishing a pilot program in the EV SPZs to implement recycling and repurposing deployment would reinforce the regions shared commitments towards environmental preservation.^{vii}

Moreover, to increase the efficiency of cross-border trade of EV batteries, we suggest using the concept "battery passports". More specifically, battery passports are digital IDs that have the capacity to include data pertaining to the expected lifetime of EV batteries, manufacturing information, and the traceability of the value chain from raw materials to the final production of the battery. The Global Battery Alliance (GBA) works in collaboration with many initiatives and working groups to support the aim of expanding battery

^{vi} See [Appendix 2.3.1 Expanding Infrastructure](#) to learn more about EV manufacturing plants.

^{vii} See [Appendix 2.3.2 Recycling Focus in SPZs](#) to learn more about the process to recycle batteries and examples of current practices.

passports globally.^{viii} The U.S. along with APEP Member States should consider the implementation of a “battery passport” to ensure quality guarantees and increase the traceability of the supply chain. This allows for partners to participate with shared goals and provides more information for environmentally conscious practices. The adoption and implementation of battery passports in the EV SPZs would also complement the shared goals of inclusive and sustainable investment between members and the public and private sector. Additionally, battery passports have the potential to increase visibility, consumer knowledge and provide information for environmental assessments of battery components building towards transparency.

With that, we suggest the following initiatives be negotiated and implemented through joint working groups:

- Incorporate the potential manufacturing of EV batteries in the SPZ framework. This would enhance infrastructure & grids in member countries’ SPZ locations, expand industry capacity and strengthen logistics in transportation. This option would require close private sector involvement to get a measure of its commercial attractiveness.
- Implement a pilot program to assess the potential of recycling and repurposing EV batteries within the SPZs.
- Facilitate the creation and implementation of a digital battery ID consistent with the Global Battery Alliance’s framework within the EV battery SPZs.

3.1.1.3 *Medical Supplies SPZs*

During the COVID-19 pandemic, existing supply chains were neither resilient nor diverse enough to meet crisis demands.¹³ Two issues we identified were a reliance on distant and unreliable suppliers, as well as a non-utilization of regional frameworks built to deal with emergencies, such as the North American Plan for Animal and Pandemic Influenza (NAPAPI), which was negotiated by Canada, Mexico, and the U.S.¹⁴ In addition, there was no regional framework encompassing all the APEP countries, which indicates a potential avenue for APEP. NAPAPI is currently being updated and as a result, we think there could be a similar approach within APEP, which we base our recommendations on.

In the early stages of the COVID-19 pandemic, there was a global shortage of personal protective equipment (PPE), including hospital gowns, gloves, surgical masks, and respirators. The increased demand for PPE in response to the pandemic, coupled with disruptions in global supply chains and production, led to shortages in many parts of the world. China, one of the world's largest producers of PPE, limited exports to conserve supplies for domestic use. This created significant challenges for many countries that relied on China as a major supplier of PPE.¹⁵ To provide a more resilient supply chain of low-tech medical supplies, we recommend utilizing SPZs to increase and diversify the manufacturing capacity of medical supplies in the Americas. Providing medical SPZs with financial incentives (as referenced above) can generate greater FDI and increase the production capacities of manufacturing facilities.

According to the World Health Organization (WHO), medical supply stockpiles are essential for ensuring that healthcare systems have the necessary resources to respond effectively to pandemics and other public health crises.¹⁶ Stockpiling medical supplies can save valuable time in emergency situations. By coordinating joint efforts within APEP, Member States can better assess and respond to supply shortages through the further integration of nation-based stockpiles.¹⁷

This would require government to government negotiations and discussion with private sector companies to determine what specific supplies would be subject to expansion with the inducements that SPZs might supply and how that could also build a framework to help sustain needs during a crisis.

^{viii} See [Appendix 2.3.3 Battery Passport Framework](#) to learn more about the battery passports and existing cases.

We recommend the following initiatives be negotiated within APEP:

1. Establish a joint working group to design a SPZ framework for low-tech medical supply chains to create additional stockpiles and increase manufacturing capacity.
2. Establish a joint working group to improve coordination on responding to medical supply chain shortages and expanding coordination amongst nation-based stockpiles.

3.1.1.4 Seaports SPZs

An important component of supply chains is transportation logistics. Thus, we suggest that the State Department leads the USG effort to coordinate with the APEP Member States to select one or two ports within each participating APEP country to be used as shipping points for critical materials or other SPZ specified components. CRM&REE (Critical Raw Minerals & Rare Earth Elements) could be compiled in a limited area within the port, like warehouses, to be held under a special trade regime. These supply chains of critical minerals, EV batteries, and medical supplies would be connected and integrated by a network of SPZ identified seaports, guaranteeing secure and reliable transport under the benefits of an SPZ. We suggest that the State Department/USG team and partners create the SPZs in specific ports optimal for APEP integration.^{ix}

These ports are likely to be the largest in each APEP country, and thus they could be a hub for modern technology and innovation, with high access to international shipping. We developed a list of potential ports APEP countries can use in the SPZ framework.^x Furthermore, we have developed several recommendations the APEP countries can follow to better integrate their major ports through SPZs, with a focus on fair competition and a single sourcing clause.^{xi}

We recommend the following be negotiated in APEP:

1. Create a network of SPZs within the major ports of each APEP member state to connect the supply chains described above.
2. Draft a set of rules and norms to ensure free and fair competition in the port SPZs, avoid national champions or monopolies, and promote best practices.

3.1.2 Pharmaceutical Drugs: Addressing Quality Issues

Separately from the SPZ framework, to support supply chain resilience APEP can analyze the legacy issues behind the quality and reliability of pharmaceutical drugs. The pandemic highlighted vulnerabilities in the pharmaceutical supply chain, which allows for a more in-depth analysis of its weaknesses and potential avenues for improvements.¹⁸

The current state of pharmaceuticals in the U.S. is a trend of profit maximization leading to 52% of U.S. supply chains going abroad.^{19 20 21} In terms of imports in kilos, 30% come from APEP Member States.^{22 23} Due to these parts of the supply chain going abroad, there has been a significant decrease in transparency and an increase in quality issues of pharmaceuticals recently, with the U.S. Food and Drug Administration (FDA) listing 120 medical supplies in danger of or currently in a shortage due to manufacturing quality issues and supply chain difficulties.^{24 25} To resolve these recurring shortages, we aim to look at solutions to resolving transparency and quality issues, as well as improve responses to shortages. Enhancing the quality of drugs in the Americas can improve the resiliency of pharmaceutical supply chains and decreases the regions dependence on unreliable partners.^{26 27}

^{ix} See [Appendix 1: Chart 3.1.2](#) Seaports Optimal for APEP Integration

^x See [Appendix 1: Chart 3.1.2](#) Seaports Optimal for APEP Integration

^{xi} See [Appendix 2.4 Characteristics of Seaports SPZs](#)

APEP is poised to tackle these issues with collaboration initiatives and the use of a shared database.

3.1.2.1 Resolving Vulnerabilities and Shortages in Pharmaceutical Supply Chains

To counteract pharmaceutical shortages, priority must be set on identifying the primary cause. Research shows that most drug shortages are not caused by unavoidable factors, such as a product being discontinued. Most shortages (66%) result from serious and preventable quality issues.²⁸ In fact, only 13% of shortages occurred due to supply and demand issues.²⁹ To resolve this issue, the FDA has been conducting a pilot program for the Quality Mature Management system (QMM) which includes a transparent rating system for pharmaceutical companies and the quality of their manufacturing sites.³⁰ The authors believe that APEP could expand the principles of QMM. The authors recommend that APEP work towards creating a pharmaceutical task force, which includes members from each APEP member state's corresponding public health agencies to explore the opportunities for enhanced collaboration to address some pressing quality issues, such as coordinating randomized audits, quality control measures, and training.^{xii}

Additionally, an APEP pharmaceutical task force could create a centralized database that tracks drug shortages across APEP countries. This database can be used to identify trends and patterns in drug shortages, which can help identify potential supply chain issues.³¹ This database would include backup sourcing options for active pharmaceutical ingredients (APIs), as well as locations of supply chain locations, so that the joint task force can help support or even carry out quality transparency and audit duties. The team understands that the FDA currently lacks information on potential sourcing options from pharmaceutical companies in case of a shortage, in response to recurring shortages.³² Pharmaceutical companies are hesitant to comply with transparency regulations due to interferences with their primary sourcing platform for drugs.³³ However, APEP can act as a space to negotiate with pharmaceutical companies to obtain access to information about unused preliminary sourcing locations. Including a sourcing provision within the database, could empower countries' public health agencies to find solutions to critical pharmaceutical shortages and increase resilience.^{34 xiii}

We suggest the following to be negotiated as part of APEP:

1. Establish an APEP Pharmaceutical Task Force to promote trust and dialogue, working towards the creation of a centralized database. This database could potentially track pharmaceutical drug shortages and supply chain breakdowns across APEP member countries. This task force could also work to expand a quality transparency rating system consistent with the principles of the U.S. FDA's Quality Mature Management system.
2. An APEP working group could also engage pharmaceutical companies to potentially obtain unused preliminary sourcing locations of critical APIs to upload to the centralized database in case of shortages.

^{xii} See [Appendix 3.1 Quality](#) for more information on how QMM can be implemented in APEP.

^{xiii} See [Appendix 3.2 A Centralized Database and Backup Sourcing Option](#)

3.2 Building Prosperity Through Enhancing the Digital Economy

The COVID-19 pandemic had a significant impact on digital trade around the world. The pandemic accelerated the digital transformation of many industries and led to an expansion in e-commerce and an increase in the demand for digital services.³⁵

Despite the region's potential, LAC has not fully harnessed digital economic benefits due to various challenges including limited internet access, digital skills, lack of infrastructure, and regulatory barriers. Additionally, in the U.S. the pandemic exposed disparities in internet access and lack of digital skills, particularly in underserved communities, which limited the ability of some groups to participate in the digital economy.³⁶

The profound impact of the pandemic on digital trade in LAC and the U.S. accelerated the adoption of digital technologies, but also highlighted the need to address the digital divide to ensure that all communities can benefit from the digital economy.

3.2.1 Technology and Innovation Sandboxes

In a globalized economy, countries must be more competitive to attract investment and maintain a position in the global digital market. Therefore, designing an APEP Regional Technology and Innovation Sandbox (ARTIS) can boost the region's digital commerce, innovation, and competition. ARTIS targets multiple pillars of the APEP strategic framework and provides regulations that support President Biden's 2024 Budget of increasing investment in American science, technology, and innovation.³⁷ The network would provide a supportive and collaborative regulatory environment for technological experimentation that can help drive economic growth, job creation, social impact, SME participation, fintech development, and digital skills.³⁸ ARTIS can also ensure countries like the U.S. remain at the forefront of critical technologies (such as artificial intelligence and biotechnology) along with spurring innovation through their support of technological research and development.

Technology and innovation sandboxes offer a regulatory framework in a controlled environment to facilitate experimentation and innovation in developing new products, services, or technologies while providing access to international markets and resources. Sandboxes can collaborate and share knowledge among participants, which can help to accelerate developments and innovation. Sandboxes are used by startups, entrepreneurs, and researchers to test their ideas and innovations without being subject to the usual regulatory, financial, and legal barriers that exist in the broader market.³⁹ They can focus on a particular sector, such as fintech, cleantech, biotech or on a specific technology, such as blockchain, artificial intelligence, or robotics.⁴⁰

A key provision that makes a network of technology and innovation sandboxes attractive is that they can be useful in expanding IP protection, even in countries where the necessary regulations may be lacking. Sandboxes support the aims of the USTR's 2023 Special 301 Report on Intellectual Property Protection and Enforcement, where eight out of the twelve APEP countries are on their watch list for violating IPs.^{xiv 41}

ARTIS can accomplish this by:

1. Offering a unique opportunity for policymakers and stakeholders to develop new models for IP protection. These models can be specifically designed to address challenges faced by emerging technologies (e.g., AI and blockchain). By testing and refining these models within the ARTIS network, policymakers and stakeholders can better understand how they will work in practice and can fine-tune them for broader implementation.
2. Providing a safe space for innovators to experiment with new technologies without the risk of infringing on existing IP rights. This is particularly important for startups and small businesses, who may not have the resources to navigate the complex IP landscape on their own. By providing a

^{xiv} Barbados, Canada, Chile, Colombia, Dominican Republic, Ecuador, Mexico, and Peru

controlled environment for innovations, sandboxes can help to foster a culture of creativity and experimentation, which can lead to new and innovative solutions to existing problems.

3. Facilitating collaboration between innovators, policymakers, and other stakeholders. This can help to identify new opportunities for IP protection. By bringing together diverse perspectives and expertise, sandboxes can help to identify the gaps in the existing IP framework and develop new approaches to address them. This can ensure that emerging technologies are protected in a way that is both effective and sustainable.
4. Encouraging international cooperation on IP protection, even in countries where regulations may be lacking. By providing a platform for collaboration and innovation, sandboxes can help to bridge the gap between countries with different IP frameworks, and to help to establish common standards for IP protection.

The Goals of the ARTIS would be to:

- Promote cross-border collaboration in innovation and entrepreneurship among APEP member countries.
- Foster the development of new products, services, and technologies that can drive economic growth and social impact within the region.
- Provide a supportive environment for entrepreneurs, startups, and researchers to test their ideas and innovations.
- Increase access to funding, mentorship, and technical support for startups and entrepreneurs within the APEP region.
- Build the region's reputation as a hub for innovation and entrepreneurship.

Several countries in APEP have already implemented institutional, policy, or regulatory frameworks for the use of sandboxes through public-private partnerships or multistakeholder partnerships. In addition to country-level efforts, there are regional sandboxes that are cross-border initiatives bringing together entrepreneurs and innovators from multiple countries or regions. Cross-border sandboxes are particularly important in developing regions where innovation and entrepreneurship can be hindered by limited access to resources and markets such as LAC. Thus, the regional sandboxes can offer a good model of best practices.^{xv}

We recommend the following be negotiated in APEP:

1. Establish a joint working group to collaborate and institute an APEP Regional Technology and Innovation Sandboxes (ARTIS) network to drive the region's economic growth and social impact.
2. Establish a working group to incorporate IP protection clauses and collaboration initiatives within the ARTIS framework.

3.2.2 Digital Trade Regulations

Updating and establishing new digital regulations in economic frameworks is crucial for sustainable growth and expanding commercial interests. As the digital economy rapidly evolves, outdated regulations hinder innovation and growth. As new and advanced technologies emerge, regulations must adapt to ensure that they remain effective and do not create unnecessary barriers to entry or competition.⁴²

Updating digital regulations can:⁴³

- Support all businesses, regardless of their size or sector, to operate under a standardized, fair, and predictable regulatory framework.
- Promote innovation and entrepreneurship through the establishment of an enabling regulatory environment.

^{xv} See [Appendix 6.1 Sandboxes](#) for case examples.

- Encourage the development of new technologies and business models through policymakers, which can drive economic growth and create new job opportunities.

In an increasingly globalized economy, digital regulations must be harmonized and interoperable to allow for seamless cross-border transactions; thus, renewing regulation can have a positive effect on cross-border interactions.⁴⁴

Our research found that the key areas of focus should be on updating or applying electronic transaction regulations to enable greater online interactions and to increase efficiency in cross-border trade. These regulations were extended during COVID-19, but there is still room for growth in border processes. These new technologies are often not effectively supported by domestic law, nor are the laws governing them internationally harmonized, causing unnecessary inefficiencies in trade.

In an interview, when asked about digital trade regulations, Nigel Cory, the Associate Director of Trade Policy at ITIF, outlined the necessity to bring stakeholders to the table as a path for further progress in digital trade, even if it is not a harmonized outcome or results in a non-binary agreement.⁴⁵ Providing a space within APEP for countries to discuss pressing regulatory issues in a positive manner can support compliance with international law frameworks and agreements on digital trade.

We identified six digital regulator principles and recommendations based on areas recognized by WTO members as essential in their discussions on e-commerce at the Joint Statement Initiative, which every APEP country except Barbados, Colombia, and the Dominican Republic joined.⁴⁶ xvi xvii xviii xix xx

We recommend the following be negotiated as a part of APEP:

1. Establish a joint committee enforcing collaboration efforts to update digital regulations in Electronic Transaction Frameworks, E-Signatures and E-Authentications, Electronic Invoicing, E-Payments, and Digital Trade Facilitation and Logistics consistent with best practices from international organizations and building on existing regional trade agreements.

