Future of the Pacific Alliance: Integration for productive growth

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The Pacific Alliance Business Council

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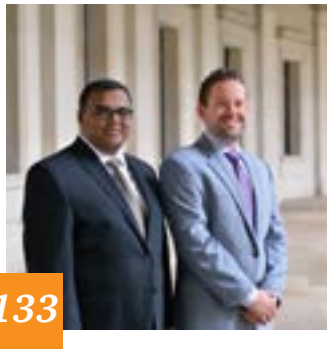


Message from Bob Moritz

The *Future of the Pacific Alliance* report comes at a crucial time. While a number of growth markets are uneasy, volatile and lacking inspiration, the Pacific Alliance countries—Mexico, Chile, Peru and Colombia—stand out as an influential economic and social bloc advancing renewal and integration. This study examines the market promise of the Pacific Alliance and analyzes nine sectors that are exceptionally well positioned to benefit from the Alliance's multiplier effect.

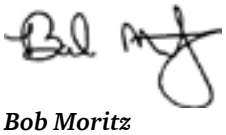
These nations have far more in common than a Pacific coastline. They aspire to progress as democracies and free market economies. Together, they constitute a market of more than $2 trillion—as large as the Indian sub-continent—[1] and by virtue of their presence in the North American market (via Mexico), they are well positioned to influence the Trans-Pacific Partnership (TPP) and provide economic and cultural leadership for the region. Over the next 20 years, their populations will climb to nearly 265 million citizens, an increasing number of whom will be middle class and will join the workforce.

The Alliance brings strength and opportunities not otherwise available to the member countries on their own. However, for truly meaningful and sustained growth, this economic and social bloc must adopt a forward-looking strategy anchored by twin goals: stepped-up productivity and invigorate integration. This will require a shift in market perspectives and practices; advancement in education, finance and infrastructure; and the development of new capabilities—within countries, within economic sectors and within the Alliance as a whole.

I would like to thank the clients, policymakers, academics and thought leaders who contributed their insights to this report. As a global team, our partners, collaborators, Hispanic Americas Advisory Services (HAAS), and the Growth Markets Centre unit collaborated to research and elaborate this report, which tells Latin America's exciting new story.

As the largest global professional service firm, PwC and its network of companies stand ready to partner with businesses, entrepreneurs, investors, governments and other stakeholders to implement the recommendations in this report. The strategic bets outlined in each sector are tangible opportunities to propel the region's development. Through *The Future of the Pacific Alliance*, we aspire to advance dialogue about the path that development could take.

PwC looks forward to the role it can play as the Pacific Alliance evolves into a major economic bloc that benefits its member nations—and the global economy.



Bob Moritz
PwC Global Chairman

Executive Summary

Latin America stands at a critical juncture in its economic and political history. A long period of brisk growth, fueled in large part by China's once-unstoppable demand for commodities, has now tapered off. Since the region's most recent economic boom did not come in tandem with increased productivity or the introduction of new technologies, Latin American countries now face two alternatives: They can resign themselves to another boom-and-bust cycle or—if they are forward-looking—they can embark on a path to carry their citizens forward into sustainable prosperity through productivity gains and integrated growth.

Chile, Colombia, Mexico and Peru have opted for the latter, choosing to work as partners, rather than competitors, under the umbrella of the Pacific Alliance (PA). The four founding nations represent over 35 percent of Latin America's GDP[2], 50 percent of its total trade and attract 45 percent of its foreign investment. If they were a single country, they would stand as the world's eighth-largest economy, with a combined GDP of more than $2 trillion.[3]

This report outlines the advantages and challenges the Pacific Alliance faces on its journey toward economic integration. More importantly, it points out the opportunities the trade bloc offers to private companies that can both benefit from the creation of this larger market and become one of the drivers of its success—provided they act decisively now.

Since the beginning of negotiations in 2011, the agreement process of the Pacific Alliance has generated considerable excitement, not only within the PA member countries but also globally. The Inter-American Development Bank has characterized it as "one of the most important and dynamic initiatives in the region."[4] Panama, Costa Rica, Canada and New Zealand have already shown interest in joining as full members, and the number of observer countries totals more than 40.

The political context for creation of the Alliance is advantageous. The PA countries have governments committed to democracy and to the free-market principles that are prerequisites to building an economic and trade bloc. In Colombia, a negotiated settlement is close to bringing an end to decades of conflict between leftist guerrillas and government forces, engendering a "peace dividend" that will further boost an already buoyant economy.

The PA nations, in recent history are Latin America's fastest-growing economies, have enjoyed steady increases in trade and foreign investment during the last decade. Over the next 20 years, in a business-as-usual scenario, the regional average annual growth rate will be 3.3 percent.

Since the Alliance negotiation process was initiated, its member countries have taken concrete steps toward integration such as visas, scholarships, cooperation projects, joint embassies, and economic and investment fairs. Since May 1st 2016 the Additional Protocol to the Framework Agreement of the Pacific Alliance came into force thus removing tariffs on 92 percent of intra-Alliance trade. In addition, they have linked their stock exchanges into the Latin American Integrated Market (MILA), showing they are aware of the need to make financing available to companies by expanding capital markets.

Even though the emphasis has been in the negotiation of goods, it is estimated that the region has great potential in exporting services. In the years to come, it is expected that the member countries will need specific rules and criteria in order to harmonize the regulations on professional services, offshoring services, telecommunications and transport services, among others.

Sustained population growth is expected over the next two decades, bringing the PA region's population to 265 million while expanding the workforce. This will engender and continue a "demographic dividend", that, if seized, could be a driver for a more dynamic economic growth. If not, population growth could lead to increased unemployment, greater strains on public finances and, increase potential for social unrest.

For this reason, the Alliance countries need to act decisively to increase productivity and deepen the transformation from mainly commodity-based economies to open, diversified economies that improve the well-being of their populations. The private sector will play a pivotal role in this process—local companies, multilatinas (multinationals that have their home base and operate within Latin America) and global corporations.

This report spotlights key sectors where private investors can take advantage of the opportunities that the Pacific Alliance offers, at the same time contributing to its goals of sustainability and better living standards. These sectors together account for over 50 percent of the PA nations' GDP:

Human sectors

- Education
- Health Care

Economic sectors

- Mining
- Value-Added Manufacturing
- Oil and Gas

Enabling sectors

- Power Generation and Renewables
- Financial Services
- Physical Connectivity
- Digital Connectivity

In each sector, we have identified "strategic bets," or critical business opportunities and public interventions. These 56 strategic bets can create a multiplier effect by contributing to productivity and innovation, while helping create the conditions necessary to transform the economy. The integration process can generate synergies that can boost the productivity increase even more.

Cases are cited where this process is already underway.

In industries such as mining and energy, we highlight the opportunities transform these sectors through the use of new technology or by changing the entire market dynamic. For instance, in oil and gas—in the three producer countries but also in the case of Chile -—major investment in refinery modernization is required. This would change the output mix from downstream to upstream, reducing the producers' vulnerability to crude prices, increasing the quality of fuels and lowering imports of refined products such as gasoline.

The enabling sectors of physical connectivity (transport and logistics infrastructure) and digital connectivity will require major investments to bring the Alliance countries up to par with their more developed counterparts. Here, the companies that provide the technology can seek new models of public-private partnerships to take advantage of the business opportunity, while levering government support for the parts where large investment is required.

In general terms, private investors that engage with the Alliance will need to build capabilities so they can fully leverage:

- Empowered and Informed Customers
- Flexible and Adaptive Business Models
- Non-Traditional Resources and Partnerships
- Growth and Innovation Mindset and Accountability
- Integrity and Sustainability.

Reducing trade and regulatory barriers and integrating value chains will be increasingly critical as growth continues to slow on both sides of the Pacific and as Latin America faces increasing competition from other emerging markets. Both the PA and another trade bloc, the Trans-Pacific Partnership, have the potential to further boost competitiveness along Latin America's Pacific coast and beyond.

We project that, if the Pacific Alliance continues its cooperation and integration efforts, and takes key steps to improve productivity, it will be positioned to increase its current projected average yearly 3.3 percent GDP growth to 2035, to 5.2 percent by 2035. This would bring vast benefits in terms of human development and sustainability where the Alliance has ambitious goals. It also offers a business opportunity with wide-ranging possibilities given the Alliance countries' connection to the U.S. market through Mexico's membership in the North American Free Trade Agreement (NAFTA), and to the Asia-Pacific region through the Trans-Pacific Partnership, of which Mexico, Peru and Chile are all signatories.

To access this opportunity, the time for companies to act is now and the place is within the Pacific Alliance.

Chapter 1

Recent Evolution of the Region

Integration is a longstanding theme in Latin America, but it has been hindered for generations. Among other contributing factors, countries have traditionally looked inward, focusing on their domestic issues and their national agendas rather than envisioning and acting on the region's possibilities. But arguments for regional integration are strong—and getting stronger.

The Pacific Alliance (PA), a trade bloc launched by Chile, Colombia, Mexico and Peru, stands as an especially ambitious effort to break down the differences that have stalled integration and to open the way to powerful benefits. Its founding countries share common characteristics that make their trade bloc more attractive than efforts of the past, among them a commitment to stable growth, to democratic rule, to an open market and to social equity and inclusion for its citizens. All four rely on a combination of state and market mechanisms for economic growth. The four PA members have more free-trade agreements combined among them than any other regional blocs.[5]

The Pacific Alliance was signed in 2011 as a political agreement and afterwards entered a detailed process of discussion of trade, and economic subjects; refined through July 2015 as a result of several presidential summits. Slated to enter into force in May 1st 2016,[I] it has evolved into a comprehensive integration accord committed to:

a. *Build, in a participatory and consensual manner, an area of deep economic integration and to move gradually toward the free circulation of goods, services, capital and people;*

b. *Promote the growth, development and competitiveness of the Parties' economies, aiming at achieving greater welfare, overcoming socioeconomic inequalities and achieving greater social inclusion of their residents; and*

c. *Become a platform for political articulation and economic and trade integration, while projecting these strengths to the rest of the world, particularly the Asia Pacific region.*[6]

In other words, Pacific Alliance member states will advance the free movement of goods, services, resources and people in pursuit of sustainable growth. Their adherence to the shared values of democracy and free market principles should allow the Alliance to put forward a single political and economic agenda before the Asia-Pacific region and the rest of world.

I The Senate of Chile ratified the Additional Protocol in January 2016. The term of the agreement begins three months after this latter ratification is delivered to the depositary of the Pacific Alliance —the government of Colombia.

The Pacific Alliance: Current State

The Pacific Alliance made impressive early progress. It linked members' stock exchanges within the Integrated Latin America Market (Mercado Integrado Latinoamericano), known by its Spanish initials, MILA. Its members agreed to open joint embassies and eliminate tourist visas. And while the PA founding countries already have bilateral free trade agreements (FTAs) with each other, with the entry into force of the Additional Protocol, 92 percent of tariffs have been eliminated. The other 8 percent will be eliminated in 2 to 17 years.[II]

The four Pacific Alliance countries have jumped out as some of Latin America's fastest-expanding economies, outpacing Brazil and Argentina. Collectively they represent nearly 36 percent of Latin America's GDP[7]. Together, they stand as the world's eighth-largest economy, worth more than $2 trillion.[8] They have prudent fiscal and monetary policies, manageable inflation and floating exchange rate regimes—and they have defended them in the face of global market volatilities. Cooperation is relatively manageable among these linguistically, culturally and politically similar countries, and it makes sense for them to work together.[9]

With the Alliance's initial success, the external investor community's confidence has grown. In just five years, more than 40 states have joined the agreement as observers. About half come from the Organization of Economic Cooperation and Development (OECD), but they also include China, India, Indonesia, Morocco Singapore, Thailand, and Latin American countries. Moreover, Costa Rica and Panama have taken steps to join the Alliance, which is open to any nation that has bilateral trade agreements with all the bloc's members.[III]

To compete with other upper-middle income countries[IV]—and achieve relative prosperity—the PA governments will need to build on the strength of the Alliance's broader regional market, invest in productivity and create a truly integrated economy. Our ambition is that gains achieved through stronger integration and rising productivity have the potential to create a balanced $6 trillion economy by 2035.

Although commonly trade-blocs like the PA wind down after the initial years, the Alliance remains a concrete, ambitious and effective trade bloc positioned to provide great benefits.[10] To achieve this, however, PA governments will need to align in new and more efficient ways. Member countries' corporations will have to work together with governments to harmonize and simplify regulations. *Multilatinas* and local champions will have to look to new markets and opportunities and upgrade their supply chains. Companies from outside the region will need to build an understanding of this market and invest strategically to reap benefits.

The world is reconfiguring around trade macro-regions such as the Trans-Pacific Partnership (TPP) with the United States, Canada, Peru, Mexico, Chile, Japan and six Asian countries; the Trans-Atlantic Trade and Investment Partnership (TTIP), which aspires to join the United States and Europe in the world's largest free-trade zone; and the Regional Comprehensive Economic Partnership (RCEP), a proposed free-trade agreement among 16 nations in Asia.[V] The time for decisive action is now.

II Sugar is the only product exempt of the agreement.

III Open regionalism implies the growing economic interdependence among countries, with liberalization and deregulation, to increase competitiveness and better insertion in the international context. Any country that wishes and meets certain requirements (affinity of values and having free trade agreements with each of the members) may be part of the agreement. Deep integration includes not only tariff reductions but, above all, the elimination of non-tariff barriers (standardization and harmonization of regulations and standards) and alignment in areas such as telecommunications, electronic commerce, investment, financial services, government procurement. PA has not created a supranational structure for its management. It is handled through existing government structures.

IV Based on World Bank divisions of national economies, Mexico, Peru and Colombia fall into the upper-middle economies, while Chile falls into the Upper level economy bracket. http://data.worldbank.org/about/country-and-lending-groups

V The TPP brings together 12 countries, five from the Americas (Canada, Chile, Mexico, Peru and the United States) and seven from the Asia-Pacific region (Australia, Brunei Darussalam, Japan, Malaysia, New Zealand, Singapore and Vietnam.) The TTIP is between United States and the European Union. And the RCEP includes the 10 countries in the Association of Southeast Asian Nations (ASEAN) and its six regional partners (Australia, China, India, Japan, Korea and New Zealand).

Valentin Diez Morodo, *President of COMCE and Pacific Alliance Business Council*

Trade, Investment and GDP Trends

The Alliance is anchored by "affinity, rather than proximity."[11] Its members all have a Pacific Ocean border, but they are also in similar stages of economic growth, with Colombia, Mexico and Peru falling into the upper-middle income category and Chile one step above. There is an even more important congruity. Since 2000, the four countries have steadily opened their economies to free trade and foreign direct investment (FDI).

Today, total trade in goods and services in Chile and Mexico is equivalent to two-thirds of their GDP. Trade in Peru amounts to almost half its GDP, and in Colombia trade reached 37.5 percent of GDP in 2014.[VI] Trade in services claims a small but growing place, ranging from 4.3 percent of GDP in Mexico to 10 percent in Chile.

FDI is an essential component of these countries' development. As the following graph illustrates, the proportion of FDI relative to GDP has consistently increased since 2000. The proportion is higher in Chile (8.5 percent), Colombia (4.3 percent) and Peru (3.9 percent), although is small in Mexico, considering the size of the economy (1.9 percent).

The total trade of goods in the Pacific Alliance (imports plus exports) reached $1.1 trillion in 2014, accounting for almost 50 percent of Latin America's total trade and 3 percent of world trade.[12]

Between 2002 and 2014, annual intra-Alliance trade grew at a faster pace than did total trade for the four PA states (11.9 percent vs. 7.8 percent). However, intra-Alliance trade—valued at more than $40 billion in 2014—represents a small portion of the PA members' total commerce. Mexico accounted for 32 percent of intra-Alliance trade, Colombia 26 percent, Chile 21 percent and Peru 20 percent. Despite the size of their respective economies, this translated to only 1.7 percent of the total trade in Mexico, 6.2 percent in Chile, 9.5 percent in Colombia, and 10.7 percent in Peru. Overall, intra-regional trade in 2014 represented 3.7 percent of the total foreign trade of the four countries. This, while the corresponding figures in 2013 in the European Union (EU), the NAFTA region and the ASEAN+5 region were 59.1%, 49.6% and 49.8%, respectively.[13]

VI Chile's GDP in 2014 was $258.1billion, Mexico's was $1.295 trillion, Peru's was $202.6billion, and Colombia's was $377.7 billion.

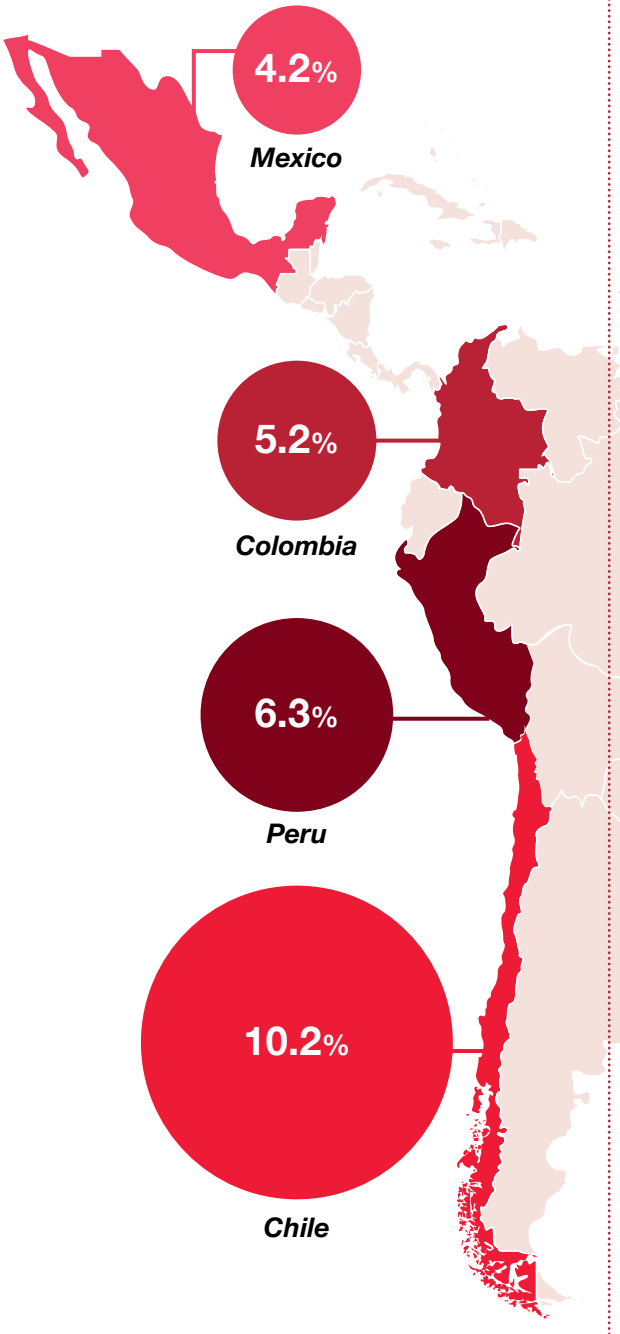
Openness to Foreign Direct Investment in the Member Countries of the Pacific Alliance
Millions of current dollars and percentage of gross domestic product

Country	Foreign Direct Investment		Percentage of GDP	
	Annual average 2000-2002	Annual average 2012-2014	2000	2014
Colombia	2,371	15,800	2.4	4.3
Chile	3,870	23,241	6.1	8.5
Mexico	23,968	29,511	2.6	1.9
Peru	1,370	9,700	1.6	3.9

Source: Database, World Bank.

"Since the entry into force of the Additional Protocol, also known as Commercial Protocol on May 1st 2016, the Pacific Alliance enters a new stage of operations, since the free flow of goods is now mandatory, an elemental factor to meet the economic and social development challenges pursued by the four countries in benefit of their population. An important factor that contributes to the success of the Pacific Alliance is the formation of the Pacific Alliance Business Council, founded in 2012, which negotiate directly with governments so it can offer its comments and recommendations to include in official documents, and has contributed to significant progress in important issues for the private sector in the four nations."

Share of services in the GDP, 2013



Exporting Services: The next frontier

Trade in services is one of the most profitable growing industries in Latin America today. In 2013, in Mexico it accounted for 4.2% of its GDP, in Colombia 5.2%, in Peru 6.3% and leading first place: Chile with 10.2%[14]. Chile has always been one of the most innovative and faithful countries to the liberalization of trade in services, and in recent years has begun to push at all levels, both public and private, the export of services.

Chilean exports of services exceeded 12 billion dollars in 2013. It is the third largest services exporter in South America after Brazil and Argentina[15].

Until now, the integration efforts had been focused on the elimination of trade tariffs and free movement of goods, but in the years to come, they should be focused on the services industry. The participation of the services industry in the Pacific Alliance economies is undeniable and that is why a regional regulatory framework is imperative.

Today, government do not offer the right incentives nor official treatment, in tax or regulatory matter, for the four countries as in services, and as a result the companies that offer these services establish themselves in countries that offer better opportunities and where it is easier to do so. The tax burden, the recovery of VAT for services and classification of type of service are some of the issues that should be analyzed in the short term.

The CEAP in Chile and ProChile have been the bigger promoters of international trade in services in Chile. An example of this is their workshop "Exporting services"[16] whose objective is to guide Chilean companies in this industry, and to outline the benefits which the export of services provide.

Governments and the private sector of each member country will need to take action to establish a see-through and favorable regulation scheme to propel the industry's potential and even more, the export of services. It must be a joint collaboration in order to create a regional, dynamic, and equitable regulatory framework for any company established in a member country. This is the main task.

Vast geographic distances separate Alliance countries, and trade has been hindered by a dearth of well-maintained highways, ports and railways. However, distance also provides an advantage: It encourages member countries to leverage each other's trade partners, helping them to diversify their economies. For Chile, Colombia and Peru, which have far less U.S trade than Mexico, the Pacific Alliance provides mechanisms that allow them to benefit from the latter's North American Free Trade Agreement (NAFTA) relationship.

Similarly, Peru's historically strong political and economic relationship with Japan has the potential to benefit the rest of the PA. While Japan's trade with Latin America is relatively limited, it is the only Asian country that will have a free-trade agreement with all four PA countries and its investment in the region is diversified. Japan's relationship with Latin America is a long one: It established diplomatic relations with Peru and Brazil in the late 1880s, its overseas communities in Latin America are large and entrenched, and it has exhibited interest in the Pacific Alliance trade bloc. As China's demand for commodities decreases and its growth slows, these other connections will be useful to diversifying the PA economies.

"The Pacific Alliance must focus all its efforts in developing agreements that contribute to the development and export of services among member countries to ease their globalization. Modern economy of knowledge is based on the development of services and the PA must come with tax, normative and incentives schemes to promote innovative business ventures in their area and expand from there. This is our mission after agreeing on the terms of free flow of goods."

Jorge Errazuriz, *Member of the Pacific Alliance Business Council, Chapter Chile*

"Integration can be used to protect nations from economic falls. A bigger integrated market will protect the Pacific Alliance from faults in the financial system. This is very important right now as growth begins to slow."

Vicente Tuesta, CEO of Profuturo

Pacific Alliance and the Trans-Pacific Partnership (TPP)

The Pacific Alliance has emerged against the backdrop of a world moving away from bilateral accords and toward multilateral agreements. The newest, and possibly most influential of these is the Trans-Pacific Partnership (TPP) with 12 members: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States, and Vietnam. China is absent from this pact.

Combined, the TPP's member states would account for 40 percent of world GDP.[17] Like the Pacific Alliance, the TPP aims to strengthen the connection between the Americas and Asia. It coexists with other trade agreements, but the regulations it puts forth could affect the way participating nations conduct business. This includes the Pacific Alliance members, which stand to see multiple positive effects.

The TPP is the most comprehensive trade deal ever signed, and it covers areas that have no precedent in multinational agreements such as the digital economy. That makes it difficult to map its full impact. In principle, it opens each member country's market to the world, with a special focus on Asia. This could mean connections to international supply chains and growth in sectors such as medicine, food and technology. However, the TPP also is complex. Signatory countries must follow its regulations. Also, its focus is on labor, the environment, state-owned enterprises and intellectual property issues, among other themes will bring unpredictable results.

Chapter 2

Ambition of the Pacific Alliance

PwC's ambition for the Pacific Alliance is that the four member nations aspire to grow economically in ways that create greater well-being for their citizens. The ambition includes GDP expansion of at least two percentage points over the expected rate, allowing the countries in the bloc to keep pace with their middle-upper and upper income-group peers around the world. Higher growth can be achieved if governments and the private sector pursue innovative actions in key areas of economic and social life; our ambition will be reached if these actions are boosted by integration efforts of the PA including knowledge exchange, cooperation with sector stakeholders, creation of larger markets, promotion of FDI and connecting value chains. This balanced approach will help the Alliance achieve long-term prosperity and build its global brand with businesses and investors.

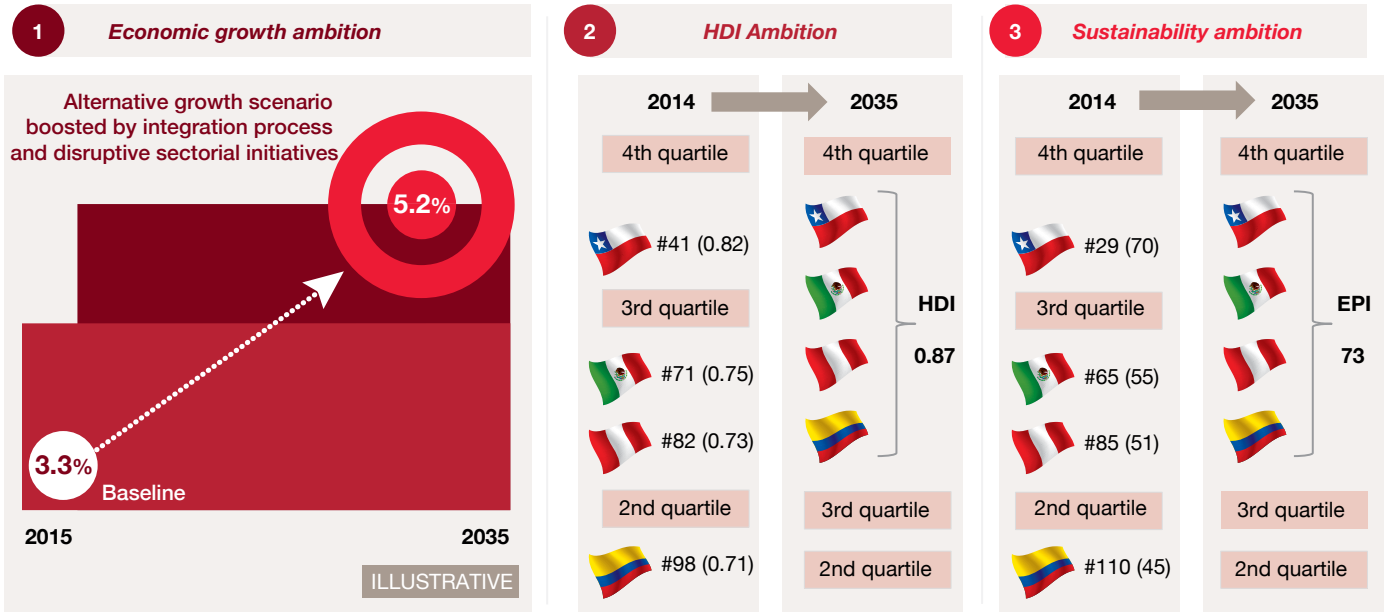
As noted in Chapter 1, we anticipate average annual GDP growth in the region of 3.3 percent over the next 20 years: 2.9 percent for Colombia, 3.2 percent for Mexico, 3.3 percent for Chile and 4.3 percent for Peru. This prediction is based on a large-scale, long-term integrated growth-forecasting model, created by the Pardee Center for International futures.[VII]

If integration and productivity goals are aggressively pursued at both the national and Alliance level, the average annual growth rate targeted can be an increase to 5.2 percent.

If the PA states do raise their average growth rate to 5.2 percent by 2035, this would lift their rankings on the HDI scale from "high" human development to "very high human development" and bring them into the top quartile of the Environmental Performance Index.

VII For more details on our forecasting model, see the website or the Methodology Appendix.

Sustainable balanced growth across the three dimensions would be measured in terms of GDP growth, HDI and EPI improvement



1) HDI Scores: Human development index (UNDP classification) – Scores calculated for 185 countries
2) EPI Scores: Environmental performance index (Yale education, WEF) – Scores calculated for 178 countries
Source: PwC - Analysis. IMF Forecast, HDI, Environmental Performance Index.

The current Human Development Index (HDI) -- a United Nations Development Programme (UNDP) created variable that uses as inputs key dimensions of human development such as health, education, access to housing, sanitation, etc. -- for the Alliance countries is estimated at an average 0.75; only Chile is rated in the top quartile. The ambition is to bring all four countries into the top quartile, meaning an index of 0.88. This implies major efforts to address education needs, health care and inequality. Although the Pacific Alliance countries are ranked as upper-middle income economies, wealth is not distributed evenly within or among them. Inequality-adjusted HDI is lower than the standard measure.

The Pacific Alliance has positioned environmental sustainability growth as one of its core goals, and its effective investment in so-called natural capital will help shape the long-term prosperity it seeks. While lesser known than the HDI, the Environmental Performance Index (EPI) is the best broad-based measure available for environmental sustainability, as it considers both human health and ecosystems. Only Chile has been rated in the top quartile. Mexico and Colombia are in the third quartile, while Peru currently sits in the second quartile, ranked No. 110 in the world.

HDI and economic development have a direct, causal relationship; thus, a rise in GDP growth will likely lead to increased HDI. Over the last three decades, the PA countries' HDI has jumped by 15 basis points, but there is still much room for improvement, especially in education and health care. All PA countries could reasonably see "very high" human development in the next decade. In fact, Chile is already in this quadrant.

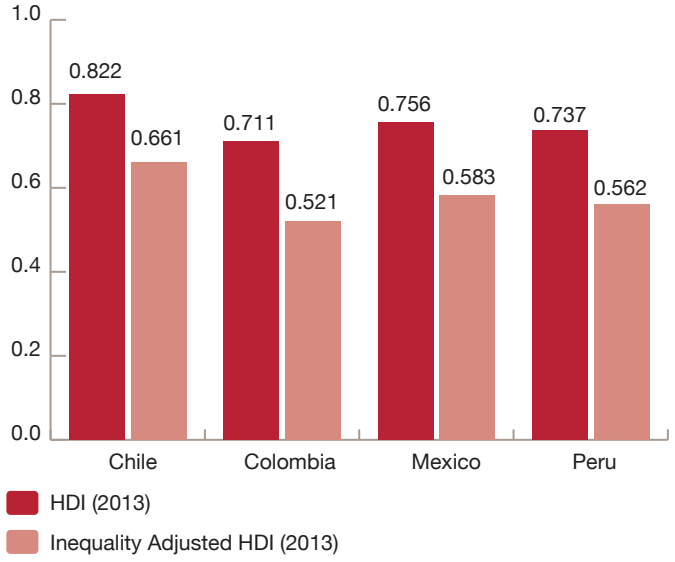
Country	HDI Rank	HDI Score	Life expectancy at birth		Mean years of schooling		GNI per capita	
			Years	Metric rank	Years	Metric rank	USD	Metric rank
Singapore	9	0.901	82.3	6	10.2	50	72,371	4
South Korea	15	0.891	81.5	12	11.8	19	30,345	33
Italy	26	0.872	82.4	5	10.1	52	32,669	29
Argentina	49	0.808	76.3	53	9.8	61	17,297	63
Pacific Alliance								
Chile	41	0.822	80.0	27	9.8	62	20,804	54
Mexico	71	0.756	77.5	43	8.5	93	15,854	70
Peru	82	0.737	74.8	68	9.0	80	11,280	91
Colombia	98	0.711	74.0	82	7.1	121	11,527	87

Source: Human development report. UNDP.

Inequality-adjusted HDI reflects the disparities among PA countries and reveals more difficult realities. This underscores the need to push up HDI alongside economic development, as well as the need for focused polices so that wealth is more evenly distributed.

Colombia, Peru and Mexico are three of the worlds top 10 biologically "mega-diverse" countries, and prevention of negative environmental impacts is crucial for them.[18] Sustainable use of resources must be prioritized. Climate change threatens vital PA industries—such as fishing, agriculture and tourism—and the people whose livelihood depends on them. This means that it is critical for PA nations to act to assure sustainability within their borders, and the world. Their success in this, which we believe is achievable, can be measured through the Environmental Performance Index.[19]

Inequality adjusted HDI for Pacific Alliance countries further pushes the respective HDI rank down



Source: Pardee Center for International Futures.

"The sustained economic growth of the PA nations, is a very important aspect of the PA. All four countries have arrived to agreements in topics related to the environment including: air quality/climate change, biodiversity, sustainable production and consumption and ecosystems. The Alliance is a best practice for acting on climate change."

Enrique Lendo, *Lead of International Coordination, Secretary of the environment and natural resources Mexico*

Interview with Jaime Serra Puche

Jaime Serra Puche led the Mexican delegation that was responsible for the North American Free Trade Agreement (NAFTA) negotiations, as the then Secretary of Commerce and Industrial Development. Currently, he is the chair of the renowned consulting firm, SAI Derecho & Economía, where he has rendered counseling services for economic and commercial integration.

The world is rearranging into macro-regional agreements, such as the Trans-Pacific Partnership (TPP), the Transatlantic Trade and Investment Partnership (TTIP), and the Regional Comprehensive Economic Partnership (RCEP). What role can the Pacific Alliance play within the present context?

The Pacific Alliance, which includes Colombia, Chile, Mexico and Peru, is a concept for economic integration, which promotes, on one hand, complementarities between the member countries, and strengthening of competitive capabilities through cooperation and the exchange of expertise among nations, on the other.

Immersed in a context that is full of regional trade agreements, the Pacific Alliance represents a possibility for cooperation to face the increasingly intense competition posed by Asian markets; in fact, three of the Alliance's members are also signatories to the TPP.

In acknowledgment of the fact that Mexico's "natural" integration has always aimed at North America, and that the consolidation of this process has taken over 20 years, what are the terms and timelines required to enable the insertion of suppliers from South American countries, members to the Pacific Alliance (Colombia, Chile and Peru), into global supply chains with a strong presence in Mexico, such as the automotive and the auto parts sector, the aerospace and electronic industries, just to mention a few?

Mexico certainly has a natural and proven affinity with North America. As a matter of fact, the rise of competitive suppliers in the aforementioned industries lies upon such integration. The country's global value chains demand different levels and tiers of technological sophistication, as well as compliance with the most stringent international standards.

As Chile, Colombia and Peru enhance their technological capacity and the competitiveness of their productive structure, competitive integration with Mexico may be facilitated in global value chains with a special focus on North America, however with broad potential to expand their presence towards other markets.

How will the coexistence of trade agreements (bilateral treaties, NAFTA, TPP) operate in practice? What are the challenges/opportunities posed on the Pacific Alliance member countries?

The key challenge is that during both the TPP and the Pacific Alliance's implementation, preference of access for countries with an already subscribed commercial agreement is maintained. In terms of opportunities, such a diverse number of agreements imply the existence of sufficient potential for the competitive development of new markets, as already noted in previous questions.

The Increasing Relevance of Productivity

Productivity growth is contracting throughout the world, especially in emerging markets; however more and more evidence indicates that productivity is a determining factor in national prosperity. The World Economic Forum defines productivity as an input for competitiveness of nations, as does the OECD. If the Pacific Alliance nations can advance their productivity, especially in a world where many nations, specifically in development, are stagnating in this indicator, they will become extremely competitive and be able to reach goals for GDP growth.[20]

For centuries, extraction and exportation of raw materials have propelled growth in the four Alliance countries and Latin America as a whole. But this model is inefficient The most recent commodity super-cycle has slowed nearly to a halt thanks to China's waning demand for raw materials and its decelerated growth. The resulting contraction within PA countries reinforces their commitment to economic diversity in pursuit of prosperity. The PA will help protect itself from future commodity price-related shocks by embracing a growth model driven by productivity in many sectors.