3.2.3 Digital Privacy Regulations

Digital privacy regulations play a critical role in protecting consumers. Outdated regulations may not adequately address new risks and challenges arising from the digital economy, leaving individuals and businesses vulnerable. Regulations that support cross-border dataflow privacy are especially important during the age of digitalization.⁴⁷ xxi (We understand this may well be a challenge for the U.S. as well as others, but think it could bring sustained benefits.)

^{xvi} See [Appendix 4.2 Proposed Measures for Digital Trade Regulations](#) for greater specifics and examples of recommendations.

^{xvii} See [Appendix 1: Chart 3.2.1](#) to see which APEP countries have already ratified or committed to the two international agreements.

^{xviii} See [Appendix 1: Chart 3.2.2](#) to see which APEP countries have adopted an RTA containing language on electronic transaction frameworks.

^{xix} See [Appendix 1: Chart 3.2.6](#) which references APEP countries with a Single Window.

^{xx} See [Appendix 1: Chart 3.2.5 and Chart 3.2.6](#) which references additional facilitation regulations and measures adopted or missing from APEP member countries.

^{xxi} See [Appendix 4.3 Digital Privacy Regulations](#) for a deep analysis into the proposed recommendations.

We suggest APEP establish a working group to:

1. Encourage Member States to conduct privacy impact assessments for high-risk data processing activities.
2. Promote the use of decentralized identity solutions that enable individuals to control their personal data and share it only with trusted parties.
3. Establish mutual recognition of data protection standards to facilitate cross-border data transfers.
4. Encourage organizations to use certification mechanisms to demonstrate compliance with data protection and privacy laws.

3.2.4 Cybersecurity

Cybersecurity is a critical issue in the Americas, and reports indicate cybercrime is on the rise.⁴⁸ A framework that APEP can use to establish compatible cybersecurity regulations is the Budapest Convention on Cybercrime, which the U.S., as well as the majority of APEP members, have signed on to.^{49 xxii}

We suggest the following principle on cybersecurity to be negotiated in APEP:

1. Member States negotiate and sign a declaration of a common cybersecurity framework consistent with the Budapest Convention on Cybercrime, which criminalizes various forms of cybercrime, including illegal access to computer systems, data interference, computer-related fraud, and copyright infringement.

3.2.5 Telecommunications Infrastructure

In recent years, the rollout of 5G and greater internet connectivity has become a primary policy initiative around the world. However, LAC still requires further development in terms of digital infrastructure. To build a stronger digital economy and increase commerce in the region, access to reliable internet is key.

Therefore, the U.S. and LAC should work together to promote public-private partnerships for 5G deployment, including joint initiatives between governments and private industries to deploy 5G networks and ensure that unreliable actors do not dominate the next generation of telecommunications in the region.⁵⁰ These partnerships can encourage investment in 5G infrastructure and facilitate the sharing of resources and expertise, which could accelerate the deployment of 5G technology.⁵¹

Additionally, the U.S. and LAC should work together to optimize spectrum management for 5G deployment to ensure that sufficient spectrum is available for 5G networks and that it is being used efficiently.⁵² APEP could include the development of common spectrum management policies and practices, as well as identify new spectrum bands that could be used for 5G.

We recommend APEP should:

1. Establish a joint working group in coordination with other key 5G actors in the region and provide financial incentives to promote public-private partnerships in companies that can enable 5G.
2. Establish a working group to build a common spectrum management policy based on best practices.

^{xxii} See [Appendix 4.4 Cybersecurity](#) for relevant examples from the Budapest Convention on Cybercrime.

3.3 Expanding Financial Inclusion and Access in the Region

Expanding financial inclusion and access is critical in promoting economic growth, reducing poverty, and fostering social development in the Western Hemisphere.

In LAC, a sizable portion of the population remains financially excluded, with limited access to formal financial services. This exclusion creates a significant barrier to economic growth and development, limiting the ability of individuals and small businesses to invest, grow, and generate income.⁵³ Expanding financial inclusion and access in LAC can provide a pathway for marginalized populations to participate in the formal economy, promote entrepreneurship, and support financial stability and resilience.

Despite a well-developed financial system in the United States, many individuals and communities still lack access to affordable financial services. This financial exclusion disproportionately affects low-income households, minority communities, and rural areas, limiting their ability to save, invest, and access credit. Expanding financial inclusion in the United States can help promote economic growth, reduce inequality, and address systemic barriers to financial stability and mobility.

Expanding financial inclusion and access requires a multi-faceted approach, including the improvement of financial education, the expansion of affordable financial services, the reduction of regulatory barriers, and digitizing government payments. In addition, governments, financial institutions, and civil society organizations must work together to create an enabling environment that fosters inclusion and supports the development of innovative financial products and services.

The following areas stood out to the authors as fruitful ways to reduce the financial gap and enable businesses and individuals to participate more fully in the economy.

3.3.1 Regulations to Support the Development of Fintech

The rapid expansion of fintech activities during COVID-19 has the potential to alleviate financial frictions and improve financial inclusion. Fintech helps lower the cost barrier for accessing financial services and alleviates information asymmetries between service providers and consumers, especially for individuals in remote rural locations and for marginalized groups.⁵⁴

Sectors of fintech, mobile money, and mobile banking have become powerful tools for financial inclusion in emerging economies in Africa and the Asian-Pacific.⁵⁵ Reports show that mobile money has emerged as a sustainable and viable alternative to traditional finance, especially for women. In Sub-Saharan Africa in 2021, 55% of adults had an account, including 33% with mobile money accounts.⁵⁶ It provides previously unbanked households with access to payment services and transactions without requiring a traditional bank account and can be operated through agents in remote areas with limited banking penetration and poor infrastructure.^{57 58} In 2022, more than 415 million people in LAC used some type of fintech.^{xxiii}

The U.S. can also benefit by supporting fintech development to increase its own citizen's access to financial services and strengthen innovation and entrepreneurship. The growth market for fintech is expected to expand as countries move towards a more digitized global economy.

Supportive regulations can improve fintech activity and security.⁵⁹ Case studies suggest that high barriers to entry in the financial and fintech sectors and a constraining regulatory environment may constitute significant obstacles to greater fintech development and, in turn to financial inclusion.^{60 61} Regulatory reforms supported by the adoption of financial inclusion and fintech strategies should underpin the growth of the fintech sector in LAC and the United States to boost financial access.^{xxiv 62} In the interview with Nigel Cory, when asked about

^{xxiii} See [Appendix 1: Chart 3.3.2](#) for LAC Fintech Users

^{xxiv} See [Appendix 6.2 Fintech Regulations](#) for regulatory examples.

the fintech regulatory environment, he agreed that regulatory differences in payment services are barriers to SMEs trying to handle cross-border payments.⁶³ Fintech can greatly support SMEs, but there needs to be a level playing field to increase development and competition among firms.

Fintech can impact the region through:⁶⁴

- Lower transaction costs.
- Greater variety of access channels, including remote access to financial services and products.
- More convenient access channels (different technologies).
- Availability of and access to information.
- A wider choice and variety of financial products and services.
- Enhanced access to digital payment services

Agreeing to a process that establishes a consistent regulatory environment in APEP would strongly support the development of fintech among member countries.

We recommend that APEP set up a working group to support the following recommendation:

1. Establish a working group to move Member States towards adopting complementary fintech regulatory requirements across the region.

3.3.2 Digitizing Government Payments

Globally, a trend for governments to favor digital transfers, such as social security payments, directly into recipient's accounts has increased. In most developing economies, the digitalization of these has increased bank account ownership and reduced the size of the unbanked population. A report by the World Bank highlights how digitizing payments, transfers, and remittances contributes to the G20 goals of financial inclusion and women's economic empowerment.⁶⁵

Leveraging digital financial services offers a range of benefits for governments and recipients. For governments, sending payments directly into financial institution accounts (including mobile money accounts) enables them to reach more people quickly and safely. It also reduces the leakage and corruption that can result from distributing cash. For recipients, government payments can create a pathway to financial inclusion and economic empowerment, especially for underserved groups such as women and youth. The Global Findex data finds that 865 million account owners in developing countries (18 percent of adults), including 423 million women, opened their first financial institution account to receive money from the government.⁶⁶

In LAC, specifically APEP countries, during COVID-19, a significant portion of people received government payments through a mobile phone, and many individuals opened their first financial institution account ever to receive money from the government.^{xxv} This data of LAC countries align with the World Bank's report on the importance and benefits that can occur from digitizing government payments.⁶⁷

Shifting towards government-to-person payments into accounts will lower costs and increase financial access. It will also lead to significant cost savings in the administration of payment schemes and reduce leakages related to corruption and fraud.

^{xxv} See [Appendix 1: Chart 3.3.4](#) for APEP Countries Receiving Government Payments.

We recommend APEP negotiate the following recommendations:

1. Establish a joint working group to advance Member States towards updating their Government Services Portals to include digital payment infrastructures to promote and enhance government payments.
2. Set up a dialogue to collaborate on modernizing government payments and strategies based on best practices to help Member States design and promote the use of electronic payments.

3.3.3 Improving Transparency of Public Finances and Tender

Improving transparency in government finances and reducing tax evasion can be a difficult component in an economic agreement. While countries need to create a long-term path to sustainable development, direct interference by the United States can have the opposite effect if the recommendations are not appropriately structured. It makes it challenging to provide substantive policy recommendations through agreements rather than being implemented through international organizations or in collaboration with NGOs.⁶⁸

A key barrier to greater domestic resource mobilization in LAC is a high and persistent level of tax evasion and avoidance undercutting public revenues. ECLAC estimates that non-compliance is equivalent to 2.4% of GDP in the case of VAT and 4.3% of GDP in the case of income tax, giving a combined total of \$340 billion in 2015.^{69 70 71}

ECLAC has proposed mobilizing domestic resources to achieve the Sustainable Development Goals by 2030. In LAC these measures being developed have been categorized as moderate growth and the erosion of the fiscal space. To counter this trend, they will require "...comprehensive and sustained public reforms to public finance to ensure public sector solvency, protect investment, safeguard achievements on the social front and broaden tax resources."⁷² Additional reports by ECLAC and the ILO affirm the importance of public policies to promote the transition to the formal economy, boost public revenues and support sustainable and inclusive growth.^{73 74} Adopting innovative methods to enhance transparency and improve tax systems can be supported by regional and international cooperation in fiscal and financial affairs.

We recommend a joint initiative with organizations like ECLAC to support:

1. Working groups to advance governments towards submitting data to electronic platforms that allow users to manage individual and corporate taxes online.
2. Establishing a forum where key actors from the country's integrity system can meet, exchange information and practices, and jointly coordinate integrity and anti-corruption policies in the whole government.

3.3.4 Increasing Financial Literacy

Regulatory requirements and initiatives should be coupled with an increase in financial literacy which can, directly and indirectly, affect the use of financial services through its impact on future income.⁷⁵ Financial literacy levels in Latin America and the Caribbean vary widely across countries and socioeconomic groups. According to a study by the IDB, only 51% of adults in the LAC region are financially literate,⁷⁶ and a recent study by Standard & Poor's cited that only 57% of U.S. adults are financially literate.⁷⁷

Additionally, people in LAC cite a lack of trust in the financial system as a major barrier to opening an account.^{xxvi} This indicates a need for an increase in financial literacy so individuals can make informed decisions about their finances, as well as for the overall economic development of the region.

^{xxvi} See [Appendix 1: Chart 3.3.3](#) for data on obstacles to individuals opening a financial account.

The adoption of a national financial education strategy should combine traditional delivery methods with digital ones and be used to address the different needs of target audiences:

1. Young people can be supported through the formal school curriculum:
 - a. Wherever this includes financial education, its content should be enhanced with financial education for digital financial services.
2. The needs of entrepreneurs can be met by tailored initiatives such as business-focused workshops and training, dedicated apps and online sharing/coaching platforms, and group discussions.
3. Older generations, especially those already using digital financial services, can be helped through a combination of financial education and strong financial consumer protection to avoid unintended outcomes, including the risk of falling victim to fraud. Digital literacy may also need to be improved among older populations in both developed and emerging economies.

We recommend that APEP set up a working group to advance the recommendations:

1. Member States should endeavor to adopt a National Strategy for Financial Education that references the OECD/INFE High-level Principles on National Strategies for Financial Education and the OECD Report on Financial Literacy.
2. The working group should work with ECLAC and civil societies to facilitate payment fraud awareness programs for the use of mobile payments.

3.4 Integrating Small and Medium Enterprises into an Increasingly Competitive Regional Economy

The Biden Administration has made it a key point to display interest in and commitments to small and medium-sized enterprises (SMEs) in LAC. This comes with good reason, as SMEs represent the largest number of commercial economic actors, which have the potential to spur great growth in the region. LAC and the U.S. have numerous SMEs. For LAC in terms of firms per capita, the entire region has a greater number of entrepreneurs and small businesses when compared to other countries and regions.⁷⁸ However, while this would appear to set the region up for success, the main problem lies in growth and penetration into markets. This represents a key opportunity for APEP to engage with local businesses to economically benefit the region. Additionally, SMEs encompass most of the recommendations we have proposed, and through supportive frameworks can benefit greatly from APEP.

While on the surface LAC could be set for success due to the vibrant culture and sheer number of SMEs, there are, however, many problems which stunt the success of SMEs in the region. The main overarching issue for SMEs within LAC is a lack of opportunities to grow to the point that they can enter larger markets, which are increasingly entering the digital sector.⁷⁹ Even though the region has many SMEs, they often start out smaller, in terms of the number of employees they are able to field, than their counterparts in other regions of the world. This holds true even in other regions at similar levels of development. As a result, SMEs in LAC start out at an initial disadvantage that the growth process fails to compensate for.⁸⁰

More effectively integrating SMEs into the regional economy will have great benefits for the region's overall economic prosperity. As SMEs thrive and enter larger markets, the overall economic situation in LAC will continue to improve. It strategically benefits the U.S. if the Americas increasingly unify and strengthen economically, as cooperation through an economic agreement such as APEP can ultimately translate to political cooperation. Additionally, refocusing supply chains to LAC will increase the regions' ties with the U.S., and decrease the overall dependency on foreign supply chains.

APEP can help SMEs of LAC overcome barriers to growth and better integrate into the regional economy via a similar SPZ framework established above for critical minerals. Financial incentives will spur multinational firms to enter the SPZs, where they will develop local supply chains which involve SMEs outside the SPZ. Thus, SMEs will become economically linked with the SPZ and allow them to integrate into greater markets. This represents a mutually beneficial arrangement, as multinational firms in the SPZs will benefit from working with local SMEs, while the SPZ positively affects the local economy and SMEs gain an opportunity to expand that would otherwise not be available to them.

We recommend at minimum to:

1. Develop a forum where relevant actors in APEP countries can come together and discuss best practices and strategies to integrate SMEs into the international economy.

3.4.1 Enhance SMEs Access to Capital

A key factor which contributes to the lack of growth among SMEs in LAC is their limited access to resources and capital. Many SMEs struggle to obtain loans from banks, regardless of how locally successful the business may be. They reach a ceiling of possible growth if they cannot access sufficient levels of resources and capital, which both represent key factors in growing a business.⁸¹ Currently, central banks in the region are taking measures to decrease inflation, which is resulting in high interest rates. This kind of economic environment is not conducive to growth in SMEs.⁸²

Another element of business expansion is investing in research and development, but because of limited access to capital, LAC SMEs innovate and digitalize less than their counterparts in other regions. As a result of their smaller employee numbers and lack of access to capital and other critical resources, SMEs in the region hardly can invest in development, which could potentially grow their enterprises further and make them more successful in the long run. SMEs in LAC, when compared to SMEs in comparable economies of other regions, develop and introduce new products less frequently.^{xxvii} This below average patent activity shows a low degree of investment in research and development.⁸³ All these factors result in LAC SMEs being run less efficiently and below global best practices, resulting in a high degree of wasted potential among SMEs of the region.

Our research indicates that granting SMEs access to increased amounts of credit results in steady SME growth, greater access to overseas markets, more stable and consistent exports, as well as an incentive for SMEs to move into the formal economy. These findings are supported by the Brazilian model on SMEs.^{xxviii 84}

We recommend that APEP agree to:

1. Establish a joint working group in collaboration with development banks to increase financial and credit access to SMEs so that they have available funds to invest in the expansion and access to the digital sphere.

3.4.2 SMEs Access to Digital and International Markets

A key issue touched on above, is SMEs in LAC lack digitalization in the region. If SMEs of LAC could gain greater access to the digital market, it would allow them to enter broader international markets and boost their revenues. Entering the digital market is a way for SMEs to reach more customers, reap the benefits of

^{xxvii} See [Appendix 1: Chart 3.4.1](#) Percentage of Firms in Selected Countries Introducing a new product, 2006-10

^{xxviii} See [Appendix 6.3.1 The Brazilian SME Model](#)

interacting with the global market, increase their profits, and move toward the future. Accordingly, an OECD survey reported that 70% of small businesses have increased their utilization of digital technologies as a result of the pandemic.⁸⁵ Businesses with a foothold in this market fare better due to superior communications and easier access to global markets. These positive aspects lead to a considerable revenue increase for SMEs, as those that prioritized digitalization saw revenue growth double. Overall, SMEs with access to digital markets and technologies saw revenue returns eight times higher than their counterparts with no digitalization.⁸⁶ A positive aspect unique to LAC is that its progress in moving towards digitalization has persisted since the huge spike during the COVID-19 pandemic.⁸⁷ This is contradictory to other regions, where after a huge spike during the pandemic, digitalization returned to its lower pre-pandemic trends.

SMEs in LAC have faced greater challenges digitizing. In general, they lack the resources to digitize at the same rate as larger firms. SMEs in LAC face long-term structural barriers in the form of gaps in internal skills, financing, and infrastructure.⁸⁸ These blockages limit the ability of SMEs of the region to enter the digital sector and effectively manage their operations.

The situation regarding digital infrastructure and digital skills in LAC is incredibly limiting. While 87% of the population lives within range of 4G signal, the percentage of people using this technology remains relatively low at 37%. This is because only 5%-15% of adults in the region have medium or strong technological and digital problem-solving skills.⁸⁹ People working in SMEs need access to education surrounding digitalization so that SMEs in the region have personnel with the means to carry them into the digital age.

3.4.3.1 Incorporating SMEs into the Special Prosperity Zones

To aid in digitalization among SMEs to improve the economy in LAC, we recommend the implementation of an SPZ system with the same economic incentives as those for the critical minerals project, but with the intention of aiding local SMEs.

When our team examined the OECD-supported model of SME integration in SEZs, talked with trade expert Robert Koopman, and met with a leading expert at CSIS, they all recognized that ensuring a positive spillover effect of SPZs to SMEs in the local economy would be vital to the success of the framework.^{xxix} To this end, the SPZs would be centered around a multinational firm, which would establish supply chain ties to SMEs within the local economy to spur a spillover effect. SMEs will naturally benefit from these economic ties to larger firms, which can enable greater access to international markets. These firms would also be encouraged, through tax incentives (mentioned previously), to partner with SMEs.

The OECD Supported Model, taking place in Myanmar, also highlights the need for skill-building among SME workers within the zone. To achieve this, each SPZ could contain an innovation hub to teach workers the necessary skills to successfully enter the digital sector. This greater knowledge among workers will provide SMEs with a higher chance to digitalize and gain access to international markets.

A second element that would aid SMEs is greater harmonizing of data governance policies. Specifically, a transparent and effective system of cybersecurity should be established to improve integration, interoperability, and the willingness of SMEs to engage with the digital market.

Additionally, APEP collaboration could help with spurring infrastructure projects to bring 5G and digitalization to parts of Latin America that currently lack these capabilities. Expanding infrastructure that enables digitalization would allow many SMEs to grow digitally, economically expand in the region, and encourage foreign investment.

^{xxix} See [Appendix 6.3.2 The OECD-supported Model of SME Integration in SEZs](#)

We recommend that the following be negotiated in APEP:

1. Establish a joint working group to implement an SPZ framework where zones are centered around a multinational corporation and provide the possibility of incorporating APEP Regional Technological and Innovation Sandboxes to teach and develop digital skills for SME workers.
2. Create a working group to push for greater harmonization of data governance policies to support SMEs shift towards the digital space.

3.5 Developing the Workforce for Shared Prosperity

The United States and the rest of the Americas suffer from skill mismatches that negatively affect economic productivity, stability, and opportunities. This is one of the reasons that workforce development has been incorporated into USMCA, HLED, IPEF and other foreign agreements. For APEP to succeed in completing its goals, workforce development would be integrated into the agreement. Building on the SPZ proposal, commitments to worker development are required for the strengthening of critical supply chains. To protect the reputation of SPZs, there should also be agreed assurances that labor standards are upheld within these zones. Moreso, workforce development will also positively impact financial literacy and expand SMEs by economically empowering the working class. Additionally, workforce development is tied directly to the digital economy due to the rise of automation. Investment in workforce development would maximize the benefits that automation provides in the region while mitigating the negative effects of job displacement and skill mismatches.

Furthermore, workforce development provides an opportunity to address social justice and equity. The ability of APEP to be an agent of social mobility can improve the inequality gaps that plague LAC, and the U.S. signifies a reputation for being a policy for the working class.

To create a successful workforce initiative, the nations of APEP will need to develop three areas:

- Work Based Learning (WBL)
- Worker's Digital Skills
- Workforce Data

3.5.1 Investing in Work-Based Learning

Work-Based Learning is the integration of practical knowledge under an academic curriculum to build up vocational skills. The models and programs for WBL are abundant, with each program being able to adapt to its specialized environment or sector. Effective WBL programs have had the desired effect of raising economic productivity and wages.

3.5.1.1 *Local skill-based programs*

The nations of APEP will need to invest in WBL programs to develop skills demanded by local industries. The nations of APEP have a diverse set of industries and specializations; the agreement should accommodate these differences. To create programs that are more reactive to the demand of their communities, there needs to be an emphasis on public-private partnerships. WBL programs should be inclusive of labor unions, education centers, business leaders, etc. The key institutions/groups can assist the governments in material support, creating incentives, and providing expertise. Nevertheless, for the programs themselves, APEP should remain flexible in the intent and execution. There are successful models that governments could adopt to fit their policies.^{xxx}

^{xxx} See [Appendix 5.1: Work-Based Learning Models](#)

We suggest the following be negotiated as part of APEP:

1. Establish a private-civic-public working group to facilitate the establishment of skill-based workplace programs based on agreed-upon best practices and the needs of local economies.

3.5.1.2 Labor Standards

APEP must remain vigilant against forced labor to ensure the reputation of the agreement is not tainted, especially when it relates to SPZs. The agreement should also recognize the ranging criteria for labor standards throughout the nations of APEP. Therefore, for the proposals to work, the nations will need to negotiate on a baseline of criteria of labor standards for workers and assurances that the rights of workers are enforced. APEP should follow the examples of USMCA, which has been hailed as one of the most progressive labor rights agreements.^{xxx1}

We suggest the following be negotiated as part of APEP:

1. Establish a joint working group to implement criteria for labor standards consistent with provisions in USMCA and other similar frameworks.

3.5.2 Developing Digital Workforce Skills

Digital Skills are the main industry that APEP should concentrate on, as almost every industry is affected by digitalization. Digital skills are especially relevant with the emergence of smart technologies. Smart technology is the development of machine analysis and artificial intelligence to bring cognition awareness to products.⁹⁰ The rapid integration of smart technologies into the production, maintenance, and sale of products has been dubbed “Industry 4.0.”⁹¹ There is now a blurred definition of what constitutes digital technology, as goods such as smart cars or garages are so integrated with virtual components that they could be classified as either. Therefore, for the working population to remain competitive, they must develop a baseline of digital skills to match the developments of Industry 4.0.

There is a need for digital skills across industries to help streamline manufacturing and procedural processes for international supply chains. Workers throughout APEP will therefore rely on a basic set of skills to operate within our shared supply chains. Governments will need to agree on the minimum skills required to function within Industry 4.0 and ensure workers are trained to the standard. In the past, governments have utilized network academies to provide training due to their ties to educational institutions and their ability to reach the population.^{xxxii}

One of the largest hindrances to worker development in any industry is the cost of reskilling. These costs include financial, family, time, transportation, mental stress, etc. There is a need for support within the digital realm, as older-generation workers are generally unfamiliar with the systems and will require a substantial investment.⁹² Safety nets are, however, a contentious topic, especially with diverging standards of living across APEP. No solution can fit all the nations of APEP, and therefore partnerships will need to agree on a set of guidelines to ensure all workers of their nations are properly supported for the transition phase. It is, however, noted by the National Association for Workforce Boards that the more progressive the benefits are, the more productive training is.⁹³ Therefore, APEP should explore methods to finance the reskilling of their workers. One of the most successful workforce models is Colorado, which utilizes a system where enterprises give grants or

^{xxx1} See [Appendix 5.2: USMCA Labor Provisions](#)

^{xxxii} See [Appendix 5.3: Network Academies](#)

loans to individuals.^{xxxiii} There are additional frameworks within the United States and other countries that also offer a model of best practice.

We suggest the following be negotiated as part of APEP:

1. Establish a working group to develop training opportunities with an agreed-upon baseline of digital skills.
2. Establish a working group to agree on a set of criteria to support worker reskilling consistent with best practices.

3.5.3 Sharing Workforce Data

One of the largest issues in the workforce development world is the lack of data sharing. The failure to collaborate has led to an inability to identify the best practices and facilitate improvement within workforce development.⁹⁴ Transparency of data is necessitated by the rapid growth of technology, and accessible information is required to make the necessary adjustments.⁹⁵ APEP offers an opportunity for member nations to facilitate open dialogue and coordination on key issues. APEP must recognize that this is a long process, but by initiating relevant dialogues among government agencies and setting goals, the partnership sets the foundations of the task.

The labor ministries of the APEP nations will need to agree to coordinate dialogue for best practices. Each sector will have its different challenges, and the partnership should utilize its collective influence to receive as many sectoral partnerships as possible. Furthermore, the information gained must be disseminated to the workers and enterprises to ensure that production is reflective of the most recent best practices. APEP should therefore adopt a policy of forums to allow labor ministries and other key interest groups to participate in identifying best practices and solutions to workforce development. A good model APEP could implement may well be the Asian Pacific Economic Cooperation forums, an agreement between countries to host dialogues on trade.^{xxxiv} It is vital to include the public sector, educational institutions, and other interested stakeholders in these dialogues.

An important aspect of open dialogue is the utilization of a common language of credentials and competencies. A common language will ensure that skills are mutually recognized among the labor ministries to ensure that skills in Colombia can be recognized and utilized in Mexico and the United States. APEP could adopt past systems that have worked. Such as the European Union, which has developed a system, despite the hindrances of over 27 different languages, ensuring that credentials can cross borders and be effective.^{xxxv}

We suggest the following be negotiated as part of APEP:

1. Establish a forum of regular and transparent dialogue regarding best practices between labor ministries.
2. Establish a joint working group to agree on a framework for common language credentials.

^{xxxiii} See [Appendix 5.4: Colorado's Talent Finance](#)

^{xxxiv} See [Appendix 5.5: Asian Pacific Economic Cooperation \(APEC\) Form](#)

^{xxxv} See [Appendix 5.6: European Skills, Competences, Qualifications, and Occupations](#)

4. SUMMARY OF PROPOSALS

Supply Chains

SPZ Framework

3.1.1 Shared Prosperity Zones for Economic Resilience

- Create a network of Shared Prosperity Zones spread across APEP countries, targeted at integrating the critical supply chains of Critical Minerals, EV Batteries, and Medical Supplies.
- Create and adopt a framework by which the potential locations SPZs are negotiated between the APEP Member States. This must be done in close consultation with the private sector.
- Create a policy framework with strong environmental and labor provisions under which the SPZs and spillovers into local economies will be governed under agreed principles of Shared Prosperity.
- Adopt a “single source” label for SPZ-processed critical minerals, reduce administrative process duplication, and grant corporate and income tax breaks.

3.1.1.1 Critical Minerals and Rare Earth Materials

- Establish working groups bringing together stakeholders from the private sector, the scientific community, and national and regional governments to build agreements on the benefits, standards, and most advantageous locations of SPZs.
- Advocate for the creation of SPZs with commitments, infrastructure, locations, and human capital specific to their stage in production: Mining (beneficiation), Refining (hydrometallurgy & electrolysis), and Finishing. The goal would be to have them spread throughout the continent to increase competition and diversify the supply chain.
- Create joint working groups to identify new sources of Critical Raw Materials and Rare Earth Elements and map their potential extraction points in the Americas them.

3.1.1.2 Electric Vehicle Batteries

- Incorporate the potential manufacturing of EV batteries in the SPZ framework. This would enhance infrastructure & grids in member countries’ SPZ locations, expand industry capacity and strengthen logistics in transportation. This option would require close private sector involvement to get a measure of its commercial attractiveness.
- Implement a pilot program to assess the potential of recycling and repurposing EV batteries within the SPZs.
- Facilitate the creation and implementation of a digital battery ID consistent with the Global Battery Alliances framework within the EV batteries SPZs.

3.1.1.3 Medical Supplies

- Establish a joint working group to design an SPZ framework for low-tech medical supply chains to create additional stockpiles and increase manufacturing capacity.
- Establish a joint working group to improve coordination on responding to medical supply chain shortages and expanding coordination amongst nation-based stockpiles.

3.1.1.4 Seaports

- Create a network of SPZs within the major ports of each APEP member state to connect the supply chains described above.
- Draft a set of rules and norms to ensure free and fair competition in the port SPZs, avoid national champions or monopolies and promote best practices.

Pharmaceutical Supply Chain Vulnerabilities

3.1.2.1 Resolving Vulnerabilities and Shortages in Pharmaceutical Supply Chains

- Establish an APEP Pharmaceutical Task Force to promote trust and dialogue, working towards the creation of a centralized database. This database could potentially track pharmaceutical drug shortages and supply chain breakdowns across APEP member countries. This task force could also work to expand a quality transparency rating system consistent with the principles of the U.S. FDA's Quality Mature Management system.
- An APEP working group could also engage pharmaceutical companies to potentially obtain unused preliminary sourcing locations of critical APIs to upload to the centralized database in case of shortages.

Digital Economy

3.2.1 Technology and Innovation Sandboxes

- Establish a joint working group to collaborate and institute an APEP Regional Technology and Innovation Sandboxes (ARTIS) network to drive the region's economic growth and social impact.
- Establish a working group to incorporate IP protection clauses and collaboration initiatives within the ARTIS framework.

3.2.2 Digital Trade Regulations

- Establish a joint committee enforcing collaboration efforts to update digital regulations in Electronic Transaction Frameworks, E-Signatures and E-Authentications, Electronic Invoicing, E-Payments, and Digital Trade Facilitation and Logistics consistent with best practices from international organizations and building on existing regional trade agreements.

3.2.3 Digital Privacy Regulations

- Encourage Member States to conduct privacy impact assessments for high-risk data processing activities.
- Promote the use of decentralized identity solutions that enable individuals to control their personal data and share it only with trusted parties.
- Establish mutual recognition of data protection standards to facilitate cross-border data transfers.
- Encourage organizations to use certification mechanisms to demonstrate compliance with data protection and privacy laws.

3.2.4 Cybersecurity

- Member States negotiate and sign a declaration of a common cybersecurity framework consistent with the Budapest Convention on Cybercrime, which criminalizes various forms of cybercrime, including illegal access to computer systems, data interference, computer-related fraud, and copyright infringement.

3.2.5 Digital Infrastructure

- Establish a joint working group in coordination with other key 5G actors in the region and provide financial incentives to promote public-private partnerships in companies that can enable 5G.
- Establish a working group to build a common spectrum management policy based on best practices.

Financial Access and Inclusion

3.3.1 Regulations to Support the Development of Fintech

- Establish a working group to move Member States towards adopting complementary fintech regulatory requirements across the region.

3.3.2 Digitizing Government Payments

- Establish a joint working group to advance Member States towards updating their Government Services Portals to include digital payment infrastructures to promote and enhance government payments.
- Set up a dialogue to collaborate on modernizing government payments and strategies based on best practices to help Member States design and promote the use of electronic payments.

3.3.3 Improving Transparency of Public Finance and Tender

Joint initiatives with organizations like ECLAC to support:

- Working groups to advance governments towards submitting data to electronic platforms that allow users to manage individual and corporate taxes online.
- Establishing a forum where key actors from the country's integrity system can meet, exchange information and practices, and jointly coordinate integrity and anti-corruption policies in the whole government.

3.3.4 Increasing Financial Literacy

- Member States should endeavor to adopt a National Strategy for Financial Education that references the OECD/INFE High-level Principles on National Strategies for Financial Education and the OECD Report on Financial Literacy.
- The working group should work with ECLAC and civil societies to facilitate payment fraud awareness programs for the use of mobile payments.