In our view, the Pacific Alliance's GDP growth, HDI and EPI ambition we have set demand that its member countries turn from commodity-driven economies to a more efficient use of all available resources and more value-added per unit of labor. This need for greater productivity is a common challenge in resource-driven economies and must be answered with innovation and knowledge that translate into concrete goods and services.

Conditions making this shift more urgent in the PA countries:

1. Baseline growth over the next two decades could be powered by a positive demographic trend: an expanding working-age population and a decreasing dependency ratio. A rising middle class and a relatively young population will boost consumer demand which, in turn, will drive economic growth in the region—*provided the right economic environment is established*. A larger population alone will not by itself bring rapid growth. Rather, a diversified economy is also needed in order to absorb the expanding workforce.

2. Market integration to reduce formal and informal barriers will be accelerated by the PA. To enhance the benefits of integration, more knowledge and experience must be exchanged. That means public and private investments should foster regional innovation, globally far-ranging joint ventures and integrated value chains across the region.

3. The larger, integrated market of the Pacific Alliance will create economies of scale for all four countries, opening linkages to complementary value chains. Pacific Alliance enables closer cooperation across markets while maintaining effective competition. The focus is on private sector companies and other stakeholders.

This report spotlights the type of actions required to grow above the rate forecasted in the baseline scenario. Our ambition is to reach at least a level of 5.2 percent growth rate, and so we focus on nine key sectors and on strategic interventions, both from the private and public sectors.

The Ministry of Foreign Trade and PromPerú, in collaboration with the Economic-Commercial Council of the Peruvian Embassy in Mexico, has decided to promote the development of Peruvian companies involved as suppliers in the regional automotive value chain, linking them with the automotive Mexican cluster, thus linking themselves to the American market.

Scenarios

We have projected forward to 2035 with a comprehensive futures modeling tool, examining what would happen in the PA member nations under a "baseline" or business-as-usual scenario up to 2035. Since growth in the baseline scenario is not satisfactory, a higher growth rate is set as a target, in order to –at least- maintain pace with peer groups of income levels. This target, our ambition, is 5.2 per cent annual regional average growth, This analysis reveals the key areas where improvement is required if the ambition is to become reality.

Baseline

If the PA countries continue to grow as currently projected, they will have a combined average annual growth of 3.3 percent through 2035. This assumes business as usual and does not take into account the advantages of the PA construct or economic integration. We built the baseline projections considering the following assumptions, which are part of a long-term, integrated growth model.[21]

Demographic trends: In our model, the demographic foundations of the projection include total and working populations, fertility and mortality rates, urbanization and migration. All four nations have had rising populations for the last 50 years, but with a steady decline in growth rates. These trends will continue according to our model.

Population change

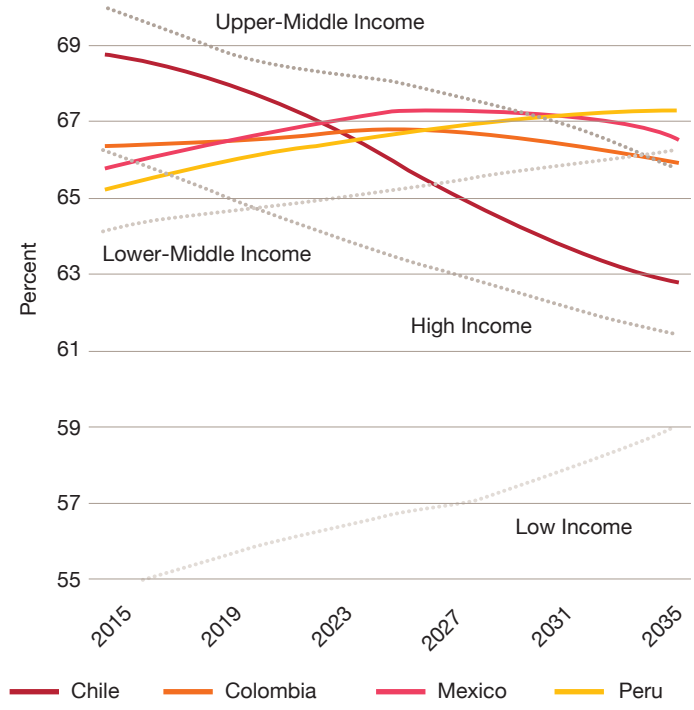
	Historic 1960-2010	Projected 2010-2035
Chile		
Millions	9.5	3.1
%Change	124%	18%
Colombia		
Millions	30.4	12
%Change	190%	26%
Mexico		
Millions	79.2	30.8
%Change	205%	26%
Peru		
Millions	19.3	8
%Change	195%	27%

Source: Pardee Center for International Futures.

There is a declining fertility rate in each nation, with an average of two children per woman expected by 2025 in all PA nations- versus over 2.15 that it is today. This means more women will remain in the labor force. Life expectancy in the PA nations, meanwhile, will rise three to four years by 2035. Together, these developments will result in a larger working-age population relative to the dependent population in all four countries. In other words, the PA nations are benefitting from a "demographic dividend" in which falling fertility rates, more female involvement in the workforce and improved health care bring an increase in the working-age population.

This transition can either increase production or free up resources for investments or, in the absence of desirable jobs, lead to a high unemployment and government support costs as well as risk of social unrest or political instability.

Working Age Population (15 to 65) as Percent of Total Population



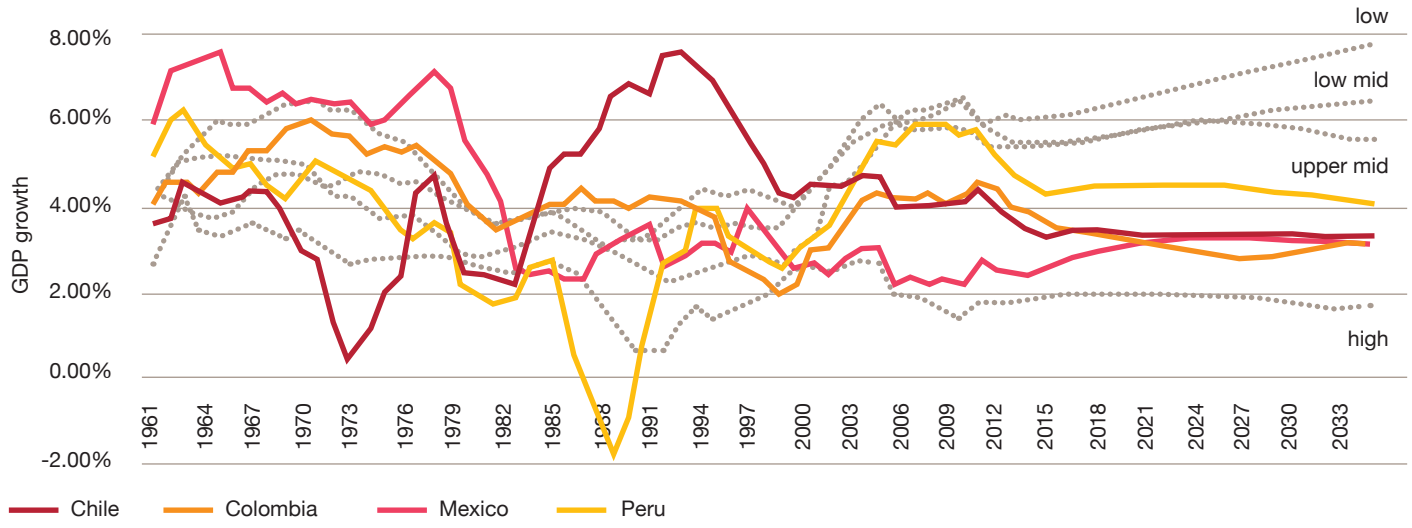
Source: Pardee Center for International Futures.

Projections show the four economies with low long-term combined growth. (Chile witnesses a minor decline.) The interesting finding to emerge from this projection is how the PA nations compare to other countries of similar income levels. Chile's GDP growth is not converging with that of its peers; Colombia, Mexico and Peru are being outpaced by groups of countries with comparative income levels.[VIII]

Although the four PA nations have a larger working population as a percentage of total population looking towards 2035—which should be helping their GDP growth—they are instead falling behind. The same trend is seen when looking at GDP per capita at purchasing power parity (PPP). GDP per capita at PPP is increasing but at a slower rate than their comparable income groups as a whole. Stronger economic performance in the PA could allay this problem.

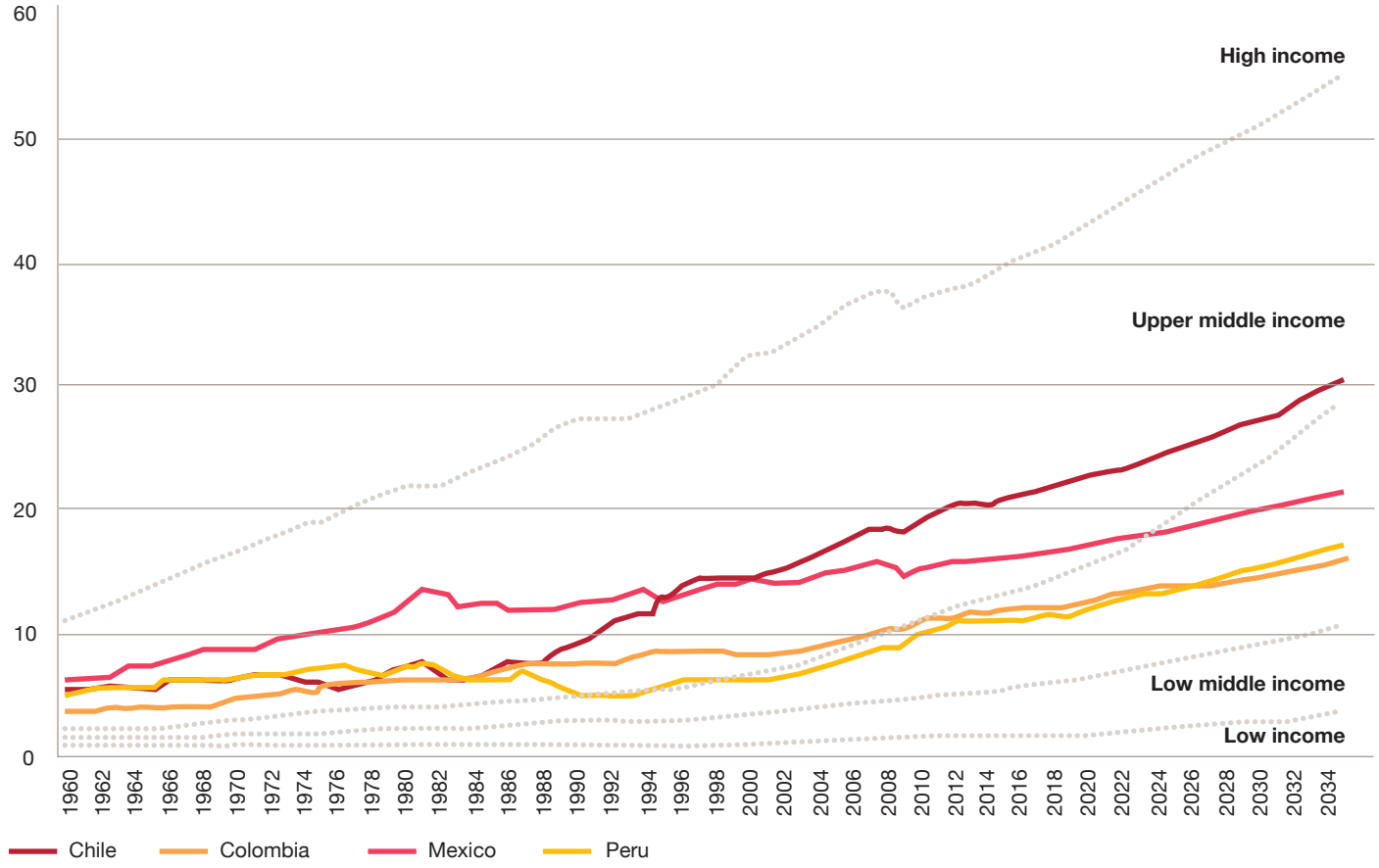
VIII LComparable income groups are based on World Bank measurements. Chile falls into the High-Income group and Colombia, Mexico and Peru are in the Upper-Middle income groups.

GDP 1980 - 2015 at constant prices in percentaje of annual change



Source: Pardee Center for International Futures.

Income per capita 1960 - 2013 in Pacific Alliance countris and income groups (in thousand of dollars, 2011 PPP)



Source: Macroeconomic model elaborated by Pardee Center for International Futures at Denver University.

Despite improvements in GDP and GDP per capita, poverty remains a concern in all Pacific Alliance countries. Nearly 25 percent of citizens in Colombia, Mexico and Peru live on less than $5 per day; the same is true of about 8 percent of Chile's population (using 2011 PPP $).[22]

Another factor in the economic growth baseline is the evolution of the middle class. A rising middle class in these nations is a critical element of the growth equation, the reflection that people are being lifted from poverty. The middle class (measured here as the population living on $10 to $50 per day) accounts for about 43 percent of the populations of Mexico and Peru and 42 percent of the population in Colombia; in Chile the figure reaches nearly 58 percent.[23]

The Pacific Alliance and Women

Women are an underutilized resource in PA nations, and their absence from the workforce exerts a downward pull on economic and social advancement. Moving women to formal economic sectors would increase growth and elevate productivity. Women's participation generates more taxable income, ensures fair employment and creates more stable economic structures.[24]

In PA states, women make up 5 to 10 percent more of the informal economy than men.[25] And although women in Alliance countries receive more education on average than men, there are around 30 percent more men than women in the labor force. Only 53 percent of women are employed[26] and, seven of every 10 women works in service jobs. Women in the workforce earn up to 30 percent less than men and hold fewer leadership positions in PA companies, especially in retail, education and housing—the sectors where women make the buying decisions.

Underutilizing a well-educated workforce is a loss that PA nations cannot afford at this moment. The government can build on policies advancing gender equality in education and political participation, and the private sector can provide equal opportunity in the workforce. At the same time, professional women can advocate for themselves and other women. Already this is happening through "Women of the Pacific,"[27] a working group that uses events, articles and a series of tools, among them innovation labs, to ensure that women are advancing in tandem with the Pacific Alliance. These efforts should be reinforced since greater gender equality can aid economic productivity and improve development outcomes for future generations.[28]

If PA members want to reap possible benefits of their demographic dividend, they must ensure that citizens are employed, formally, - contributing to the productivity of their nations. Clearly, the economic forecasts reveal that this is not occurring. We analyzed the four drivers of a detailed measurement of productivity multifactor productivity (MFP): human capital, physical capital, social capital and knowledge capital. These affect inputs such as infrastructure and digital connectivity, which boost efficiency. They also include less tangible factors, such as worker education and health, good governance and economic integration.

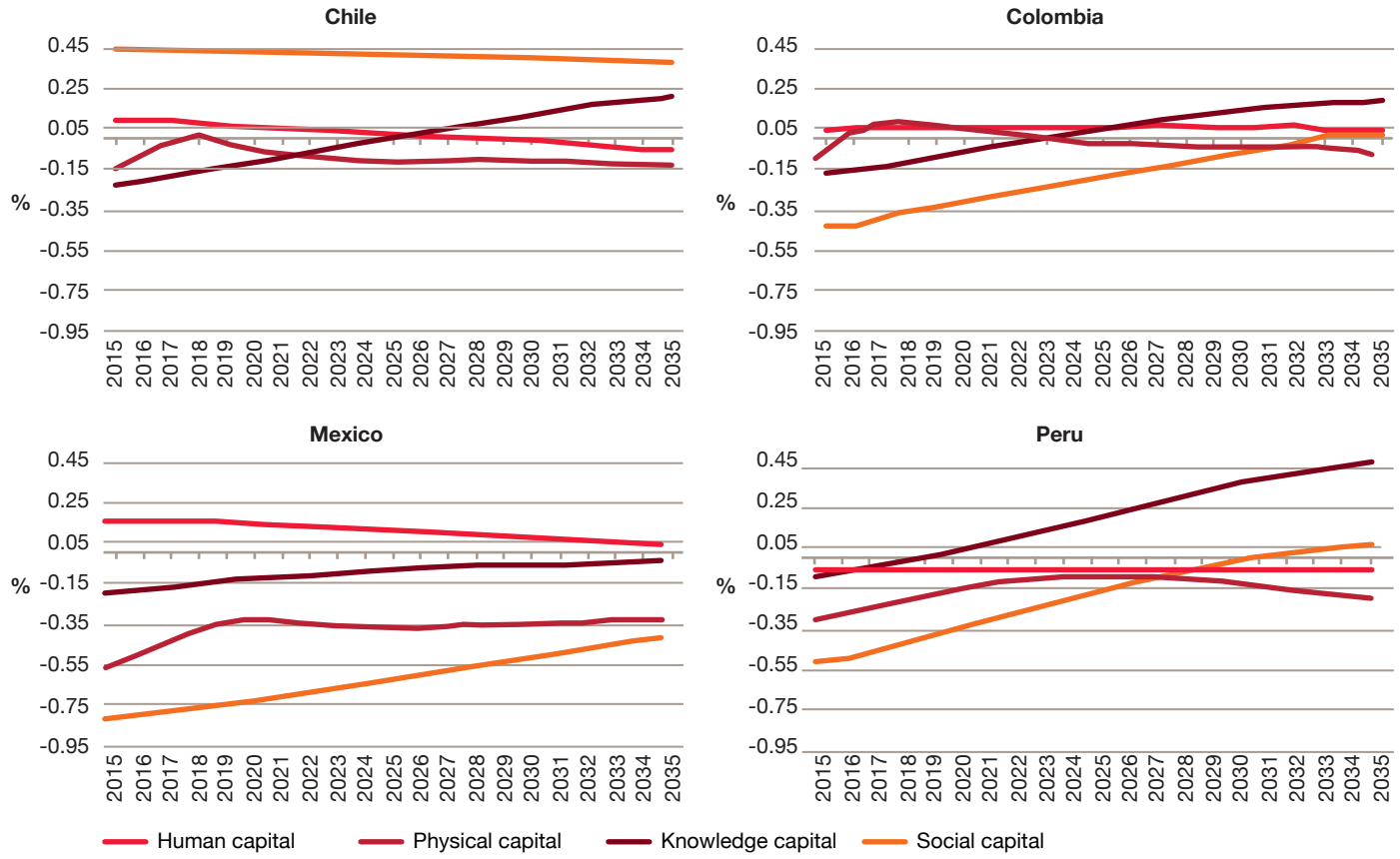
Multi-Factor Productivity

For this study, we analyze productivity using a "Multi-Factor Productivity" (MFP) definition. This definition comes from the Pardee Center of International Futures, who completed the multi-factor future projections for this study. MFP is derived from the understanding that while growth in productivity is affected by economic growth and labor input, there are also many other factors that affect it over time, such as years of education, economic freedom, etc., which are all interconnected. When looking towards the future, as we do in this report, this more complex version of productivity is important, as economic growth can be affected in so many different ways over a 20 year time span.

So the complexity of productivity over a long time span is addressed with Multi-Factor Productivity, which includes four distinct components: Human Capital, Social Capital, Physical Capital and Knowledge Capital. Each of the component has multiple indicators which all contribute either positively or negatively to the final MFP measurement.

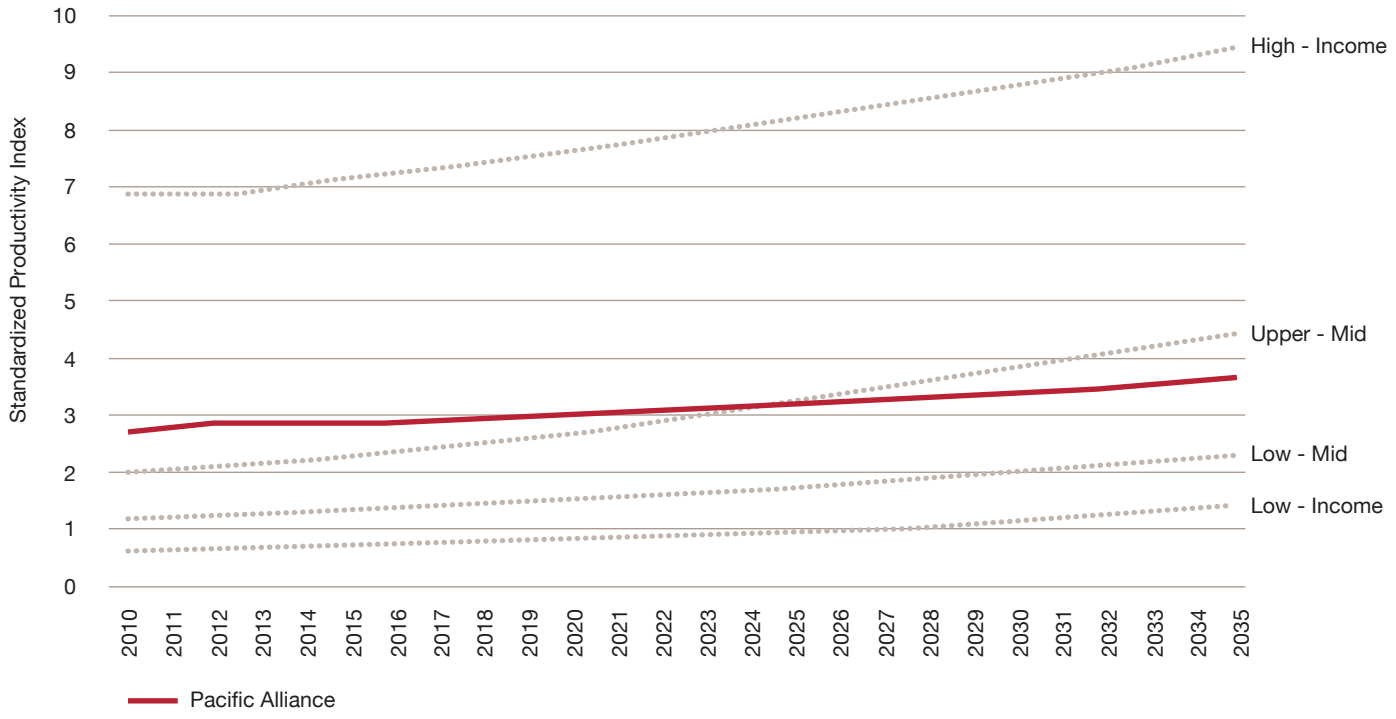
In examining the projections, low productivity hinders the advancement of the Pacific Alliance nations. All four see a declining, negative impact from human capital and physical capital. All see an increase in social capital, except Chile, which experiences a projected slight drop. Knowledge is the only productivity driver that posts an overall increase looking toward 2035. These drags on efficiency dominate the projections, leaving the four nations falling below their comparable income groups beginning in 2025.

Multifactor productivity components for Pacific Alliance member states. Forecast (Base Case)



Source: Pardee Center for International Futures.

Multifactor productivity calculation from Cobb-Douglas equation for Pacific Alliance and World Bank income groups. Forecast[IX]



Source: Pardee Center for International Futures.

The preceding figure presents a calculation of Multifactor Productivity (MFP) as an index of GDP output given any country-year level of capital and labor. This allows us to compare levels of productivity across geography and time. The results reinforce the story told by the GDP per capita forecasts: Modest productivity gains are not enough. Alliance members, likely to continue lagging behind high-income countries, will lose ground to the world's upper-middle income economies.

The informal economy, which employs 70 percent of the four nations' working populations, is an input and a strain on productivity drivers and GDP growth. It is not taxed or regulated, and workers in it often earn less than fare wages. Furthermore, members of the informal economy are disproportionately women and poorer citizens. Given that it affects already disadvantaged populations, the informal economy is both a symptom of and a contributor to inequality and low HDI. The PA states must migrate more to improve their formal economy in order to boost GDP and HDI.

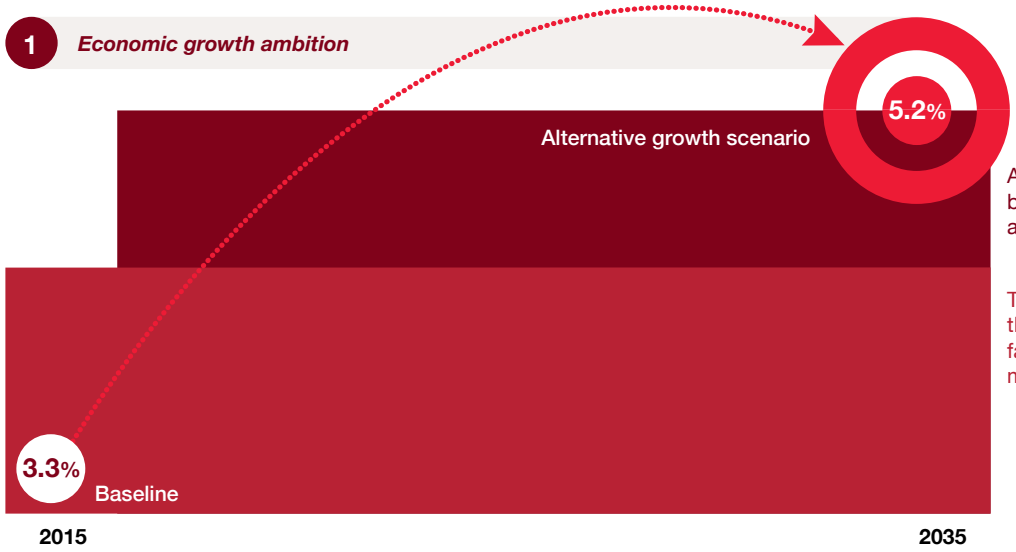
Ambition Scenario

Based on our model, if the Pacific Alliance states pursue integration and productivity improvements aggressively, both at the national and Alliance levels, the resulting increase in their annual average GDP growth, from 3.3 percent to 5.2 percent, would raise overall GDP from $2 trillion to $6 trillion by 2035.

To achieve this level of growth, PwC proposes that the PA states focus on nine key sectors with innovation action. These sectors affect drivers of the four components of our MFP measure: physical, knowledge, social and human capital. These drivers will not only push forward economic growth, be we also argue will positively affect social development, reduce inequality and add to environmental sustainability.

IX A Cobb-Douglas production function is a function used to show a technical relationship between inputs.

Ambition scenario



Source: PwC - Analysis.

Climate Change and the Pacific Alliance

Although not huge polluters, the Pacific Alliance nations are nonetheless vulnerable to climate change. Colombia, Peru and Mexico will see their rich bio-diversity affected negatively by an expected temperature rise of 2 degrees Celsius. This will impact agriculture, fishing and mining. Greater temperature increases could have catastrophic effects, melting Andean glaciers, bringing droughts in the Amazon Basin and sparking extreme heat waves.[29]

The PA has taken a unified stance on climate change. In December 2014, the member states' Presidents signed the "Declaration of the Pacific Alliance on Climate Change," recognizing the phenomenon as one of the greatest global challenges. Alliance members are not only acting within their borders, they are asserting themselves as international leaders in this arena. While recognizing their obligation to act, they assert that the developed countries—the main contributors to climate change—have an even greater responsibility in reducing emissions.[30]

The Pacific Alliance nations created the Research Network on Climate Change with a scientific committee to coordinate research and policies. It is working on a project, "Biodiversity Monitoring: New Generation to Support Climate Change Adaptation and Mitigation Processes." This comes in addition to responses within each member country, including future action plans (Peru), low carbon development strategies (Colombia), reduced emissions (Mexico) and renewable energy (Chile).

Efforts to mitigate climate change, to reduce communities' vulnerabilities and to advance sustainable growth are necessary for these nations to raise their EPI, reduce poverty, and foster economic development. These actions will also help safeguard private sector investments in the region.

Chapter 3

Sector Breakdown

Sectors that Will Drive Growth and Prosperity

Although the Pacific Alliance's integration process will boost its members' economic productivity in general, strategic local interventions can kick-start the process. PwC has identified nine sectors it expects to lead this shift. Together, they account for over half of the combined GDP of the Alliance[31]. They are:

- Education
- Health Care
- Mining
- Value-added Manufacturing
- Oil and Gas
- Power Generation and Renewables
- Financial Services
- Physical Connectivity
- Digital Connectivity

These sectors have been analyzed for their human, economic and enabling dimensions, with an eye on their potential impact on the Pacific Alliance's combined economy. A closer look at each reveals a set of regional challenges for which we have identified 56 "strategic bets" that businesses and entrepreneurs should evaluate for investment. These represent opportunities for the private sector and the Alliance governments to create shared prosperity.

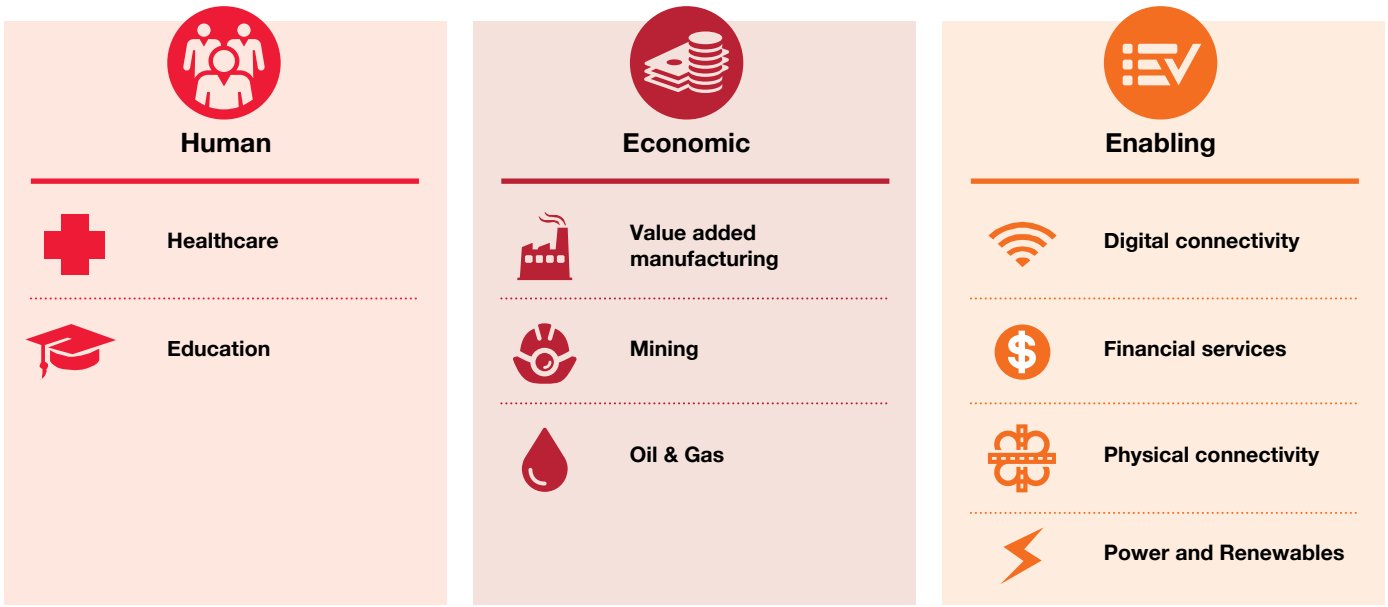
Important Sectors

The realization of the Pacific Alliance's ambition, which will hinge on sector-level interventions and strategic bets, will lead broad growth and productivity development across the region and will establish linkages with and among global businesses. After consultation with internal and external specialists in each of the four PA countries, the nine sectors spotlighted for analysis in this report were chosen not only for their contribution to GDP, but also because they have also been selected as targets of Pacific Alliance working groups[X] and because of their importance for value-chain integration within the PA nations.

X Pacific Alliance working/technical groups include External Relations, Movement of People, Communication Strategy, Cooperation, Institutional Affairs, SMEs, Innovation, Gender, Immigration and Security, Foreign Trade Single Windows, Regulatory Cooperation, Committee of Experts of the Business Council, Culture, Tourism, Transparency, Climate Change and Science and Mine development, among others. Leaders from all 4 nations meet on these topics at least once a year, and discuss specifically how the PA could influence and help these sectors.

In evaluating their impact on the Pacific Alliance's combined economy, we have categorized these sectors into human, economic and enabler dimensions. A closer look helped us determine the relevance each one has for the region's ambition, the challenges they face and the subsequent interventions and opportunities to be made at multiple levels (government, academia and private), as well as the strategic bets for government and private sector.

List of priority sectors based on their impact on productivity and categorized in human, economic and enabling dimensions



Source: PwC - Analysis.

Strategic bets and interventions in each sector are specific opportunities, which will both contribute and benefit from the affects of productivity increase and integration in the PA.

Different sectors will have direct influence on certain drivers of our MFP measurement. Social productivity drivers will be affected by all sectors in the sense that governance will need to evolve to help PA nations be more productive. The future integration of the Pacific Alliance will aid the productivity drivers, and will be what makes our strategic bets more interesting opportunities right now.

Sectors and how they may influence productivity driver

Productivity drivers	Human capital productivity	Physical capital productivity	Knowledge productivity	Social productivity
	• Educational spending • Vocational education • Years of adult education • Life expectancy • Disability • Overall health outcomes	• ICT readiness • Infrastructure development • Energy access and price • Access to water and sanitation	• Increasing level of trade • Growing FDI inflow • Shift in focus towards R&D (innovation) • Share of STEM graduates	• Governance improvement • Regulatory platform • Economic freedom • Democracy
	Education Healthcare	Digital connectivity Physical connectivity Power	Mining Manufacturing Oil & Gas Financial services	Linked to all sectors

Source: PwC - Analysis.

The strategic bets identified across sectors and the resultant productivity improvements in physical capital, human capital, intellectual capital and social capital will be key—not only to increase the projected growth rate but to sustain it—assisting these economies shift from growth based on commodity exports to growth spurred by productivity.

Human Dimension Education

Relevance

High-quality education systems, from pre-primary to tertiary levels, build human capital. As mentioned, Colombia, Mexico and Peru are entering a phase of favorable demographics (their 'demographic dividend') with growing numbers entering the workforce, while Chile's population will be aging by 2035. In order for this working population to sustain both itself and a growing dependent population, its members should be formally employed. This means they must be adequately prepared to perform the jobs that companies require.[32]

It is imperative that the PA nations reform their education systems, in which most educational rankings rate as poorly performing. Inadequate education at all levels starting at pre-school has caused productivity to stagnate in the Pacific Alliance countries and widened the gap in human capital productivity vis-à-vis the developed economies[33]. Besides helping employment and innovation, education also lifts people out of poverty and protects them from outside economic shocks.[34] Education can provide a solid foundation for growth in each of the four nations, and by doing so, strengthen integration and productivity.

"There is a growing middle class of families who are willing to spend a little bit more on education and have higher expectations. So there is a social and business opportunity there."

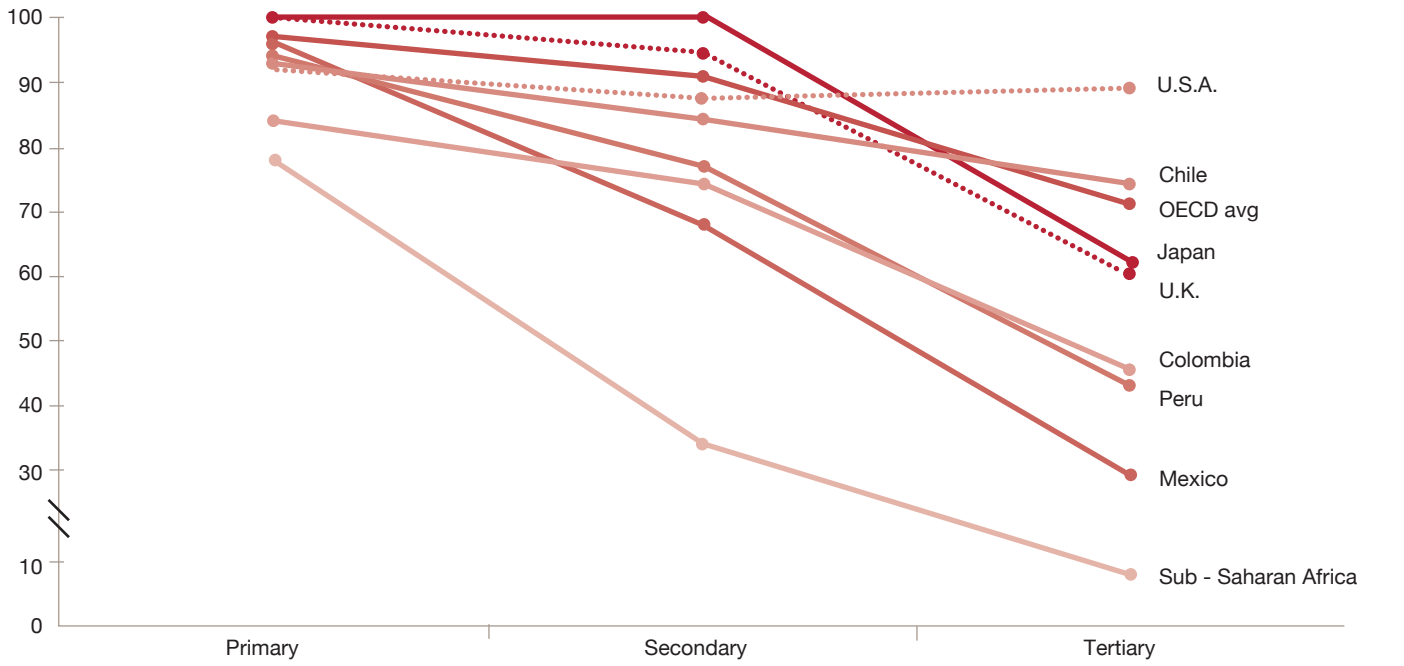
Jorge Yzusqui, *CEO of Innova Schools*

Challenges

There is a window of opportunity for the productive sector to provide regulated, quality options for those who want more focused educational offerings. Movement in this direction has already begun. A good example is found in Colombia, where 56 percent of spending on higher education comes from private entities[35]. There is opportunity for the PA to coordinate and share practices in order for its members to develop the educational systems in their nations.

The dropout rates in both public and private schools rises with the level of education (from primary to tertiary), specifically due to labor force issues and the perceived opportunity cost of staying in school. These conclusions are monitored by considering the number of students not enrolled. Income inequality is a contributing factor. Roughly 40 percent of the dropouts in Peru and Colombia come from families in the poorest quintile. The Education for All Index, which measures universality, literacy rates, quality of education and gender bias in education systems in 205 countries, specifically highlights the inequality in these two countries.[36]

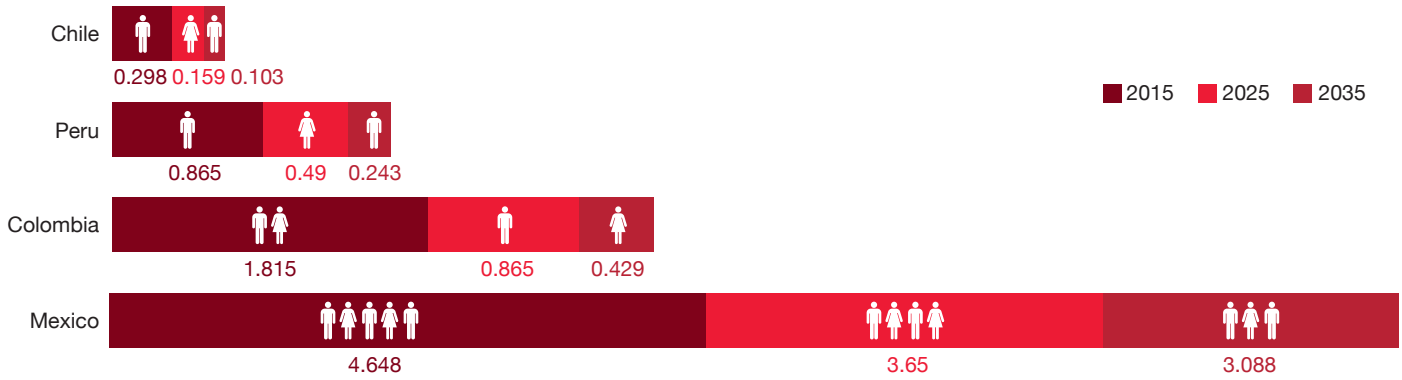
Net Enrollment Ratio by level of education (2014)



Source: UNESCO Education Statistics database.

Although people in the Pacific Alliance nations acquire more years of schooling than past generations, dropout rates are relatively high and graduation rates are relatively low. The lack of quality schools paired with inadequate learning support contributes to this downward trend. Students leave school because they are "bored" and because they are under financial pressure to work, rather than study.[37]

Number of Students not enrolled in Primary and Secundary Education (million students)



Source: Pardee Center for International Futures.

Teaching quality is an important influence on student retention rates. Latin America as a whole is compromised by weak mastery of academic content and ineffective classroom practices. Teachers spend roughly 65 percent or less of class time on instruction, compared with a good practice level of 85 percent. They also make limited use of available learning materials, especially information and communication technology (ICT) and do a poor job of keeping students engaged. Action needs to be taken to address these lags, which can come in the form of formal education, post-university training, online courses, etc. for teachers.[38]

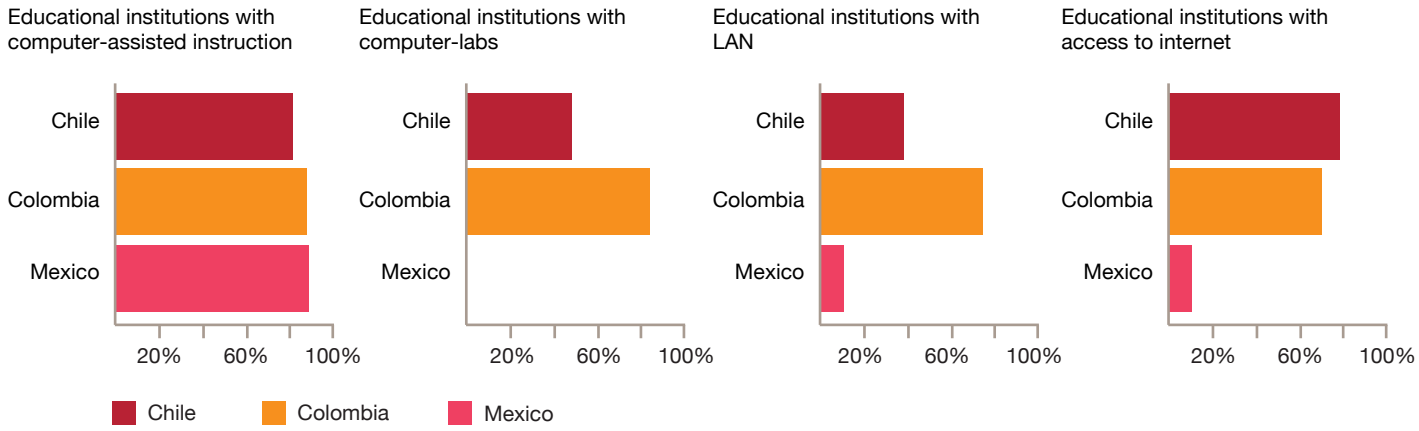
Diversity in communication methods with students (through languages, cultural understanding, etc.) is critical in effective teaching methods. With growing diversity in schools, teachers need to customize their methods to accommodate the broad makeup of their classrooms. Generally, there is a need for better teacher training in Latin America, and schools themselves need to provide continuing education for their teachers.[39] Many private schools have begun to do this.

Chile, Colombia and Mexico face a dual challenge: a dearth of teachers where they are most needed, notably rural areas, coupled with the moderate quality of teachers' performance. One reason for this is the low wage paid teachers in all PA nations, in both public and private institutions; salaries tend to be even lower in rural schools.[40] Another factor is the low quality of teacher training. Even when institutions have more resources, teaching talent cannot be found that meets schools' standards. Peru, for example, has plenty of teachers but many are unable to manage a classroom. Studies have shown that lower student-teacher ratio averages in Latin America help teachers better handle their classrooms and lead to lower dropout rates. This, along with better teacher training and improved salaries, should be incorporated into responses to poor educational quality.[41]

The quality of school infrastructure also significantly influences learning outcomes of students, according to an Inter-American Development Bank (IDB) study on regional schools in Latin America.[42] Cumulatively, these challenges have translated into educational outcomes[XI] that do not align with the growth ambition of the Pacific Alliance and its need for a prepared workforce. Specifically Peru is the lowest rated of all for PA nations

XI In the OECD's 2012 PISA results the Latin American nations rank in the bottom 20 out of 65 nations. Peru ranks worst in all measurements, of all nations. While Chile sometimes is above, its highest ranking is still 46/65 in science. http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf

ICT infrastructure in secondary educational institutions (2012) [XII]



Source: UNESCO Education Statistics database.

Gaps in Information and Communications Technology (ICT) infrastructure in higher education, meanwhile, present another obstacle. A majority of employers say they cannot find employees with the skills they require. This deficiency has become more acute over the last four years. In 2014 it was true for 67 percent of employers in Peru, 57 percent in Colombia and 44 percent in Mexico.[43] As a result, companies seeking to invest in PA nations are often unable to secure the proper staff for their local operations.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Education Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the education sector, in particular, the strategic bets we have identified will contribute to productivity gains throughout the Pacific Alliance.

XII Data not available for Peru.

Strategic Imperatives

The strategic imperative of the PA nations would be to drive **"equitable access to universal and affordable quality across all levels of education."**

Enabling equitable access:
- Adding new infrastructure that incorporates an improved learning environment.
- Augmenting existing infrastructure with additional facilities.
- Deploying technology solutions for faster scaling of new solutions.
- Leveraging virtual-learning alternatives.

Improving the quality of education across all levels, to prepare highly productive and employable students:
- Realistic but effective improvements in teacher quality and training improvement in course content and offerings.
- Improved focus on higher education to ensure that graduates emerging from the system have the skill sets they need to be employable. This is accomplished with promotion of useful and in demand degrees and experiences, including science, technology, engineering and mathematics (STEM) education and/or study-abroad programs.
- Support of student mobility across boarders.

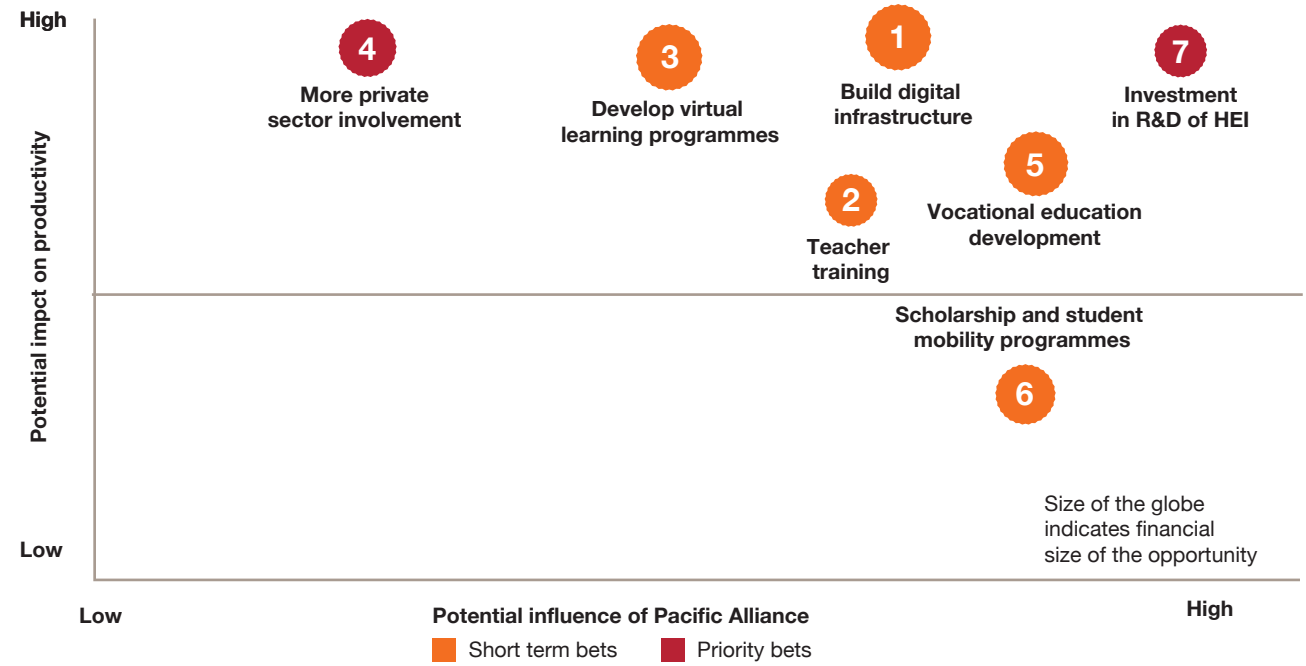
Strategic Bets

Strategic bets in the education sector to improve human capital productivity are the key opportunities for the private sector.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments.

Education Short term bets



Source: PwC Analysis

The following strategic bets for the education sector have been identified:

1. *School infrastructure digitalization.*
2. *Broadening the scope of teacher training.*
3. *Leveraging digital and virtual learning medium.*
4. *More effective private sector involvement.*
5. *Establishing vocational education with on-the-job learning.*
6. *Encouraging student mobility across borders.*
7. *Concerted focus on R&D investment in higher education institutions.*

1. School infrastructure digitalization to provide a platform for large-scale deployment of innovative educational methods

A technology-driven education system uses information, resources and professional development to shape learning so that students are prepared to work in a global economy. Equipping schools with broadband Internet access, computer-assisted labs, desktops, projectors and online learning modules is one option to help improve the quality of education. This is an arena where the private sector, which has the technology, must participate.

The advent of cloud computing opens the way for low-income schools to more easily incorporate the use of educational software. The private sector should see software for digitized school infrastructure as an attractive market opportunity. Additionally, telecom network providers have a role to play in developing the backbone network for Internet-enabled schools.

In Peru, telecommunications company Telefónica is providing broadband access to 54 schools nationwide, while the Vive Digital plan offers subsidized broadband services for 1.6 million low-income households. The Ministry of Transport and Communications, meanwhile, has distributed contracts to companies to distribute 410,570 electronic tablets to schools across the country in order to promote digital learning.[44]

In January 2015, the Colombian government awarded NEC Corp. a contract to build 648 ICT rooms—called "Kiosko Vive Digital"—in schools and community centers in seven of Colombia's 32 departments (states). The rooms were equipped with personal computers, printers, wireless LAN and satellite connections that enabled quick and easy access to the Internet. NEC also provided courses on how to maintain, operate and use these rooms. The project was done in coordination with another private company, Spain's satellite solutions provider Hispasat.[45]

2. Broadening the scope of teacher training from quantitative mapping to qualitative outcomes

The region's available teacher training options do not match well with the educational needs of the Alliance countries. In addressing this deficit as a bloc, the PA members should expand their capacity to deliver teacher-training operations at scale. Private sector players should look to create platforms that allow teachers to identify, create and customize learning materials to make them more useful and relevant for students. For their part in the process, teachers need up-to-date information on the local and national labor markets and on the range of courses that the private sector would make available to students.

Because of the strategic nature of the training programs and their long-term economic implications, government funding for developing and expanding them would be helpful. Governments could adopt policies that recognize shifting teaching methods. In light of teachers' relatively low salaries, the PA governments could consider funding teachers to undertake such training, offering it as a direct or indirect benefit.

Mexico's Sindicato Nacional de Trabajadores de la Educación—the country's largest teachers' union—announced in April 2014 that it had selected Declara as its technology platform for delivering training to 1.6 million teachers and administrators. **Declara** is a learning platform startup that launched in 2012.[46]

CORFO is a Chilean company that looks to support education and training. Among its many activities, it publishes books, offers classes and provides other programming—some of it virtual in nature—with the aim of raising the quality of education in the country. In 2016, CORFO held courses for teachers, tutors and school directors at all levels of primary and secondary education. The classes addressed teaching, administration and curriculum.[47]

As an example, in **Carlos Slim Foundation** – Khan Academy in Spanish, there were more than one million and a half students and teachers who learn free of charge with Open Digital Education, a platform with class contents of MIT, Harvard, Berkeley and Stanford universities and with over 600 agreements with public and private universities in Mexico, the US, Latin America and Spain, for them to share their classes and research through this platform.

3,600 libraries and digital classrooms **Telmex** in many regions of Mexico, principally public schools, grant access to free broadband with training in digital skills for students, teachers and family members.

Carlos Slim Domit, *President of the Board of America Movil and member of the Pacific Alliance Business Council, Chapter Mexico*

3. Leveraging digital and virtual learning medium as alternatives for better and relevant content while providing greater outreach to unaddressed students

For students who cannot afford or attend traditional schooling, virtual learning opens opportunities, especially for continued higher education. Research firm Ambient Insights projects that revenues from the e-learning market in Latin America will reach $2.4 billion by 2018, up from $1.5 billion in 2013. Spain-based Miríada X estimates that there are some 600 million potential students in Latin America. Three of the four PA countries—Chile, Colombia and Peru—will post the region's highest growth in the e-learning market.[48]

Several local governments throughout Latin America have entered agreements with the private sector to deploy education solutions. For instance, the education ministries in Bolivia, Costa Rica, the Dominican Republic, Ecuador, Panama, Honduras, Nicaragua, El Salvador, Guatemala, Venezuela and Mexico all have contracts with Samsung to use its Smart School learning platformara lanzar su plataforma de enseñanza virtual "Smart School".[49]

Building a digitally enabled school environment requires enhanced bandwidth and high-density servers to ensure that students have universal online access. Telecommunications companies can step in here to provide bandwidth infrastructure in rural areas where it is currently not available. Government may need to get involved to enable this bet.

Santillana, one of the largest e-learning content providers in Latin America, reported revenues of nearly $1 billion in 2013 thanks to its ***UNO system learning platform***. Sistema UNO bundles digital content with hardware, textbooks, learning management systems, a student information system, student assessments and teacher training. Since 2011, more than 240,000 students in Brazil, Colombia and Mexico have used the UNO education curriculum. In August 2013, Santillana announced receipt of a $30 million loan from the World Bank's International Finance Corporation (IFC) to accelerate the rollout of Sistema UNO in Latin America.[50]

4. More effective private sector involvement and support for the education system, focused on results

Latin America has more than 100 million students in hundreds of thousands of schools that form part of a highly fragmented system in need of greater professionalization and better management. Huge sums are pumped into education in the region, which can be better administered. Big banks are investing for example the IFC has invested more than $400 million directed toward private education in Brazil, Chile, Colombia, Mexico and Peru. Private investment funding is also flooding into the region with over $427 million private investment in education last year.[51] This is expected to increase.

The private sector's growing participation in education both in investment and service provision is filling the gap, boosting the number and quality of schools in the region, often at a rapid rate. The PA framework provides an opportunity for successful private companies to grow scale beyond existing countries and for innovative new entrants.

Innova Schools has designed an international-quality education system, affordable to families in the emerging middle class and with sufficient scale to have an impact in both urban and rural areas of Peru. In February 2015 it was the largest private education network in the country: 29 schools, almost 20,000 students and 1,200 teachers. Innova provides students with a quality education for about $130 a month, with scholarships available. Peru's Ministry of Education administers a national test of second graders for math and communications in all private and public schools and Innova's 2013 performance was three times the national average in math and twice the national average in communication. Because of the generally low level of teacher training in Peru, Innova trains its own teachers to assist them in achieving the standards it requires.[52]

5. Establishing vocational education

Vocational education addresses the skills gap to build a larger, employable workforce. The private sector can play a pivotal role by developing and transforming module-style vocational education institutions aligned with both student and employer priorities; higher retention rates should be a goal. Companies can also enter partnerships to support these schools with funding, teachers and other needed human resources.

Accreditation elevates quality at vocational education institutions. Student trust in these schools can be built through frequent checks on the quality of learning and commitment to appropriate accreditation standards. Governments can do this.

In **Capacitate para el Empleo**, over 500 thousand people are preparing themselves to be certified in one of 43 professions. In less than 6 months and only for the 49 companies participating, over 2,712 people with access to a job bank have gotten a job.

As a tool to support immigrants in the US, **AccesoLatino.org** offers access to education, health, culture and information programs to regularize the migratory status of more than 300 thousand people that use the portal.

6. Encouraging student mobility across borders

As noted earlier, more than a third of companies in the region have trouble filing job vacancies, particularly for technical positions, because there are not enough skilled workers.[53] Higher education institutions in a given country often lack the capacity to provide students with new skills at the level of quality needed. International student mobility programs can help address this by opening access to higher education programs abroad. The PA nations need to adopt a more proactive internationalization policy backed by funding, especially in the science, technology, engineering and math fields where there is more need. Although there is currently a scholarship program among the four nations, it is not used to its full extent. At present, about 1 percent of university students in the PA nations study outside their home countries versions 10% in the US for example.[54]

Enrolment in foreign universities requires capital for scholarships and other expenses. Private industry can step in to make sure that universities are able to adequately provide students with mobility opportunities. Other gaps can also be covered in this bet, for example private sector can fill the skills gap by promoting study abroad for STEM degrees.

7. Concerted focus on R&D investment in higher education institutions- to help train highly skilled graduates

The four Pacific Alliance countries spend less than 0.5 per cent of their GDP on research and development, and this has been reflected in generally low innovation scores.[55] The Alliance agenda includes the creation of synergies for innovation and R&D in the region.

Increased investment in research labs in universities will improve the quality of graduates emerging from the education system. It will also drive innovation, both inside and outside the classroom. It is imperative that the private sector advances the use of research labs and funding mechanisms for greater R&D in higher education.

Industrial networks and clusters also can play a role in bridging the gap between educational institutions and industry. This would allow private companies to make collaborative investments in long-term R&D that would not be possible or profitable for them one on one. Government can contribute to the success of such a multi-stakeholder endeavor by developing robust network governance structures that ensure independence and objectivity and infrastructure for the networks.

The **Ruta N** in Medellin is an initiative to form a cluster in the Colombian city. University involvement is a key part of the initiative. A University-Business committee was created, so that businesses could have better communication to universities and communicate what type of researched they needed for the clusters of Energy, healthcare and IT. So, universities in this city have focused on these research topics, which support businesses, and because of this have received more funding.[56]

Human Dimension Healthcare

Relevance

In the Pacific Alliance region, where the pursuit for universal health coverage continues, investment in health care will be a productivity driver, and so, makes economic sense. From 2000 to 2011, 24 percent of the growth in middle-income countries came from the value of life-years gained because of improved health conditions.[57] The economic benefits of investment in health care are estimated to be more than 10 times greater than costs.[58] In Latin America, access to health care has also been elevated as a fundamental human right and it is protected by law or, in some cases, by national constitutions.

Access to quality health care is a critical component of human capital development, with a long-lasting impact on productivity. Health care will also be a key driver for nations to improve their Human Development Index scores. The strategic imperatives in this field include the reduction of communicable diseases and the universal access to affordable healthcare services.

"Healthcare, principally through genomics, will be less general and more individual, less about healing and more about avoiding, less expensive and more effective."

Carlos Slim Domit, *President of the Board of America Movil and member of the Pacific Alliance Business Council, Chapter Mexico*

Challenges

The four PA members are "cusp countries." This means they juggle the health challenges of advanced countries- for example, heart problems- while still addressing the problems of basic-care nations for example the communicable disease Tuberculosis. As they decrease communicable disease, populations live longer and demands on the health care systems shift. Older citizens will account for roughly 15 percent of the PA population by 2035, whereas today in Peru, Colombia and Mexico this is only 10%. (About one-fifth of Chile's citizens will be older than 65.)[59] Typically, as countries transition out of being cusp nations, the cost of care rises, as reflected in per-capita spending on health.

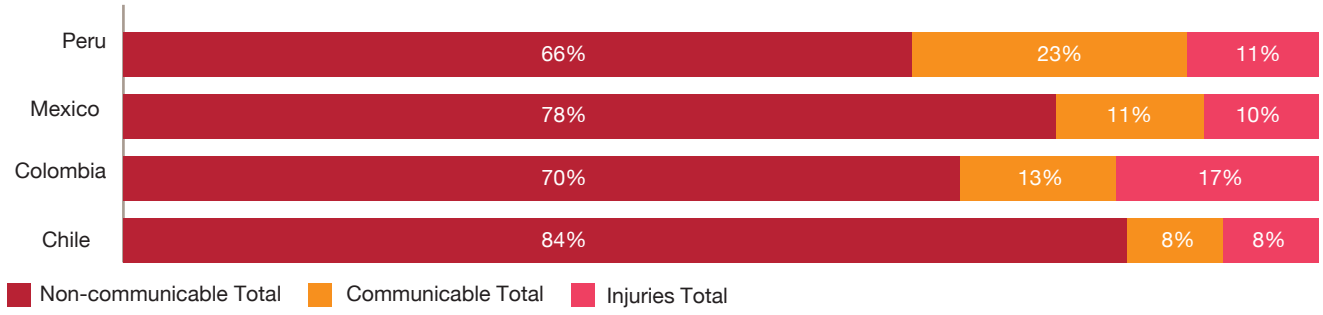
Health systems in the Pacific Alliance countries are segmented. They provide services to the poor via subsidized public health insurance, to salaried workers through a contributory regime and to the wealthy by way of private care facilities and private insurance. There have been attempts to equalize or merge benefits among the segments, including through regulation, but access remains restricted and efficiency issues and health care quality are concerns.[XIII]

Chile, Colombia and Peru have separated the purchaser and provider functions of health care, introducing contracts under which insurers provide incentives for health care providers to improve performance. Chile, Colombia and Mexico have expanded the package of minimum health services guaranteed to poorer populations. At the same time, the four countries have introduced reforms to strengthen the health system's financial base through pooled funds from multiple sources.

Pacific Alliance countries have made progress, but communicable diseases remain a problem. Since they affect the very young more profoundly, infectious diseases have a larger cumulative effect in terms of years-of-life lost and, as a result, on overall human capital productivity. Peru is substantially more affected, particularly by respiratory infections that cause death. Colombia's very high mortality rate, relative to the World Bank income groups and the rest of the Pacific Alliance, is the result of political, guerilla and terrorist violence.[60]

XIII Within the OECD, administrative expenditure as percentage of total expenditure on health in the case of Mexico is the highest, with almost 9 percent.

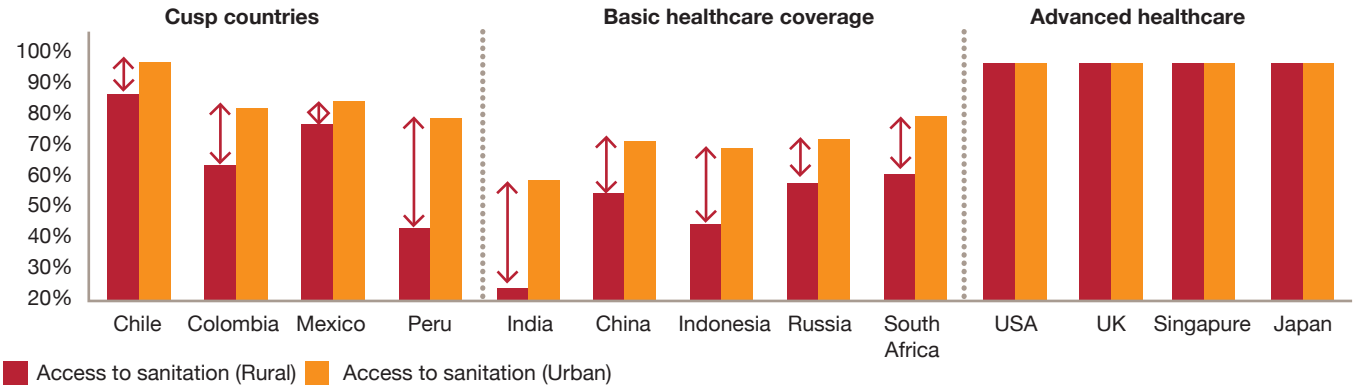
Breakdown of Mortality Categories in 2016 Pacific Alliance Member States



Fuente: Mortality according to the principal OMS categories for all the Pacific Alliance Members in 2016. Forecast (Baseline).

Underlying the distinct health burden in Colombia and Peru is the gap in their urban-rural health care coverage. As delivery systems mature, rural areas should receive better care and better access to it. A recent study by the International Labor Organization (ILO) found the urban-rural divide most acute in Africa and Latin America.[61] This negatively affects HDI, especially inequality-divided HDI. For the Alliance to meet its HDI ambition, health care will have to be a priority.

Rural - Urban gap in provision of basic healtcare services by country (2011-2015)



Source: Healt Nutrition an Population statics. "The World Bank data".

To significantly improve health care quality and outcomes, we believe the PA countries would need health care spending increases to outpace their GDP growth. Currently, health care in the PA countries, as a percentage of GDP, trails the OECD average. OECD average of health care share in GDP is 8.9 percent, while in Chile it is 7.7 percent, in Colombia 6.8 percent, in Mexico 6.2 percent, and in Peru 5.3 percent.[62]

Public-private partnerships (PPPs) have been one of the main instruments to promote private investment in the sector. In the case of Mexico's social insurance for workers at private companies (IMSS), PPPs have focused on certain types of facilities and treatments (through "service integrators"[XIV]).

XIV Integration refers to products and services offered to a particular entity, where technological and human components, as well as consumables and distribution-storage-dispensing processes are performed by a professional third party at an established price according to the type of service or procedure.

Indicator	OECD	Chile	Colombia	Mexico	Peru
Physicians per 1,000 inhabitants	3.2	1.6	1.5	2.2	1.1
Hospital beds per 1,000 inhabitants	4.9	2.2	1.5	1.6	1.5

Source: Lessons from Latin America: The early landscape of healthcare public-private partnerships. Healthcare public-private partnership series, No. 2; Llumpo, A., Downs, S., Montagu, D., Foong, S., Brashers, E., Feachem, R.; San Francisco: The Global Health Group, Global Health Sciences, University of California, San Francisco and PwC United States. First edition, November 2015.

The implementation of the EHRs [electronic health records] could be boosted through the Pacific Alliance by the exchange and discussion of standards, rankings, definition of minimum group of variables and systems interoperability.

Medical tourism could be promoted in the context of development of healthcare clusters. As an example, in Colombia, there are at least four cities with the necessary conditions to achieve this: Bogota, Cali, Barranquilla and Bucaramanga.

Given the configuration of the healthcare system of Colombia, applying a full PPP scheme (including medical services) is really difficult, but in could be relevant to renew or expand infrastructures. High complexity public hospitals would be natural candidates for this.

***Dr. Fernando Ruiz,** Vice-Minister or Health, Goverment of Colombia.*[64]

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Healthcare Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the healthcare sector, in particular, the strategic bets we have identified will contribute to human capital gains throughout the Pacific Alliance.

Strategic Imperative

Advanced universal health care at reduced costs for improved outcomes

This is the imperative for the health care providers to control costs while ensuring better health outcomes. That requires the Pacific Alliance nations to:

Ensure universal health care access

- Add channels for care delivery.
- Update regulatory policies to foster completion, monitor quality, and help with access.
- Restructure the national health system model, mainly in Peru and Mexico .
- Address the lack of trust between stakeholders in building new infrastructure at reduced cost or through new strategies.
- Identify innovative financing models that align with stakeholder interests.
- Employ intelligent public-private partnership models that build on experiences in Chile, Peru and, mainly, Mexico.
- Information, instruments and institutions will need to be developed to address quality monitoring and evaluation.

Build innovative, best-in-class health care delivery systems

- Develop efficiency in hospital operations and alternative health care delivery models - technology advancement in hospital operations has brought significant cost saving potential in developed markets.
- Effective learning from best practices in other countries or sectors would help drive efficiency, with emphasis in primary care and integrated health care delivery networks and care channels.

Focus on preventive care to reduce stress on health care resources

- Encourage behavioural changes that promote healthier lifestyles.
- Promote medical applications and innovations that monitor patients and provide feedback on better lifestyle are finding relevance.
- Build awareness and interest in these initiatives on a wider scale to ensure adoption of preventive care.

The strategic interventions to improve overall productivity in the Healthcare sector will have a greater impact in the human capital productivity. The strategic bets that address these interventions take into account management models of integrated care, public and private ones.

Strategic Bets

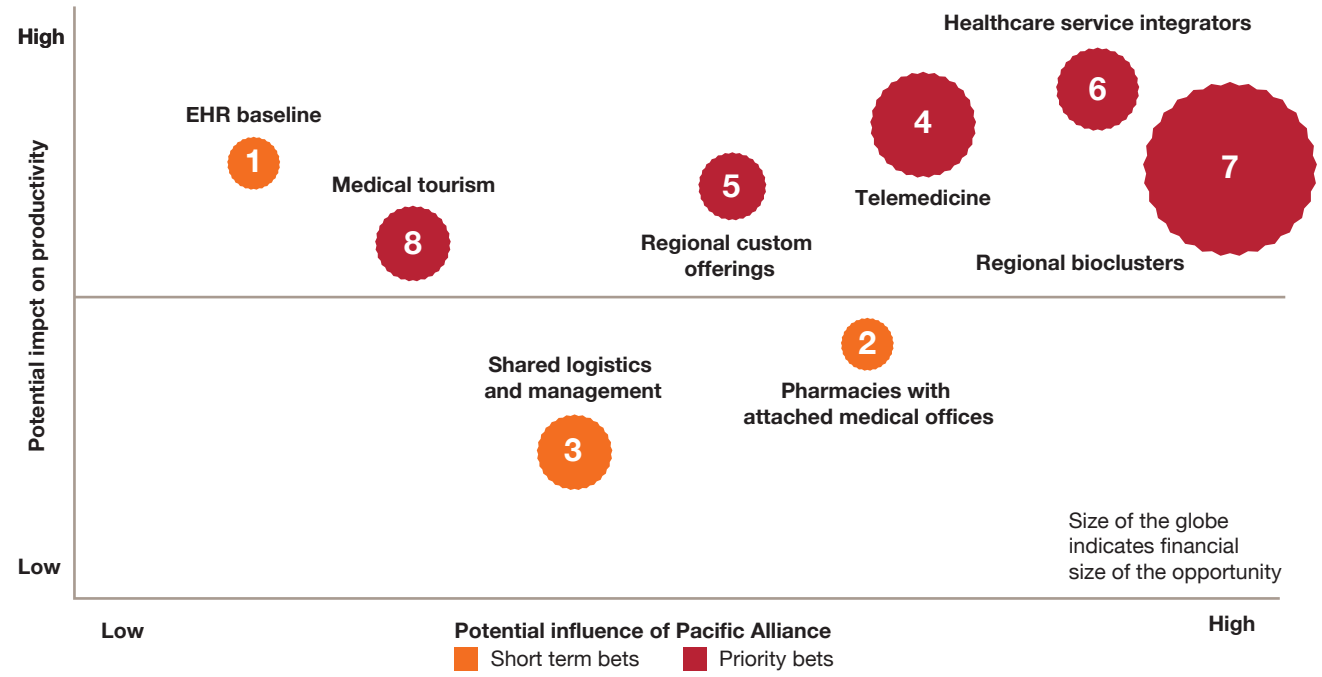
The Strategic Bets in the Healthcare sector target areas, which contribute to – and benefit from - human capital and social capital productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments.