Small and Medium Enterprises

3.4 Integrating Small and Medium Enterprises into an Increasingly Competitive Regional Economy

- Develop a forum where relevant actors in APEP countries can come together and discuss best practices and strategies to integrate SMEs into the international economy.

3.4.1 Enhance SMEs Access to Capital

- Establish a joint working group in collaboration with development banks to increase financial and credit access to SMEs so that they have available funds to invest in the expansion and access to the digital sphere.

3.4.2 SMEs Access to Digital and International Markets

- Establish a joint working group to implement an SPZ framework where zones are centered around a multinational corporation and provide the possibility of incorporating APEP Regional Technological and Innovation Sandboxes to teach and develop digital skills for SME workers.
- Create a working group to push for greater harmonization of data governance policies to support SMEs' shift towards the digital space.

Workforce Development

3.5.1 Investing in Work-Based Learning

- Establish a private-civic-public working group to facilitate the establishment of skill-based workplace programs based on agreed-upon best practices and the needs of local economies.
- Establish a joint working group to implement criteria for labor standards consistent with provisions in USMCA and other similar frameworks.

3.5.2 Developing Digital Workforce Skills

- Establish a working group to develop training opportunities with an agreed-upon baseline of digital skills.
- Establish a working group to agree on a set of criteria to support worker reskilling consistent with best practices.

3.5.3 Sharing Workforce Data

- Establish a forum of regular and transparent dialogue regarding best practices between labor ministries.
- Establish a joint working group to agree on a framework for common language credentials.

5. CONCLUSION

The Americas Partnership for Economic Prosperity is an important initiative that has the potential to unlock significant economic benefits and bridge the disparities between countries across the Americas. APEP has the potential to create a more prosperous and equitable future for all citizens in the region through its focus on geostrategic, geoeconomic, and commercial goals. To facilitate economic integration, applying mechanisms to incentivize investment and grow economies of scale should be a central focus of APEP.

In our research, we conclude that one of the best ways to ensure cross-border collaboration and increase economies of scale is to establish Shared Prosperity Zones to diversify the risks posed to certain supply chains. SPZs can facilitate greater access to critical minerals while maintaining labor and environmental standards that are important to the Biden administration's goals. With the increase in the demand for EV batteries, SPZs can offer a space to reduce the costs of market entry for EV battery production, increase foreign direct investment, and facilitate logistical and transportation issues. During COVID-19, the shortages of medical supplies due to foreign dominated markets highlighted the need to increase production of medical supplies closer to home. Through applying the SPZ framework to medical supply chains, production can increase at low costs and provide low-skilled jobs to local areas.

Moreover, it is important to ensure that SPZs are catalysts for positive spillover effects that support local economies and labor markets. Regional small and medium-sized enterprises (SMEs) will economically benefit from being connected to these SPZs and gain access to broader networks. Additional digital skill building programs can develop the workforce of the LAC region and enhance the ability of SMEs to access international markets, thus increasing their revenues. As the region has a multitude of SMEs, tapping into this potential will greatly improve the economic situation of the LAC region and strengthen the hemisphere.

To support a growing economy including provisions for financial access and inclusion in APEP can have a significant impact on local communities. By promoting digital initiatives to facilitate greater access to financial services, like fintech, can improve financial stability, reduce poverty, and promote economic growth. The recommendations provided prioritized the need for digitizing payments and financial services to reach a broader audience in the hemisphere, working towards government transparency in fiscal accounts, and the goal of increasing financial literacy in the region.

In our research we also found the need to support the burgeoning digital economy. It is important to ensure current regulations reflect the new digital age, protect consumers and businesses, promote a level playing field, facilitate cross-border trade and investment, and encourage innovation and entrepreneurship. Developing a network of APEP Technology and Innovative sandboxes can help keep pace with the rapidly evolving digital world, and allows policymakers to create a more inclusive, competitive, and innovative economy. In addition, our research found regulations for electronic services and privacy that offer high returns and low risk. There is also room for APEP to greatly improve the development of internet connectivity in the region.

Focusing further on workforce development through the pillars of work-based learning, improving workers' digital skills, and facilitating the sharing of workforce data can improve the large inequality gap present in the region.

Through the implementation of these varying elements, APEP has the potential to economically propel the LAC region while improving relations between the United States and its partners in the Western Hemisphere. At every step in the process, APEP furthers the important commercial, geostrategic, and geoeconomic aims of the Biden administration and fosters growth in the American economy. Our frameworks for reducing risks associated with vulnerable markets align with the diversification, strengthening, and sustainability goals of APEP.

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8. APPENDIX 1: TABLES AND CHARTS

Tables

Table 3.1.1. The Benefits of Nearshoring

Country	US-induced Benefits	LatAm-Induced Benefits	Medium-term opportunities	Total
Barbados	\$9.70	\$42.80	\$8.10	\$60.60
Chile	\$665.80	\$516.00	\$641.10	\$1,822.90
Colombia	\$1,498.50	\$886.90	\$188.40	\$2,573.80
Costa Rica	\$918.10	\$539.30	\$87.40	\$1,544.80
Dominican Republic	\$1,362.90	\$150.20	\$67.60	\$1,580.70
Ecuador	\$482.00	\$285.80	\$72.80	\$840.60
Mexico	\$29,679.40	\$2,628.20	\$2,970.60	\$35,278.20
Panama	\$81.30	\$549.20	\$171.50	\$802.00
Peru	\$792.00	\$498.00	\$128.40	\$1,418.40
Uruguay	\$69.30	\$369.50	\$89.40	\$528.20

Source: Inter-American Development Bank

Table 3.1.2 Seaports Optimal for APEP Integration

Country	Barbados	Canada	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	Mexico	Panama	Peru	Uruguay
Major Port Name	Bridgetown	Vancouver	San Antonio	Cartagena	Puerto Limon	Caucedo (changes by sector)	Guayaquil	Manzanillo	Balboa (TBD)	Callao	Montevideo
Commercial Capacity (tonnes)	900,000	147 Million	25 Million	30 million	9,930,000		7,180,300	31.8 Million		10 Million	7,600,000
TEU Capacity (2022)	89,470	3,400,000	1,600,000	3,500,000	8,400,000 (2000 storage)	1,650,000	1,940,000	3,500,000	5,000,000 (450,000 storage)	2,900,000	589,000
Number of Employees	252	455	2,000	989	850	1,200	311	1,249	500 (+-)	1000-2000	400
Percentage of Imported Goods	90%	17 Million Tonnes	46%	60%	>60%	>55%	90%	37%	N/A	75%	N/A
Area	40 hectares	17,000 hectares	495 hectares	120 hectares	25-30 hectares	80.5 hectares	13-63 hectares	437 hectares	182 hectares	27 hectares	110 hectares
SEZ in port?	No	Kind of FTZ	Not in port	In City	Yes	Yes, Privately Owned.	Yes	Yes, Inside	Yes, Colon Free Trade Zone	No	Yes
In Activity since year	1961	1964 / 2008	1984	1533 / 1994	1502 / 1981	2003	1958	1971	1909	XV / 1940s	1909
Modernization Efforts	Link	Link	Link	Link	Link	Link	Link	Link	Link	Link	Link
Operated By	Government Agency	Government Agency	Empresa Portuaria San Antonio (SOE)	Grupo Puerto Cartagena (Concession)	Government	DP World	SOE/Concession Private-Public	Federal Government	Hutchison Ports LLC (Concession)	DP World; APM Terminals (Concession)	Katoen Natie (Concession)

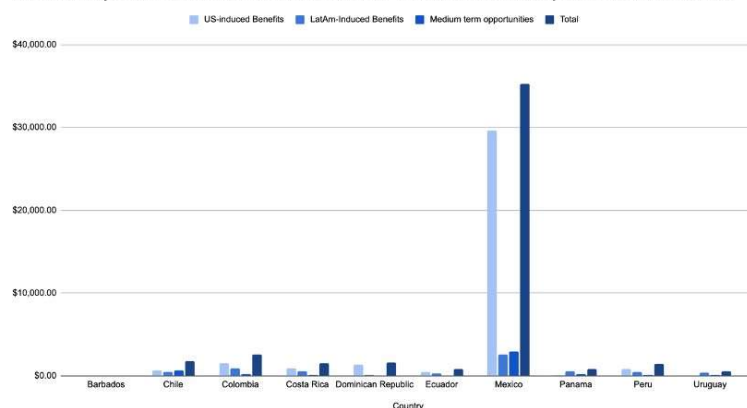
Source: See Excel for individual sources.

Note: Due to the multitude of information on the table follow this link to see it easier in Excel. [Link To Table.](#)

Charts

Chart 3.1.1 APEP Countries Benefits of Nearshoring with Mexico

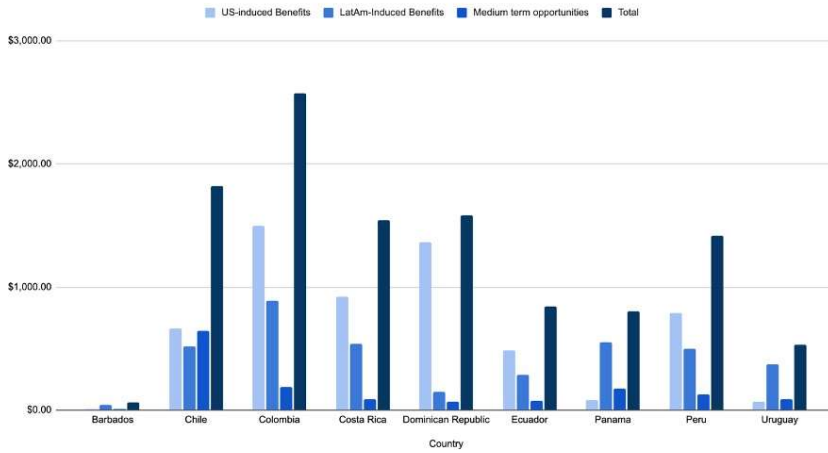
Benefits of Nearshoring for APEP countries (Latin America; millions USD) - "Nearshoring Can Add Annual \$78 Bln in Exports from Latin America and Caribbean." Inter American Development Bank, June 7, 2022.



Source: Inter-American Development Bank 2022

Chart 3.1.2 APEP Countries Benefits of Nearshoring Excluding Mexico

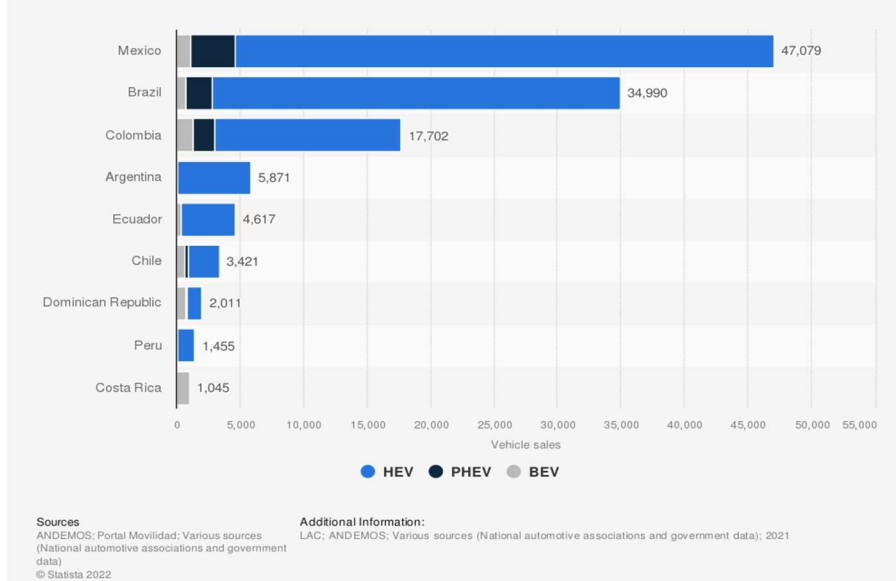
Benefits of Nearshoring for APEP Countries (non-USMCA; millions USD) - "Nearshoring Can Add Annual \$78 Bln in Exports from Latin America and Caribbean." Inter American Development Bank, June 7, 2022.



Source: Inter-American Development Bank 2022

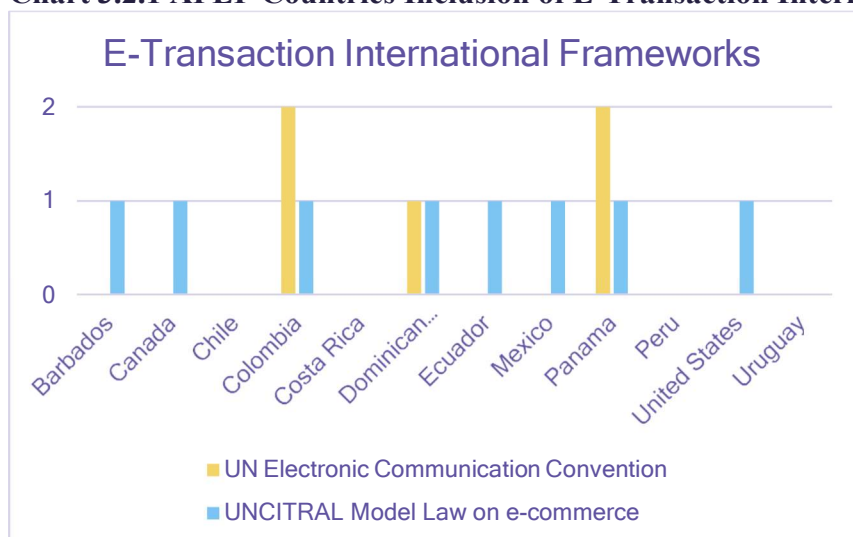
Chart 3.1.3 EV Sales in APEP Countries

Electric vehicle sales in selected countries in Latin America in 2021, by vehicle type



Source : Statista : ANDEMOS : Portal Movilidad ; various sources (National automotive associations and government data) 2021.

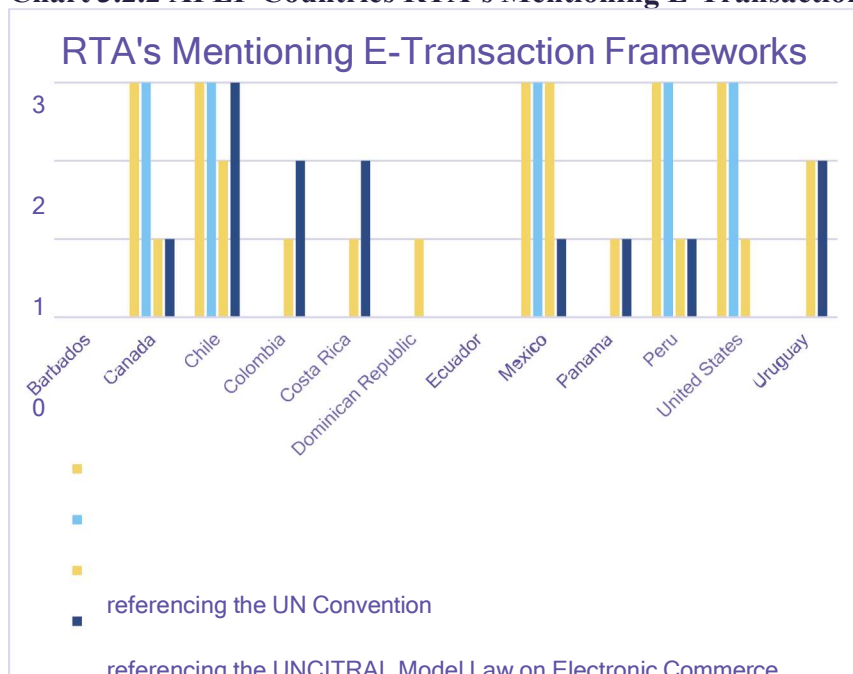
Chart 3.2.1 APEP Countries Inclusion of E-Transaction International Frameworks



Source: OECD’s Compare your Country Dataset 2020

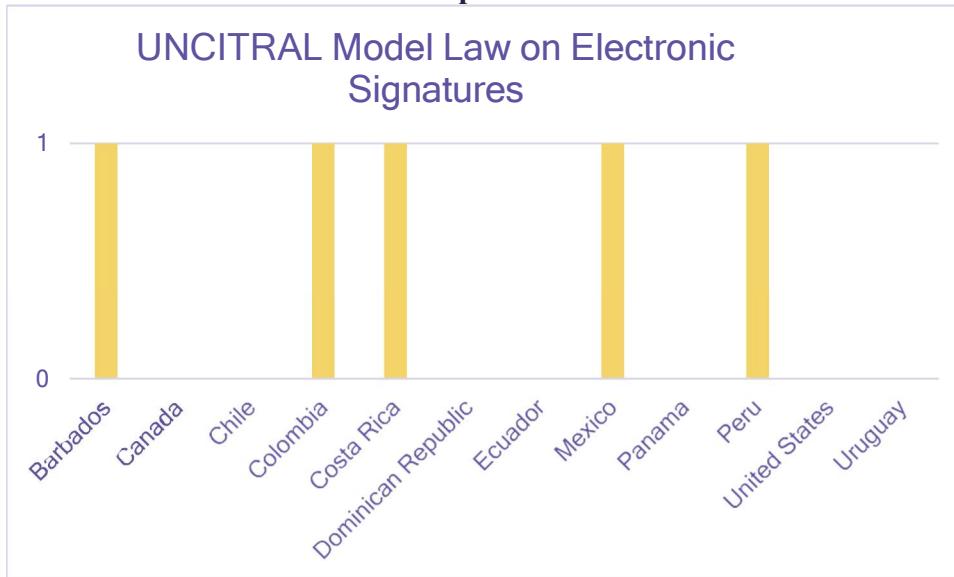
Note: For international instruments jurisdictions are coded as “1” if they have ratified or adhered to a particular instrument, and “2” if they have signed but not yet ratified a particular instrument.