1. *Establish electronic health records baseline.*
2. *Pharmacies with attached medical offices.*
3. *Advance shared logistics and management.*
4. *4.4. Wider adoption of telemedicine ecosystem.*
5. *Promote regionalized custom offerings (devices and pharma).*
6. *Stimulate health care service integrators development.*
7. *Develop regional bioclusters.*
8. *Facilitate establishment of hospital regional chains and medical tourism.*

Healtcare Short term bets



Source: PwC Analysis.

1. Establish electronic health records baseline

Electronic medical records (EMR)—also known as electronic health records—streamline and speed patient care and provide long-term savings for health systems. Worldwide EMR is a $12.4 billion market, and expected to reach $20 billion by 2020. EMR is nascent in the Pacific Alliance countries, providing a significant market opportunity for service providers.[65]

The Alliance would advance universal implementation and common of EMR by sharing best practices specifically from Chile, where EMR is a fast-growing industry. The PA could also help by creating a common platform for technology developers, medical professionals and academicians to identify the best approach for assessing implementation options, study regulatory barriers, and investigate human-factor challenges. Requirements for protecting the security of medical records are also needed.

EMRs have opened the way to central data repositories for clinical and genomics data, information exchanges with other EMRs and tools for performing basic analytics. An opportunity exists for integrating EMRs with other databases and devices, such as those used for customer-relationship management, billing, R&D, mobile health and analytics. Acting together, these tools can give care providers a more complete portrait of patient health. The linkage of health-monitoring apps to health-record databases presents another opportunity. A 2013 West Health Institute study estimated that by making such linkages, the U.S. health system could annually save $30 billion through reduced clinician time.[66] There is an urgent need for the Pacific Alliance to propel the EMR efforts, supported by a solid public policy and incentives.

In 2008, after an exhaustive process to define requirements and analyze possible solutions, a comprehensive world-class health care information system (HIS) was launched for Chile's public health care system. The pioneering project, Mas Salud Occidente, created an aggregated EMR system aimed at patient management, including waiting lists, appointment scheduling, referrals and counter-referrals between centers, and resource allocation. Mexico's Federal District in 2015 completed a first round of EMR implementations in about 20 hospitals. Colombian law provides incentives for similar initiatives, to be commenced.

In collaboration with the Secretary of Health, public healthcare centers that attend a million people in 25 states operate under the **Casalud** model developed by Carlos Slim Foundation for Health (Fundación Carlos Slim para la Salud). They designed the first nominal system of chronic diseases, which operates in more than 12,000 healthcare centers and tracks more than 1,700,000 people with chronic diseases.

Once an EMR baseline is established, a more reliable set of digitally aggregated health and efficiency key performance indicators (KPIs) could be enabled. This is urgently needed in both public and private institutions in PA countries to better inform performance and to empower decision makers and the general public to make wise choices based on service quality.

2. Pharmacies with attached medical offices

In Mexico, pharmacies connected to medical offices have proven their worth by providing low-cost, on-demand access to care while lessening the burden on traditional health care facilities. Trust and quality supervision from the relevant authorities are important in the more widespread adoption of this pharmacy-clinic model. Self-regulation with adequate resource managment support would also help win the trust of potential patients. Linking pharmacy-clinics to a network of hospitals and insurance companies would add to the ecosystem necessary to support this model.

While this model will be useful for urban populations, it can also be considered for un-served and underserved rural communities, with a clear role for government accreditation and incentive programs.

Private sector players need to provide relevant training methods augmented with self-regulation mechanisms. The pharmacy-clinic model relies on improvements in three dimensions: time, location and cost. This drives efficiencies while lowering costs. The government needs to set common criteria to ensure compliance with minimum and fundamental practice indicators.

Farmacias Benavides in Mexico is using self-regulation and third-party certification at its pharmacy-clinics. The facilities serve up to 80 patients a day, depending on the pharmacy's capacity, its location and the population density of the surrounding area. Patient walk-ins should increase as these pharmacy-clinics gain recognition and credibility.[67]

3. Advance shared logistics and management

Finding a quality distributor in Latin American countries is one of the biggest challenges in selling products. The medical device distribution industry is highly fragmented with hundreds of small distribution companies. International device companies often rely on distributors to play a more strategic role with provision of commercial infrastructure.

Pharmaceutical and medical device players in the Pacific Alliance have typically relied on specialized distributors for transportation of pharmaceuticals and devices. This has been an expensive mode of distribution that adds to companies' cost pressure. Aggregation of transportation requirements across pharma, medical samples and devices could provide scale benefits to aggregators while ensuring high customer service levels and better visibility of the supply chain.

Specialized logistics companies have gradually entered the health care industry. The challenge in the logistics and supply chain remains focused on visibility and responsiveness to changing market needs. The Alliance would provide greater access to the logistic providers as they look to address the four countries as a combined market.

Medical devices, pharmaceuticals and medical samples require special handling practices to ensure safe movement across geographies. Private players would need to continue to innovate and develop domain expertise. Market players would need to train staff appropriately to ensure high customer-service levels.

FEMSA is a diversified industrial and commercial group. Its large fleet of trucks delivers bottled beverages to a broad network of small stores and FEMSA's own convenience stores. The group recently acquired several medium-size pharmacy chains and is using FEMSA trucks to distribute medicines. To stay ahead of the curve, it has adopted a strategy whereby the transportation units that it subcontracts are no more than 10 years old. This ensures that the FEMSA fleet is modern and in optimal operating condition. FEMSA Logística has made training one of its key priorities and, in 2014, the company increased the average number of training hours by 21 percent compared with a year earlier to ensure quality service. FEMSA's move into the pharmacy arena will change the competitive landscape for this important side of the health ecosystem.[68]

4. Wider adoption of telemedicine ecosystem

PwC estimates the global telemedicine market at $23 billion by 2017, with Latin America accounting for 7 percent. This share would climb to 30 percent by 2030 due to the aging population and the growing penetration of handheld devices, which open the way for use of mobile health applications. Mobile apps for prevention and treatment will find greatest traction in Chile and Mexico; in Peru and Colombia, diagnostic and treatment apps will be most relevant.[69]

Telemedicine if done well is able to remove delays of time and location while still improving quality and coverage of care, principally in terms of primary care needs. Because these solutions cross multiple phases in the patient lifecycle—wellness, prevention, diagnosis and treatment—they would improve health care access at lower cost than traditional methods. Such services would require high capital outlay in the early stages before they become commercially viable. The Pacific Alliance framework could help raise capital by promoting vehicles, which pool investments from diverse interested parties.

Because of its complexity, telemedicine requires the participation of multiple stakeholders and very robust change management, regulations and cultural issues. Government and regulators would help bring standard operability and necessary accreditations, allowing services to grow to scale. Appropriate policies could speed adoption of tele-health services and eliminate barriers that prevent physicians from working virtually across borders. Additionally, policymakers could define a clear mechanism to help consumers identify good health applications, removing another obstacle to adoption. Promotion of telemedicine services on national portals and by health care workers also fosters higher adoption rates.

The private sector has to lead the research, implementation and consumer adoption process of telemedicine. Private sector funding for telemedicine start-ups is critical at early-stage development; businesses could incubate innovative sultans and help them go to scale. An understanding of which health technologies physicians and consumers both value and what motivates their use should shape digital strategies. Meaningful, actionable insights generated through analytics will better focus investments and yield stronger, faster results for this strategic bet.

Net Medical Technologies has developed telemedicine stations in Mexico to link medical institutions with specialists who help in diagnosis and treatment. It also provides consultancy on establishing and upgrading telemedicine services in health care institutions. Indeed mHealth is a trend, although still in very initial maturity stages.[70]

By Your Side (A tu lado) provides both in-person and virtual help to patients seeking mental health care in Peru. It is the only center of its kind in the country with a specialty in psychological help and virtual services. Patients can have consultations from their homes or offices. The company has found success, both because it focuses on a specialty that Peru does not commonly have in general hospitals and because its services are not centralized.[71]

5. Promote regionalized custom offerings (devices and pharma)

Mexico, with the 15th largest GDP in the world and a $3 billion medical device industry, is a favourable starting point for medical-device companies pursuing the Latin American market[72]. Mexico also is one of the world's largest aesthetic markets, according to the International Society of Aesthetic Plastic Surgeons.

High import and sales tariffs in the PA countries restrict, to one degree, the import potential for new devices. Keeping regional demand in perspective, certain local players in the medical-device arena have started to provide customized offerings that accommodate regional pricing conditions. Serving demand in a larger market could help provide more localized economical alternatives to expensive imports, driving cost savings and boosting the global competitiveness of the relevant players. The Alliance could help businesses to navigate the obstacles they now face when moving their goods across borders.

The private sector can take the lead, with adequate R&D investment, in indigenous development of complex medical devices and pharmaceuticals. Local firms could better align to customer needs, while a robust patent regime, facilitated by local governments, would encourage this investment with the Pacific Alliance.

In the interactive platform Education in Healthcare (Educación en Salud) online, 12,967 professionals have graduated. In addition, **Clikisalud**.net has over one million visitors per year, offering information and valuable tools for a healthy life.

In collaboration with the National Institute of Nutrition Salvador Zubirán, the National Institute of Cardiology and Federico Goméz Children's Hospital of México, the Carlos Slim Foundation for Health has been working to develop applications for breastfeeding, nutrition, epilepsy control and Heart monitoring to prevent strokes. As well as a new version of MIDO (Integrated measuring for an opportune detection) for diseases' diagnosis and control.

6. Promote health care service integrators development and better conditions of PPP's

The region has had experience with PPP health projects regarding the construction, equipment and general services for new hospitals. More projects are in the pipeline, that can use and learn from this past experience, and improve facilities, financial conditions and risks, and overall costs. Exchange among the four countries can help to define similar contracts and tenders, to facilitate the participation –and increase competition- between global and regional players.

Health institutions have been contracting, as outsourcing or insourcing, certain services based on expensive and sophisticated equipment (like hemodialysis), in order to modernize their own equipment and make a better use of it. These contractors are known as healthcare service integrators and operate in a very flexible way. They can set up a new surgery room and provide general services and consumables, or they can also provide the physicians, nurses, etc. Conceptually, this kind of arrangement is also a PPP, although its focus is more specific and the investment involved is usually smaller. It generates savings for the contracting entity and, within an accountability framework, also quality service improvement.

7. Foment regional bioclusters

"Bioclusters" are heterogeneous entities, varying widely in structure, evolution and goals.[73] They represent a local complex system where different types of organizations interact for research, innovation and economic growth. All PA countries have the urgent need to increase their research resources and patent-generation capabilities. Since no emerging country alone could grow this capability in a short time frame, it makes sense to segment the effort by concentrating research capabilities according to country strengths and needs. For example, Mexico could lead research in diabetes and obesity while Chile focuses on cancer and Colombia and Peru concentrate on certain communicable diseases. The creation of such bioclusters help foment clinical, academic and research centers of excellence that connect to the world, both giving and receiving knowledge.

8. Facilitate establishment of hospital regional chains and medical tourism

Within a health cluster it is only natural to establish healthcare units and some of these units could very well be designed to promote medical tourism. Although establishment of regional hospital chains in not a priority for many national organizations, which prefer to attend their known local market, some others are clearly oriented towards patients from abroad. Medical tourism refers to patients traveling outside their home countries for medical treatment. The practice has found resonance globally with middle-income countries that can offer more economical care because they have lower cost structures.

Mexico and Colombia have location advantages with respect to the United States market, and their cost comparison is overwhelming. Mexico has 107 hospitals certified by the local authority and 10 certified by the Joint Commission International. It is the second destiny worldwide with 1.1 million foreign patients in 2012 that generated 3.6 billion dollars income.[74] U.S. medical travellers to Mexico can see 36 to 89 percent cost savings vs. similar services found in their home markets.[75]

Established and capable market players could use their expertise to develop new and expanded hospitals, melding knowledge of local market operations with home market experiences to set up chains or franchises in areas that are inadequately served. Regulatory compliance and land costs are significant parts of total capital outlay for hospitals. Project timing, if not managed properly, can also affect cost. Innovative financing, including public-private partnership (PPP) models, could be used to incentivize private investment. Developing a favorable business environment, with policy consistency, would be critical in providing incentives for PPPs.

To maintain cost competitiveness, hospital chains need to build operational efficiency of treatment mechanisms. Medical tourism, meanwhile, would move beyond treatment toward an overall patient experience. Service providers would need to establish partnerships with brokers and travel agencies to ensure good customer experience. Advertising and marketing of medical tourism services is key to building awareness. Quality checks and accreditation will build trust in treatment services.

Hospital Angeles (AHI) is the largest private provider of health care services in Mexico, with 28 hospitals, 15,000 specialists, 2,554 patient rooms and 234 operating rooms. Mexico's infrastructure makes most major cities in the nation easy to reach by air . Patients arriving at an airport are met by a medical shuttle that takes them to the AHI complex where English-fluent concierge services will provide assistance with AHI services. Hospital Angeles offers comprehensive care packages, arranging everything from medical appointments, consultations and records transfers to travel arrangements for patients and their families. Common procedures include knee replacement, face lifts, heart bypass surgery, among others.[76]

Sanitas Internacional has a network of hospitals. Starting with sites in Colombia, Venezuela, Peru, Brazil and Mexico, it recently moved to the United States, targeting immigrant populations. Sanitas' full-service model includes integrated services, hospitals, specialists and technology.[77]

Economic Dimension
Mining

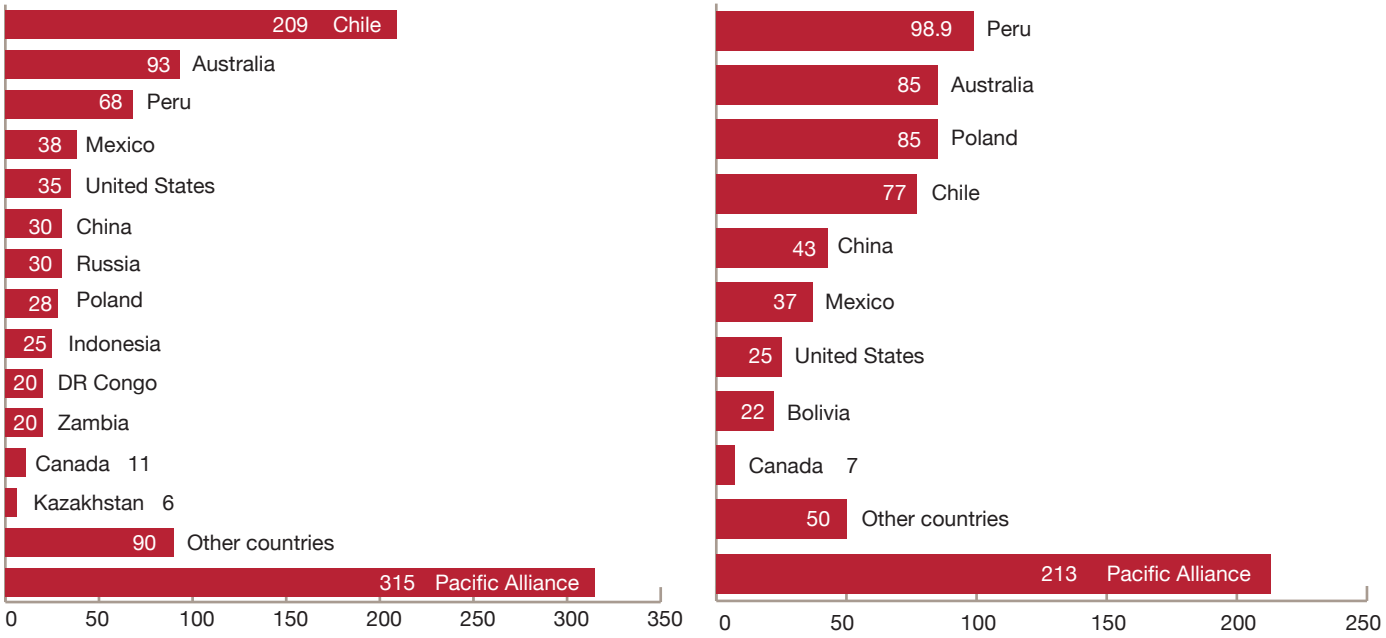
Relevance

Mining has propelled much of the economic development of the Pacific Alliance countries. The member nations rely on it for trade, foreign investment and other drivers of the economy, especially in Chile and Peru. Mining in the PA nations, and the world, as a whole has experienced a 20-year positive cycle.

When it comes to this sector, the Pacific Alliance nations present attractive risk/reward profiles, and they are spearheading output and investment growth in the industry in Latin America.[78] Specifically, the Pacific Alliance's rich reserves make it the most important region for copper and silver in the world, as seen in the following graphs.

To take advantage of these reserves, the Alliance has worked to become a more attractive investment destination than other mineral-rich regions. Sustainable development of the mining sector presents an opportunity for PA nations to lift their EPI (Environmental Protection Index) scores. In the Behre Dolbear measurements,[xv] Chile is the 4th most favorable nation, Mexico 5th and Peru 6th. This ranking considers political system, economic system, currency stability, social license issues, permitting, competitive taxation and corruption. Specifically it is clear that Peru has made big efforts, jumping from the 9th spot, to the 6th in just 2 years. This is in comparison to the Fraser Institute findings, which shows Argentina as the worst nation in the world in terms of investment attractiveness for mining. Chile (11th), Peru (36th), Mexico (37th) and Colombia are the most attractive nations in the region for mining investment in 2015.[79] The entire mining supply chain, from the tools employed to the transportation to and from mining areas, needs significant energy, material and human inputs. There is an opportunity for innovation that would make the industry more sustainable as well as and productive.[80]

Copper reserves - Silver reserves (1000 metric tons) 2015



Source: statista.com

Challenges

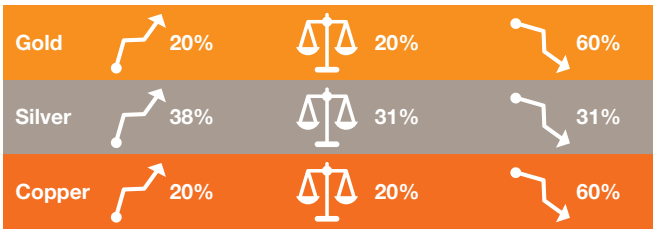
Although historically successful, the mining industry in the PA region has not realized its full potential manly in production and exploration. A major challenge for all mining companies is to increase productivity, which is especially important when mineral prices are relatively low, as they are at the time of writing.

The mining industry is comprised of many processes—exploration, extraction, logistics and support services—in each of which there can be productivity losses or gains. Each part of the value chain has, in turn, another set of activities. All parts of the mining industry should work together systematically to address economic restrictions and technological requirements. Forming a mining cluster might be a natural framework for this. *A Cluster is "a geographical concentration of actors in vertical and horizontal relationships, showing a clear tendency of cooperating and sharing their competencies, all involved in a localized infrastructure of support.*[81]

High productivity is essential as a buffer against uncontrollable external market factors. China's slowdown, from the double-digit annual growth of previous years down to around 7 percent today, is expected to continue and that will weigh on the mining industry. China accounts for 40 to 50 percent of global commodity demand; the decline in China's copper demand has already lowered prices worldwide. The commodity price downturn has sparked a wave of resource protection, as governments seek to maintain smaller mining revenues inside their own borders. China, for example, has moved to protect its domestic coal industry by changing import tariffs and quotas, placing additional cost pressure on coal arriving in ports through high taxes. The Chinese government has also stepped in to support local producers by cutting resource rent tax on iron ore by 60 percent.[82]

XV Behre Dolbear is a respected company, which focuses its consulting services on the mineral industry. They analyze the mining sector yearly, putting out measurements on the business environment of companies. http://www.dolbear.com/news-resources/documents

Gold, silver and copper prices [83]



Source: Forecast for metal prices over the next 12 months, based on market survey responses in PWC Gold, Silver and Copper Price Report, 2015.

This threat of continued lower prices is coupled with an increase in mining costs. The reasons for the phenomena are many: The content of mineral per ton of soil/stone is declining, water and energy are becoming scarcer and other inputs more expensive, and compliance with environmental and industrial security regulations are stricter. We are witnessing the negative effects of these trends and mining companies in the Pacific Alliance countries need to act now to improve productivity.

Falling copper prices and profits, already a reality for mining companies, have led to a drop in new investment. In 2015, Chile saw stagnant production due to declining mineral grades. This forces companies to process more tonnage and increase processing capacity in order to maintain output levels. Peru's mining investments fell 12.3 percent in 2014, and they continued to decline in 2015 by 16.1 percent less investment than in 2014.[84] Projects have been delayed, and for different reasons, including a broad change in strategy among the major mining companies to focus on their core assets and producing mines. Companies also face complex processes for acquiring operating permits, and environmental and social concerns have increased both profile and complexity. Although long-term potential remains high for copper, a metal that has universal usage, companies in the sector face significant challenges.

Interview with Diego Hernandez

What is the status of the mining sector in Chile?
The current situation with mineral prices is influencing all discussions and decisions in mining, particularly for copper in the case of Chile. Companies are putting aside new investments for now and are focusing on completing construction and exploration of deposits that are in progress. It is an environment in which companies can take greater risks but, at the same time, there is little capital available to invest in technological change. The backdrop to this is uncertainty about China and the global economy, in a situation where the demand for copper is expected to be lower for the next three to five years.

In this context, what could the contribution of the Pacific Alliance be?
The Pacific Alliance allows the four member states to act as one bloc vis-à-vis Asian countries. Moreover, it allows the nations to share experiences in order to address common issues, such as the need to automate production processes in order to lower costs for the foreseeable future; the mitigation of dust; water restrictions; and others. There has been a noticeable increase in the export of mining services from Chile, including engineering services. The Alliance can contribute to an ecosystem of greater collaboration between companies in different countries. However, since we already have various treaties between countries, we need to think strategically about what specifically the Alliance can do to make us work more closely. These must be win-win agreements.

Looking forward at the investment portfolio of the sector in Chile which, as you say, is postponed, how can the Alliance help to speed its implementation?
Various collaborations between companies, academia and NGOs have conducted studies around sustainable development of mining. They generally conclude that mining projects in Chile are competitive, but that sustainable growth of this industry requires, first, that there exists demand for minerals, and secondly, that we do things right in terms of the institutional matters within the country.

The focus should now be on preparing for the entrance of the Pacific Alliance, and that will be achieved with efficient legislation, streamlining the permit approval process and [providing] certainty for investors. We believe that all this can be achieved without sacrificing the goals of environmental and community sustainability.

Diego Hernandez, *CEO until May 2016, Antofagasta Mining in Chile*

The Graphene threat: Graphene and other new material innovations present a challenge to the future of copper and other minerals. Graphene, a two-dimensional, carbon-based super-material—the thinnest compound on earth—is stronger than steel. It is also a better semi-conductor than silicon and conducts more electricity than copper. Since it has the potential to replace many other materials, its large-scale introduction could change international patterns of trade, construction processes, transportation and nanotechnology. Billions of dollars are already being invested in graphene, mostly in the European Union, the United States, China and South Korea, reflecting the belief that it could become a "disruptive material." Because of its unique properties, graphene could replace copper in electrical wires, industrial machinery, auto parts, electronics and nanotechnology.[86]

One huge challenge for the PA countries is their over-reliance on mined products for GDP growth. In Chile, copper accounts for over 50 percent of total exports. About half of total exports in Peru are copper or gold.[85] These nations have been relying heavily on exports of minerals at high prices in the hope that they will remain stable and drive GDP growth. However, high prices are in no way guaranteed, as we have seen in recent history. There have already been price shocks. The fact that no new significant uses for conventional minerals have been found in recent years makes this challenge even greater.

In the Pacific Alliance nations, the mining sector faces additional challenges at the governmental level. In Colombia, for example, the Ministry of the Environment takes months to issue water diversion and drilling permits for exploration.[87] These delays can be expected to increase as more environmental concerns and social protests raise the pressure on governments to protect local communities and their surroundings, while allowing mining to continue. Similar trends have been seen in Peru, where large grassroots protests have shut down mining operations.

Although the PA nations score well on some indicators for a good business environment for mining, they rank surprisingly low in others. Areas for improvement in all four Alliance nations are security, infrastructure and corruption. More specifically, in Mexico, Colombia and Peru, there are issues of legal and regulatory instability, corruption, and armed conflicts and violence where indicators put them below nations such as Australia, and Canada.[88] Although Chile does better in most of these indicators, it has room for improvement, in particular in the environmental-approval system and in community relationships.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Mining Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the mining sector, in particular, the strategic bets we have identified will contribute to productivity gains in physical capital and for the sector in general.

Strategic Imperatives

The strategic imperative for the mining sector is to support public-private-social partnerships within cluster frameworks to promote long-term, sustainable development. They should also focus on improving productivity and fostering innovation, to cope with short and longer-term challenges. Mining can continue to be a driver of growth for the Pacific Alliance countries, but this will be sustainable only through a more holistic approach.

Improving operational efficiency, with the following imperatives

- Cost savings along the mining industry value chain.
- Equipment productivity (benchmarking techniques, predictive maintenance).
- Human resources development (improving employee skills and labor efficiency).

Promoting innovation

- Better water and energy management.
- Identifying inefficiencies and planning for life-cycle costs.
- Big Data information technology to improve processes.
- Dust mitigation.
- Applied robotics.

Long-term stakeholder engagement

- Developing national initiatives.
- Generating tri-entity (government, company. community) partnerships.
- Promoting cluster frameworks in mining communities.
- Developing world class service suppliers.
- Promoting community development.
- Taking a holistic view of companies' performance - Adopting total impact measurement and management.
- Embracing policies that reduce corruption, improve security around mines and increase stability.

Strategic bets

The Strategic Bets in the Mining sector target areas, which contribute to – and benefit from – knowledge and physical productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments.

1. Public, Private and social engagement.

2. Incorporation of innovation and new technology into mining processes.

3. Cost-saving initiatives.

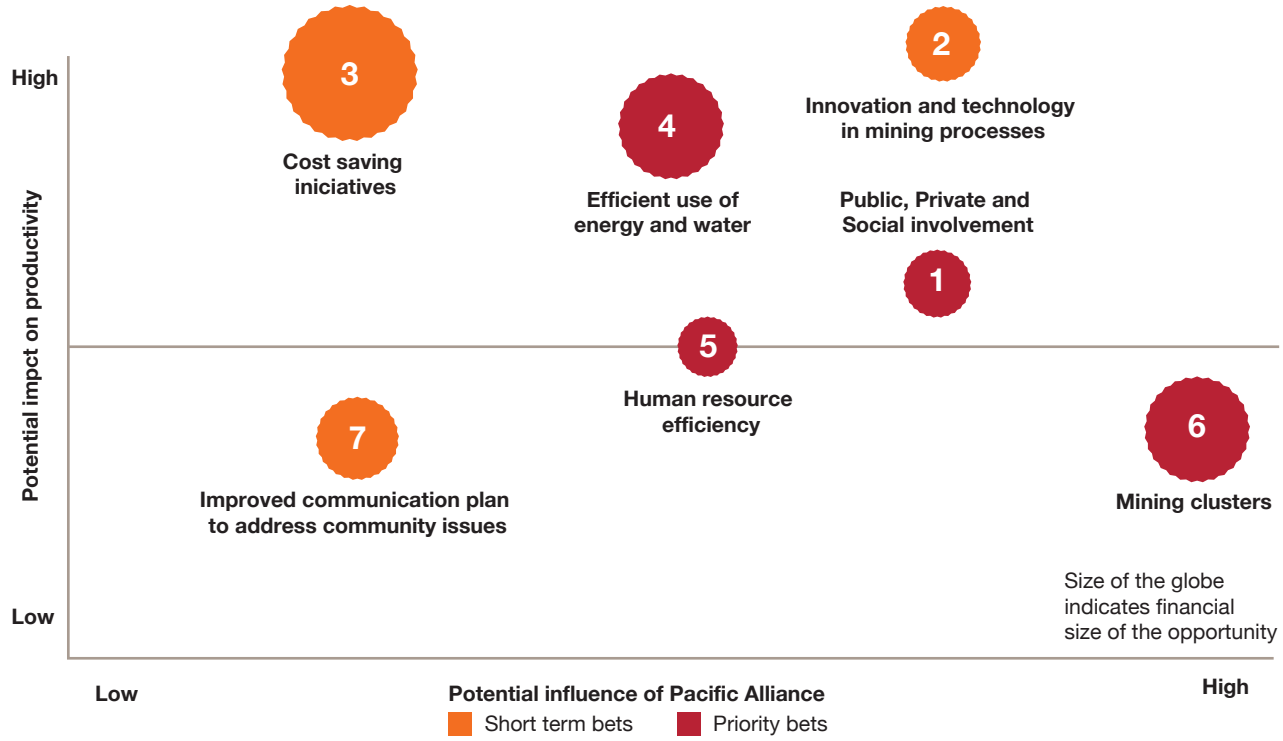
4. More efficient use of energy and water resources through integration.

5. Improvement of human resource efficiency through education.

6. Creation of mining cluster frameworks.

7. Development of communication plans with citizens around mining projects.

Mining Short term bets



Source: PwC Analysis.

1. Public, private and social engagement- with a long-term view to promote sustainable development of mining activities

This means bringing more investment in exploration by improving the legal and regulatory framework while reducing corruption, violence and social conflicts. It will require a permanent, high-level dialogue among the different stakeholders: governments, companies, suppliers, workers, communities and other interested parties. This would help make the industry more attractive to private investors and facilitate a change of focus from a product-based to service-based activity, as nations learn to sell their mining capabilities.

In the short term, governments could work to create institutions to coordinate this initiative. The private sector should present an agreed upon and clearly articulated point of view for this discussion. Alignment of stakeholder interests will improve the overall competitiveness of the mining sector in the region and attract needed investment, particularly in exploration. The Pacific Alliance could play a significant role in facilitating this alignment by establishing a common ground for mining policies and regulations.

Alianza Valor Minero (Chile) is a PPP established with the goal of representing multiple interests of the mining sector in Chile. The members come from the public sector, private sector and also "social representatives." They have a strategic agenda of 13 projects, that incentivize companies to modernize and add value to processes, 7 projects to create a more inclusive mining industry and 3 projects to make the mining industry more sustainable. Valor Minero proposes that there must be institutional innovation in mining, to improve capacity of the public and private sector and that coordination and dialogue will help with conflict resolution. The goal of this coordination is to increase confidence in mining in Chile, create a favorable investment environment, and increase productivity.[89]

2. Incorporation of innovation and new technology into mining processes

Technology and innovation will be key in addressing the productivity shortfall in the mining sector. Individual companies are already making efforts to incorporate new technology into their processes, including cloud-based solutions. The end result could be an overhaul of mining operations in the region and improved productivity.

Conventional Practices	Technology-enabled solutions for Mines of Future
Managers and teams are present physically at each mine with little integration between mines.	A lean and centralized management team monitors mines at various sites, bringing in synergies and capabilities by unifying information, processes and knowledge.
Worker safety is a function of training and procedures while access, status and management of employees is the responsibility of the line manager.	RFID and GPS enables smart technologies that centrally track employees' locations, access rights, duration, training, safety certifications, permissions and site security.
Availability and location of equipment is managed through manual tracking.	Intelligent machines with sensors report their location and condition to a remote operations center. Predictive maintenance is used to reduce unplanned downtimes.
Asset management is done separately across sites and is distinct from business planning activities.	A centralized asset management program is deployed and integrated with ERP and other systems to provide an integrated view of the business.

The private sector should investigate available technology in order to see what would be most useful and where it needs to be introduced. The Pacific Alliance integration can provide companies with access to a larger, more open and competitive market in which to obtain this technology. Tax breaks can serve as a short-term incentive; however, joint government and private-sector programs to develop, test, and adapt new approaches is the goal. This would make PA nations not only competitive, but sought after markets, facilitating their direct participation in global value chains.

Referring back to the Education sector, STEM (Science, Technology, Engineering and Mathematics) degrees must be promoted in the PA countries to develop a better-trained and more innovative labor force. Companies and governments should start focus on the direct funnel of STEM graduates into mining and other key sectors, whether as employees or entrepreneurs, so that they begin to innovate in mining in the region.

Rio Tinto is a leading international mining group that has implemented technology at many levels to enhance productivity. Among its innovations are a Remote Operations Center that operates all mines, ports and rail systems from one central location; driverless trucks and autonomous haulage systems that move material efficiently and safely; an automated drilling system that can be managed remotely; and fully automated driverless long-distance railway systems that improve safety.[90]

Antofagasta Minerals has announced a five-year partnership with Intellisense to deploy analytics and digital technologies for its "mine to mill" operational efficiency program. These technologies will optimize processes and systems through a combination of sensors, software and simulation, alongside mine extraction, mineral processing and waste management processes. They will also address constraints on water and energy and minimize environmental impact.[91]

3. Cost-saving initiatives to achieve operational effectiveness

Cost savings at all levels of the production chain can protect companies against the rising costs of mining. This, in turn, would have a ripple effect along the supply chain. Given the current state of the mining industry, this strategic bet is especially important. Operational effectiveness will help mining companies attain efficiency and allow them to expand into other areas like exploration.

In the short term, governments need to plan and implement actions that increase mining companies' effectiveness. Those include simplifying bureaucratic and legal processes so that companies do not lose time and money waiting for paperwork to be approved. Companies themselves have opportunities to improve efficiency through reduced energy usage, enhanced employee training and other actions. Each company will have different short-term approaches in this regard, and opportunities exist for third- party providers.

Mining companies' operations can also be expanded across boarders as a result of PA integration, beyond high-level M&A activity, which can increase movement of machinery, talent and innovation, creating opportunities for efficiencies and cost savings.

4. More efficient use of energy and water resources through integration

Ideally, this bet implies that nations can integrate energy resources for more reliable and cheaper power, to reduce operational costs and to strengthen all of their mining sectors (which will be addressed later in this report). Since many of the same issues occur with water as with energy, the activities in some cases could apply to both resources.

Energy is a significant cost for mining companies. Lower energy prices would increase mines' productivity and reduce their environmental impact. More efficient energy usage also implies better infrastructure for improved competitiveness. Governments can investigate new energy sources where mines are located, such as renewables, and continue conversations with neighboring countries about shared energy grids. The private sector can identify areas where energy is used inefficiently and also look at energy efficiency and re-use. Governments can promote and conduct energetic policies to bring energy everywhere, but specifically where the mines are located.

For mining energy grids could be connected in innovative ways. For example, Chile has enough solar energy for use by mines during the day and at night, Peru generates renewable energy from wind. The PA can facilitate these exchanges, but the process must be efficient in addressing market needs and addressing environmental concerns.

In an example of how renewable energy can help satisfy the growing demand for electricity in the mining sector, Spain's **BBVA** bank joined **Corpbanca** to fund the Javiera Project, Chile's first solar energy plant. With a 69.5-megawatt capacity, the plant supplies energy to Minera Los Pelambres, a subsidiary of Antofagasta Minerals, Chile's largest private mining group and one of the world's leading copper producers.[92]

5. Improving human resource efficiency with education

A more advanced mining sector and future growth requires relevant skills in research, design, mining operations and deployment. This means elevated educational levels for mining company workers, especially an ability to work with complex new technologies. The focus should be on developing skills onsite where the mines are situated.

In the short term, governments can invest more in schools—in the mining areas—that provide technical education. The private sector can contribute by providing capacity-building courses and by evaluating employees to make sure they have acquired the correct skill sets. This might be one of the most effective strategic bets, as it could boost innovation at mining companies and lead to an increase in STEM graduates, although the affect is longer term. The Alliance could promote exchange programs among its members to give employees and employers access to relevant education programs and to help newly trained workers find employment.

Hochschild Mining in Peru founded the Universidad de Ingeneria y Technología (UTEC-University of Engineering and Technology) with the aim of developing engineering talent and providing employees for the company and the nation. The private school has exchange programs with Harvard and the Massachusetts Institute of Technology (MIT) and works on innovation development projects across Peru.[93]

6. Creating mining cluster frameworks

Mining has a very large supply chain with diverse types of providers. Companies need a more effective way to connect to these providers and make their supply chains more efficient. One avenue is by establishing clusters, geographic or virtual concentrations of interconnected businesses and institutions. Clusters constitute a partnership model that requires all actors to communicate and work together to improve conditions in their areas. Ideally, the communities in which mines are located would be incorporated into these clusters.

Since the education systems, notably in Mexico and Peru, are often lacking in the mining communities, the residents of these areas are not sufficiently prepared to be incorporated into mining company supply chains. However, this is changing. Governments could immediately create a space for interaction and conversations between stakeholders, at the same time working to build awareness about the importance of clusters. If a cluster is correctly designed, each part of mining sector supply chain is connected and productivity is enhanced.

Mining clusters would help attract global players and investment. However, adequate infrastructure is critical to the establishment of successful clusters- even basic such as better roads. PA nations could work together, using the expertise they each have to support mining companies' supply chains and to integrate clusters across borders.

Antamina company has created a high-investment mining project in Huaraz, Peru, that aims to maintain all elements of its supply chain within a close distance. It has been able to work with the government and local communities to make sure that the cluster's environmental impact is low and social impact is high. The construction stage of the project generated 8,000 direct jobs, with a peak of 10,000 employees, and 30,000 indirect jobs, a significant share of which came from the region. Antamina has been innovative in its approach to a number of environmental and cultural issues and, as a result, has set new standards in Peru for environmental and community management and sustainable development. Key to its success? Structuring the project and the parties involved – developing a functioning cluster.[94]

7. Development of communication plans around mining projects

Communities and other interest groups in PA nations have delayed, and in some cases even halted, mining projects, increasing overall costs. Often these actions have been the result of poor communication. Companies should ally with communities so that they provide support to, rather than delay, key initiatives. Governments and companies can work together on community relations, using innovative communications and taking into account local interests and aspirations when it comes to environmental, geographical and cultural issues.

Governments can create policies and institutions to educate local citizens about mining projects, even before they are awarded to companies. The private sector can incorporate citizen education into mining plans, employing community relations specialists. This will speed up project launches and limit setbacks later, thereby improving overall productivity for mining companies. It involves long-term planning for all parts of the mining operation, pre, during and post.

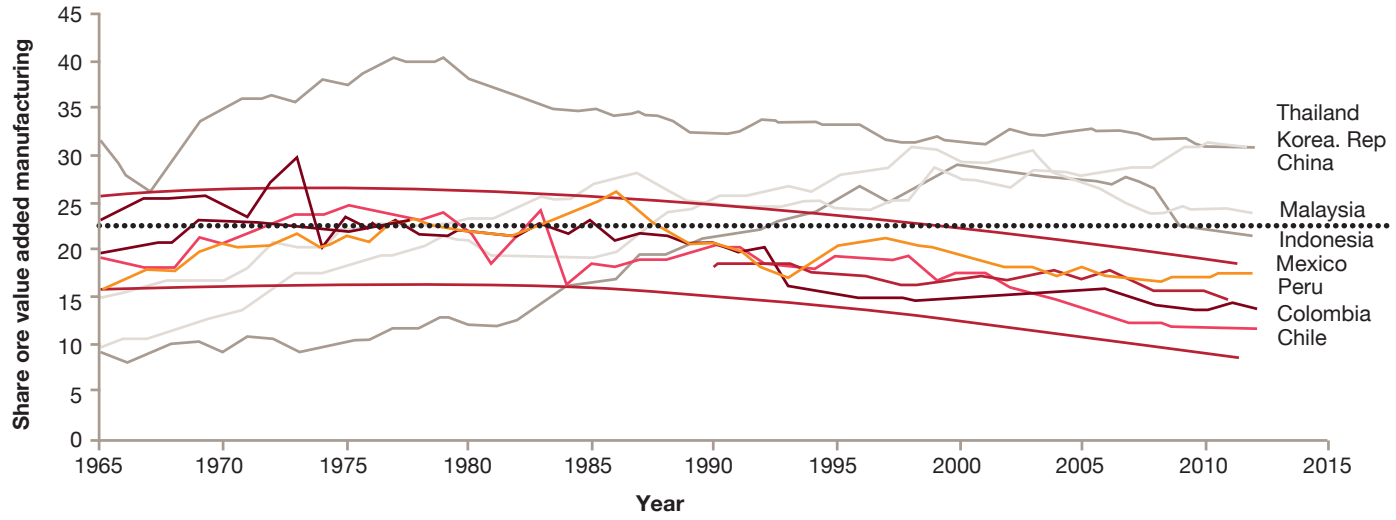
Chile's mining sector is committed to improving the concessions system to encourage exploration and to facilitate the opening of new mines. Community consultation is key, as many of the deposits are located in Chile's arid north where numerous indigenous communities live. Chile's independent legal framework facilitates the delivery of permits for exploration and mining, as well as water and property rights. Today, greater citizen participation is encouraged at meetings through associations such as Valor Minero and in other ways.[95]

Economic Dimension Manufacturing

Relevance

Over the last five decades, 13 economies experienced sustained GDP growth in excess of 7 percent. Ten of these 13 were manufacturing-led economies, suggesting the importance of manufacturing as a growth engine. Chile, Colombia and Peru's economies have suffered a gradual decline in the share that manufacturing contributed to GDP over the last decade. This contrasts starkly with Asian economies such as Thailand, Indonesia and China, where the manufacturing sectors grew 7 percent, 5.6 percent and 7.9 percent, respectively, in 2012. Peru's value-added manufacturing sectors contracted by 1.5 percent in 2012, Colombia's by 0.1 percent and Chile's by 3.6 percent (dropping to 1.1 percent in 2013).[96]

Share of value added manufacturing for emerging markets on an uptrend; leading to robust economic growth



Source: The World Bank Database.

Challenges

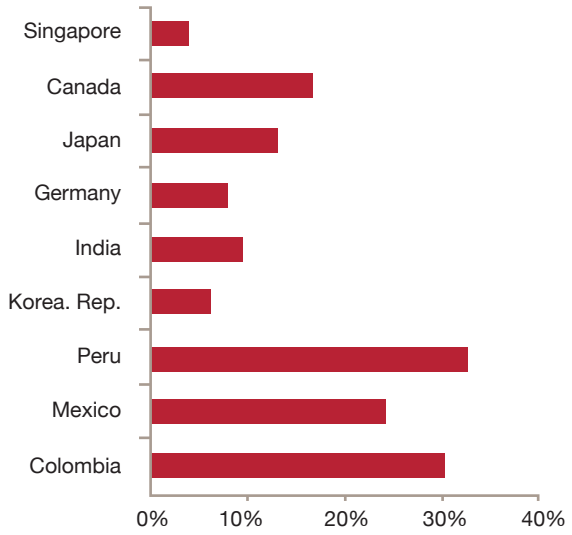
The Pacific Alliance must consider what a favorable policy regime for the sector entails, and what extraordinary actions may be needed to create attractive manufacturing destinations for local firms, multi-latinas, and multi-nationals. This can mean tax incentives for manufacturers, long-term land planning for manufacturing clusters or initiatives to develop specific sectors. To improve its manufacturing competitiveness post-NAFTA, Mexico implemented such polices, helped by its close proximity and appropriate connecting infrastructure to the United States, a key export market.

In the future, nations that are able to maintain high labor productivity and incorporate technology into their manufacturing processes will be the most competitive worldwide. This positive cycle will continue as long as nations have technological innovation and educated workforces to boost productivity. This is the key to adding value to a manufactured product.[97] In the PA nations, the key factor is the expected demand for manufacturing goods from the huge and growing middle class, which will continue to grow over the next 20 years as seen from our projections.

Technologically complicated, physically smaller and more complex products provide the highest profit margins, adding far more value to an economy than lower-tech industries in nations with a large middle class. Currently, however, such higher value-added manufacturing does not exist in Chile, Colombia and Peru, and it has only a budding presence in Mexico. To their credit, governments in the PA nations have identified their shortcomings and have begun to react. Initial movements include efforts to remove inefficient regulation and to design structures that provide incentives for human and technical innovation—the drivers of successful manufacturing.[98] Private sector investment during this critical, early period will push further change and subsequent growth.

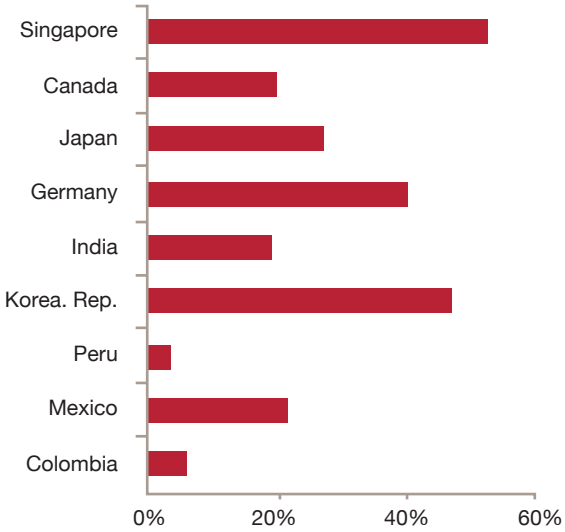
The share of value-added manufacturing in Pacific Alliance countries has declined over the last decade. A closer look at the breakdown of manufacturing sector output reveals that Chile, Colombia and Peru host little high-tech manufacturing. The low- and medium-tech sectors such as food, beverages and textiles form a significant proportion of the total manufacturing output of these economies. Although these industries are important for growth, their products' low complexity limits the value they add to economies.

Food, beverages and tobacco
(% of value added in manufacturing) 2001-2015



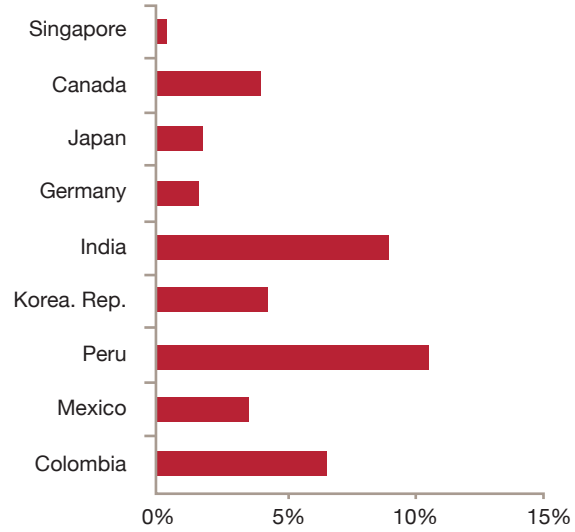
Source: The World Bank Database.

Machinery and transport equipment
(% of value added in manufacturing) 2001-2015



Source: The World Bank Database.

Textiles and clothing (% of value added in manufacturing)
2001-2015



Source: The World Bank Database.

Besides their low share of high-tech manufacturing, the PA economies have low labor productivity year on year, well behind competitive East Asian markets. Two things contribute to this. First, the PA states lack productive workers with skills that value-adding manufacturing companies need, such as engineering. Better-educated workers on the whole drive higher productivity. Second, there is little investment in research and development. PA states invest less than 0.5 percent of their GDP on research and development, compared to 4 percent in South Korea and 2 percent in China—two far larger economies. Finally, a lack of security and trade infrastructure limits their economies' potential. Chile, Colombia and Peru consistently rank below the median in the World Economic Forum's Global Competitiveness Index for these reasons.[XVI] Each state must improve these metrics in order to become more attractive, individually and as the Pacific Alliance.

XVI The Global Competitiveness Index is measured across 12 dimensions – Institutions, macroeconomic, health & education, goods market efficiency, labor market, financial market, technological readiness, market size, business sophistication and innovation.

The PA also lacks infrastructure to both move goods and to create manufacturing clusters. For example, Colombia lacks infrastructure efficiency. It costs more to move a product from Bogota to Cartagena than from Bogota to Hong Kong.[99] Poor infrastructure, specifically unpaved roads and outdated rail service, inflates shipping costs and prolongs journeys. While Colombia has begun ambitious infrastructural development plans, sluggish progress prevents it from reaching Mexico's standard, and from driving efficiency within the Pacific Alliance. While a lack of infrastructure hinders trade for now, the Pacific Alliance agreement stimulates demand for new construction, opening a potential new vein of activity for private sector contracts.

This lack of infrastructure also makes it hard for nations to develop manufacturing clusters in which different parts of the manufacturing supply chain can work together, by making immediate geographic proximity a requirement. Universities, private companies and government are not operating in a cohesive way in the PA nations, something that will be needed for them to compete with Asian countries in particular. Moving such institutions physically closer to each other will increase flow of ideas, and improving the physical and digital infrastructure connecting them will expand the reach of the clusters and the products they are producing. This could bring the manufacturing sector to more advanced levels.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Manufacturing Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the manufacturing sector, in particular, the strategic bets we have identified will contribute innovation and value-adding.

Strategic Imperatives

The PA economies should aim to improve their manufacturing competitiveness in order to bolster their manufacturing industries. Improved competitiveness will bring investment from multinational corporations, driving innovation and facilitating its spread throughout the region. Technology spillover could help drive the manufacturing of high-tech products. Our analysis highlights the following strategic interventions as critical for the development of the manufacturing sector in the PA countries.

Improving overall manufacturing competitiveness of the PA economies

- Improve labor productivity through adequate training and use technology to reduce manual processes.
- Address institutional roadblocks that hinder local company participation, specifically lack of infrastructure.
- Upgrade manufacturing facilities to improve efficiency.

Focus on development of higher value-adding opportunities in the manufacturing sector

- Identify and develop high-tech sub-sector expertise that results in longer-term competitive advantage and innovation.
- Develop the high-quality skills base required to lead innovation; promote science, technology, engineering and mathematics (STEM).
- Identify and provide additional services beyond pure product manufacturing, specifically supporting technology.

Strategic bets

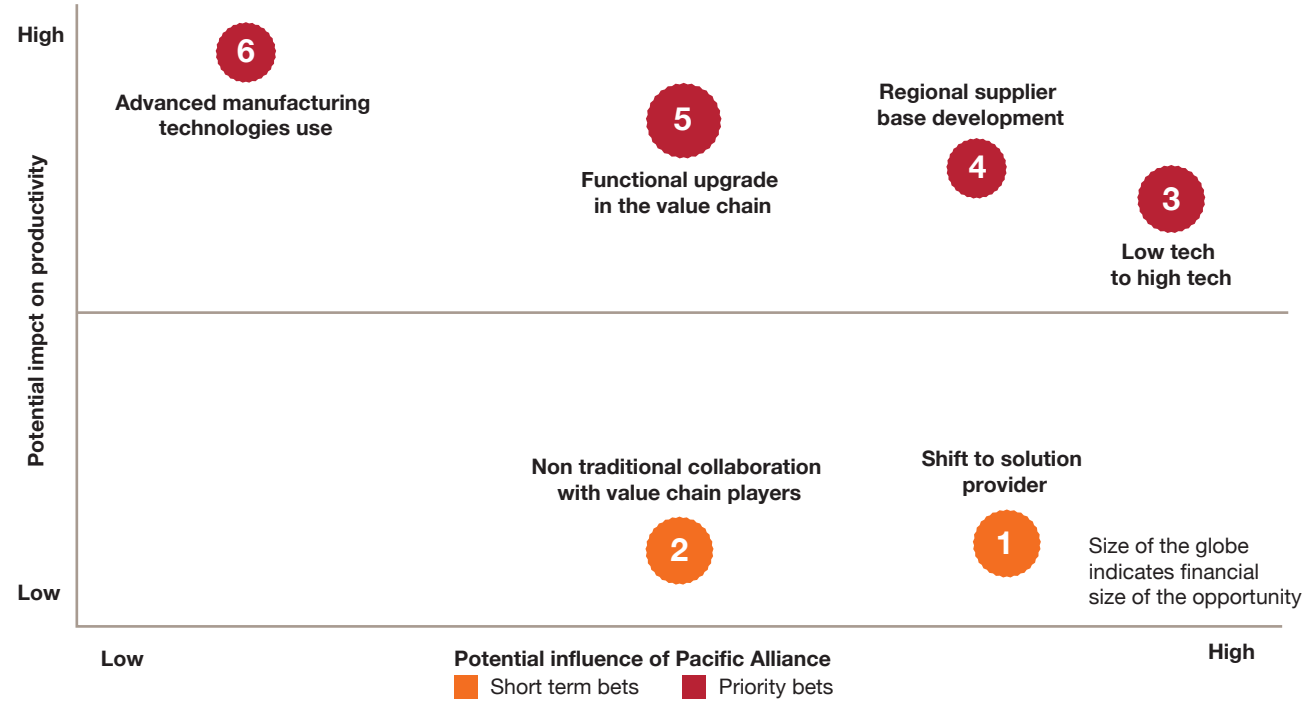
The Strategic Bets in the Manufacturing sector target areas, which contribute to – and benefit from – knowledge productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments. The strategic bets for Manufacturing are:

1. *Shift in focus from product to solution provider.*
2. *Forming non-traditional collaborative partnerships to create transparent supply chains.*
3. *Shifting the focus from low-tech to high-tech products.*
4. *Development of a regional supplier base in industrial clusters.*
5. *Functional upgrade from pure manufacturers to complete commercial capabilities.*
6. *Use of advanced manufacturing technologies for agile product production, cost and design.*

Manufacturing Short term bets



Source: PwC Analysis.

1.A shift in focus from product to solution provider

Manufacturing, coupled with ancillary service offerings of installation, training, maintenance, service and transportation, has gradually emerged as a global market opportunity. Manufacturers should seek to transform from makers of boxed products to providers of end-to-end solutions. Customers' growing need to have packaged solutions drives this phenomenon. Manufacturers' ability to meet this demand has evolved with R&D and the expanding ability to build systems rather than individual components. As the complexity of products increases with high-tech manufacturing, the need for post-sale solutions will gain importance, as well. This is a natural shift to ensure sustained profitability with additional revenue streams.

The PA framework helps provide a larger market base as goods and services begin to move freely across its member states. Similarly, sub-sectors in one country can share best practices with other clients for wider uptake across multiple product categories. In their new roles as "solutions providers," private players would need to focus on talent development, as the competence requirement for selling solutions would be distinct from that of selling products. They also need to revisit their business model choices to enable the shift. While the larger *multilatinas* have easier and cheaper access to capital, the smaller and medium-size manufacturers require access to capital to make the shift towards service offerings. Government subsidies and financing can help bridge this capital gap.

Rotoplas *is a Mexican manufacturer of plastic water tanks that made the shift to solution provider. It has developed integrated product and service concepts to address issues around community water availability. Keeping local country needs in perspective, Rotoplas has shifted its focus toward integrated water solutions—from storage and flow to treatment, catering to pressing water and sanitation needs in its respective home markets. Rotoplas now provides similar solutions at plants in 11 other nations in the Americas, including the United States and Peru.*[100]

2. Forming non-traditional collaborative partnerships to create transparent supply chains

Customer experience takes on a different dimension in the manufacturing sector. Companies are putting forward much more information; this transparency changes the speed of reaction and decision-making. One manufacturer's customer is another's supplier, making the flow of information more complex. Participants in the value chain are actively sharing and jointly planning product delivery, changing the way that actors have historically followed the value chain. They are turning business-to-business into a peer-to-peer world by automating links to customers' enterprise resource planning (ERP) systems, providing access to real-time production status and logistics updates—and even allowing customers flexibility in how they schedule work. By sharing information, they let their customers make better decisions, and they turn buyers into partners.[101]

Additionally, manufacturing companies are collaborating with their customers to build relationships and drive incremental revenue. The manufacturers receive constant and effective feedback from the end consumers, helping the manufacturer remain closer to market trends.

The PA platform provides wider partnership potential for existing players in the manufacturing value chain, first within borders and then moving forward to bridge country gaps with regional partnerships. Since information exchanges between value chain players and end customers lead these partnerships, private players need to develop strong data analytics and integration capabilities.

Bimbo, the Mexican producer of industrial bread products, has developed a program to provide products and help for hundreds of thousands of small, independent retail stores. This is part of a general strategy to respond to customers' needs in the best possible way. For example in Mexico last year, BIMBO helped small, family-owned shops integrate technologies, including digital payment, to raise productivity. This helps small businesses and, in turn, likely increases BIMBO's sales.

3. Shifting the focus from low-tech to high-tech products

The world market for manufacturing high-tech goods—such as aircraft, pharmaceuticals, communications equipment, computers—has expanded rapidly and contributed to global economic growth. Studies have shown that high-tech sectors are more resilient to global volatilities than low-tech sectors.[102] These sectors exhibit increased productivity, greater participation in the global value chain and more employment opportunities.

High-tech manufacturing requires a mind-set shift from existing resource industry dependency toward more value addition. The public sector must support this shift with favorable policies, and then the private and public sectors must look together for the investments to back this up. Shifting the focus to high-tech manufacturing ensures greater value creation while decoupling the member countries from commodity price fluctuations.

Private players need to lead this transformation with an increased focus on research and development. Regional companies must make strategic R&D investments that would provide long-term competitive advantage. Next, the companies should form partnerships to develop and build key competences. For example, companies and universities could collaborate to develop technically savvy workforces through employee development programs or create mutually beneficial research labs.

Throughout this process, the government must ensure open markets that attract trade partnerships and FDI. PA branding efforts can and will be an important part of this. The Pacific Alliance can work to facilitate seamless delivery of goods and services to key export destinations. This begins with the eliminating of onerous tariffs and standardizing regulatory schemes. Finally, adequate patent laws must be in place to protect innovations and new technologies.

Mexico has transitioned from low-tech to high-tech products, particularly in the automotive, aerospace and plastics sectors. Its auto industry has seen double-digit export growth every year since 2010. The plastics sector, valued at more than $20 billion per year, has averaged 13.4 percent export growth over the past five years.[103] Proximity to the U.S. market, along with favorable trade agreements, helped Mexico secure sustained growth over the last decade. The country supported this with strong infrastructure to transport goods, by legislating strategic tax breaks and by improving security in key manufacturing areas, allowing innovation and growth.

"The possibility of more efficient regional sourcing to the lager retail networks would benefit the integration process."

Mauricio Reyes, *Institutional Relations Manager, FEMSA*

4. Development of regional supplier base in industrial clusters

Regional industrial clusters bring better economies of scale, increase the availability of skilled labor and develop infrastructure. Furthermore, industrial clusters lead to technology spillover that develops related industries. However, industrial clusters need adequate infrastructure if they are to be regionally and globally competitive.[104]

While the influx of multinational corporations facilitates the formation of industrial clusters, local companies must participate to assure their long-term sustainability. In tandem, governments must provide tax breaks and subsidies to foster the breadth of skills and players in the cluster, as well as promoting the geographic concentration of the cluster. Research universities, incubators and other organizations contribute to this favorable business environment, and governments and the private sector should work to ensure their participation. The Pacific Alliance then can focus on connecting related clusters across PA nations. A distinct mining cluster at the border of Peru and Chile would be a strategic statement by the PA nations.

There are a number of local and multinational Tier 1 suppliers throughout 13 large, specialized clusters in Mexico's north, central and Bajio (lowland) areas. Consequently, Mexico has emerged as Latin America's manufacturing hub, with local parts-suppliers that are now required to meet the international quality standards demanded by original equipment manufacturers (OEMs). Because of its position as an auto-manufacturing hub, 89 of the world's top 100 auto-part makers have a presence in Mexico.[105]

Mexico's clusters were formed thanks to a number of common drivers. First, each region attracted specialized providers and workers. The number of students graduating in STEM degrees in Mexico is higher than in Brazil, Germany, Spain and the UK, so these workers are readily available.[106] The presence of providers and workers attracts large companies, which in turn bring more specialized providers and workers. Finally, all of this must take place in geographical proximity. Mexico has been able to organize its economic and policy actions, including tax incentives and regulatory schemes, to facilitate the growth of these clusters.

5. Functional upgrade from pure manufacturing to complete commercial capabilities

Functional upgrade refers to manufacturers that acquire post-production capabilities to develop products fully under their own brand name. This could include branding, distribution, marketing and sales, field services and so forth. The manufacturing value chain can be broken down into three stages: research and development, fabrication, and brand and servicing. Development of capabilities to add value across this chain helps the manufacturers sustain profitability. Functional upgrades typically face competition from existing partners who would eventually become competitors.

South Korea underwent this functional upgrade successfully, with recognized brands like Hyundai and Samsung making the shift. In the past, these brands were providing parts for other more publically visible companies. Although they still do, these companies now have their own brands with their individual distribution, marketing and maintenance structures.

The functional upgrade integrates a focus on R&D and increasing trade potential. However, not all manufacturing sectors have equal potential for functional upgrades. Companies should determine if their products would face any obstacles when trying to extend their work into other areas.[107]

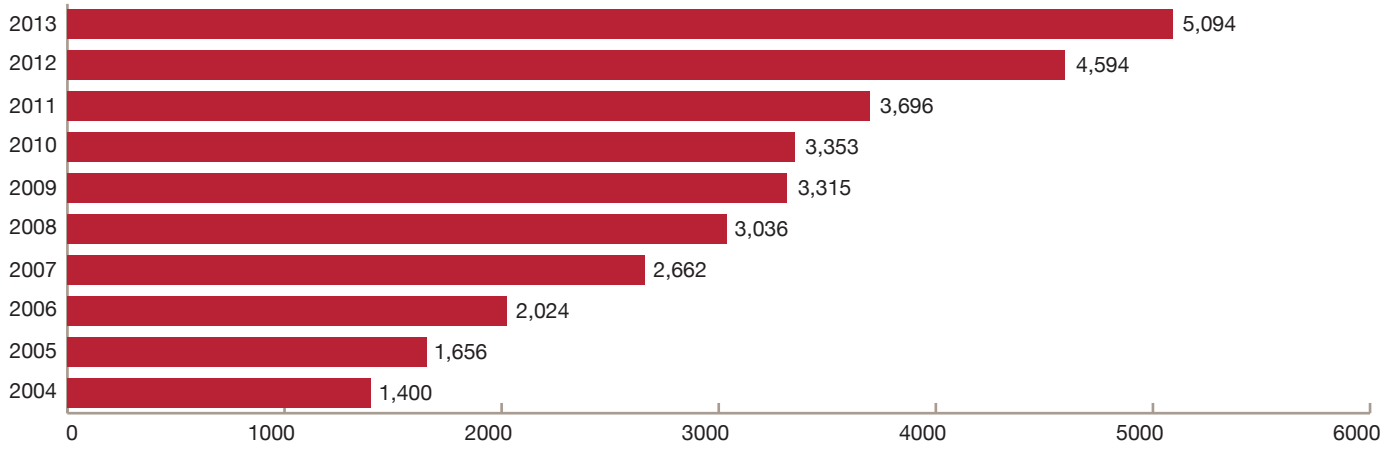
Upgrading requires private players to develop relevant competences and capabilities, organically or inorganically, based on the market scenario. A WTO report highlights the three key steps of functional upgrading. First, the company must address the home market in addition to working with partner multinational corporations. (With the PA, the "home market" will ideally include all four member states, changing this step in some ways.) Second, companies will learn by being active in multiple value chains at domestic, regional and global levels. Finally, industrial clusters are vital for fostering functional upgrades.[108]

Texma is a textile manufacturing company in Peru that works mostly with cotton. It recently started to use advanced technology to speed up its supply chain operation, while still maintaining the highest quality work. Now rather than just producing cotton, it manufactures the final product to be sold in stores. Texma is one of the first companies in Peru to insert advanced technology into the textile process.[109]

6. Advanced manufacturing technologies for agile production, cost and design

Industrial robots continue to revolutionize manufacturing. As they become smarter, faster and cheaper, they're being called upon more than ever to do more than traditional repetitive, onerous or even dangerous tasks such as welding and materials handling. A PwC report estimated that there were 1.5 million robots involved in manufacturing, with about 230,000 in the United States alone.[110] The technology is evolving.0 According to a report published by the UK Intellectual Property Office, the number of global published patents for these technologies surpassed 5,000 in 2013, the highest level ever, up from 1,400 in 2004. That comprises of 9 percent of global patents across all technologies, highlighting the need for a robust patent regime for long-term sustainability of companies focusing on advanced innovative technology. Although the number keeps going up, Chile, Colombia and Peru still have none of these patents. Mexico has fewer than 3 percent of the total.[111]

Total number of published patents for robotics and autonomous systems



Source: UK Patents Office.

In the PA, advanced manufacturing technologies are most relevant in the automotive industry, and they are gaining prominence in the consumer goods and pharmaceuticals sectors. This is important, as manufacturers from diverse sub-sectors are under increasing pressure to respond quickly to customer preferences and expectations, resulting in growing requirements for shorter product lifecycle. Advanced systems help manufacturers become agile in their design process so as to meet customers' individual needs with shorter turnaround times. As companies continue to embrace robotics and other advanced manufacturing technologies, their success will largely hinge on shaping a workforce that can best exploit them. Providing appropriate funding for universities would help the private sector innovate and source talent.

It is critical that the government provide easier access to credit through subsidies and development of a robust patent protection regime. Additionally, local governments need to drive investments into STEM fields. Favorable business environments attract multinationals with requisite expertise to invest in these markets. The PA should work to cultivate this kind of environment in its four nations.

Helvex is a leading kitchen and bathroom fixture manufacturer in Mexico that uses prototypes throughout its product development process. Helvex has drastically cut the time required to produce prototypes, allowing them to test and improve more of them—and more quickly. For industrial models, 3D printing yielded time savings of between 30 and 40 percent; it saved 50 percent of the time for functional faucet prototypes.[112]

Economic Dimension
Oil and gas

Relevance

Energy is the world's largest industrial sector, providing essential input to virtually all goods and industries in the global economy.[113] Recognizing that sustainable energy is a prerequisite for sustainable development, the United Nations has set the following goals for 2030 through its Sustainable Energy for All initiative:[114]

- Ensure universal access to modern energy services.
- Double renewable energy's share in the world energy market.
- Double the global rate of improvement of energy efficiency.

According to 2015 rankings, the PA countries' performance metrics, in a ranking of 130 countries, are as follows:[115]

Country/Dimension	Energy Security	Environmental Sustainability	Energy Equity	General Ranking*
Member countries of the Pacific Alliance				
Colombia	13	3	58	18
Peru	27	36	84	40
Chile	57	81	51	43
Mexico	37	80	61	48
Other countries				
United States of America	3	95	1	12
Argentina	9	30	103	47
Brazil	43	17	78	37

* Includes additional considerations on the political, social and economic strength of the countries, therefore, it can be above or below the specific energy rates.
Data for 2014, items from the Harmonized System in four digits.
Source: 2015 Energy Trilemma Index: benchmarking the sustainability of national energy systems; World Energy Council, 2015.

Colombia has a relatively strong 18th-place general ranking; it places third in environmental sustainability. Mexico's story, however, is quite different. It ranks 48th overall and 80th in environmental sustainability.

Challenges

Mexico, Colombia and Peru produce and export quantities of hydrocarbons, and all Alliance states are major importers of hydrocarbon by-products. Despite the PA members' supply and collective demand, only a small fraction of intra-Alliance trade is in hydrocarbons.[116]

Mexico leads oil and gas production in the Pacific Alliance, a position that was reinforced in 2013 when it ended a domestic 75-year state monopoly in the energy sector. Despite decreasing production and declining world oil prices, Mexico's hydrocarbon industry remains very attractive.[117]

Colombia dramatically increased its hydrocarbon production in 2008 following a successful set of regulatory reforms that boosted oil and natural gas exploration and production. According to our projections, this trend will likely continue, particularly in oil production.

Peru has the eighth-largest oil reserves in Latin America, most of which are onshore in the Amazon region.[118] The country also has the third-largest natural gas reserves in Latin America after Venezuela and Mexico. Peru is a net oil importer and obtains most of its crude from Ecuador and the United States. In contrast, Chile, the fifth largest energy consumer in Latin America, has few hydrocarbon reserves, although it does export small quantities of natural gas.[119]

The decline in world oil prices, which was as low as $30/barrel in 2015, has significantly cut government revenue in petroleum-producing and exporting countries. However, there has been an increase in the availability of low-cost natural gas, derived from the recent rapid increase in production in Canada and the United States. Mexico also has taken a role, importing gas from the United States to supply power plants and industrial areas—and even export to Guatemala and other countries in Central America.[XVII]

XVII Algunos representantes de la industria en Estados Unidos también expresaron su visión que México y su red de tuberías puede ser una alternativa más barata para exportación de gas a Asia.

Cheap fossil fuels benefit the actual petrochemical industry, for which gas is the main raw material. Ethylene production in the United States, based on ethane gas, is expected to increase 45 percent from 2015 to reach 35 million tons in 2020; globally production will double by 2040.[120] As the raw material for a wide range of products, it is already the most-sought hydrocarbon outside the transport sector (crude oil) and the electric power subsector (gas). This petrochemical production growth is making North America the world center for this product, Mexico and the other Pacific Alliance nations should take advantage of the abundance of this in-demand product.

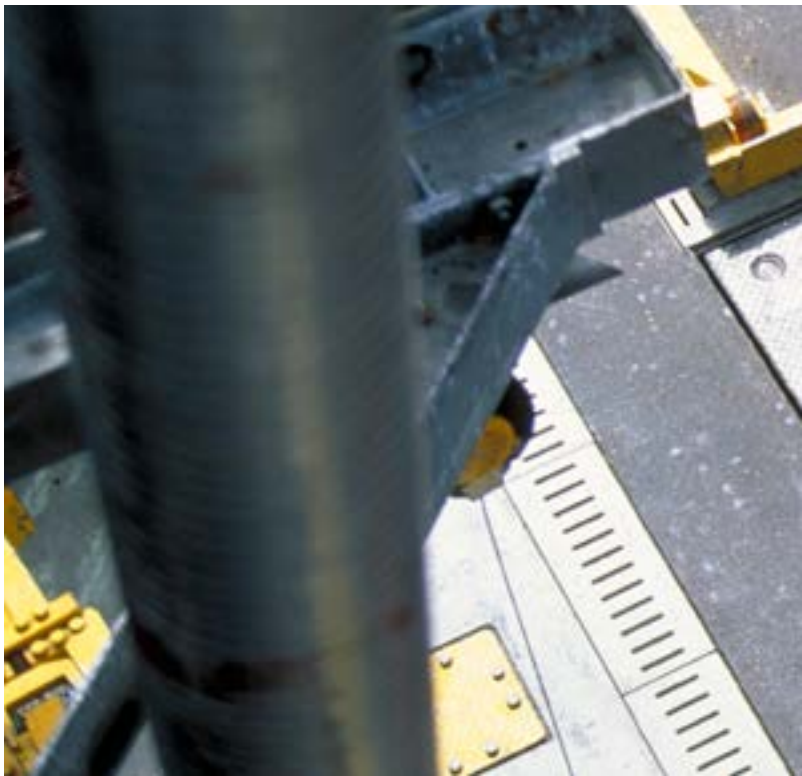
Despite being large producers of hydrocarbons, the Pacific Alliance states export them to non-Alliance countries while importing refined products. Mexico is already the world's largest importer of gasoline, buying more than 400,000 barrels per day.[121] Peru and Colombia are currently conducing major upgrades of their refineries; Mexico is set to begin similar projects. That said, the drop in world oil prices has restricted the availability of public resources to make the necessary investments. Large oil companies in the Pacific Alliance, both state-owned and private, should design strategies for an ongoing low-price scenario.