Chart 3.2.2 APEP Countries RTA’s Mentioning E-Transaction Frameworks



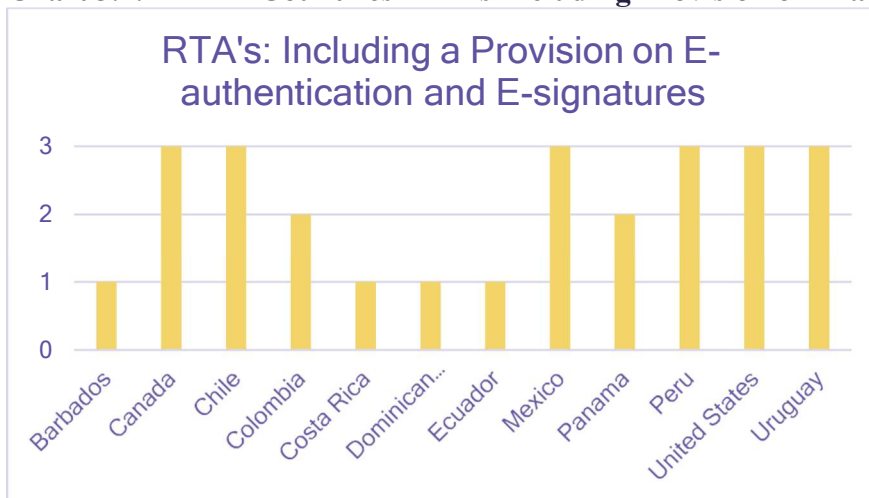
Source: OECD’s Compare your Country Dataset 2020

Note: For RTAs it is based on the TAPED dataset which provides three levels of coding: “1” refers to “yes (soft)”, “2” to “yes(mixed)” and “3” to “yes(hard)”. If a jurisdiction has signed RTAs with difference codes for certain provision, the highest degree is coded in the datasheet (EX. if a jurisdiction X has signed both RTAs with “soft” and “hard” electronic signature provisions, the jurisdiction will be coded as “3”).

Chart 3.2.3 APEP Countries Adoption of UNCITRAL Model Law on Electronic Signatures

Source: OECD's Compare your Country Dataset 2020

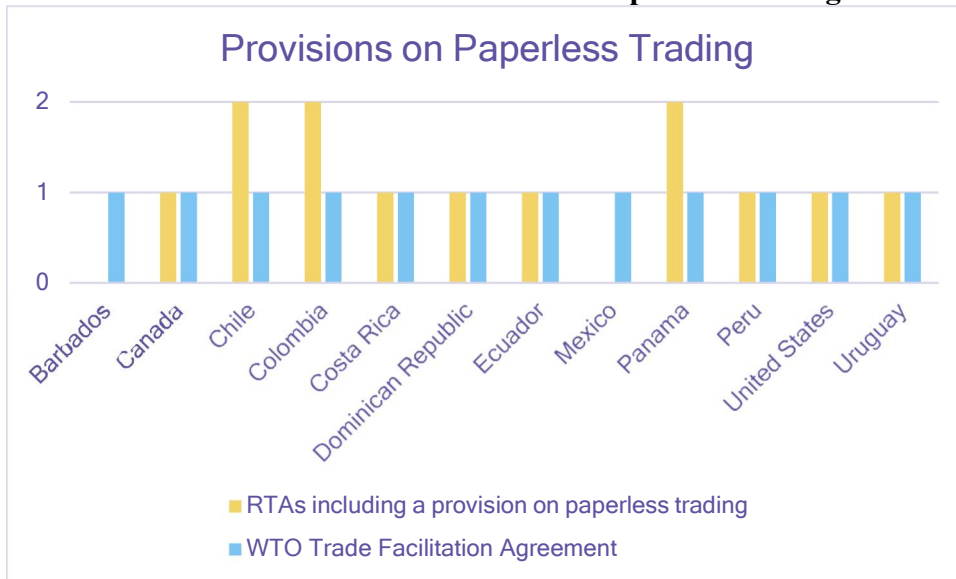
Note: For international instruments jurisdictions are coded as "1" if they have ratified or adhered to a particular instrument, and "2" if they have signed but not yet ratified a particular instrument.

Chart 3.2.4 APEP Countries RTA's Including Provision on E-authentication and E-signatures

Source: OECD's Compare your Country Dataset 2020

Note: For RTAs it is based on the TAPED dataset which provides three levels of coding: "1" refers to "yes (soft)", "2" to "yes(mixed)" and "3" to "yes(hard)". If a jurisdiction has signed RTAs with difference codes for certain provision, the highest degree is coded in the datasheet (EX. if a jurisdiction X has signed both RTAs with "soft" and "hard" electronic signature provisions, the jurisdiction will be coded as "3").

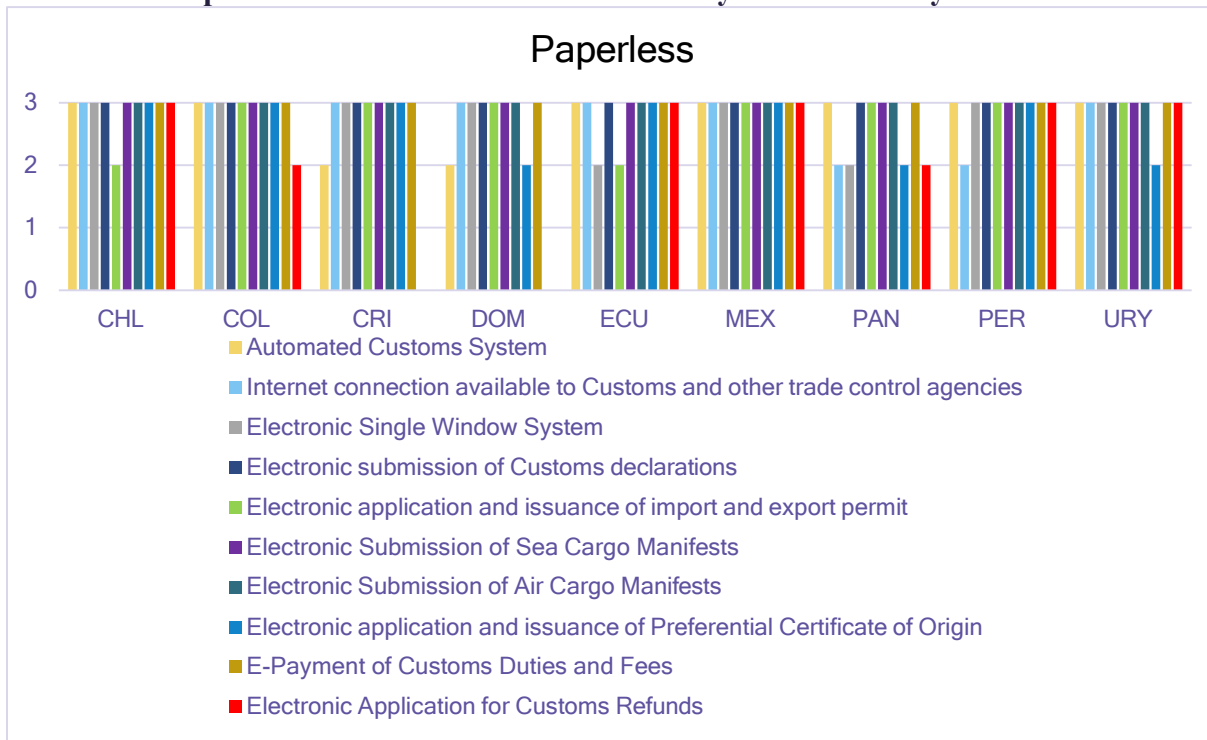
Chart 3.2.5 APEP Countries Provisions on Paperless Trading



Source: OECD’s Compare your Country Dataset 2020

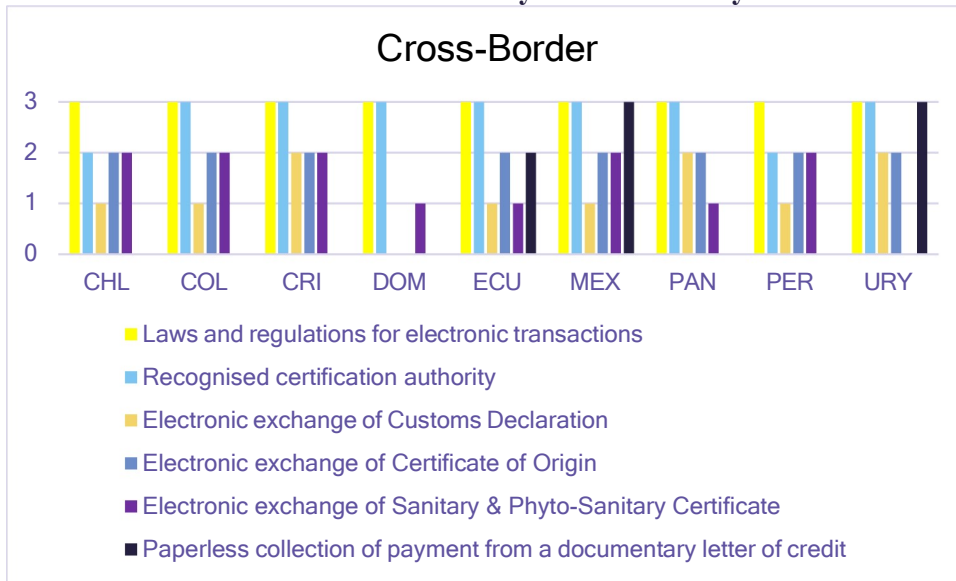
Note: For international instruments jurisdictions are coded as “1” if they have ratified or adhered to a particular instrument, and “2” if they have signed but not yet ratified a particular instrument. For RTAs it is based on the TAPED dataset which provides three levels of coding: “1” refers to “yes (soft)”, “2” to “yes(mixed)” and “3” to “yes(hard)”. If a jurisdiction has signed RTAs with difference codes for certain provision, the highest degree is coded in the datasheet (EX. if a jurisdiction X has signed both RTAs with “soft” and “hard” electronic signature provisions, the jurisdiction will be coded as “3”).

Chart 3.2.6 Paperless Trade Facilitation Measures by APEP Country



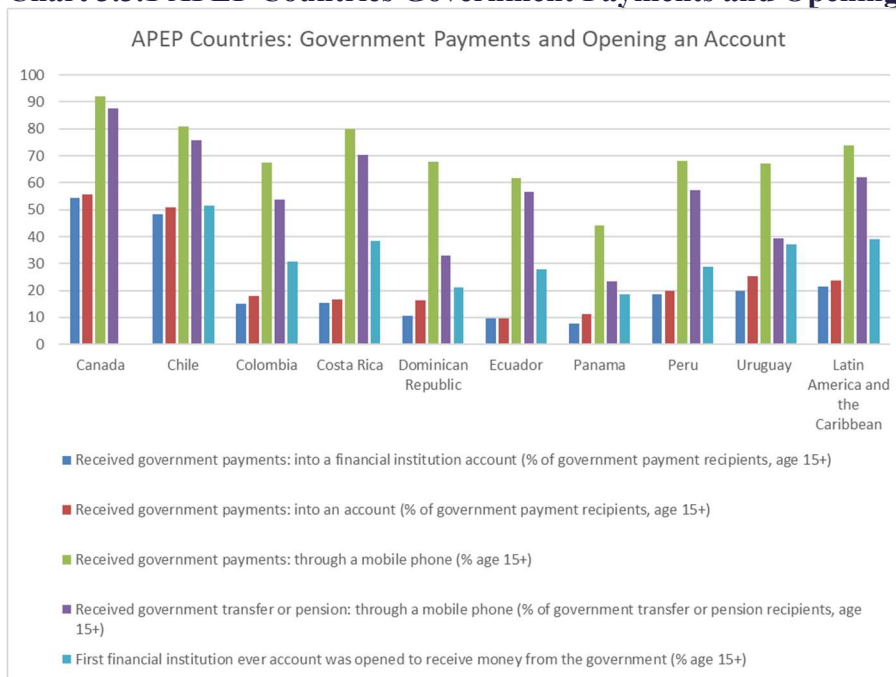
Source: UN Digital and Sustainable Trade Facilitation: Global Report 2021

Chart 3.2.7 Cross-Border Measures by APEP Country



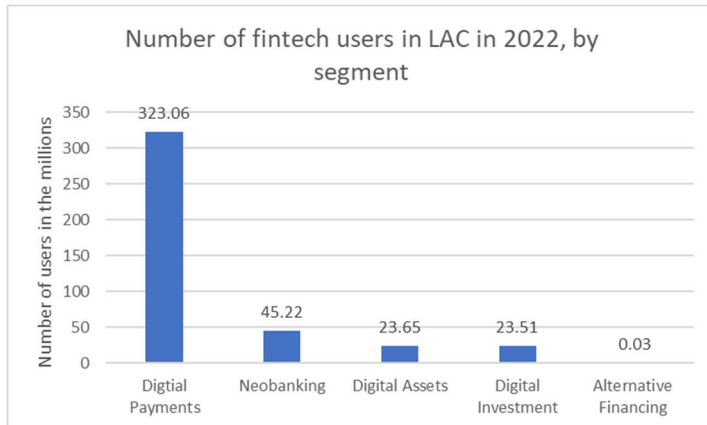
Source: UN Digital and Sustainable Trade Facilitation: Global Report 2021

Chart 3.3.1 APEP Countries Government Payments and Opening an Account



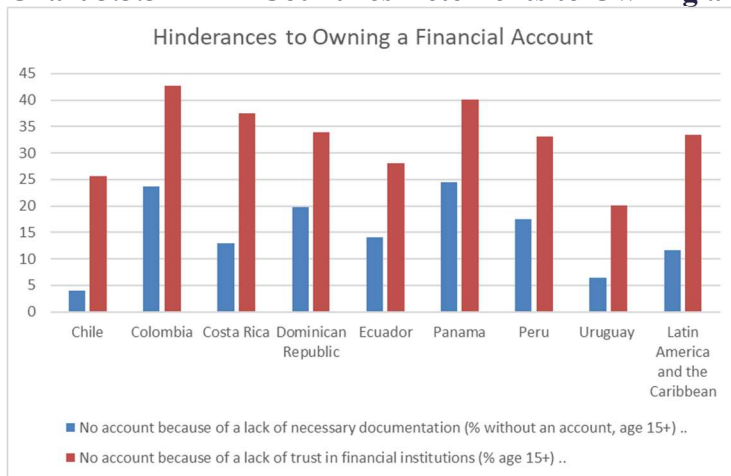
Source: World Bank's Findex Database 2021

Chart 3.3.2 LAC Fintech Users



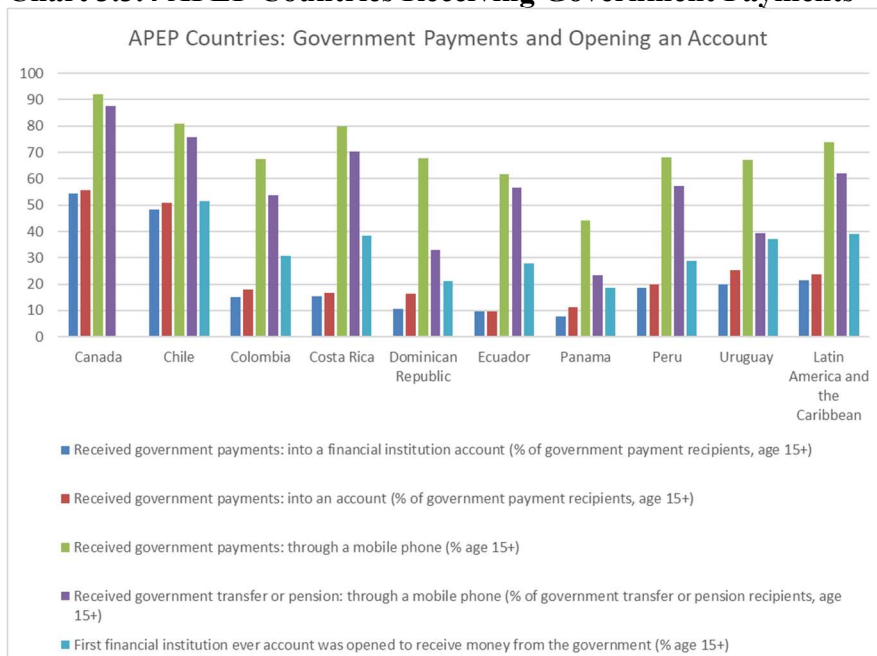
Source: Statista; Statista Digital Market Insights

Chart 3.3.3 APEP Countries Deterrents to Owning a Financial Account



Source: World Bank's Global Findex Database 2021

Chart 3.3.4 APEP Countries Receiving Government Payments



Source: World Bank's Global Findex Database 2021

Chart 3.4.1 Percentage of Firms in Selected Countries Introducing a new product, 2006-10



Source: World Bank, based on data from Seker 2013 and 2006–10 Enterprise Surveys.

Note: LAC = Latin America and the Caribbean.

9. APPENDIX 2: THE RULES, STANDARDS, AND FORMATION RELEVANT FOR SPZS

Appendix 2.1 Criteria for SPZs

Corporate Tax Reduction: The main drivers of international business operations are corporate returns at the end of the fiscal year and fiduciary responsibility to shareholders. To attract companies and greater investment, it is necessary to present them with an investment option that strengthens their portfolio while significantly reducing yearly and accumulated costs. These benefits are an innate characteristic of SEZs worldwide and have incentivized thousands of companies to move their operations into such zones.

Income Tax Reduction: Per the last incentive, companies are mainly driven by their duty to increase profits, and the same is true for business leaders. To attract talent and expertise, SPZs could create an attractive environment for supply chain leaders and specialists. This environment can be achieved by replicating the successful incentives of income and bonus tax reductions given by similar entities across the globe.

Streamlined Administration Processes: Regulatory flexibility and liberalization create a highly attractive environment for investors, as they can be reassured of how welcome their investments are in a given

community. The SPZs must host a number of regulations targeting the creation of standards, requirements, and authorizations that streamline administrative processes.⁹⁶ While some of these efforts could focus on avoiding duplication of paperwork, the most important aspect should be ensuring that the targeted supply chains are covered by the same standards throughout APEP.

Single-Sourcing Label: CRM&REE sourced, produced, or finalized in an SPZ should be categorized in such a way that avoids duties, tariffs, or quotas from all APEP states; the answer to these demands is a single-sourcing label. This would ensure not only a simplified path to expand market access across APEP but also compliance with regulatory standards. This course of action has already been taken with our allies in the European Union and Japan.^{97 98}

Integration and Spillovers into the Local Economy: In a conversation with Bob Koopman, the former Chief Economist of the World Trade Organization, the Ph.D. made a point that previous SEZs had failed due to a lack of integration within the local economies.⁹⁹ If APEP SEZs (SPZs) were to become isolated, they would fail to act as societal catalysts and employment drivers that APEP. To ensure that the SPZs act as drivers of growth for the local economy, we suggest that the State Department implement the Free Zone of the Future - A Global Initiative for Local Prosperity Program organized by the World Free Zones Organization, which creates a pathway to ensure sustainable investments in the host economy of an SEZ.¹⁰⁰

Appendix 2.2 Stages of Integrating the CRM & REE Supply Chain

Appendix 2.2.1 Mines and Extraction

Mines will be the most critical SPZs. Because minerals will be obtained from sister SPZs across the Americas, they will be subject to the same standards, requirements, and trade regimes. This reality will allow the now liberalized materials to be labeled as SPZ-produced. The countries involved in this stage of the supply chain would be limited to those producing enough quantity of a specific Critical Raw Material (measured in metric tons) to significantly impact the market of said product in the Member States.

- The mapping to identify which regions are the most optimal for further extraction and integration within APEP would be carried out by Minerals & Energy Agencies within the Member States' national or regional governments.
- The determination of market share impact would be carried out by a Joint Working Group consisting of the Energy and/or Finance Ministries of APEP countries with Chambers of Commerce, members of the scientific community, and stakeholders from the private sector (such as mining companies and trade associations).
- This determination should not only account for the existing exports of each material from specific countries, but also a thorough analysis of the country's mineral reserves and their potential for extraction in the medium term (5-10 years).
- This determination should factor in the results of previous geological surveys that point to the potential location of mineral deposits.

Appendix 2.2.2 Hydrometallurgy and Electrolysis

These two steps of CRM&REE production are tied to each other, as they transform raw minerals into usable components of a larger element. Hydrometallurgy encompasses "liquid-to-liquid processing operations that remove trace element impurities and separate individual strategic and critical materials from one another," while electrolysis involves: "processing operations which use heat or electricity to separate the oxide, halide, or another non-metal component of a metal salt from a resulting hydrometallurgical or beneficiation process."¹⁰¹

These two steps of production require vastly different types of machinery and hardware, as well as separate kinds of highly specialized and industry-specific expertise and staff. Incorporating the two main parts of the refinement process in the same SPZ would allow the experts to be in regular contact with each other about best

practices, leading to the optimization of processes. The centralization of know-how and expertise would create a gravitational pull for new research centers, investigations, and career prospects. When interviewed on the subject, Dr. Koopman envisioned a scenario in which these SPZ could act as industrial knowledge hubs, expanding scholarship and new avenues of business.¹⁰²

1. The areas selected for these Refinement SPZ would be negotiated by a specialized working group of the APEP government's mineral competent agencies. These agencies would tackle minerals and process optimization, as well as research facilities and institutions.
2. Unlike the Mines SPZ, however, the territories of these zones are not limited by the existence of CRM&REE. Similar to refining factories of other industries, they could be located in industrial parks or closer to large cities.
3. As part of the criteria to create a Refinement SPZ, the Department should consider:
 - a. The **distance of the SPZ to a large city**: Many STEM specialists reside in larger cities and towns. To attract the needed talent, the SEZ should be located closer to these large population centers.
 - b. The **weather and climate conditions** in the potential area and if and how they could affect the treatment and processing of materials.
 - c. It would be significantly advantageous to this joint endeavor if selected towns and cities have an **existing research culture and institutions**. This condition could be measured with a) the existence of mineral-related degrees or courses in local universities and education centers; b) the presence of research centers and agencies dedicated to mineral refinement, and c) the existence of mineral refinement companies and factories.

Appendix 2.2.3 Finishing

The “finishing” part of the process focuses on the CRM&REE's applications to specific commercial products. In this stage of the process, the mineral is adapted or molded into a specific piece which is then shipped for assembly into the final product. Because of the commercial nature of this stage, it would be optimal for the State Department to consider the following criteria:

The SPZ should be organized in areas that have:

- a) A major port with a high TEU-processing capacity (above 1.25 million a year, based on an assessment of the largest ports in APEP;^{xxxvi}
- b) Increased access to transport infrastructure: trains, highways, or ports.
- c) An elevated number of industries and factories in the area, which will be synonymous to the safety standards, infrastructures, and agencies necessary for economic development and growth.
- d) Further criteria would be agreed upon with other Member States, with the involvement of companies and stakeholders, in an effort to expand private-public partnerships.

Appendix 2.3 Characteristics of EV Battery SPZs

The EV supply chain is sectioned into five parts including:

- Raw material production
- Material purification and refinement
- Processed material and cell manufacturing
- Pack and end use product manufacturing
- End-of-cycle

^{xxxvi} Appendix 1: Charts and Tables - Table 3.1.2 - Seaports Optimal for APEP Integration

Promoting processing capacity and recycling initiatives will bolster supply chain resiliency in both security and innovation. Additionally, McKinsey Institute suggests that, “scaling up production of battery-cell manufacturing capacity can offer other value-creation opportunities for manufacturers and labor standards.”¹⁰³ Many countries within APEP have seen increased sales over the last year regarding EVs, most notably Mexico, which generated the largest sales in 2021.^{xxxvii} Many countries within APEP have implemented regulatory frameworks aimed at enhancing the adoption of EVs that include numerous fiscal incentives including tax reductions and exemptions.

Appendix 2.3.1 Expanding Infrastructure

Expanding infrastructure into these SPZ’s has the potential to increase employment opportunities, geostrategic collaboration and geoeconomics cooperation. The McKinsey Institute estimates, “a new battery-manufacturing plant with a total capacity of 30 to 40 gigawatt hours (GWh) per year, could directly create as many as 3,200 jobs.”¹⁰⁴ The statistic does not include the number of indirect jobs that would be created with the implementation of battery plants, such as suppliers, construction companies’ basic services sectors like the food industry.

To curb fears over potential job loss through the transition to e-mobility, increasing foreign direct investment into participating countries could provide a level of stability or transition in the automotive industry. To support the expansion of battery-cell plants, SPZs will need to secure more machinery along with workforce development.¹⁰⁵ Furthermore, complementary infrastructure is required to support the transportation and storage of hydrogen, electricity, and CO2.

Historically, petroleum prices can be very volatile as opposed to electricity prices.¹⁰⁶ Thus, there are clear benefits to increasing the long-term stability and predictability of fuel costs, which can positively impact supply chain resilience. In addition, this would support environmental initiatives by reducing overall carbon emissions. This would further support environmental priorities that APEP Member States have emphasized, including the United States.¹⁰⁷

With a rapidly increasing global EV market, private companies need exposure and access to international markets that could increase potential consumers. Within APEP, companies would have the opportunity to expand clientele and overall attractiveness in the market as a legitimate producer, thus increasing the potential for profit.

Appendix 2.3.2 Recycling Focus in SPZs

Recycling and reusing batteries have the potential to help offset the pressure to mine new raw materials at a faster rate. Additionally, this would help offset the demand to build and open new mines. Furthermore, the most beneficial impact of recycling and repurposing would be the positive environmental impact.

Repurposing is also cost efficient as the materials have already gone through the stages of mining and refining. For example, the extraction of lithium requires an estimated 2.2 million liters per ton of lithium.¹⁰⁸ Extraction has led to a significant amount of water stress, which contributes to the global water crisis. Implementing increased practices of recycling and repurposing of critical minerals and batteries will provide a level of relief to this shared problem. There have been manufacturers that have launched programs of restoration through new irrigation systems and replanting in areas surrounding the mines. Despite the environmental and economic benefits, only around 5% of lithium-ion batteries are recycled globally. According to Greenpeace, 12 million metric tons of batteries will be expected to retire by 2030.¹⁰⁹

There are different methods towards recyclability. Once end-of-life batteries have been collected, they can be initially tested and disassembled to go through a process called “shredding”.¹¹⁰ Then a black mass would be

^{xxxvii} See Appendix 1 Chart 3.1.3 EV Sales in APEP Countries

generated, and the substance would further go through pyrometallurgical and hydrometallurgical processing to further extract material.

The batteries are then subjected to further thermal treatment before being crushed to remove any impurities (i.e., plastics). The lack of recycling capacity could be limiting the rate at which the overall EV transition happens. In terms of recycling, Volkswagen announced a pilot program in Germany that could recycle up to 97% of the components in the battery.¹¹¹ Similarly in the arena of recyclability, Renault is looking to repurpose energy storage in France.¹¹² These are innovative practices and ideas that would be beneficial in combating the climate crisis and further promoting the recycling-focused framework.

Appendix 2.3.3 Battery Passport Framework

Battery Passports are expected to increase transparency around the EV battery supply chain.¹¹³ The premise of this framework is to assign these batteries with digital identification (ID) that will make it easier to identify quantities on the market and to create economies in which recycling mechanisms may thrive. This would decrease dependence on raw materials from unreliable sources. These passports would serve as a digital ID and would be used to trace battery materials. They can also identify how much CO₂ was emitted at the End-of-Life aspect and for recycling purposes in the decision-making process.

The “Battery Pass” project is a three-year government-funded initiative to develop key aspects of a battery passport. However, the results are harder to decipher since the announcement was made in January 2023. Additionally, the Global Battery Alliance (GBA) has conceptualized a battery passport framework to increase transparency along the battery value chain.¹¹⁴ This battery passport would increase transparency on a geostrategic level that would benefit domestic and international stakeholders. It would also increase access to more information that would help further research and development. As GBA states, their battery passport proposal seeks to provide a key instrument that would impact the battery value chain through these initiatives, but further “...based on data that is standardized, comparable and auditable.”¹¹⁵ It will provide end-users with key data, chemical make-up, manufacturing history and other lifecycle criteria. This data would be collected from value chain stakeholders. This includes but is not limited to mining companies, battery producers, automotive OEM’s, and recyclers etc.¹¹⁶ There are successful pilot programs and initiatives for further reference. The GBA report, outlining proof-of-concept key findings, suggests working towards further transparency. Encouraging initiatives such as these with partners and APEP would help increase collaboration and security along the battery value chain, but also would expand innovation and the competitiveness in technological advancements.

For reference: Global Battery Passport: Proof-of-Concept Pilots report [here](#).

Appendix 2.4 Characteristics of Seaports SPZs

1. Create a Joint Working Group composed of the appropriate maritime and economic agencies to determine which port(s) within which countries are most suitable to host these SPZs and specialized warehouses.
2. Include a variety of Chambers of Commerce, shipping companies, and private port authorities in the Joint Working Group to ensure the wellbeing of private-public partnerships in ports.
3. Create a set of standards and benefits (on top of the already established traits of an SPZ) that will ensure the appropriate handling and labeling of these products to fit a special trade regime.
4. Draft a framework by which competition in the Port SPZs is ensured by avoiding a national champion or single overwhelmingly large company from taking hold of a majority of the SPZ’s handling capacity. Rules on percentages will be handled by a group of Antitrust Agencies.

The authors of this report identified seaports optimal for APEP integration.^{xxxviii}

10. APPENDIX 3: PHARMACEUTICAL SUPPLY CHAINS

Appendix 3.1 Quality

While all drug manufacturers are required to adhere to Current Good Manufacturing Practices (CGMPs), purchasers have limited information regarding the state of quality management at specific facilities, as well as the manufacturing origins. As a result, the market is unable to offer price premiums for Quality Mature Management (QMM), backup manufacturing capabilities, or risk-management plans. Furthermore, the market fails to penalize manufacturers who neglect to modernize their manufacturing equipment and facilities to ensure a reliable supply. Consequently, manufacturers are more likely to keep costs down by minimizing investments in manufacturing quality, triggering supply disruptions and shortages.

The pharmaceutical task force can conduct regular inspections of drug manufacturing sites to ensure that they adhere to international standards. The frequency of these inspections could vary depending on the level of risk associated with the drug being produced. The task force can also provide training and education programs, such as workshops and seminars, to help manufacturers understand and comply with international standards.

Appendix 3.2 A Centralized Database

A centralized database on pharmaceutical supply chains would be an effective tool for regulatory agencies and other stakeholders in the Americas to improve the safety and quality of medications.

A centralized database could have multiple benefits that would decrease quality issues:

- **Improved visibility:** This centralized database will provide regulators with a clearer view of pharmaceutical supply chains, making it easier to identify potential quality issues and address them in a timely manner.
- **Better risk management:** By having access to information regarding the entirety of pharmaceutical supply chains, regulators could better manage risks associated with the production, distribution, and usage of medications.
- **Increased transparency:** This centralized database will provide greater transparency in pharmaceutical supply chains. This will help to build trust among stakeholders and improve public confidence in the safety and quality of medications.
- **Increased international cooperation:** Increased international cooperation on drug shortages can help to identify potential supply chain issues and work to ensure that drugs are available in countries where they are needed most.

11. APPENDIX 4: DIGITAL TRADE EXTENDED

Appendix 4.1 ARTIS Framework

See Below recommendations to facilitate the implementation of an ARTIS framework within APEP:

- Establish a committee composed of representatives from APEP member countries to oversee the establishment and operation of the sandboxes.