The Pacific Alliance's reserve levels limit the attractiveness of investment in the oil and gas exploration and production industries. *At current production levels*, Colombia's proven oil reserves will last seven years, Mexico's 11 years and Peru's 29 years. As for natural gas, the countries' proven reserves at current production levels will last 11.1 years in Peru, 15.5 years in Colombia, 18.5 years in Chile and 9.0 years in Mexico.[122] To remain attractive, member states must increase investment and private participation in hydrocarbon exploration. This is essential, as they provide significant government revenue and inputs for the local industries.

Lower oil prices make exploration an expensive endeavor, although it is a necessary investment to ensure continuity of the PA states' oil and gas industries. New discoveries are needed to ensure that the oil and gas sector remains a relevant revenue source for national governments and a source of raw materials for local and regional manufacturers. There are existing conditions to develop clusters of local suppliers in the upstream industry, taking into account that in Colombia and Peru, the opening to global investment took place before that in Mexico and, therefore, suppliers have more experience with big international operators.

Overall, the Alliance's oil and gas industries lack strong national value chains, which could be encouraged through better public-private partnership schemes. They also lack the components needed for the development of strong regional suppliers under cluster schemes that would promote inter-business cooperation and align the actions of different government levels. Suppliers include oil well input suppliers, technical and engineering companies (with several specialized knowledge fields), drilling companies, catering and hoteling service providers, etc.

All actions in the Oil& Gas industry will need to consider environmental impacts in a more present way in the future. This is especially true in a nation like Peru, where much exploration is expected to occur in the Amazon Region since that is were most of the onshore reserves currently are. Community impact will need to be strongly considered.



Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Oil & Gas Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the oil & gas sector, in particular, the strategic bets we have identified will drive overall economic development in a long term and strategic way.

Strategic Imperatives

In Alliance member countries, the imperative should strengthen long-term sustainability of the industry with specific actions:

Increase proven reserves
- Focus on reserves with lower exploration development costs in the short term.

Align the sector with climate change policies and environmental regulations
- Develop national biodiesel programs.
- Produce cleaner fuels.
- Apply environmental assessments with a regional strategic approach.

Increasing efficiency
- Develop local clusters to enhance cooperation among small and medium enterprises (SMEs).
- Consolidate reliability along the value chain.
- Promote complementary business opportunities (e.g. electricity cogeneration).
- Design and implement new business models.

Promote new investment opportunities
- *Upstream:* Public-private partnerships with national oil companies (*farm-outs,* etc.), new tenders for exploration, drilling, extraction and production.
- *Midstream:* storage, network of pipelines, port facilities.
- *Downstream:* refining capacity (modernization, expansion of capacity), petrochemical plants, distribution and sale.

Strategic Bets

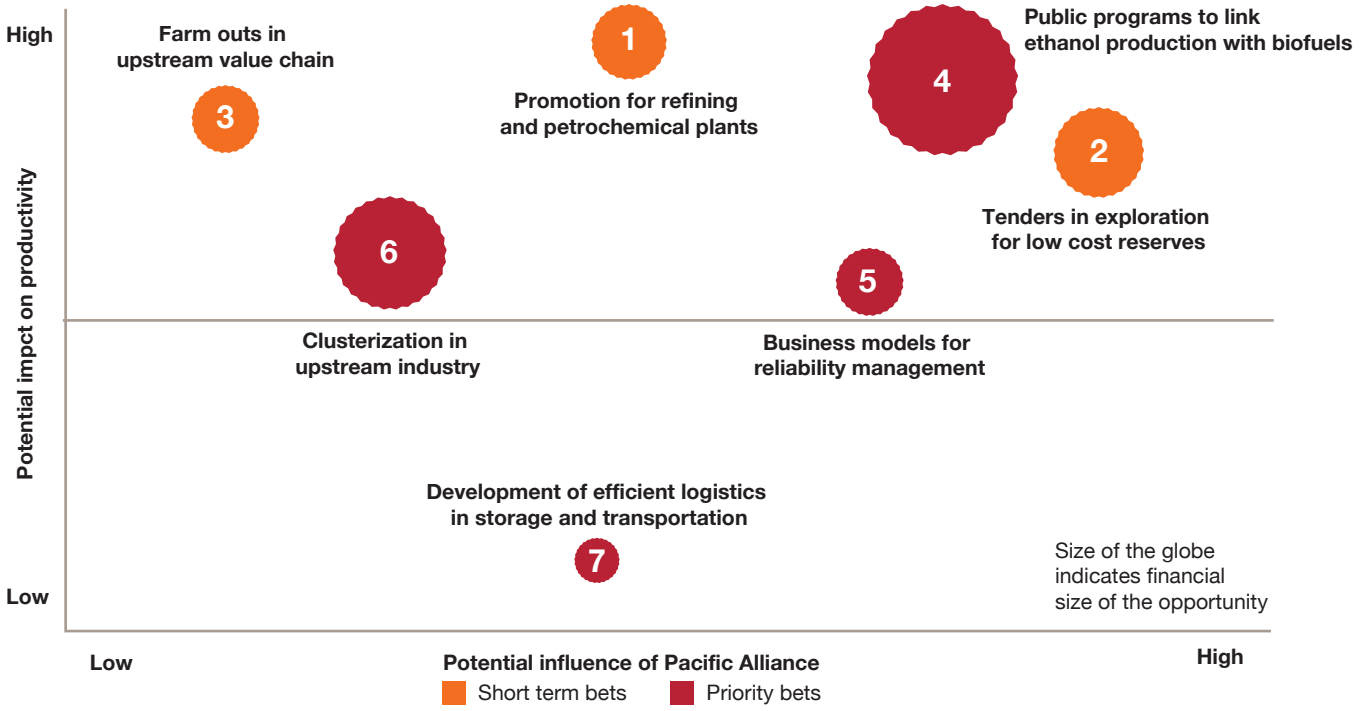
The Strategic Bets in the Oil & Gas sector target areas, which contribute to – and benefit from – knowledge and physical capital productivity drivers.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments. The bets identified for the Oil & Gas sector are:

1. *Selective promotion of investments in refineries and petrochemical plants.*
2. *New tenders for exploration and production of oil and gas in low-cost development areas.*
3. *Define business models and tender conditions to promote farm-outs in the upstream oil and gas industry.*
4. *Long-term public programs for linking ethanol production with the production and marketing of biofuels.*
5. *New business models for managing the reliability along the oil and gas value chain.*
6. *Creation of local clusters in the upstream industry.*
7. *Definition of business models, technical conditions and logistics chains to store and transport oil, gas and derivatives.*

Oil and Gas Short term bets



Source: PwC Analysis.

1. Selective promotion of investments in refineries and petrochemical plants

The refineries in the PA countries require modernization to meet state of the art environmental impact levels (versus just local regulations) and increase the percentage of distillates in the final product mix. In a scenario of low oil prices, petrochemical plants may be attractive business options, to the extent that they have secured the raw materials and markets for their products. The Pacific Alliance states should standardize their regulatory schemes in order to facilitate greater cross-border operations.

This will be a method to produce cleaner fuels. For example distillate production in Mexico is notoriously insufficient and supply is unable to meet domestic demand. The country currently imports more than 400,000 barrels of gasoline per day and around 150,000 barrels of diesel. There is also a business opportunity for a private company to develop and operate a new state-of-the-art-refinery in the state of Campeche. In its first stage, the plant would process 100,000 to 150,000 bpd of fuel to the Yucatan Peninsula and export surpluses.

In Colombia, **Ecopetrol** is completing a $4.8 billion expansion and modernization of its Cartagena refinery, which will raise capacity from 150,000 barrels per day (bpd) from the current 80,000. With this investment in the downstream industry, diesel production will increase, ecological-quality gasoline will be developed and a surplus will be generated for the petrochemical industry.[123]

Petroperu is modernizing and expanding its Talara refinery to bring capacity to 95,000 bpd (barrels per day), up from the existing 65,000 bpd. The $3.5 billion project was over 30 percent completed at the start of 2016. Startup is scheduled for 2019 when the plant will begin producing high-quality fuels.[124]

Pemex will invest $23 billion over the next three years to upgrade its refineries under public-private partnership schemes. The modernized plants will produce cleaner fuels, reduce greenhouse gas (GHG) emissions and reuse waste products. PEMEX will also build cogeneration electric power plants with a capacity of 2.3 megawatts for consumption by the company, with the surplus to be sold. The Mexican company will also spend $200 million to increase ethylene production, in association with appropriate private firms, in order to meet domestic demand[125].

2. New tenders for exploration and production of oil and gas in low-cost development areas

The oil-producing countries of the Pacific Alliance need to increase their hydrocarbon reserves, an endeavor that will require technological support and financial resources. Exploration projects can bring substantial income for the state, and resource discovery entails massive profits for private oil companies. The Pacific Alliance could facilitate cross-border resource trading and ease the difficulty oil companies face when drilling in Colombia and Mexico simultaneously without needing a huge amount more resources.

The main opportunities in Colombia lie in deep-water drilling in the Caribbean. Depending on world oil prices, Mexico expects to receive around $2 billion in income from exploration projects over the next three years, particularly in the Gulf of Mexico and the deep-water areas of Cinturón Plegado Perdido.[126]

3. Define business models and tender conditions to promote farm-outs in the upstream oil and gas industry

These could take the form of contracts for strategic partnerships between companies that own exploitation rights and others that provide capital, technology or operational capacity. The *farm-outs* can accommodate the terms of each specific project. Their success will depend on the clarity and transparency with which the tenders are made.

***Farm-outs* in Pemex**
The first *farm-outs* will be held in Mexico during 2016. Ten packages were defined, with a total of 2.1 billion barrels of oil equivalent 2P (proven and probable) reserves and 539 million barrels of oil equivalent 3P (proven, probable and possible) reserves. The total investment is estimated at $32.3 billion over a five-to-10-year period. The areas include mature fields, extra heavy marine crude, giant deep-water gas fields and the deep-water oil field at Cinturón Plegado Perdido[127]. These areas hold a great part of the more viable short-term reserves, since PEMEX has already done most of the exploration and has a significant investment base.

4. Long-term public programs for linking ethanol production to the production and marketing of biofuels

The sugar industry is important in the three oil-producing countries of the Pacific Alliance, but new customers are needed to offset the gradual loss of demand of sugar, which is a global phenomenon.

Biofuel production based on ethanol from sugar cane has not developed on a large scale, but it is an item that has been losing market share all over the world as a sweetener.

Its growth will contribute, not only to generate greener fuels but also to stabilize the sugar demand.

Colombia currently allocates 80,000 hectares to the production of ethanol-based biofuels and has 5 million hectares that could cover domestic supply and turn the country into a world-class supplier.

In Colombia, **Ecopetrol** and **Mitsubishi** are investing in the largest biofuel complex with the aim of increasing the use of ethanol-based fuel in the country's central region to 10 percent, from the current 8 percent.[128]

5. New business models for managing reliability along the oil and gas value chain

Reliability refers to comprehensive asset management, including maintenance and operation, with a focus on safety and efficiency. This philosophy is based on the use of relevant information obtained with the help of specialized software and electronics. Both the upstream, midstream and downstream industries require this to define baselines, operational metrics and benchmarking, as well as to support decision-making. Predictive maintenance to prevent shutdowns and curtail costs is one way to improve reliability.

6. Create Alliance clusters in the upstream industry --to improve SMEs' capabilities to meet the requirements of new global players

Clustering allows SMEs to improve their technical and business skills through cooperation and dialogue with government agencies, research and development institutions, financial service providers and other specialized companies. There are already examples of clustering that provides growth. Aberdeen in Scotland, Stavanger in Norway and Houston in the United States have developed high-impact oil industry clusters. The oil-producing countries of the Alliance could learn from these cities, developing local clusters to meet the requirements of the operating companies and other global service integrators that are entering the market. The PA could facilitate cross-border joint ventures, while individual governments could help by eliminating regulatory barriers to clusters.

It should be noted that Colombia and Peru opened participation in their oil industries to global companies several years ago. Local oilfield service and supply companies responded to the demands of the international operators. Besides defining innovative schemes that allow local and foreign investment, those local companies now, have the opportunity to leverage that experience by entering the Mexican market as it opens to international players and competition.

In the current Mexican market, **Pemex** will now become one more operator competing with a broad set of global private companies. The creation of clusters, especially in the scenario of low oil prices and demands for efficient, low-cost services, could help emerging global players look to link up with local businesses and help them improve—for joint benefit. Ciudad del Carmen and Villahermosa are two areas of Mexico where SMEs serving the upstream oil industry are concentrated. Their locations are ideal to promote the consolidation of a cluster of local oilfield service and supply companies that helps to link similar companies from Colombia and Peru.

7. Define business models, technical conditions and logistics to store and transport oil, gas and derivatives

Owning the supply chain is not a priority of national oil companies, especially when owners of the gas and other derivatives may be other private companies. The four member countries of the Pacific Alliance need to improve their national pipeline networks and their sea and land terminals. Joint investment among the four states will work toward their mutual benefit and facilitate faster development of the industry.

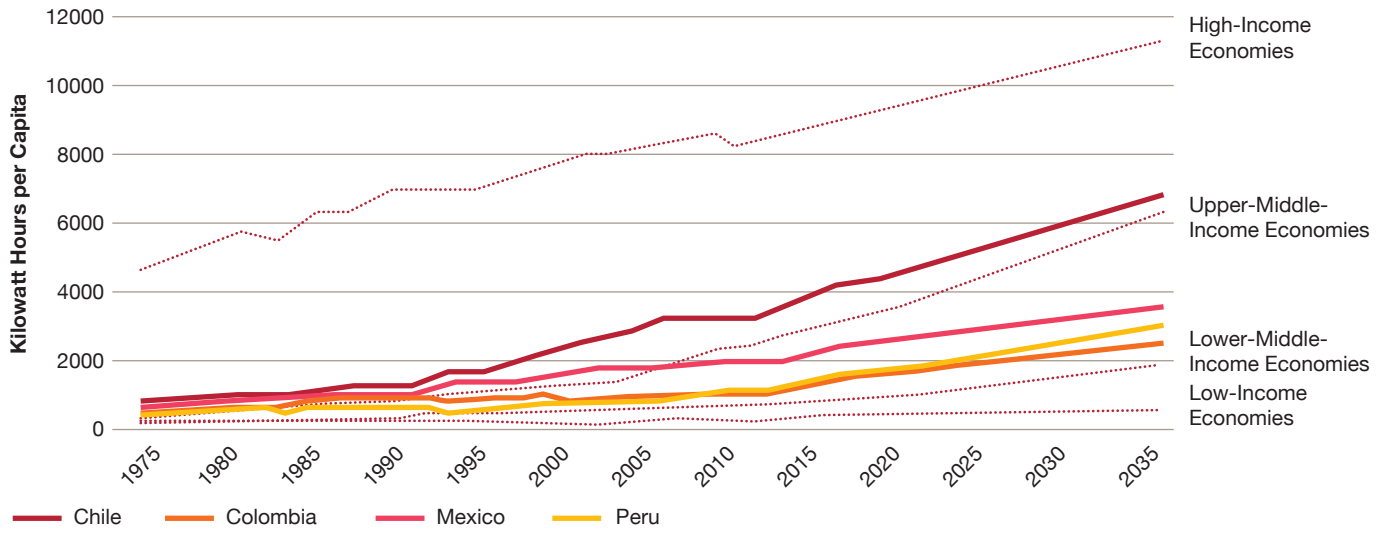
Pemex plans to open a tender in 2016 for a project to build a transoceanic pipeline corridor across the Isthmus of Tehuantepec, connecting the ports of Salina Cruz on the Pacific Ocean and Coatzacoalcos on the Atlantic. The contract value is estimated at $1.7 billion, including storage facilities and the required port facility improvement.[129]

Enabling Dimension
Power generation and renewable energies

Relevance

Within the Pacific Alliance, the primary sources of energy for electricity generation are fossil fuels (gas, oil and coal) in Chile and Mexico, and hydropower in Colombia and Peru.[XVIII] However, development of renewable and green energy sources (especially hydro, solar, wind and geothermal) is critical for the Pacific Alliance to reach its climate change and sustainable development goals, as electricity consumption in Latin America is projected to double between 2014 and 2035[130]).

Electricity Use per Person

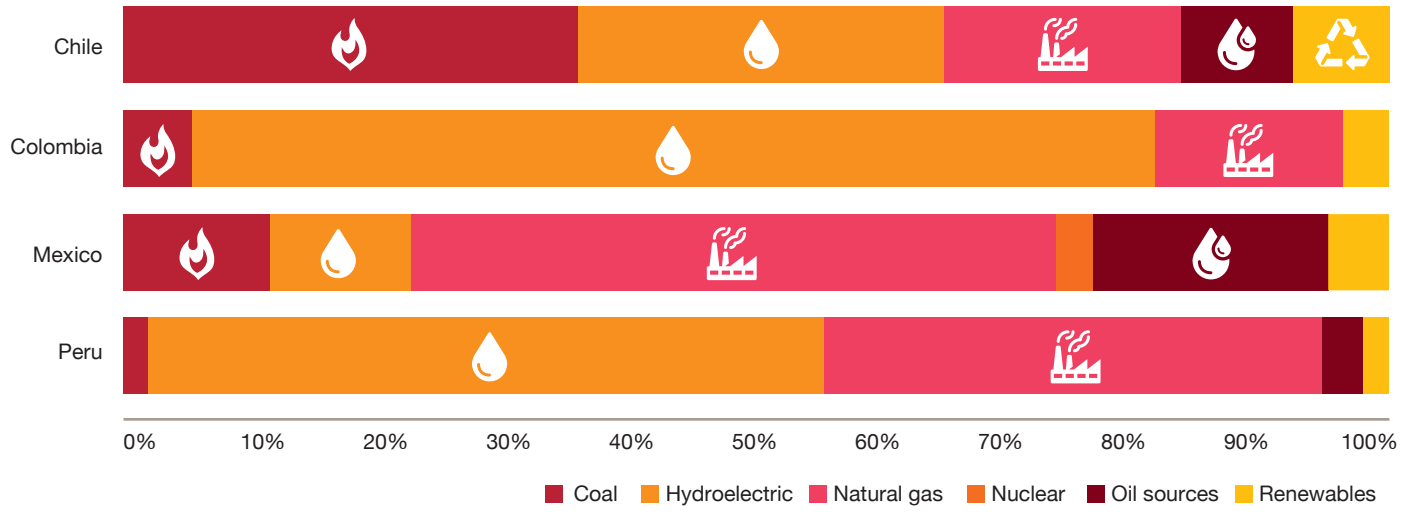


Source: Pardee Center for International Futures.

Along with this growth, Colombia, Mexico and Peru have committed to protect their richly diverse biospheres and to mitigate climate change. As a result, Latin America's efforts to generate electricity from renewable sources are among the world's most ambitious, second only to China.[131] The focus on renewables to date has focused on hydroelectricity plants in Brazil, Colombia and Peru, followed by wind energy farms in Mexico and Colombia and, more distantly, solar energy fields in Chile.[132]

XVIII The primary energy sources to generate electricity can be divided, based on their generation of greenhouse gases (GHGs), into fossil (coal, oil and gas), nuclear and renewable. Renewable energy can be further divided into conventional (large-scale hydro, biomass) and unconventional (wind, solar, geothermal, tidal).

Electricity production by source type by source type in Pacific Alliance countries (2012)



Source: World Development Indicator (The WorldBank).

Chile intends to generate 60 percent of its power from renewable sources by 2035, and Mexico has committed to generating 35 percent by 2024 (both forecasts include hydropower.) Colombia proposes to increase its share of non-conventional renewable energies between 6 and 10 percent by 2028, besides the 68 percent already based on hydropower. And by 2025, Peru intends to supplement its 60 percent of hydro-generated power with 5 percent of renewable-based energy.[133]

The extent to which the PA countries reach these goals depends on three factors:

- Regulatory, operational and business models that facilitate private sector participation in renewables.
- Continued convergence of the leveled costs of energy in the various technologies.[XIX]
- Political will to invest in and promote renewable energies.

XIX The leveled cost of energy is one that allows a comparison on the same basis of different investment, operation and maintenance costs of various technologies, taking into account their actual availability.

Challenges

The Pacific Alliance nations face a challenge in access to energy, particularly Peru and Colombia, where the 27 percent and 12 percent of the rural population respectively are without electrical service. Inexpensive technological solutions are available, such as small local networks based on the use of renewable energy (such as solar) and supplemented by traditional energy sources (such as diesel). A variety of other technology solutions are available.

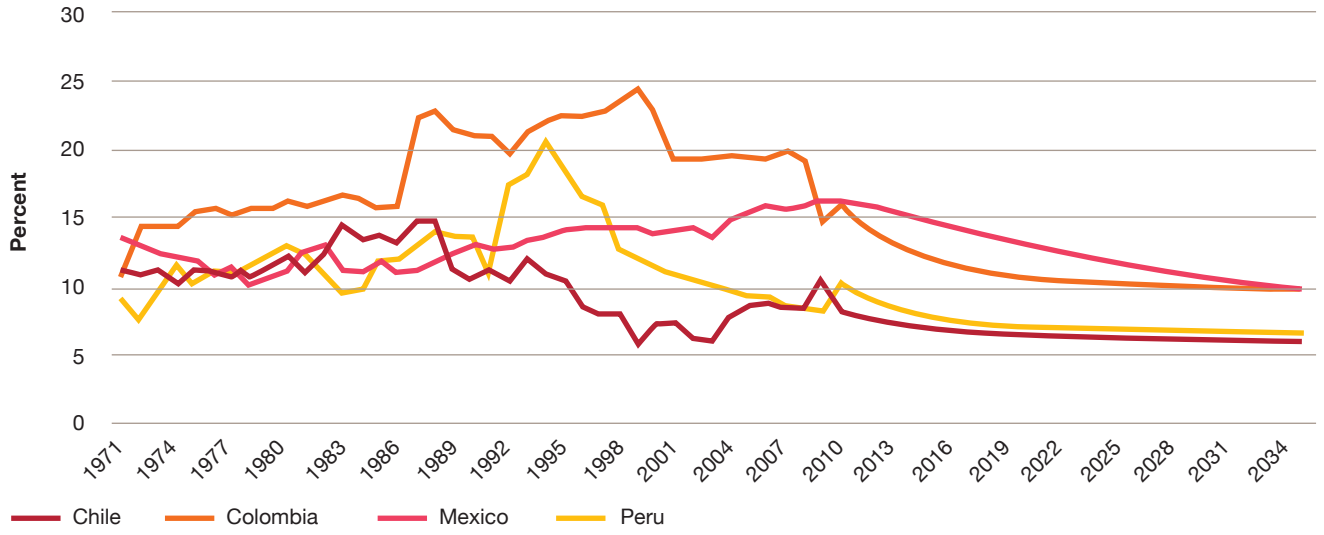
The investment required to increase electricity generation capacity in the PA states (including generation, transmission and distribution) is estimated as follows:[134]

Country	Increased Capacity, GW (2014-2030 annual average)	Investment Required (million USD)
Mexico	2,750	4,948
Chile	1,125	2,024
Colombia	750	1,349
Peru	500	900
Total	5,125	9,221

Source: The World Bank Database.

Electricity transmission infrastructure also requires investment across the Pacific Alliance, illustrated by electricity loss levels that are well above average OECD levels. In the case of Colombia and Mexico they are almost two times higher than comparable economies.[135]

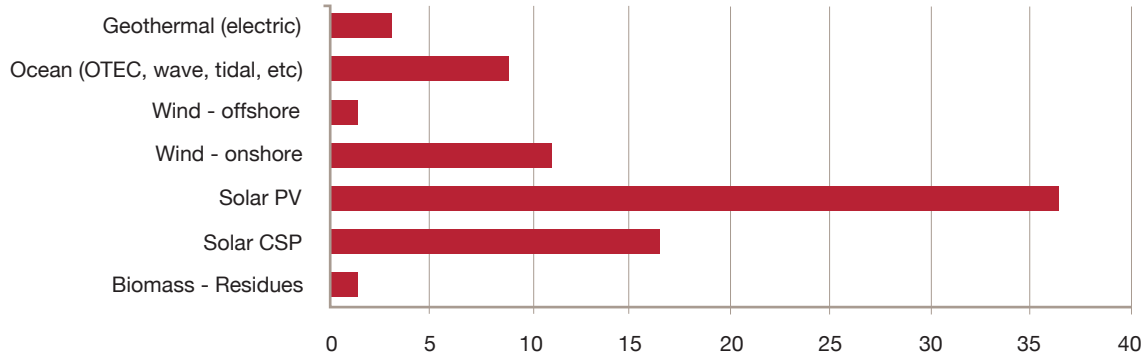
Electricity Lost During Transmission



Source: Pardee Center for International Futures.

To leverage the technical potential of renewable energies in Latin America and the Pacific Alliance, it will be necessary to increase member countries' joint efforts in research and development. PA countries could also form clusters for the generation of wind, solar and geothermal energy in areas of greatest potential, keeping in mind the integration of local communities, environmental sustainability and development of suppliers.

Renewable energy resource technical potential for electricity generation in LAC (PWh)

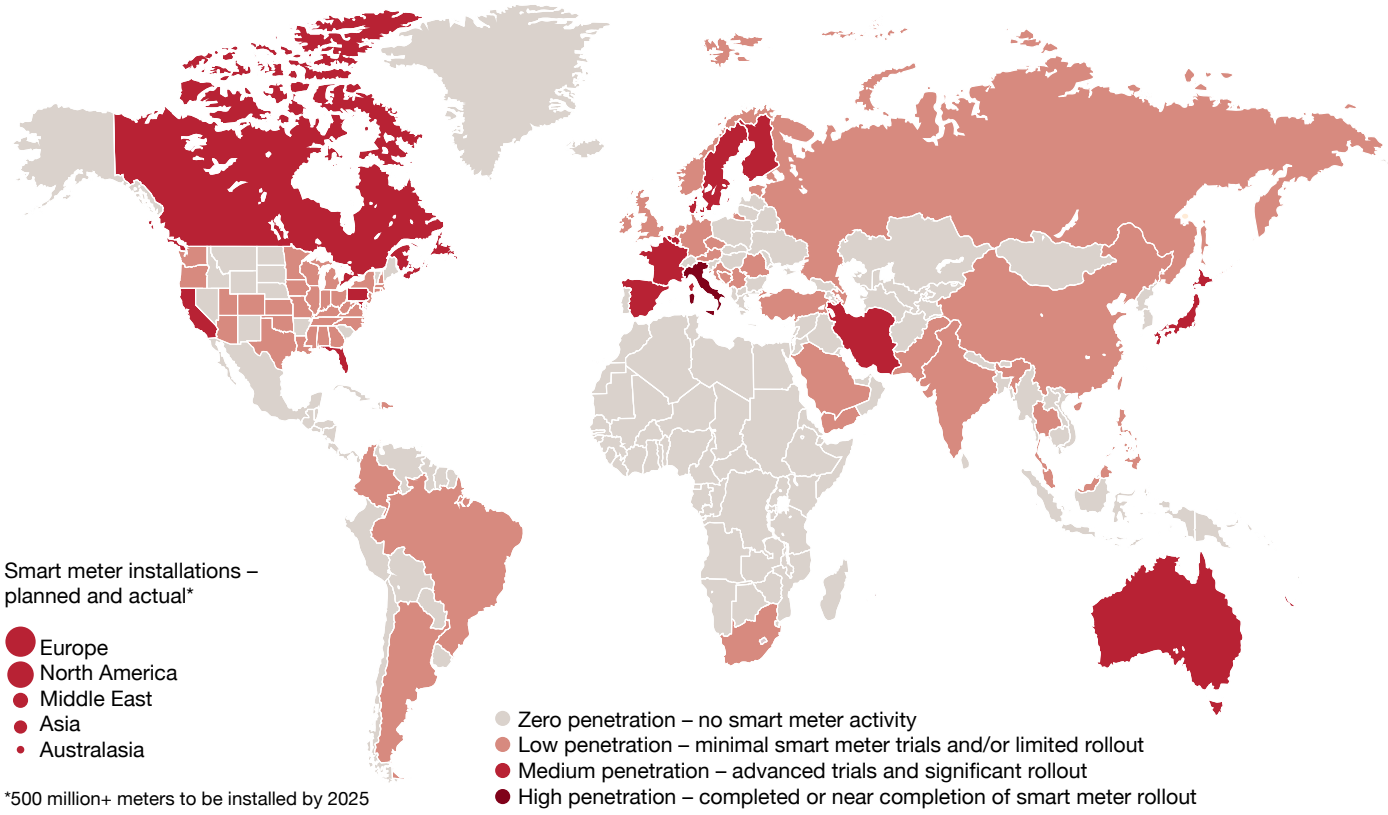


Source: REN21. Solar is in practices a limitless resource. However, in this study, the potential solar resource was bounded based on limited by space availability (assuming 269 million hectares for Mexico and Central America and 1,761 for South America) with an average land use factor of 0.6 average solar irradiation of 152.4 to 175.9 W/m2, 25% conversion of efficiency, and a performance factor of 90%.

National innovation ecosystems in the energy and power sector will need to be strengthened, in order to address the increasing use of renewable energy sources, and to adapt smart grids for local needs. They also will need to contribute to the challenges faced by the sector, such as energy loss in transmission and feasible energy storage options. The implementation of smart grids has hardly begun in the region, except for some research in Colombia in the last 5 years.

Currently, less than 5 percent of the assets in the power generation industry in the region are connected to other assets. By 2020, however, more than 10 billion power devices will link the industry's various assets. This will transform the subsector's value chain: power and information will flow in multiple directions and different actors will be able to add value. Energy suppliers will evolve into digital-industrial companies, and will rely on a mix of fossil fuels and renewables. The digital consumer will add demand response capabilities, as well as distributed generation and energy storage capabilities.[136]

Smart meters - a global view



*500 million+ meters to be installed by 2025

Source: Smart from the start; PwC, 2011.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Power and Renewables Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the Power and Renewables sector, in particular, the strategic bets we have identified will enable connectivity for all citizens and the region.

Strategic Imperatives

The strategic imperative for the PA's power and renewable energy sector should be to create an electricity platform for sustainable development in the region. This means achieving sector capacity, sector-level efficiency, and competitive prices, via the following actions:

Develop a robust backbone for the transmission and distribution of energy

- Promote primary energy distribution networks.
- Increase generation options.
- Reduce losses in electricity transmission and distribution.
- Implement smart grids to increase network efficiency.
- Develop distributed networks to interconnect remote areas and potential producers.

Promote areas for energy production according to the potential of each country

- Promote a sustainable energy mix at the regional level.
- Develop energy clusters and local suppliers around them.
- Integrate a regional network of research and development on renewable energies.

Improve regional energy security

- Interconnect energy grids within the Alliance countries.
- Develop regulatory framework to encourage new business models.

Strategic Bets

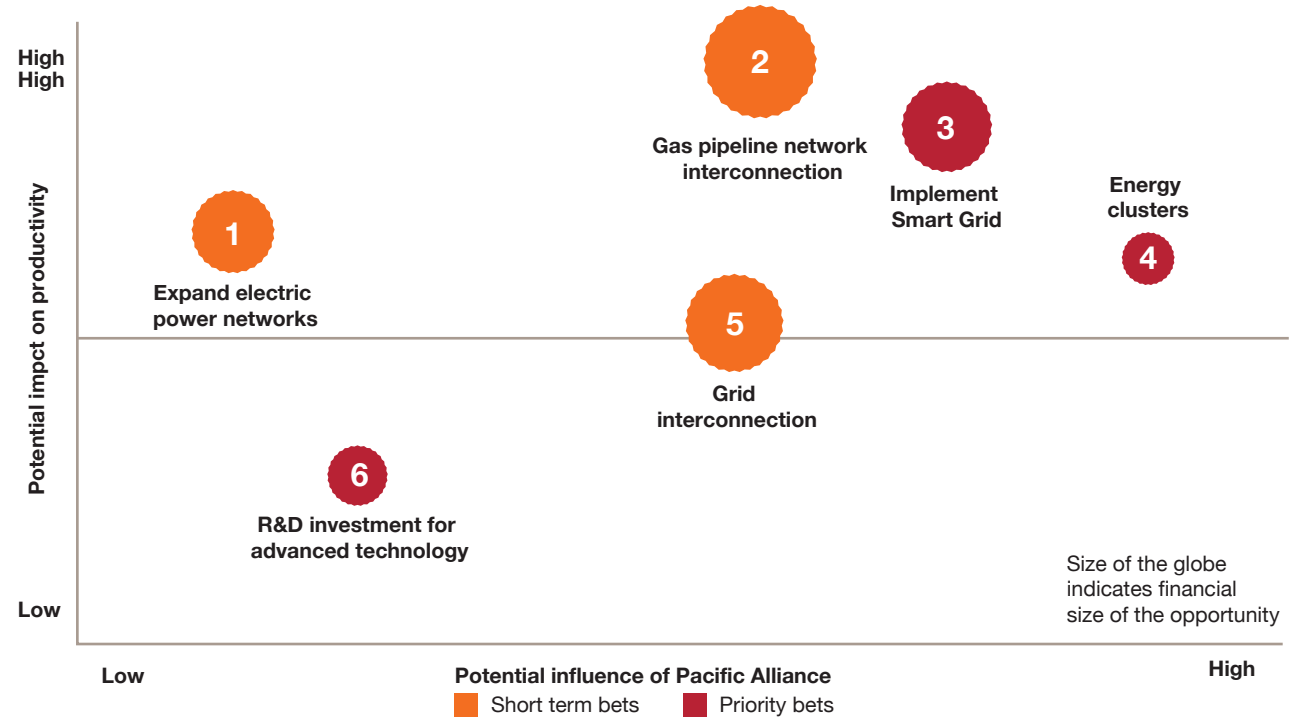
The Strategic Bets in the Power and Renewables sector target areas, which contribute to – and benefit from - physical capital productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments. The bets for the sector are:

1. *Expand electric power networks to include remote areas and interconnection of renewable energy producers.*
2. *Develop efficient national networks of gas pipelines to supply industrial and residential areas.*
3. *Implement a smart grid.*
4. *Develop specific energy clusters.*
5. *Implement electrical interconnection.*
6. *Create a regional research and development program for renewables.*

Power and renewables Short term bets



Source: PwC Analysis.

1. Expand electric power networks to include remote areas and interconnection of renewable energy producers

Supplying electricity to remote areas of the four PA member countries is a high social priority and a business opportunity. Current technologies offer options for delivering micro-networks of energy to small communities. These could be based on renewables or combined with traditional sources external to the national grid. A distributed network is a concept used to describe the technology that is part of the smart grid and allows interconnection of different power-generating units to the national grid.

Peru has launched a national program of home photovoltaic electrification. The scheme, which began in 2013, aims to provide electricity to 500,000 families in remote areas of the country and reach a level of 95 percent coverage in rural areas by 2018. It employs solar photovoltaic technology, which can be locally administered and is highly versatile in terms of its scale and installation.[137]

2. Develop efficient national networks of gas pipelines to supply industrial and residential areas

In the global shift to cleaner energies, natural gas is the main source of primary energy—and it will be essential to the region's power generation facilities. Pipeline networks will need to be built in industrial and residential areas in nations that import gas (Mexico and Chile), and in producer nations (Colombia and Peru). By creating efficient platforms to make natural gas available at a low cost, the PA nations will improve their competitiveness in a range of industries, including manufacturing, mining, agriculture, forestry and aquaculture.

Mexico plans to increase its pipeline network by 75 percent by 2018 and triple, to 7 billion cubic feet per day by 2028, the supply of gas moved by pipeline from the United States. Producers will tender several projects during 2016, including an estimated $3 billion underwater pipeline from Texas to Tuxpan. As of 2015, Mexico had invested more than $10 billion in planned or completed gas pipeline projects.[138]

3. Implement a smart grid to fully utilize national power grids

Implementing a smart grid means digitalizing the electric power networks, interconnecting generation and transmission infrastructure, and upgrading distribution facilities – all of which will require a massive investment for the Pacific Alliance countries. This will not happen overnight, and will require an advanced level of coordination among public and private stakeholders to set a clear path forward. In addition to this path forward, there are immediate opportunities, such as the initial investments in advanced metering infrastructure.[XX]

Increasing private sector investment and participation in the generation and transmission infrastructure will help strengthen the national and regional backbone, and help drive the conversion of the system to a smart network capable of meeting the expected growth in demand while supporting the integration of renewables in the energy mix.

Benefits expected include reducing to a minimum transmission and distribution loses, seamless incorporation and management of different generation sources into the network and more flexible flow of power and information.

XX *Advanced metering infrastructure* (AMI).

The first stage of Mexico's plan to transform its **National Electricity Network** into a smart grid calls for the introduction of 30.2 million "smart meters" with a market value of $10 billion by 2025.[139]

4. Develop specific energy clusters: wind in Colombia and Mexico, solar in Chile and Mexico, geothermal in Peru and Mexico

Each country requires investment to develop renewable energies in suitable areas, such as wind energy in the Isthmus of Tehuantepec in Mexico or solar power in Chile's Atacama Desert. These areas can be developed through clusters that bring together key stakeholders, including local governments, research centers and local specialists and suppliers, and establish a common agenda for long-term sustainability. At the regional level, the PA nations need to promote a cross-border electricity market by interconnecting national networks from Mexico to Chile. Existing and new power-line routes can be leveraged to support regional telecommunications, as well, by installing regional fiber optic backbones.

5. Implement electrical interconnection, particularly between Chile and Peru

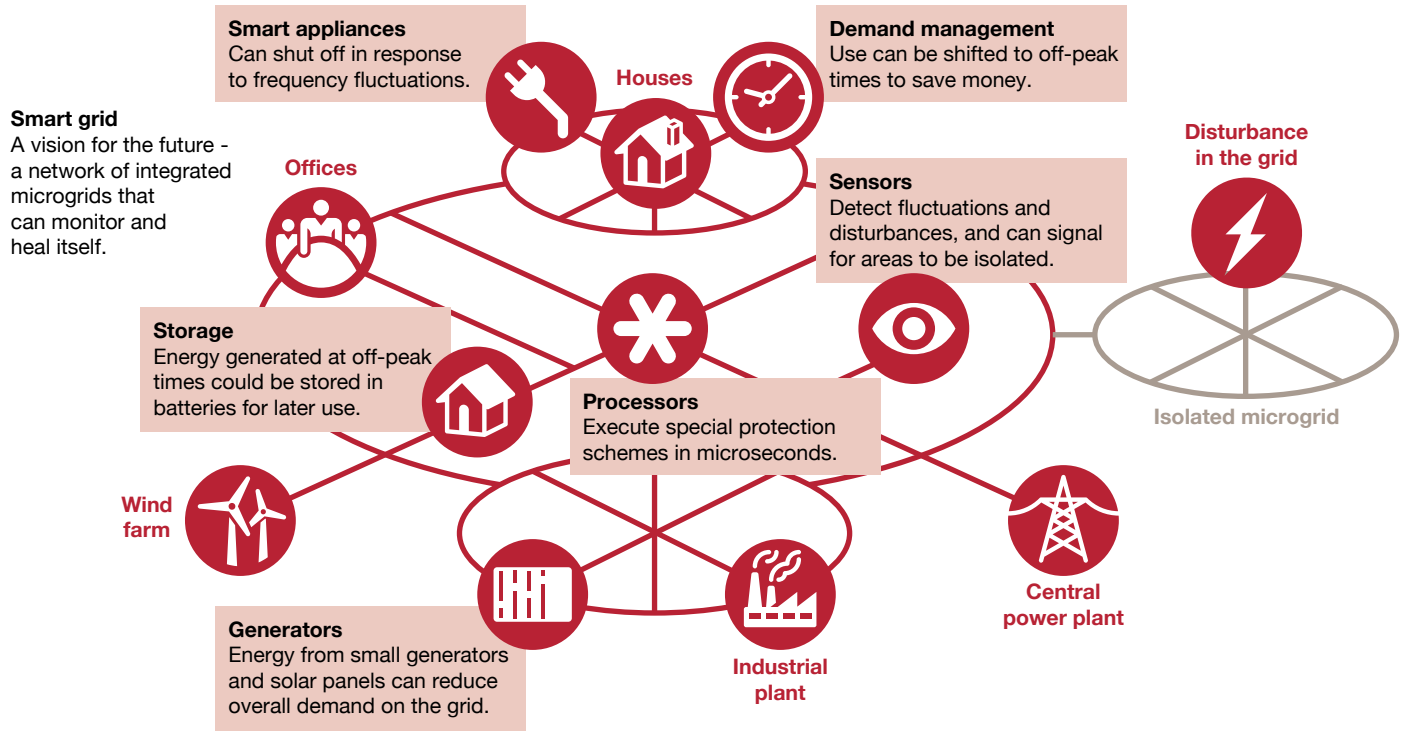
Peru has low energy costs and an electricity surplus. Chile, on the other hand, has high-energy costs and an electricity deficit. As neighbors, they should link their electricity systems so that Peru can sell low-cost energy to Chile. The effort is an example of the type of initiative, which should be promoted by the Pacific Alliance, as a step toward electrical interconnection from Mexico to Chile. Although such initiatives have been slow in coming; Peruvian President Ollanta Humala in March 2016 submitted national legislation that would allow Peru to sell electricity to Chile, Brazil, Ecuador and Bolivia.

6. Create a regional research and development program for renewables

Following the example of the regional research network on climate change, the PA could sponsor a similar program on renewable energies. Energy storage technologies should be an area of research priority, given the strategic importance of renewables and the stated desire to use them at scale.

Enel Green Power, part of Italy's Enel Group, generates energy from renewable sources around the world. In 2014, the company developed a hybrid plant for renewable energy in Ollagüe, Chile. The plant combines photovoltaic, wind and battery energy with a diesel generator. The energy feeds a grid to provide electricity 24 hours a day and is even used to heat water for the local school.[140] Enel has also announced plans to invest 400 million dollars in renewable energy in Peru, so that by 2018 it will be the largest company of renewables in Peru and the only company opportune 3 different types of renewable energies in the nation.[141]

Smart-grid power system



Source: Smart grids: best practice fundamentals for a modern energy system; World Energy Council, 2012.

Enabling Dimension Financial Services

Relevance

The financial sector has two main purposes: to serve national populations and to create an enabling environment that supports the economy through fair lending and investment practices. Many of the Pacific Alliance countries' citizens lack access to financial services, and do not enjoy a stable environment where they can execute financial transactions.

A strong financial sector is imperative for the future of the Alliance. For economic development and a rising HDI, there must be un-biased financial inclusion,[XXI] financial literacy, fair lending and trustworthy, well-regulated asset management. Knowledge about financial planning (savings, education, retirement and protection) allows citizens to develop strong and responsible financial habits and to participate fully in the 21st century society.

The provisioning of financial services to citizens creates multiple effects. It promotes entrepreneurship and job creation. It helps reduce inequality, and it improves long-term management of finances and provides opportunity through loans and investment to reduce poverty. Moreover, the financial sector has the potential to benefit traditionally marginalized groups, among them women, indigenous people and the poor.[142]

Financial institutions will play a role in facilitating the economic activity needed to develop sectors that will drive the PA's economic growth. International agreements and commitments to strengthen the finance sector have been proven to have positive effect on markets.[143] A truly cohesive and regionally integrated economic program led by the private and public sectors would be an important contributor to successful economic and general development in the Pacific Alliance countries, opening markets and providing funds for large projects.

"Currently at the PA Business Council we are analyzing the issue of financial integration, since the entry into force of the Commercial Protocol, is necessary to achieve it as soon as possible, in view of completing a protocol which stablishes the foundations and the operating framework to let us strengthen ourselves in this sector."

Sergio Contreras, *Vice President of COMCE and Sherpa of the Pacific Alliance Business Council*

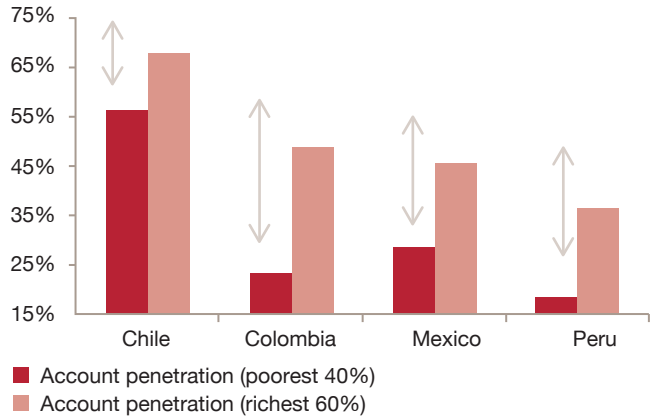
Challenges

A large portion of the Pacific Alliance's citizens are unbanked and uninsured. And when they do engage with banking and insurance institutions, they often find substandard and expensive services. Financial institutions (FIs), look to these underserved populations for potential growth, but they also need to consider how they establish relationships with these groups. Strategies to bolster these relationships include extending branches to underserved areas and boosting mobile banking services, thus decreasing the need for a bank's physical presence.

60 percent of citizens in Colombia, Mexico and Peru are unbanked. Many of those with accounts have a low frequency of usage. Account penetration is much higher for the richest 60 percent of the population than for the lowest 40 percent. These disparities are the least extreme in Chile, but are prominent in all four PA nations. Women and indigenous populations make up a much larger part of the unbanked population. Whether people live in urban or rural areas is also a factor. Importantly in order to improve gender equality in the PA nations, women must have greater access to financial institutions and their services.

XXI Conventional financial services, and specifically banking, has some market failures in the sense that certain groups are excluded from services, "bias." These groups include poor populations, women, ageing populations, minority races in nations, and people with disabilities. http://www.centerforfinancialinclusion.org/fi2020/mapping-the-invisible-market

Gap in account penetration in financial institutions 2014



Source: Global Findex Database. The World Bank.

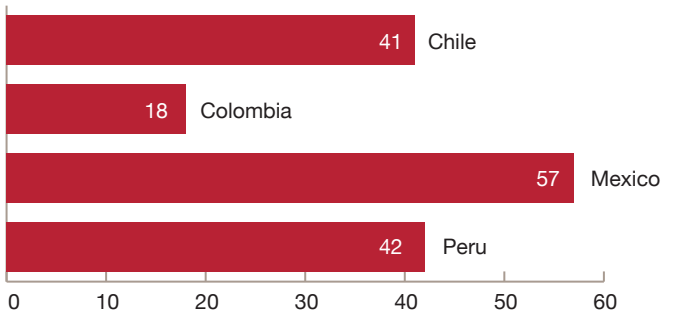
One underlying reason for the access gap is the prohibitive cost of traditional banking channels, especially in rural areas. While Peru has greater branch bank penetration than Chile, Colombia, and Mexico, ATM penetration levels in all four countries is low. Typical banking models exclude markets where GDP per-capita is below $10,000, the minimum level at which it is considered profitable to begin building branches and accepting accounts.

The key to lowering this $10,000 threshold lies in reducing bankers' operating costs. Multi-national banking technology firms like MasterCard and Visa, in addition to higher-tech, web-based cash transfer platforms like Square and Venmo, provide banks and businesses with the necessary structure to run credit card-based operations. Emerging financial operations that efficiently utilize technology have a particular advantage in that they can bring their cost-to-income ratio to as low as 30 percent, according to Misys, a banking technology firm.[144] Traditional banks, like Spain´s Banco Santander, often struggle to minimize their ratio to 50 percent.

Online banking could make up for the lack of traditional infrastructure, but digital connectivity gaps limit the use of web-based platforms in the PA nations. Where connectivity can be provided, online banking is further complicated by limited digital options and education gaps. Increasing mobile phone and smart phone penetration in the region is providing new options; however, it will take time and effort to penetrate underserved markets, even with lower device and connectivity costs.[145]

The inflow of remittances to Latin America offers one potential advantage for the financial sector. PA members account for half of total of remittances to Latin America,[146] but a significant proportion of credit and domestic remittances in the Alliance countries occur through informal channels. Borrowers typically work through informal lenders, buying on credit from stores, employers or friends and family. Moneylenders offer borrowers easier access to loans on flexible repayment terms (there are no regulatory constraints) and at a shorter time per transaction than formal channels. However, the risks inherent in informality lead lenders to charge much higher interest rates. In Chile and Peru, more than half of recipients access remittances through informal means. Colombia's informal market is even greater.

Domestic remittances received through a financial institution, 2015 (% of recipients)



Source: Global Findex Database. The World Bank.

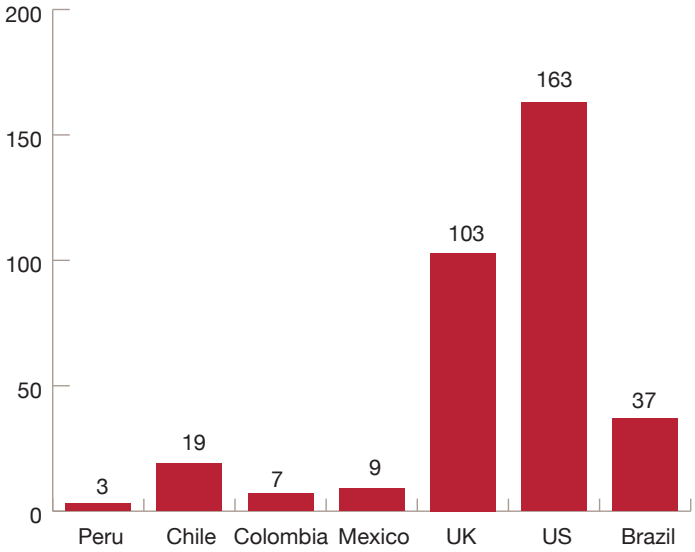
"The idea of expanding the market is great because right now the Administrators of Pension Funds (AFPs) have more money than they can really invest in Peru. If investments in the PA are considered, by the regulator, local investments it will open doors for new opportunities."

Vicente Tuesta, *CEO of ProFuturo*

On the investment side of the finance sector, each of the PA countries' stock markets is not only small in size (combined they make the size of Brazil's market), but also extremely illiquid, with a high degree of concentration. The stock markets are mono or duo-dimensional with high market capitalization concentrated in one or two sectors. Chile has a 32 percent concentration in retail and services. For Colombia, 78 percent of its capitalization is in finance and energy, while Peru has 53 percent in mining.[147]

The Pacific Alliance's decision to combine stock exchanges into the Latin American Integrated Market (MILA) was an important move for the Pacific Alliance, in terms of achieving financial market integration. However, the PA must overcome the challenges to MILA's operations. Many CEOs in Alliance countries' finance sectors express concern; a common theme is that MILA is a theoretical concept. MILA has so far been unable to shift the movement of finance because member countries' laws conflict. PA states must standardize their regulations before progress toward total integration will occur.

Stock market total value traded to GDP(%) 2012



Source: Global financial development index.

"Right now, companies do not see how large the benefit of MILA could be. One of the PA governments needs to show that accepting the rules of MILA is the best way for countries and the private sector to be successful. At the same time, if the private sector of the Pacific Alliance begins to just act on MILA and move its business and finance across borders in the four nations, then the government will follow."

Christian Laub, *CEO Credicorp Capital and President of the Stock Exchange of Lima*

Overall, MILA is bogged down in bureaucracy. Substantive movement will not occur until the governments ease regulations and the private sector becomes more ambitious. In the current climate, it is unlikely that the private sector will make a meaningful push until the governments show signs of integration. Nonetheless, government action likely will only follow the private sector's endeavors. For this reason the private sector must engage government in a dialogue to demand change—while simultaneously preparing for action.

The success of the stock market and the finance sector as a whole is largely contingent upon the strength of the PA member states' currencies. Right now, central banks struggle to properly manage their monetary policy in the face of currency volatility caused by elevated interest rates in the United States and global uncertainty about China's growth and production levels. Low commodity prices further threaten the PA states' economies. In 2014, the Colombian peso dropped to its lowest point ever against the dollar. The Mexican and Chilean pesos also fell at rapid rates, Chile's to the lowest since 2003 and Mexico's to a record low. The Peruvian sol has reached levels not seen in over 10 years.

This volatility contributes to inflation. While the PA countries have tackled inflation before, their performance now is particularly critical given the growing working population and declining commodity prices.[148] Central banks have sought to combat this in different ways. For instance, the Peruvian national bank has been injecting foreign currency into that country's market daily.[149] With MILA as a first step, the PA nations can further integrate their economies, and their economic policy, to better insulate themselves from outside shocks.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Finance Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the finance sector, in particular, the strategic bets we have identified will contribute to productivity gains on most levels and throughout the Pacific Alliance.

"The single market that could be created by the Pacific Alliance would help protect institutions and nations against market volatilities."

Jorge Ramos, *CEO Sura Peru and President of AFP Integra*

"A Fintech company provides financial services through technological platforms. An example of this is the electronic money platform developed by the Peruvian Banks Association. In Mexico, Fintech companies were fragmented, that is why Fintech Mexico was created as an association that gathers all the actors with common objectives and a joint agenda. We are working on five axis: regulation, education, technology, likability and research."

Jorge Ortiz, *President of Fintech Mexico*

Strategic Imperatives

The main goals for the PA finance sector in the Pacific Alliance should be to provide a complete range of services to both the entire banked and unbanked population, coupled with seamless overall usage of financial services. This is critical if the Pacific Alliance is to realize its objectives.

Expand financial services' reach and improve citizens' access to capital

- Advance financial inclusion for the unbanked population.
- Address issues such as accessibility, and financial and technical illiteracy.
- Build distribution networks leveraging multiple access points and digital banking.
- Facilitate transactions, such as remittances, by including financial institutions in the process.
- Improve citizens' financial literacy to facilitate sound financial planning.

Increase opportunities for investments by financial institutions

- Increase access to capital markets.
- Increase variety and complexity of investments available in local markets.
- Reform regulatory schemes to facilitate cross-border investments with the Pacific Alliance.

Improve usage of banking services, from basic to complex transactions

- Improve digital functionality to make financial services more accessible.
- Provide services to help SMEs.
- Encourage more use of complex services such as pensions, advisory, etc.

Strategic Bets

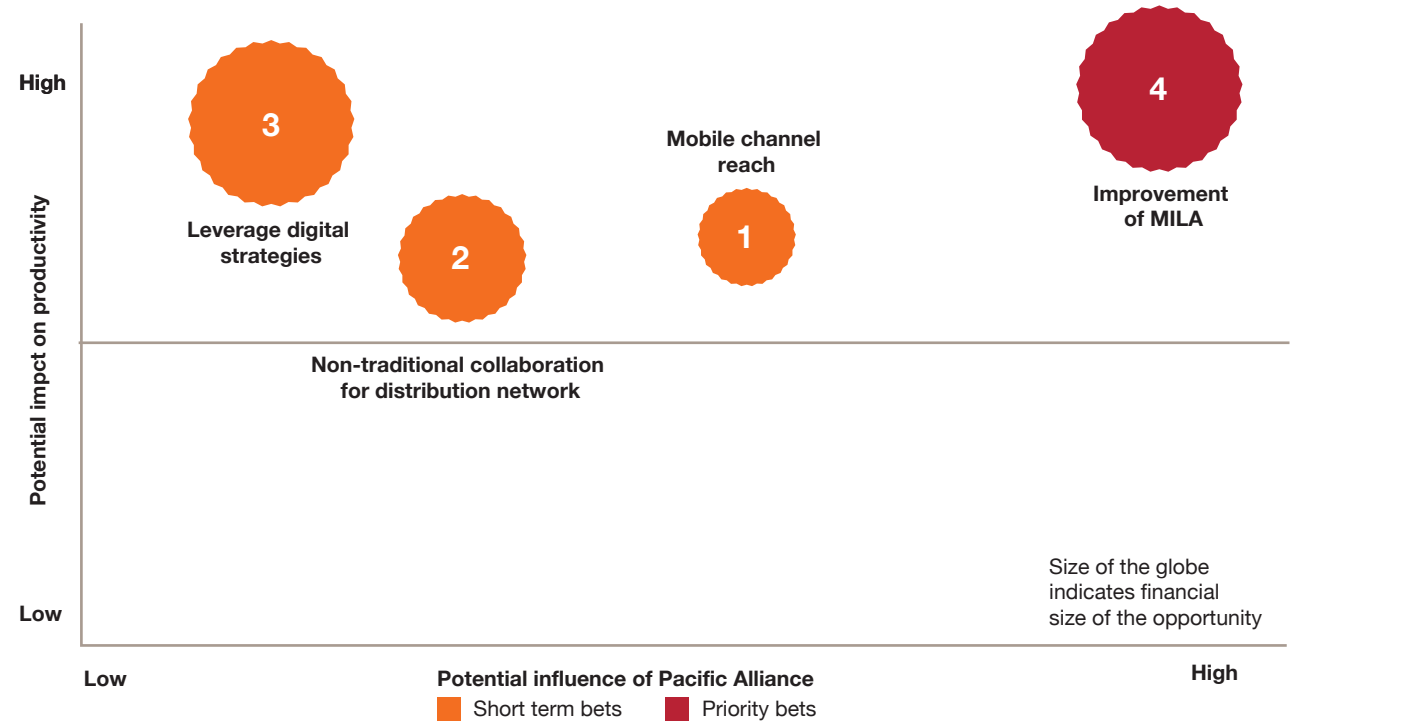
The Strategic Bets in the Finance sector target areas, which contribute to – and benefit from - knowledge capital productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments. The bets for the finance sector are:

1. *Combining mobile channel reach with business model innovations.*
2. *Non-traditional collaboration to strengthen distribution networks.*
3. *Leveraging digital capabilties and strategies.*
4. *Improvement of MILA to increase the flow of funds into the market.*

Financial Services Short term bets



Source: PwC Analysis.

1. Combining mobile channel reach with business model innovations

Pacific Alliance countries can take advantage of mobile connectivity to reach unbanked populations in a cost-effective manner. This will facilitate access, specifically in rural areas. Companies can expect to greatly increase their coverage if they are able to overcome hurdles such as income level, location and time. Mobile banking can help.

In the short term, governments can adapt regulations to support innovation and develop polices to provide incentives. The private sector can develop mobile banking solutions, which address the needs of the broader population. In Peru, this is already happening with "Model Peru," in which financial institutions, governments, telecommunication companies and international banks have come together to increase financial inclusion through digital financial services. Because other nations and financial institutions have done similar work, initiatives like Model Peru carry a shorter learning curve.[150]

Mobile banking will provide banking services to many previously unreached citizens. However, lack of digital infrastructure will be the key complication for this bet.

There are 32 million mobile phones in Peru for 30 million people, and one fourth of these are smart phones. Financial inclusion in the country is low, specifically for the rural populations. In response to this, Peru's 34 finance institutions created **BiM**, a path-breaking program to facilitate simple mobile banking. The program is very inclusive because it does not require a smart phone. Rather, it uses simple terminology for transactions, allowing users to conduct many types of financial business by text. Although in its infancy, BiM has leveraged coordinated efforts between different actors in the finance sector.[151]

2. Non-traditional collaboration to strengthen distribution networks

Companies must take advantage of current systems and infrastructure to increase outreach and meet demand for financial services. For example, to ensure access to financial transactions while minimizing transportation costs, banks can work with non-traditional partners to create financial transaction channels such as cash cards, partner ATMs, rural bank offices and banking at postal offices. Such access points are a good way to bring in customers who otherwise have no access to financial services. This bet would be relevant for the SMEs who need new access mechanisms for easier credit availability.

"Banks and governments can step in to help medium businesses find each other to improve productivity. The Pacific Alliance facilitates this opportunity."

Eduardo Torres-Llosa, *CEO BBVA Peru*

PA nations can work together to facilitate international movement of money through shared infrastructure. With many potential partners available implementation rests on identifying suitable partnership models.

In a cross-border project, **BBVA** helped small companies in one country link with counterparts in other countries for collaboration, allowing SMEs to expand. BBVA provided the initial connections that the companies could not find on their own.

"The Pacific Alliance brings a wide range of opportunities to our businesses. Today there are a lot of issues undeveloped, but if we are able to stablish the region as a true commercial block, the increase in business, flow of information, technology, people, and other aspects, will lead us to consolidate our presence regionally".

David Bojanini Garcia, *President of Grupo SURA and President of the Pacific Alliance Business Council, Chapter Colombia*

3. Leveraging digital capabilities and strategies

For financial services entities operating in the PA countries, and especially those aspiring to serve the under-banked populations, a digital strategy will be required. A digital strategy can attract new customers, retain existing customers, and tailor offerings to their target customer segments. This will require capabilities in SMAC (Social, Mobile, Analytics, and Cloud), and a focus on the 'Omichannel' experience - a consistent integrated customer experience whether they interact by mobile phone, call, web, or in person.

For most entities, this implies a 'digital transformation' – supported by a customer strategy, IT strategy, (cyber) security strategy, organizational structure, governance model, and implementation framework – in order to limit the risks associated with this transformation. New roles such as CDIO (chief digital and innovation officer) and CISO (chief informational security officer) will be created to support these innovation strategies.

This bet targets both operational efficiency and improved customer engagement; however, it also implies a new way to operate and manage the business. To be effective at the sector level, some level of standardization in financial sector regulation by the Pacific Alliance would be necessary to promote digitization of banking services.

AliFinance, a subsidiary of Chinese online retailer Alibaba, extends credit to vendors based on a scoring model that uses online trading data, with criteria such as revenue growth, transaction records, user ratings, usage levels and repeat buyers. As of mid 2013, AliFinance had more than 400,000 borrowers. Loans averaged $3,500 to $5,000.[152]

4. Improvement of MILA to increase the flow of funds invested into the markets

PA governments and other institutions should conduct outreach so that SMEs are more aware of MILA 's benefits and uses as a (relatively) large stock market. Often, stock exchanges in emerging markets are seen as dangerous investments. MILA can counter this point of view by presenting itself as a strong bloc and giving more security for investors.[153] Given the current volatilities accompanying commodity price fluctuations, MILA can also strengthen each member country's stock market.

In the short term, governments need to focus on standardizing their policies to ensure unencumbered movement of capital across borders. This would guarantee that the true objectives of MILA are met. The private sector can push governments to work more with and within MILA, one of the main ways would be use the stock markets more. Once again, private sector action will be the driver for governmental change.

If MILA reaches its full potential as a truly combined stock market in theory and practice, it would be comparable in size to BOVESPA (Brazil's national stock exchange, with a market capitalization of $596 billion),[154] giving the four countries more power and flexibility to both make and attract investments. MILA would empower the Pacific Alliance governments and bolster the private sector to become more competitive against strong regional economies like Brazil.

ELITE is an effort to bring small but competitive companies onto the London Stock exchange by showing them the value of a public listing. The comprehensive one-year program includes education, business support, mentoring and advice from an elite group within the exchange. The program is competitive, and companies must apply to participate. It has helped companies in their efforts to trade on the exchange and benefitted the exchange itself by bringing in new capital from diverse areas. The ELITE program also helps the overall economy by making the London Stock Exchange more competitive globally.[155]

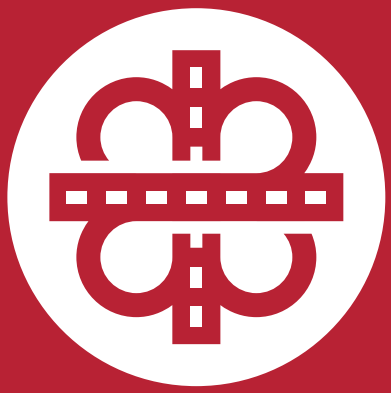
Enabling Dimension Physical Connectivity

Relevance

Physical connectivity is often associated with transport infrastructure and logistics, an integral component of trade between countries. As such, there is a direct link between infrastructure investment and economic development.[156] We review the concept more broadly, to highlight links to (and investment opportunities in) infrastructure, which supports renewable energy, telecommunications, mining, oil, gas, water and other areas.

Infrastructure represents a significant portion of the global economy. From 2006 to 2013, its share of spending relative to global GDP rose from 5.7 percent to 6.1 percent.[157] This increase is ostensibly a sign of both increased development and government investment in economic growth.

The financing of infrastructure is typically the responsibility of governments; the degree of government support is a decisive factor in the dynamics of the infrastructure market. Public-private partnerships can spread initial investment costs and reduce the drain on government resources provided that both parties agree upon future commitments and on the compensation methods to be employed.



Challenges

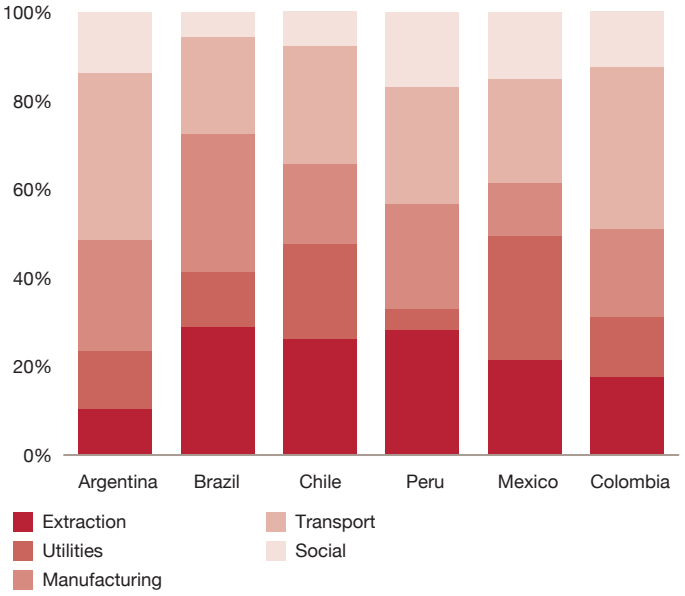
According to Oxford Economics, the infrastructure market in Latin American will exceed $500 billion in 2025, with the four member countries of the Pacific Alliance accounting for 40 percent of the total.[158] Investment in transport infrastructure will take up the largest share in Colombia, while services (telecommunications, gas and water supply, generation, transmission and distribution of electricity) will be greatest in Mexico. Extractive industries, particularly mining, will dominate in Chile and Peru.

A detailed analysis of the PA countries' infrastructure market size was completed by Oxford Economics, exclusively for PwC. The figures show Colombia's infrastructure market growing from $17 billion in 2014 to $32 billion in 2025, accounting for 4 percent of GDP. Chile's market value will grow from $14 billion to $31 billion during the same period, to an estimated 6 percent of GDP, while Peru's will grow from $10 billion to $24 billion, ultimately holding just under 6 percent of GDP. Analysts expect Mexico's infrastructure market to grow from a value of $60 billion to $107 billion from 2014 to 2025, with investment remaining at an average of 5 percent of GDP.[159]

Our research indicates that it is not only necessary to invest more in the region, but also to invest smarter and execute better. This is particularly true in Mexico. According to a study by the Mexican Institute of Competitiveness (IMCO), the average return on public and private investment between 2003 and 2012 was 6.74 percent in Mexico, compared with 28.5 percent in Peru, 18.0 percent in Chile and 17.9 percent in Colombia.[160]

Infrastructure spending by type (2012)

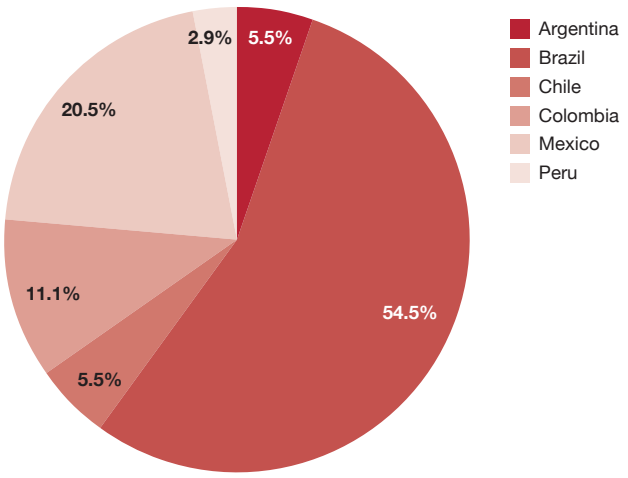
Wide divergences in infrastructure priorities across the region
Percent of total infrastructure, 2012



Source: Oxford Economics.

Shares of infrastructure investment, 2025

Percent of regional total spending, 2025



Source: Oxford Economics.

The chart below details important infrastructure projects in the PA nations:

Country	Project owner/promotor	Project name	Estimated investment (million USD)
Colombia	ANI	4th generation projects; more than 40 road concessions	18,000
Colombia	FDN/Bogota's government	Bogota's Metro	15,000
Colombia	ANI	National railways and logistic projects	3,000
Chile	CODELCO	Structural projects portfolio (El Teniente, Andina, Chuquicamata, Ministro Hales, Radomiro Tomic)	25,000
Chile	20-30 different entities	Non-conventional renewable Project portfolio	6,000
Chile	Antofagasta Minerals	Esperanza Sur Project	3,500
Peru	MMG Limited	Toromocho	10,000
Peru	Chinalco-Aluminium Corp. of China	Quellaveco	3,500
Peru	Anglo American Quellaveco, S.A.	New hydroelectric plants' energy supply	3,300
Mexico	Comunications and Transport Ministry	Shared national wide band network deployment	8,387
Mexico	Comunications and Transport Ministry	Mexico City's new airport construction	7,741
Mexico	Comisión Federal de Electricidad (CFE)	Texas to Tuxpan submarine gas pipeline	3,100

Source: Business Plan CP&I: Hispanic America Region; PwC, june 2015, updated in september; Strategic Top 100 Latin American Infrastructure 2014 Report; CG/LA Infrastructure, Inc.; and project portafolio PROINVERSIÓN.

It is notable that despite the drop in international commodity prices, mining projects in Chile are worth $60 billion by 2025 and will generate additional demand for ports, water and slurry pipelines, and railroad lines.[161]

Because of its effect on the cost of trade logistics,[162] transport infrastructure is essential to the PA's continued integration. High logistics costs reflect the lack of infrastructure and also the low service quality, significantly reducing the PA's economic competitiveness. The Logistics Performance Index (LPI World Bank study) highlights the relatively poor performance of key components, such as customs and tracking, compared to that of developed economies. Between Chile's 42nd rank and Colombia's 97th place, there is clearly potential for the PA states to benefit from exchanging experiences and best practices.

		Logistic Performance Index: Component Ranking					
Country	General ranking	Customs	Infrastructure	International shipments	Logistic quality and competitiveness	Tracking	Delivery on time
Chile	42	39	41	53	44	40	44
Mexico	50	70	50	46	47	55	46
Peru	71	96	67	69	76	83	66
Colombia	97	79	98	95	91	108	111
Germany	1	2	1	4	3	1	4
United States	9	16	5	26	7	2	14

Source: Logistic Performance Index 2014, The World Bank.

LThe global slowdown and the drastic reduction in the price of raw materials have played a significant role in reducing the budgets of public investment in infrastructure of the four member countries of the Pacific Alliance. The depreciation of PA member nation currencies against the dollar has forced adjustments in the forecasts of capital and operating expenditure in multiple sectors. For example, rising costs have complicated the assessment of the two existing technical options for Bogota's subway project: a preferred route of several kilometers underneath the densely populated financial sector of the city, as opposed to building the same metro line on the surface.