^{xxxviii} See Appendix 1 Table 3.1.2 Seaports Optimal for APEP Integration

- Develop a framework for establishing and operating the sandboxes, which includes guidelines for eligibility, selection criteria, and evaluation metrics.
- Identify potential host institutions in each APEP member country that could serve as the site for the sandboxes or utilize existing national sandboxes.
- Launch a call for proposals to select the host institutions for the sandboxes. The proposals should outline the institution's capacity to provide resources such as funding, mentorship, technical support, and access to networks for startups and entrepreneurs.
- Work in collaboration with relevant development banks and private partnerships to provide funding to the selected host institutions to establish and operate the sandboxes.
- Establish a cross-border mentorship program to connect startups and entrepreneurs with mentors from other APEP member countries to promote collaboration and learning.
- Work towards developing a network of investors and venture capitalists interested in investing in startups and entrepreneurs within the APEP region.
- Organize events to showcase the innovations developed in the sandboxes and connect entrepreneurs with potential investors and partners.

Appendix 4.2 Proposed Measures for Digital Trade Regulations

Appendix 4.2.1 Electronic Transaction Frameworks

E-transaction frameworks describe legal structures involving essential principles for regulating electronic transactions. At the global level, the United Nations Commission on International Trade Law (UNCITRAL)¹¹⁷ has taken the lead in establishing two key legal instruments: the legally binding United Nations Convention on the Use of Electronic Communications in International Contracts (UN Electronic Communications Convention)¹¹⁸ and the non-binding UNCITRAL Model Law on Electronic Commerce (MLEC).^{119 xxxix}

Some APEP member countries have adopted RTAs that reference the UN Electronic Communications Convention and MLEC. However, RTAs can also contain rules on technological neutrality and unnecessary barriers to e-commerce that impede economic growth.^{xi}

We suggest the following regulations could be negotiated and adopted into APEP:

1. In the development and promotion of e-commerce, each Member State shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL Model of Law on Electronic Commerce and the United Nations Convention on the Use of Electronic Communication in International Contracts.
2. Member States endeavor to avoid unnecessary regulatory burdens on electronic transactions.

Appendix 4.2.2 E-Signatures and E-Authentication

In most countries, there are regulations in place that grant legal recognition to paper-based documents used for transactions. UNCITRAL has been a leading proponent of creating standardized legislative frameworks to address this issue. In addition to the UN Electronic Communications Convention and the UNCITRAL Model Law on Electronic Commerce, containing provisions on e-authentication and e-signature, UNCITRAL has also developed the Model Law on Electronic Signatures.¹²⁰ The UN Centre for Trade Facilitation and Electronic Business (UN/CEFACT) also includes standards to facilitate the process of digitalizing trade documents.¹²¹

^{xxxix} See Appendix 1: Chart 3.2.1 to see which APEP countries have already ratified or committed to the two international agreements. ^{xi} See Appendix 1: Chart 3.2.2 to see which APEP countries have adopted an RTA containing language on electronic transaction frameworks.

The Model law on Electronic Signatures is not referenced by all RTAs, but certain RTAs include at least one provision on E-authentication or E-signatures.¹²²

We suggest the following regulations could be negotiated and adopted into APEP:

1. Provisions should stipulate that the legal validity of a signature shall not be denied solely on the basis that the signature is in electronic form, consistent with the UNCITRAL Model Law on Electronic Signatures.
2. Each Member State shall endeavor to favor trade documents being electronic, consistent with the recommendations by UN/CEFACT.
3. Members should reference the International Organization for Standardization (ISO) for technical standards to ensure long-term authenticity and interoperability of E-signatures and E-authentication.

Appendix 4.2.3 Electronic Invoicing

Issuing invoices electronically can result in greater efficiency which enables greater accuracy, transparency, and reliability of international commercial transactions.

We suggest the following regulations could be negotiated and adopted into APEP:

1. The Member States recognize the importance of E-invoicing which increases the efficiency, accuracy, and reliability of commercial transactions.
2. The States could implement a system for E-invoicing to be interoperable between States. In addition, States should share best practices and collaborate on promoting the adoption of interoperable systems for E-invoicing.
3. Recognizing its benefits, Member States should encourage the facilitation of the adoption of E-invoicing by businesses.

Appendix 4.2.4 E-Payments

International trade can be even more efficient, safe, and secure if cross-border electronic payment systems become more widely available. The wider use of E-payments can support economic activities by reducing the need for personal contact when undertaking trade transactions. E-Payments also have significant benefits for exporters and SMEs. Specific regulatory rules on e-payments remain limited, but general principles focusing on e-payments are found in more digital-trade-specific agreements such as article 2.7 in DEPA.¹²³ Trade Facilitation Agreement¹²⁴ and the OECD Recommendation of the Council on Consumer Protection in E-commerce contain language covering E-payments.¹²⁵

We suggest the following regulations could be negotiated and adopted into APEP:

1. Member states recognize the efficiency benefits of switching to E-Payments, consistent with the OECD Recommendation of the Council on Consumer Protection in E-Commerce.
2. Member States should set E-Payment technical standards based on ISO's technical standards of payments.

Appendix 4.2.5 Digital Trade Facilitation and Logistics

Further legislative frameworks concerning paperless trade have the potential to facilitate cross-border trade. While all APEP countries have ratified the WTO Trade Facilitation Agreement not all countries have RTAs including a provision on paperless trading. Moreover, a Single Window is a very important component in facilitating and expediting trade, yet APEP members Ecuador and Panama have not yet fully implemented a

Single Window framework and could benefit from adopting such proposal through APEP agreements.^{xli xlii}

We suggest the following regulations to be negotiated and adopted into APEP:

1. Each Member State should endeavor to make trade administration documents available to the public in electronic form and accept trade administration documents submitted electronically as the legal equivalent of the paper version of those documents.
2. Noting the obligation in the WTO Facilitation Agreement, each Member State should establish or maintain a Single Window that enables individuals to submit documents or data requirements for importation, exportation, or transit of goods through a single-entry point to the participating authorities or agencies.

Appendix 4.3 Data Privacy Regulations

Require organizations to conduct privacy impact assessments for high-risk data processing activities:

Privacy impact assessments (PIAs) are a tool used to identify and evaluate the potential risks associated with the collection, use, and sharing of personal data. By requiring organizations to conduct PIAs for high-risk data processing activities, policymakers can help ensure that companies minimize the privacy risks associated with their data practices.

This principle is known as data minimization: This requires organizations to limit the amount of personal data they collect to what is necessary to achieve their stated purposes. By collecting only the minimum amount of data needed, companies can reduce the risk of data breaches and other privacy violations.

Promote the use of decentralized identity solutions that enable individuals to control their personal data and share it only with trusted parties: Decentralized identity solutions use blockchain technology to give individuals more control over their personal data. With these solutions, individuals can manage their own digital identities and decide which information they want to share. This approach helps reduce the risk of data breaches and gives individuals more control over their privacy.

Establish mutual recognition of data protection standards to facilitate cross-border data transfers: As data is increasingly transferred across borders, a greater importance must be placed on establishing common data protection standards. This could help facilitate cross-border data transfers while ensuring data is protected regardless of where it is processed.

Encourage organizations to use certification mechanisms to demonstrate compliance with data protection and privacy laws: Certification mechanisms provide an independent assessment of an organization's compliance with data protection and privacy laws. Utilizing these mechanisms can help ensure that companies are taking steps to protect personal data and comply with relevant regulations.

Appendix 4.4 Cybersecurity

Examples from the Budapest convention:

Article 23: Cooperation in the Prevention of Cybercrime

Under this provision, parties to the Convention are encouraged to share information and best practices to prevent cybercrime. In the context of economic partnerships among APEP countries, this could involve implementing these practices to protect critical infrastructure and financial systems. One example of this type of

^{xli} See Appendix 1: Chart 3.2.6 which references APEP countries with a Single Window.

^{xlii} See Appendix 1: Chart 3.2.5 and Chart 3.2.6 which references additional regulations and measures adopted or missing from APEP member countries.

cooperation is the U.S. Cybersecurity and Infrastructure Security Agency's (CISA) partnership with the Inter-American Development Bank to promote cybersecurity in Latin America and the Caribbean.

Article 25: Mutual Legal Assistance

Article 25 allows parties of the Convention to provide mutual legal assistance in cybercrime cases. In the context of APEP, this could involve requesting electronic evidence from Member States to support economic crime investigations. A framework to build from is providing a platform to enhance cooperation like the U.S. and Brazil model where they collaborate in corruption investigation involving the Brazilian construction company Odebrecht. The U.S. Department of Justice provided evidence to Brazilian authorities, which helped lead to the arrest of several high-ranking executives of the company.

Article 27: Expedited Disclosure of Subscriber Information by Service Providers

This could be relevant to APEP Members who should identify individuals or organizations involved in cross-country economic crimes committed over the internet. APEP Members could collaborate on international or severe cyber infringements by sharing information and implementing transparency initiatives.

The Budapest Convention on Cybercrime was last updated in 2022 with the adoption of the new Protocol to Cybercrime Convention.

This new protocol institutes a legal basis to enable the disclosure of domain name registration information, facilitate cooperation with service providers to obtain subscriber information and traffic data, provide immediate assistance in emergency situations, offer mutual assistance tools, and ensure the protection of personal data. This new protocol adds credibility to the articles specific to APEP in this convention. The establishment of these principles internationally makes it easier for APEP Member States to adopt this already credible international framework.

Procedural law: The Convention aims to ensure that cybercrime investigations and prosecutions are carried out effectively, efficiently, and in accordance with the rule of law. To this end, it establishes rules on issues such as search and seizure, preservation of data, and mutual legal assistance.

International cooperation: The Convention recognizes the need for international cooperation in combating cybercrime, and it establishes a framework for such cooperation, including the exchange of information and evidence, and the provision of mutual legal assistance.

Protection of human rights: The Convention requires that all measures taken to combat cybercrime respect human rights, including the right to privacy, freedom of expression, and due process of law.

12. APPENDIX 5: WORKFORCE DEVELOPMENT CASES

Appendix 5.1 Work-Based Learning Models

Appendix 5.1.1 Appalachia Model

The Appalachia Model is an MIT-original program, aiming to improve the apprenticeship system utilized by the United States. The Appalachian region (PA, OH, IL, IN, KY, and WV) has been proposed as a pilot zone due to its historical linkage to the coal industry. However, as automation has emerged, rapid reskilling is necessary to maximize the benefits of modern technologies and minimize job loss and capital flight.¹²⁶

According to MIT, the apprenticeship program in the U.S. is robust and fully capable of reskilling workers.¹²⁷ The American apprenticeship system is reliant on educational institutions collaborating with industries to

integrate class-based learning along with practical work experience. While conceptually successful, greater effort is necessary to make the program more accessible for individuals in rural regions. Therefore, MIT proposes that the government create incentives to ensure a larger segment of the population is trained.¹²⁸ Their proposals have included:

1. A safety net for workers whose employment was affected because of transition. The Transition Adjustment Assistance provides a foundational model aimed to support workers during transitional periods. It is designed to compensate for job loss in the manufacturing industry. However, the report believes that the program will need to broaden its sectoral coverage and add provisions for increasing benefits, relocation compensation, and support services.
2. Cooperation with unions for creating a “work as you earn” system. MIT directly cites the North American Building Trades Unions (NABTU) organization as a powerful institution that can help incentivize worker retraining. The report argues that the federal government should encourage unionization, as it has proven its ability to create a more productive training environment.
3. Strengthening pre-apprenticeship programs, which introduce “work skills, environment, and social behaviors necessary to succeed.”¹²⁹ MIT believes these programs should be expanded to community colleges, employers, and unions. The report also stresses that the U.S. Department of Labor Advisory Committee on Apprenticeship should provide oversight and guidance to standardize the programs.
4. While the program is experimental, it can easily be adapted to APEP due to its targeting of isolated communities in traditional working roles. Furthermore, the utilization of unions and the presence of a safety net gives a strong labor supply incentive to begin transitioning.

Appendix 5.1.2 Degree Apprenticeship Model

The Degree Apprenticeship Model is the system utilized by the United Kingdom that integrates traditional college courses with practical work experience. Unlike the apprenticeship programs in the United States, these programs are company-driven and financed.¹³⁰ The benefit of this program is free education for workers and guaranteed employment in a company. Uniquely, those who partake in this model receive a degree.

The first pilot program, launched in 2015 in partnership with the Manchester Metropolitan University, proved to be a success, with an overall achievement rate of 83% overshadowing the British national average of 64%.¹³¹ Furthermore, “78.3% of Manchester Metropolitan degree apprentices received a pay-rise and 64.2% received a promotion.”¹³² The program has since expanded, with over 544 employers partnering with Manchester Metropolitan University alone. As of February 2023, 85 higher education institutions have adopted the Degree Apprenticeship Model across the UK.¹³³ Furthermore, Staffordshire University’s Pro Vice-Chancellor, Professor Raheel Nawaz had advocated for the UK government to build on the program.¹³⁴

The program has also expanded abroad, with Canada adopting the program to better improve its Information and Communication Technologies (ICT) capabilities. At York University in Toronto, academics have partnered with Canadian companies to develop students in software development, cybersecurity, and data.¹³⁵ The program is set to launch in the Fall of 2023, basing themselves on the success of the Manchester model.

Additionally, improvements can be made. The first issue identified by the study was the lack of promotion. A report cited by Manchester Metropolitan stated that “more than one in five people said it was ‘somewhat difficult’ or ‘very difficult to get information on apprenticeships.’”¹³⁶ Furthermore, the program itself is still relatively new, and a better performance matrix will need to be implemented to understand its full potential. The report advocated for data gathering for social mobility, skills, and labor market outcomes metrics.¹³⁷

Nevertheless, the apprenticeship model has immense potential in the Americas, opening a pathway to higher education that many in the region currently do not have access to. The program presents itself as a driver of social mobility. According to the Manchester Metropolitan, “40% of Manchester Metropolitan degree apprentices are the first generation in their family to go to university.”¹³⁸ Furthermore, the program has also targeted students of diverse backgrounds and women.

Appendix 5.1.3 Workforce Board Model

The Workforce Board model relies on decentralized community leaders implementing programs that are customized to the local demand. Under Title I of the Workforce Innovation and Opportunity Act of 1998 (WIOA), workforce boards under the guidance of the Employment and Training Administration submit a plan annually detailing how it will increase its communities’ workforce resiliency.¹³⁹ Once the plan has been approved, there is a formula that allocates the different funds that the U.S. legislator has appropriated that will trickle down to the state level. These workforce boards are composed of local elected leaders, labor representatives, nonprofit organizations, etc. Additionally, these boards are not industry specific with the National Association of Workforce Board (NAWB) stressing industry agnostic policies, and a mission of workforce boards being independent and self-attaining.¹⁴⁰ There is an emphasis from the WIOA and NAWB itself that the workforce has sectoral partnership and work with employers, with it being the broad overview of the workforce board. Kyle Marinelli, Associate Director of Government Relations and Policy in NAWB, pointed out specific factors that made certain workforce boards more successful than others:

Marinelli pointed out five specific workforce boards that demonstrated great potential: Texas, California, Michigan, Colorado, and Maryland, placing the greatest emphasis on Colorado’s workforce board due to its strongest integration of services with workforce programs. Marinelli believed that the biggest hindrance to workforce development is the individual's external factor.¹⁴¹ For instance, deciding to have a family inevitably shifts focus from work and hinders progress to reskill/retrain. Therefore, workforce boards must support wrap-around services that target disadvantaged groups and utilize more care services. Another aspect that Marinelli believed contributed to the success of Colorado’s workforce board is its implementation of learning and employment records.¹⁴² These records are credentials/data that are attached to an individual’s profile. The purpose of these records is to show transferability between sectors. For instance, a mechanic in NASCAR is accredited with their ability to work on exhaust systems; this credential can be transferable to locomotives, and the worker can find employment in that industry. Finally, Marinelli states all five workforce boards are blessed with good leaders.¹⁴³ The workforce boards elect executive directors who spearhead the implementation of the programs and understand the political environment to push boundaries while remaining connected to the locality.

The biggest advantage of the Workforce Board model is its decentralized nature, which can cater to the needs of each of the APEP members. However, there needs to be a degree of non-existent standardization. Currently, NAWB hosts annual forums to do so where they invite all the worker boards within the United States to a conference.¹⁴⁴ Marinelli believes that the best way to improve standardization is the creation of a national workforce database, which is banned in the U.S. due to fear of privacy.¹⁴⁵ However, NAWB is currently appealing to have the ban removed, allowing workforce boards to be more proactive to industrial demand. APEP could implement such a system within a pilot zone that could benefit workforce boards in an area.

Appendix 5.1.4 Lifelong Learning Model

The Lifelong Learning model was proposed by the Inter-American Development Bank (IDB) for Mexico in response to the flaws of its current system. The current workforce development system was based on a top-down system from the Mexican government that established a standard of certifiable skills necessary for the work system. The program, National Skills Board (CONOCER), attempted to create a culture of certification, where employers recognize skills and knowledge.¹⁴⁶ The main benefit of the system was the flexibility it gave to employees to learn the skills, however, it had a major shortfall.

The biggest issue with CONOCER was its failure to correspond to the skills demanded in those that are required by the industry. In reaction to this, Mexico introduced Upper Secondary Education Reform (RIEMs), where post-secondary education will train students to the standard that they have outlined. RIEMs provide training for teachers while also giving more mentorship and support to students. Furthermore, CONALEP was developed to further decentralize the process.¹⁴⁷ The goal of this system was to maintain the standards-based approach but to be more reactive to the industry. CONALEP designs its curriculum based on industry needs while adapting its courses based on local demand. This has allowed it to appeal to the nature of geographic clusters, ex. Guanajuato schools focused on automobiles in conjunction with Volkswagen.¹⁴⁸ However, the issue of standards and demand disconnect remained. Therefore, the IDB proposed the adoption of a new plan.

The IDB proposal retains Mexico's governmental approach to standardization while arguing that the government must include more stakeholders in the conversation. While the government can retain the power to regulate standards, unlike other models, it will need to open up more dialogue with NGOs, business leaders, union representatives, etc.¹⁴⁹ This will allow for the adoption of best practices for their industries. Furthermore, to better govern the diverse region, the IDB recommended Mexico adopt an independent workforce agency to create a coherent national vision and the policies/authority to implement the plan. This is modeled after the successful creation of workforce agencies in Singapore, Australia, and Ireland. All these nations created long-term plans that linked their national curriculums to market.¹⁵⁰ Finally, the IDB believed that Mexico should create a National Qualifications Framework (NQF), setting pathways for individuals to complete qualifications while setting guidelines on completion.¹⁵¹ The IDB further asserted that Mexico must prioritize the credibility of this new NQF to contrast the unreliability of CONOCER.¹⁵²

Lifelong learning model is more of a top-down model than previous references, offering stronger standardization process unseen in the other models. Furthermore, the legitimacy of the NQF can be bolstered by international dialogue on the best standards and practices. Finally, this framework may fit better with some cultures in the Americas which emphasized a larger government role compared to the other "Anglo" models.

Appendix 5.2 USMCA Labor Provisions

- **Prohibition of Forced Labor:** The partnership should work with member countries to adopt or maintain in their laws and practices the International Labor Organization's Declaration on Fundamental Principles and Rights at Work, which includes prohibitions on forced labor and child labor, under Article 23.3 of the USMCA.¹⁵³ Member countries should also take steps to raise awareness and educate businesses and workers about these prohibitions.
- **Enforcement of Labor Laws:** The partners should work to adopt and maintain effective enforcement mechanisms to ensure compliance with labor norms and agreements, such as those related to forced labor, under Article 23.8 of the USMCA.¹⁵⁴ This could include measures such as increasing penalties for violations, strengthening labor inspections and investigations, and providing resources and training to labor authorities.
- **Importation of Goods Produced by Forced Labor:** The partnership should agree on commitments that reflect those in Article 7A.4 of the USMCA, which prohibits the importation of goods produced by

forced labor, including forced or compulsory labor or child labor. This includes implementing measures to monitor and identify products made with forced labor and imposing sanctions or penalties on businesses that violate these prohibitions.¹⁵⁵

- **Monitoring and Verification:** The partnership should work with member governments to establish a system for monitoring and verifying compliance with labor laws, including those related to forced labor, under Article 23.9 of the USMCA. This idea includes setting up independent mechanisms for monitoring compliance, providing training and resources to labor authorities, and promoting transparency and accountability in the labor market.¹⁵⁶

Appendix 5.3 Network Academics

The APEP nations of Peru and Costa Rica have already begun experimenting with solutions to improve workers' digital literacy on a national basis. Both nations have partnered with CISCO Systems Inc., a digital communication firm, to provide digital skills to their working population.¹⁵⁷ Costa Rica has integrated CISCO into 103 of 138 of their technical schools, utilizing digitalization to improve their tourism industry.¹⁵⁸ According to CISCO, the organization offers courses in networking, cybersecurity, etc.¹⁵⁹ CISCO's mission is to build resilient supply chains and create inclusive investments by supporting marginalized communities and women empowerment. For instance, 43% of Costa Rican students are women.¹⁶⁰ CISCO is even being utilized in the United States, with states such as Michigan integrating CISCO into its digital acceleration program.¹⁶¹ However, CISCO is not the only networking program that is being utilized by governments.

Coursera Inc. is utilizing a similar program, with the launch of their Workforce Recovery Initiative. The program aimed to give free access to unemployed workers of courses from universities such as Duke and Yale, but also companies such as Google and IBM.¹⁶² Many governments, particularly in Africa and the Caribbean, have partnered with Coursera to provide transitioning workers with access to online courses. Furthermore, Coursera has partnered with the Commonwealth of Learning to provide access to its courses to an additional 40 countries.¹⁶³ The additional benefit of Coursera's program is its ability to provide credentials upon the completion of the course, making the international standardization process smoother. Both Coursera and CISCO serve as examples of how governments of APEP can take advantage of network academies to standardize and train their population in digital skills.

Appendix 5.4 Colorado's Talent Finance

A successful progressive model for worker reskilling is Colorado's talent finance. Utilized by the Colorado Workforce Development Council, talent finance aims to provide access to disadvantaged Coloradans to ensure they have the means to reskill.¹⁶⁴ The funds provided by the program not only covers training costs but also covers issues such as childcare, internet access, and transportation. The initiative utilizes two paths, outcomes-based and life-long learning accounts. Outcomes-based accounts are a set of financial arrangements that provides financial resources based on the results of the program. Outcomes-based accounts are funded through enterprises either giving grants or loans to individuals. Outcome-based accounts are advantageous incentives for the individual to complete the training.¹⁶⁵ The other path utilized by Colorado is the life-long learning accounts, which is a labor organization-enterprise-based funding. The funding from the account is not sector-specific and can be used by workers to develop skills not relevant to their industries. The funding allows for the mobility of the worker to expand their skills, something especially relevant to digital skills.¹⁶⁶ As an example, it allows workers in the car manufacturing industry to develop digital skills that could improve their productivity.

Appendix 5.5 Asian Pacific Economic Forum (APEC)

APEC is a regional economic forum dedicated to facilitating open dialogue between countries on trade. Some nations of APEP are already part of this forum and have been taking advantage of open dialogue to find solutions to topics such as digital training, energy transition, and regulatory synchronization.¹⁶⁷ While APEC focuses on trade, APEP can adopt the forum into a larger conversation of workforce development, where

nations can gather to share their insights on best practices per industry. APEP should expand the concept to other key interest groups such as business leaders, unions, and educational institutions. The expansion of the forum will allow sectoral experts to give their insights on improvements and will be a platform for the nations of APEP to agree on a set of strategies that would help standardization.

Appendix 5.6 European Skills, Competences, Qualifications, and Occupations

A successful usage of a common language in an international framework is the European Union's ESCO program. The agreement established a common language despite the 27 languages utilized by the EU.¹⁶⁸ The institution utilizes three pillars to ensure that qualifications are recognized by all EU nations: Occupations, Skills, and Qualifications. Occupations are organized by code, with over 3008 jobs categorized under ESCO. Each occupation comes with a profile, explaining the definition along with the skills/qualifications required to hold the job. Skills categorization operates under one common term, with it being classified under knowledge, skills, attitudes/values, or language skills/knowledge. Over 13,890 skills are categorized within ESCO, with ESCO providing subcategories of related terms. Finally, qualifications are placed under the Europass, a tool that helps link individuals to jobs throughout the EU to validate the qualifications of an individual ensuring transparency over workers' standards across the EU. The EU managed to create this system despite the diversity of languages, APEP on the other hand will only have two languages to contend with. The APEP partnership should coordinate its common language framework to make systems applicable and credible.

13. APPENDIX 6: CASE STUDIES

Appendix 6.1 Sandboxes

1. Chile has a "Regulatory Sandbox" program that allows companies to test financial services and products in a controlled environment with reduced regulatory burden.¹⁶⁹
2. Mexico has launched several sandboxes, including a fintech sandbox, an energy transition sandbox, and an artificial intelligence sandbox.¹⁷⁰
3. The European Union's Digital Innovation Hubs Network.¹⁷¹
4. The MIT Regional Entrepreneurship Acceleration Program (REAP).¹⁷²
5. The Singapore-based Block71.¹⁷³
6. The Inter-American Development Bank's (IDB) LACChain sandbox.¹⁷⁴

Appendix 6.2 Fintech Regulations

Here are several examples of regulations in agreements that support fintech development.

1. The European Union's Payment Services Directive (PSD2): PSD2 is a regulation that requires banks to provide access to customer data to third-party payment providers. This has paved the way for fintech companies to offer innovative payment solutions and services to consumers.¹⁷⁵
2. The United States' JOBS Act: The JOBS Act has made it easier for fintech companies to raise capital through crowdfunding, which allows them to reach a broader range of investors.¹⁷⁶
3. The United Kingdom's Open Banking initiative: The Open Banking initiative requires banks to open access to customer data to third-party providers, similar to PSD2. This has led to the development of a range of new fintech products and services.¹⁷⁷
4. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP): The CPTPP includes provisions that promote the development of digital trade, which includes fintech. This has led to increased investment in fintech in the participating countries.¹⁷⁸

Appendix 6.3 SME Models for Growth

Appendix 6.3.1 Brazil SME Model¹⁷⁹

1. Removal of barriers for investors in SME markets through legal protection and information sharing with a goal for SMEs to reach foreign markets and maintain a stable level of exports.
2. Government program to grant SMEs greater access to credit so that they can grow and move into the formal economy.
3. SME worker development training programs focused on financial management as well as skills for innovation and gaining access to new markets.
4. Creates an official network that facilitates the exchange of information between borrowers and lenders.
5. Transparency in digital practices meant to expand SMEs and make the process of obtaining credit simpler.

Appendix 6.3.2 OECD Supported Model SME Integration in SEZs¹⁸⁰

1. The most important aspect of this model is that SME workers acquire new skills.
 - a. The OECD Supported Model of SME Integration in SEZs in Myanmar offers an abundant amount of labor to investors in the zones at a competitive cost, but they have an insufficient supply of workers with technical or managerial skills, who are vital to the adoption of new technologies and for effective business management.
 - b. To correct for this, the OECD-supported model provides additional tax deductions for training expenses, and investors are obligated to provide training activities, while gradually increasing restrictions on foreign labor has proved beneficial in transferring knowledge to local employees and develop a technical skill base.
 - c. This has proven to be the main economic benefit of the zone, as trained domestic workers then take their new knowledge and expertise into their businesses or start new businesses when they leave the zone, boosting the local economy.
2. Emphasis on the need for the spillover effect outside of an SEZ for the zone to ultimately be successful and positively impact the regional economy.

14. ANNEX A: CRITICAL MINERAL BREAKDOWN

Strategic & Critical Materials Subject to a Foreign Market Dominator

Green = APEP countries are major producers

Yellow = Brazil is a major producer

Red = APEP Members are not major producers

Aluminum, high purity	Europium	Niobium
Arsenic, molecular beam grade	Fluorspar	Samarium
Barium	Graphite	Scandium
Beryllium	Lanthanum	Steel

Bismuth	Lithium metal	Strontium
Cerium	Magnesium metal	Tin
Erbium	Neodymium	Tungsten

Production of specific CRM&REE

Antimony V (used for batteries)

- o Historically, production of antimony has occurred in countries with large antimony deposits, including China, Russia, Bolivia, Canada, Mexico, South Africa, Tajikistan, Turkey, and the United States.
- o China controls 53% of production (lowered recently); China also boasts most antimony processing facilities. Russia and Tajikistan have tripled production and increased refineries since 2015.

Aluminum V (TBD)

Production (2020)

- o Canada – 3.1M tones – 4th
- o USA – 1.0M tones – 9th

Arsenic V (used in semiconductors)

Production (2021)

- o Peru – 28K tones – (1st)
- o China – 24K tones – (2nd)
- o Bolivia – 140 tones – (6th)

Barium X

Exports (2022)

- o India – 2.6K tones (1st)
- o China – 1.9K tones (2nd) (lowered 50% since 2010)
- o Morocco – 1.3K tones (3rd)

Beryllium V

- o Countries with active industrial beryl mining operations include Brazil, China, Madagascar, Mozambique, Nigeria, Portugal, and Rwanda.
- o The US produced an estimated 90 percent of the world's beryllium in 2015.

Bismuth V

Production (2022)

- o China – 16K tones – 1st
- o Bolivia – 60 tones – 6th
- o Canada – 50 tones – 8th
- o Mexico – 10 tones – 9th

Cerium X

Exports (2020)

- o Japan – 79.7M USD (1st)
- o France – 46.1M USD (2nd)
- o USA – 5.68M USD (5th)

Dysprosium X

Dysprosium is chiefly obtained from bastnasite and monazite, where it occurs as an impurity. Other dysprosium-bearing minerals include euxenite, fergusonite, gadolinite and polycrase. It is mined in the USA, China, Russia, Australia, and India.

Europium S

- o Components can be found in river sand in countries such as India, Brazil & S. Africa.
- o Europium oxide's major production is China at 390 tonnes.

Erbium X

- o Main producers are China, Russia, and Malaysia

Fluorspar V

Production (2022)

- o China – 5.7K tones – 1st
- o Mexico – 970 tones – 2nd

Germanium X

China is responsible for around 60% of total production.

The remaining production of germanium comes from Canada, Finland, Russia and the US.

Graphite V

Production (2021)

- o China – 820K tones – 79.1%
- o Brazil – 68K tones – 6.6%
- o Canada – 7.7K tones – 0.7%

Reserves (2021)

- o Brazil – 70M tones – 21.2%
- o Canada – 5.7M tones – 1.7%
- o Mexico – 3.1M tones – 0.9%

Magnesium S

- o *Brazil* – 1.5M tones – 4th (2021)
- o A critical point in Brazil's magnesite industry came in 2017 with the merger of RHI of Austria and Magnesita Refratários of Brazil to form RHI Magnesita, which then became the world's largest refractories producer. RHI Magnesita is also reported to own the largest magnesite reserve outside of China.

Neodymium V

Production (2022)

- o China – 210K tones – 1st
- o USA – 43K tones – 2ND
- o Brazil – 80 tones – 10th

Niobium V

- o *Brazil* and Canada are the major producers of niobium mineral concentrates, and Australia, Brazil, and Canada are the major producers of tantalum mineral concentrates.
- o A project is currently underway in Nebraska that would be the only niobium mine and primary niobium processing facility in the United States.

Lanthanum V

- o The main mining regions of the aforementioned ores are USA, Brazil, India, Sri Lanka and Australia, making up the production of lanthanum at 12,500 mt/year.
- o The reserves of this element are thought to be in the region of 6 million mt.

Lithium V

Production (2022)

- o Chile – 39K tones – 2nd
- o Brazil – 2.2K tones – 5th
- o Canada – 500 tones – 8th

Samarium S

Ores are mainly mined in China, but there are large deposits in the US, Brazil, India, Australia, Greenland and Tanzania. The most important ore is monazite, which contains up to 3% by weight of samarium.

Scandium V

China is the largest producer of scandium products. Russia has been the second significant supplier, particularly to Europe, active for over three decades. Recent entrants to the market include the Philippines and Canada.

Steel V

Production (2017)

- o US – 81K tones – 4th
- o Brazil – 34K tones – 9th

Strontium V

o Mexico and Spain are the leading producers of celestite, the common strontium ore producing nearly 80% of the estimated 360 kt (397,000 st) produced worldwide during 2002. China and Turkey are significant celestite producers.

Tin V

- o Bolivia, Brazil and Peru account for 16% of world mine production
- o China (1st), Indonesia (2nd), Myanmar (3rd)
- o Myanmar has a Special Zone with its own political entity + armed forces. Highly problematic, called Special Zone 2.

Titanium X

- o China – 100K tones – (1st)
- o Russia – 45K tones – (2nd)
- o Japan – 40K tones – (3rd)
- o No LatAm country leading in this material.

15. APPENDIX ENDNOTES

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