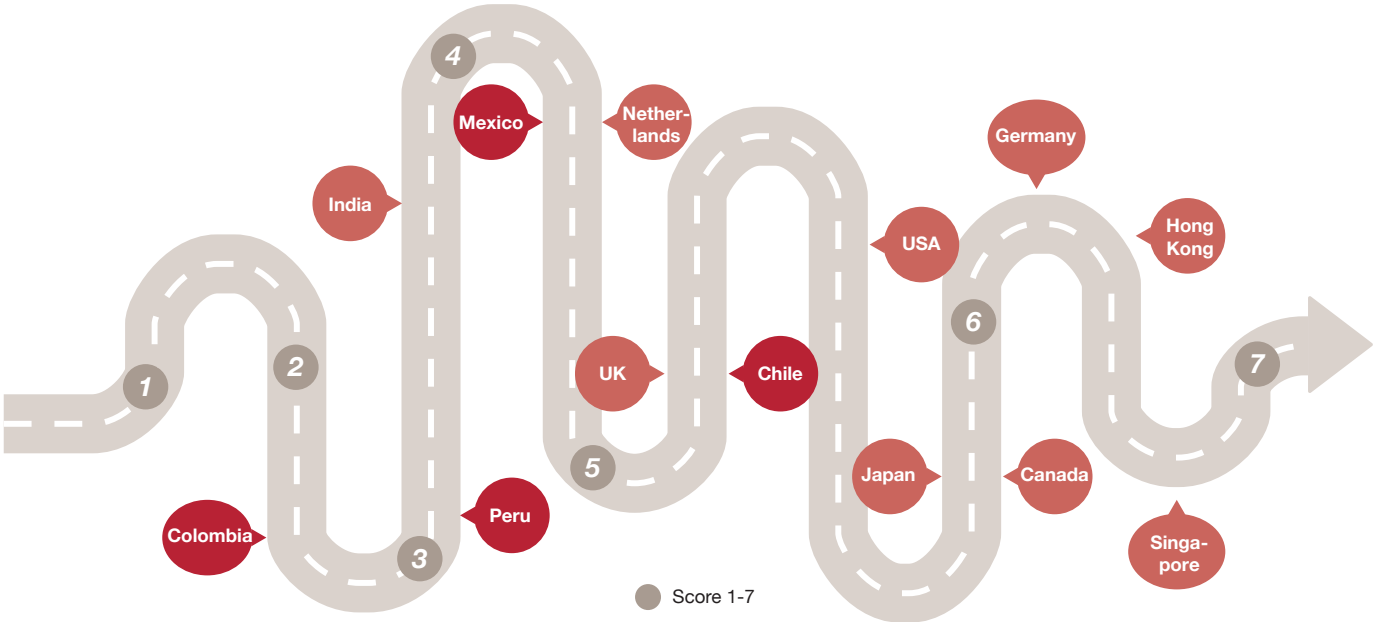
Improved physical infrastructure- and improved connectivity of that infrastructure within the Pacific Alliance - will require private investment from inside and outside the region, as well as the careful use of public resources. Considering the size of the need the region will have to persevere in its search for new sources of funding—particularly from Alliance observer countries—and pursue new approaches in collaborations with local business groups.

For the Pacific Alliance, and the on-going integration efforts port and airport projects deserve special priority, along with related projects to support supply chain and logistics efficiency. The current lack of infrastructure is further complicated by the poor quality of the supporting networks.

The PA states could maximize port-handling capacity by improving operation metrics such as crane moves per hour. The Alliance countries rank below eight other world regions in this respect. While road density and quality is strong in Chile and Mexico, Peru and Colombia lag behind.[XXII]

XXII According to the World Bank, road density is the ratio of the length of roads a nation has, versus its land area.

Quality of roads - WEF Study



Source: Global Competitiveness report. 2013. World Economic Forum.

Poor rail and road quality in Colombia lengthens the time it takes to make the 1,000-kilometer journey from Cartagena to Bogota. The transport facilities linking Lima to the Andean regions and jungle similarly limit growth in Peru. The Pacific Alliance limits its own potential by not addressing these foundational needs in a coordinated fashion.

The region would further benefit from the harmonization of rules and contracts, so that global players and the increasingly active multilatinas could consider the Pacific Alliance as a single extended market. Any additional transparency for external parties – whether investors, traders, or entrepreneurs - would increase interest in the market and speed up development of infrastructure in the region. It would also help to attract the specialist firms and individuals necessary to support these projects and drive competition in local markets.

While the institutional context in which the infrastructure investment occurs in the four countries is diverse, it is possible to generalize lessons across the PA. The experience of organizations such as Proinversión in Peru and the National Planning Department in Colombia are particularly useful in this regard. Each model is focused on the selection, coordination and management of PPP opportunities for highway concessions and urban infrastructure projects. Furthermore, external supervision of the construction projects by specialized, experienced companies can help keep them within defined schedules and budgets.

The timely availability of public resources for public-private partnerships is critical to the projects' viability, as well. It is essential to ensure the uninterrupted flow of funds to projects already in progress or just beginning. In late 2015, the Chilean government announced creation of an infrastructure fund that will integrate a group of income-generating infrastructure projects into its assets, with public participation. The idea is to allocate that income to new infrastructure project that are not subject to general policy on public resources and that have independent and transparent management.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Physical Connectivity Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle. For the physical connectivity sector, in particular, the strategic bets we have identified will contribute to productivity gains and connectivity throughout the Pacific Alliance.

Sector imperatives

The main purpose of the physical connectivity sector is to increase sustainable investment flows for infrastructure projects and reduce logistics costs within and among the member countries of the Pacific Alliance. This should include general objectives such as:

Improve regional conditions for attracting investment in infrastructure

- Promote the region as a single broader market.
- Harmonize regulations in the region on tenders, contracts and project financing.
- Develop and maintain an up-to-date online information service, to provide transparency regarding opportunities for investment.
- Prioritize connectivity projects, such as marine terminals, ports, airports and support facilities and services.

Ensure positive economic and social impact of the projects

- Align the selection of projects with the national priorities, within transparent processes.
- Innovate with project management, improving project preparation, bidding, construction, operation, and monitoring.
- Expand funding models and with public-private partnerships, in order to give continuity to the project pipeline.

Strategic bets

The Strategic Bets in the Physical Connectivity sector target areas which contribute to – and benefit from -physical capital productivity.

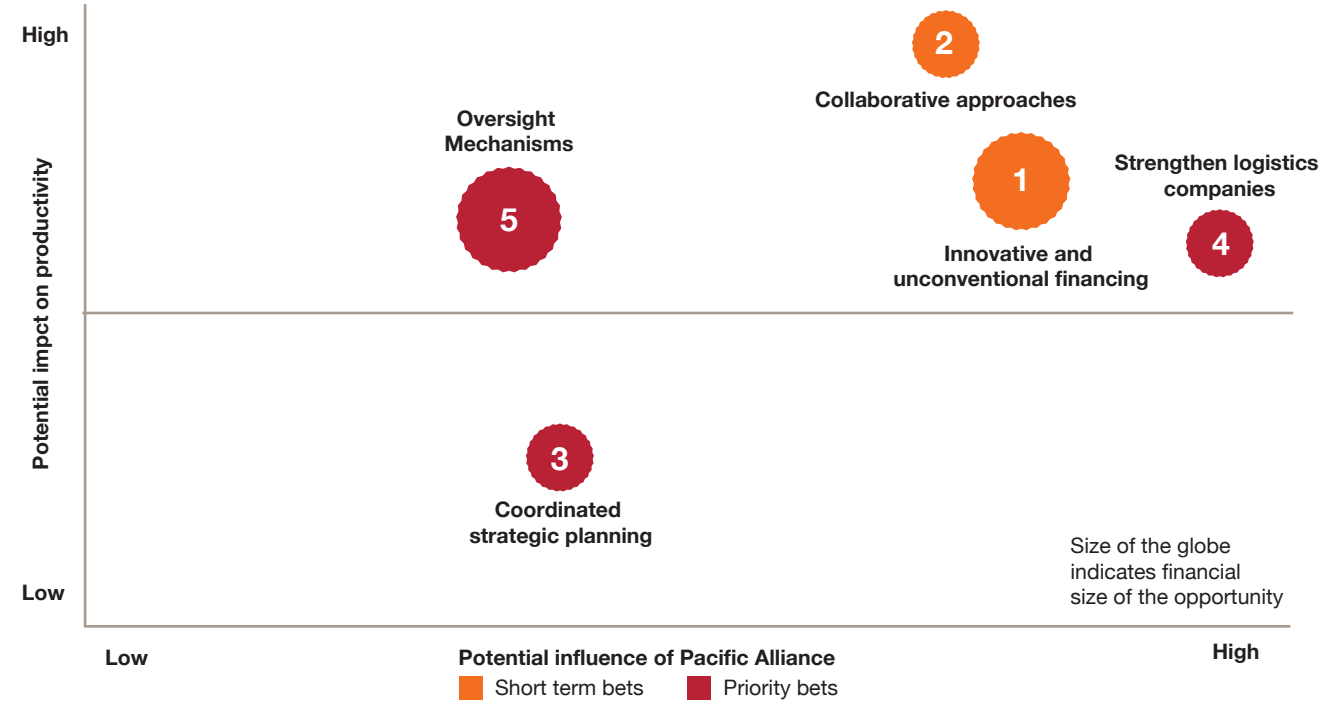
The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The nature of each Strategic Bet is described below, in additional to several examples of the opportunities available and the organizations already making investments. The bets for this sector are:

1. *Innovative financing models and public-private partnerships.*
2. *New, collaborative approaches to infrastructure projects.*
3. *Coordinated planning of infrastructure investments.*
4. *Strengthening logistics companies.*[XXIII]
5. *External oversight mechanisms.*

XXIII Third party logistics companies (3PLs).

Physical Connectivity Short term bets



Source: PwC Analysis.

1. Innovative financing models for the participation of public resources in public-private partnerships

Clear attention, specifically to the funding of infrastructure projects, needs to be a priority. The availability of public resources to finance investment projects in infrastructure has fallen in recent years due to the decline in the prices of key export products such as copper and oil. This has led to the temporary or permanent suspension of projects. Mechanisms to aid the implementation of projects and assure the flow of resources in an environment of scarce and diminishing public resources are required.

Infraestructure Fund in Chile
The Chilean government has decided to create an infrastructure fund—with $9 billion in assets of public projects that are generating income—in order to reinvest the annual revenue flows in finance infrastructure projects though public-private partnerships. This will help fund projects to build roads, ports, railways, hospitals, prisons and more. The fund will have a governance scheme and business structure in line with the purposes of independent management, long-term vision and financial strength.[163]

2. New, collaborative approaches to the infrastructure projects

There is always a need for specialized financial, technological and organizational resources to meet the requirements of infrastructure projects. New approaches to co-investment are needed, as public resources for investment are scarce in Pacific Alliance countries. Some approaches have focused on the monetization of assets as a source of additional resources.

This unconventional and innovative collaboration would be between partners who contribute to and share key resources. For example, risk-sharing arrangements (*farm-outs*) in the Oil & Gas sector, have provided a new avenue for public-private collaboration in the exploration of mineral and hydrocarbon deposits. As part of the efforts to develop both general and industry-specific infrastructure throughout the region, a range of options must be explored--collaborations must go beyond just co-financing projects.

Pemex has entered global investment fund joint ventures with Blackstone and its specialized agency, Global Water Development Partners, to design, build, finance, operate and maintain upstream and downstream activities for water-treatment plants. So far, $800 million in projects have been identified and selected.[164]

3. Coordinated planning of infrastructure investments

During planning stages, it is critical for private and public stakeholders to define which projects should be considered strategic for the country's development. The alignment of projects in the PA should guide investment in the medium or long term. This approach has a clear influence on which sectors receive more attention for development in each nation. It is, therefore, important to have a broad portfolio of projects evaluated at different levels to foster correct decision-making and resource allocation over time. The infrastructure investment cycle does not end with successful project execution, however. Stakeholders must evaluate them afterwards and extract lessons to guide future efforts. All these elements are included in national public investment systems (SNIP), which certainly can leverage the framework of the Pacific Alliance to exchange experiences and best practices.

Chile´s planning and budgeting process for public investment in infrastructure offers useful lessons for other Alliance members. Chile's investment plan includes $4.2 billion in financing for infrastructure through 2021, specifically in urban areas. Nearly half will be open to bids from private industry. Some of the most-needed projects have already been defined, including an extension of Santiago's subway system.[165]

4. Strengthening logistics companies

The distribution of products within and among Pacific Alliance countries is costly and inefficient. Companies that handle regular volumes of exports and imports tend to hire specialized service companies that can guarantee secure, timely deliveries at reasonable cost to their customers. The demand for this service is growing, but current offerings in the market are limited. Specialized companies of this kind can lead the overall improvement of logistics, including infrastructure, processes and complementary services. Many of these companies are global, though local companies with growth potential are emerging.

The world's best and largest third party logistics companies operate throughout the Pacific Alliance, among them DHL-Excel, UPS, Expediters International, CEVA Logistics and Ryder Supply Chain Solutions. Their performance could help meet the requirements of supply chains and achieve logistics efficiency in a wide range of economic activities. There are opportunities for these companies to expand in the region. There are also opportunities for companies in Alliance countries to provide 3 PL services.

5. External oversight mechanisms

Large investment projects in the region often see deviations in their schedules and budgets, raising the pressure on resources and public commitments. Qualified external oversight can help reduce or eliminate such deviations. Third parties could provide this efficiently. Current options in the PA markets are limited, both by formal regulatory and informal barriers, which limits both internal and external interest in this area. With some level of integration and streamlining of regulations, originating from the Pacific Alliance, the quality and quantity of service available in the PA market should improve.

Enabling Dimension Digital Connectivity

Relevance[XXIV]

A country´s capacity to develop digital technologies has a clear effect on its level of per capita income.

It has been estimated that from 2005 to 2010, the Internet represented between 0.5 percent and 5.4 percent of GDP in developing countries, while its average contribution to GDP growth ranged from 7 percent in developing countries to 21 percent in developed countries.[166] As nations' economies develop, the Internet's effect on GDP grows. Indeed, in recent years, and throughout the world, the number of Internet users, the volume of digital information available and the number of downloads per user has increased exponentially
.

"We are entering in the new era of 'access and digital connectivity', that will allow innovative models to access education, jobs and healthcare, closing the gap with the most in need."

Carlos Slim Domit, *President of the Board of America Movil and member of the Pacific Alliance Business Council, Chapter Mexico*

Challenges

The sector's value chain has evolved and now features an integrated digital content and services configuration. New links in the chain are emerging, among them developers of applications for different markets.

The increase in services for mobile platforms has a particular dynamism. Specific attention has been given to applications for distance learning, telemedicine, climate and market information for farmers, and mobile money in financial service, all of which show how digital connectivity is an enabling sector. There will be consolidated services from machine to machine (M2M) in the coming years, notably for manufacturing value chains, as well as household applications based on the interconnection of appliances and other home devices.

Businesses will also increasingly rely on e-commerce. In 2014, e-commerce represented over 2.5 percent of global GDP, a 100 percent increase from 2010 and an indication of its future growth.[167] The main platforms in this area are significantly impacting the flow of goods and services, reducing search times and aligning global prices and markets.

XXIV This section is based largely on research conducted by CEPAL in July 2015 titled "The new digital revolution: from the Internet of consumption to the Internet of production". Retrieved from http://repositorio.cepal.org/bitstream/handle/11362/38767/S1500587_en.pdf;jsessionid=D538E046D46B89B746A2C8F3BE1936AE?sequence=1

This technological revolution rests on leveraging high-speed broadband and "smart" mobile devices. In combination, these technologies are already bringing disruptive innovations to business, government and personal lives, including through home automation,[XXV] smart urban services and the industrial Internet.

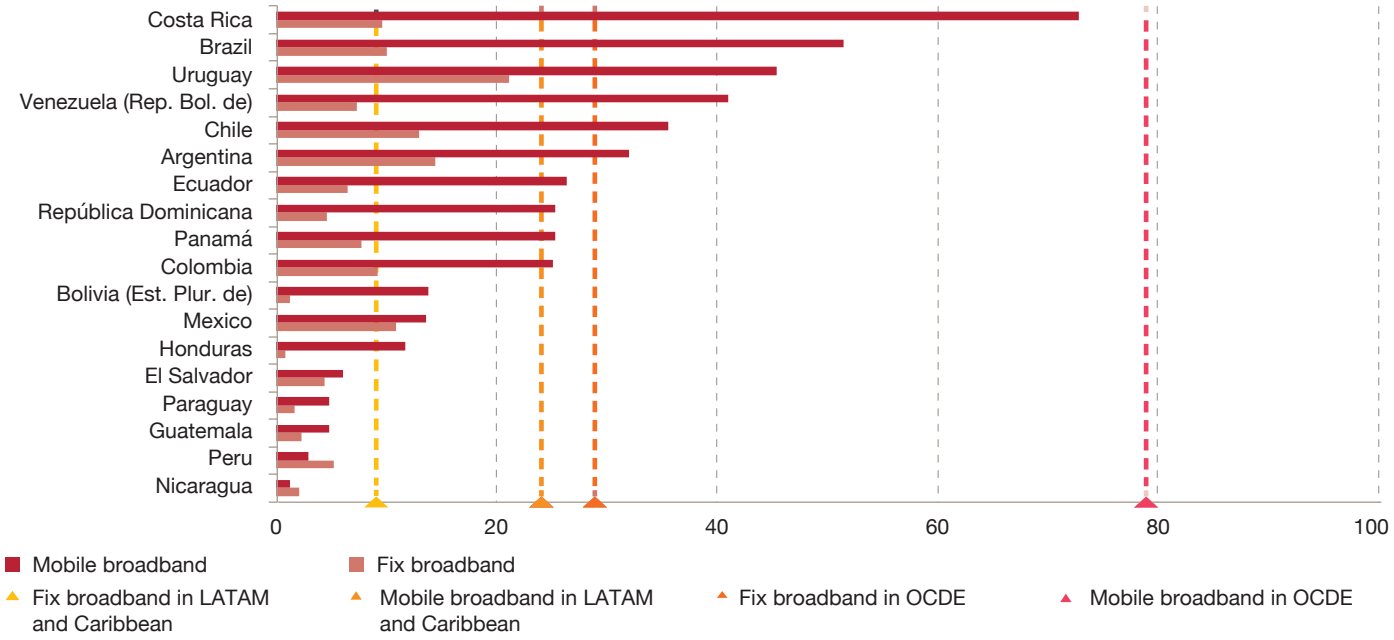
The mobile broadband network reached 32 percent of the world population in 2014, versus 10 percent for the fixed-line network, with 3G and 4G mobile technologies making up 43 percent of all connections. The average global rate of mobile connections was over 10 Mbps in 48 percent of the cases, and over 25 Mbps in 29 percent of them. Latin America lags that with only 27 percent of its mobile connections exceed 10 Mbps, and only 9 percent higher than 25 Mbps.[168]

Public cloud services worldwide are forecasted to total $200 billion in 2016. Latin America will account for only 5 percent of this, but its annual growth rate is among the highest in the world.[169]

Looking at the average of Internet users in Latin America and the Caribbean (50.1 percent of the world population in 2014), Chile and Colombia rank above the average, while Mexico average, and Peru rests near the bottom. However, between 2000 and 2015, growth in Internet penetration among the four Pacific Alliance countries averaged 14.6 percent per year—a trend that is expected to continue.[170]

XXV This is the set of house automation-oriented techniques for safety, energy management, well-being and communications.

Latinamerica: fix and mobile broadband penetration
In active subscriptions per 100 inhabitants



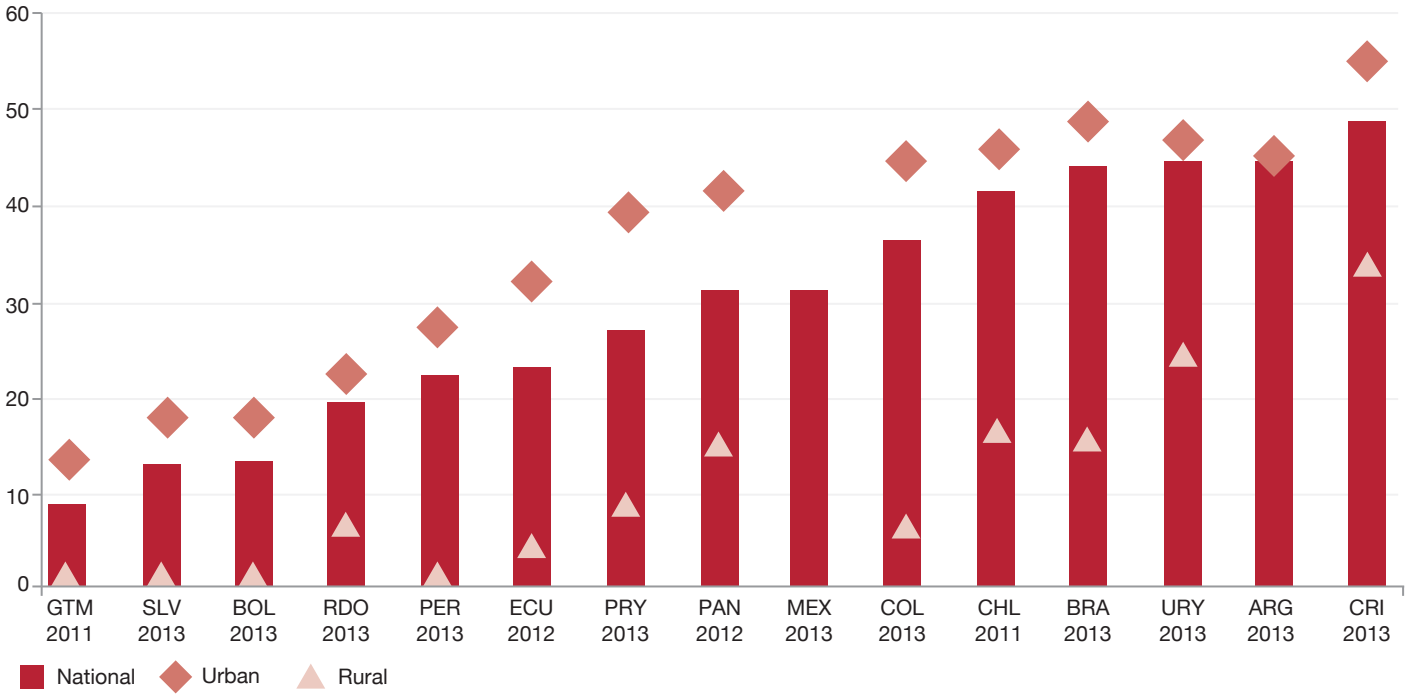
Source: CEPAL on the UIT database and World Telecommunications Indicators database. OCDE La nueva revolucion digital CEPAL.

Mobile broadband refers to Internet connections through technologies like USB modems, SIM card integrated to a computer and mobile gadgets such as tablets or smartphones.

As for broadband penetration, Chile is above the average for Latin America in both fixed and mobile, while Colombia and Mexico are above the regional average in fixed broadband. Peru is below both indicators. All are far from the average penetration levels in the OECD, at 79% of broadband penetration.

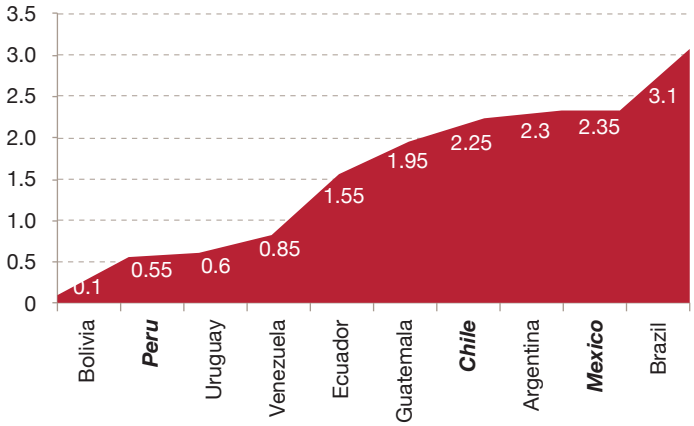
Within the Pacific Alliance, there is an important gap in Internet access between urban and rural areas. This hinders growth, as most new personal and business applications require greater bandwidth. The percentage of connections that can actually operate at a speed over 10 Mbps is still very low, but it is growing at three-digit annual rates: 155 percent in Colombia, 162 percent in Peru and 429 percent in Chile. In Mexico it is growing at 77 percent.[171]

Homes with internet access by Geographic zone (% of total homes in each zone)



Source: El Ecosistema y la economía digital en América Latina; Raúl Katz, Fundación Telefónica, 2015. La nueva revolución digital CEPAL.
Disaggregated data not available for Mexico.

Latinamerica: e-commerce. 2013 (% of retail)



Source: La nueva revolución digital. CEPAL.

The low-income population in the PA region has considerably less access to the Internet. In the case of Peru, almost 50 percent of the higher income population has access, compared to only 2 percent of the low-income population.

As for Internet content, the largest visitor traffic is logged on global platforms such as Google, Facebook and Microsoft, with little participation of local or regional platforms. Compared to other regions in the world, Latin America is the farthest behind in terms of share of local content on the Internet, as measured by locally or regionally produced sites and platforms visited by the population.[172]

The computer is still Latin America's primary means of access to the Internet—through public computer centers in many areas—but smart phone connections increased at rate of 77 percent per year between 2010 and 2013. The region is forecast to have 600 million Internet connections through smart phones by 2020, representing about two thirds of all connections.[173]

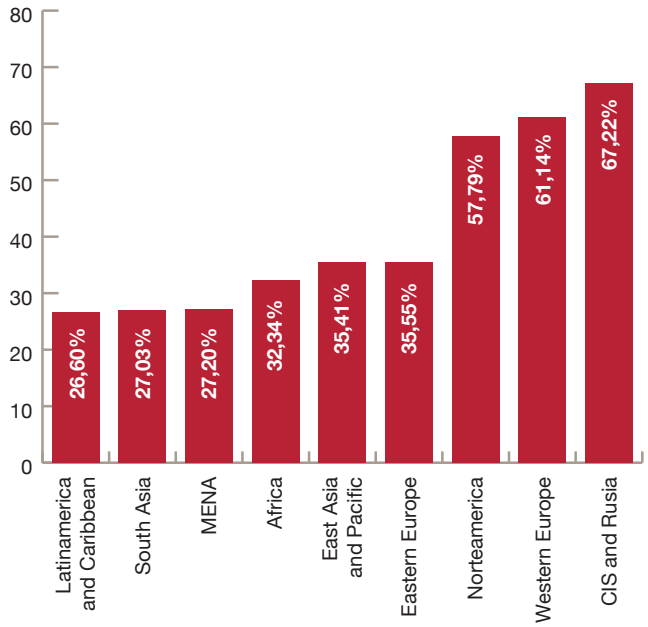
The growth rate for postpaid mobile broadband service (which includes at least a one-year contract) is higher in Latin America than developed countries, although in Chile, Colombia and Mexico it is below the recommended maximum level. Prepaid services are easier to obtain, but they have higher effective tariffs.[XXVI]

XXVI The Broadband Commission for Digital Development has proposed an affordability threshold for mobile broadband equivalent to 5% of monthly per capita GDP.

"Peru's digital connectivity plan contemplates the development of 21 regional networks (seven of which have already been tendered), joined by a backbone network, which is under construction. We need to start thinking about how we will use this infrastructure to truly contribute to the development of the country, how to generate the necessary content in education, health and other areas, and how we will we use the country's cultural wealth as a development factor."

Gonzalo Martin Ruiz Diaz, *Chairman of OSIPTEL, Peru's Supervisory Agency for Private Investment in Telecommunications*

Percentage of local content by region. Popularity Index (2013)



Source: El Ecosistema y la Economía digital en América Latina; Raúl Katz, Fundación Telefónica, 2015. La nueva revolución digital. CEPAL.

"The priority in Latin America is broadband. We need many years of strong investment in infrastructure to lay the basis for future sustained growth. Our countries must plan for the longer term with a regional vision. The Pacific Alliance provides a transparent and credible framework for these purposes."

Bruno Ramos, *Regional Director for the Americas, International Telecommunications Union (ITU)*

Most Latin American companies now regard digital connectivity, information technology and communications as priorities for senior management. Corporations dedicate an average of one-third of their annual investment budgets on these areas. But only half of all companies have a plan to drive digital development on a multi-year horizon. This issue is critical, especially since the challenges to digital development are the successful integration of different technologies and the availability of skilled human resources.[174]

Of the four Pacific Alliance countries, Chile is the only one at an advanced level of digitization. Colombia, Peru and Mexico are still transitional.[175]

Information and Communication Technologies goods trade in member states of the Pacific Alliance and the share of this sector in GDP of each country was as follows:

Country	Exports (% total goods)	Imports (% total goods)	GDP (%)
Colombia	0.15% (2013)	9.94% (2013)	3.1% (2014)
Chile	0.39% (2013)	7.63% (2013)	3.4% (2014)
Peru	0.12% (2013)	7.84% (2013)	3.9% (2011)
Mexico	16.26% (2013)	17.10% (2013)	4.1% (2014)

Source: The World Bank Database.

"The Pacific Alliance is an ideal platform for governmental cooperation in digital connectivity and for the generation of businesses with a regional vision. On one hand, governments could create general public policy guidelines jointly to promote convergence in regulation and facilitate universal access to digital services in industry, businesses, institutions, governments themselves and the general public.

In the field of business, it is important to leverage the importance that the electronics and telecommunications industry has reached in Mexico … to seek opportunities for efficient integration of suppliers in Chile, Colombia and Peru. A prominent example in this regard is in the information technology-outsourcing sector. In the development of software. Mexico ranks fourth in the world, with over $6 billion a year in exports after India, China and the Philippines."

Santiago Gutierrez Fernandez, *President, 2012-2016 of the World Information Technology and Services Alliance (WITSA)*

The digital or information and communication technologies sector in the Pacific Alliance states would benefit from measures that would help to:

- Ensure the free movement of digital goods and services.
- Expand the market for companies and foster their growth in scale.
- Provide better public services to regional users.
- Strengthen the elements that can give greater dynamism and depth to the sector, among them: startups, content development, new business models, shared services centers, telemedicine centers, research and development, financing, clusters of SMEs, regional networks.
- Maintain proactive regulation to ensure the competitiveness of services and markets and implement ways to measure the quality of user services.

Given digital connectivity's notable effect on the overall economy, it is necessary to close the ICT gap—in terms of infrastructure, content and quality of Internet access—between the Pacific Alliance region and the more advanced countries. This will require considerable investment over extended periods - and greater private sector participation. Government collaboration will be necessary in initiatives that require high levels of investment, such as satellite capacity sharing among the PA countries.

Efforts to provide universal and affordable network access can only succeed with support from public and private initiatives—not only with global companies but also large domestic companies and *multilatinas*. Network access empowers all citizens, strengthening the Pacific Alliance's democratic structures.

Opportunities

The challenges outlined are daunting; however, they also provide a guide to the opportunities present within the Pacific Alliance. We have mapped out these opportunities in two steps.

First, we have identified *Strategic Imperatives* for the Digital Connectivity Sector. These are broad objectives for the sector that address the key challenges described above and that collectively outline a path to prosperity for the region. The Strategic Imperatives set the objectives for the Pacific Alliance in terms of productivity, integration, and competitiveness.

Second, in order to isolate more specific areas of opportunity – both for the public and private sector – we have identified a number of *Strategic Bets*. These are target areas for investment which not only provide interesting potential, but which will benefit disproportionately from either productivity improvements in the region or increased integration within the Pacific Alliance, or both.

Strategic Bets in these target areas also will contribute to productivity and integration, creating a virtuous cycle.

Strategic Imperatives

The main purpose of the digital connectivity sector should be to develop a regional market and an integrated digital ecosystem among the states of the Pacific Alliance.

Integrate and expand domestic and regional networks:

- Connect isolated areas.
- Develop national networks that combine fiber optic and wireless technology.
- Interconnect domestic networks through a regional backbone.
- Connecting remote areas with alternative technologies where needed in the short term.
- Update regulation to support competitiveness.
- Exchange experiences and best practices among PA countries.
- Improve information on activities and develop measurement tools and evaluation.
- Encourage an ecosystem favorable to innovation, by providing facilities for startups.

Promote universal access and local content development by:

- Provide Internet access for the less privileged sectors/ segments.
- Promote relevant locally-generated content.
- Promote agreements between countries and global companies to help expand generalized access to the use of Internet and social networks.
- Foster the joint private-public development of digital content in the health and education sectors.

Strategic Bets

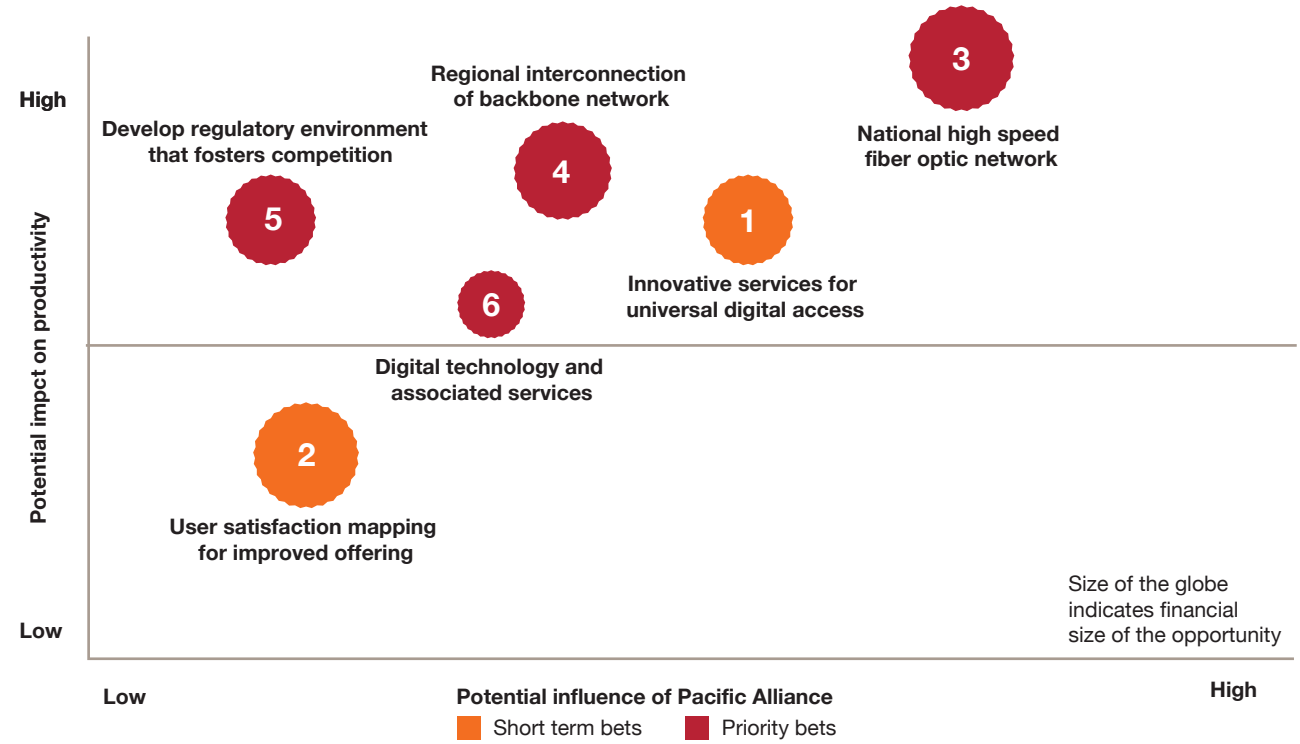
The Strategic Bets in the Digital Connectivity sector target areas which contribute to – and benefit from - physical capital productivity.

The graphic below illustrates the relative impact of productivity gains and Pacific Alliance integration on the Strategic Bets, as well as the relative size of each opportunity. The chart also indicates which Bets represent the more pressing opportunities.

The next section identifies short term opportunities for public or private participation in areas related to digital connectivity. These bets improve each country's productivity and can influence in the PA integration process.

1. *Innovative services and business models to promote universal Internet access.*
2. *Measuring service quality and user satisfaction in specific markets.*
3. *Development of domestic fiber optic broadband and high-speed wireless networks.*
4. *Regional interconnection of domestic networks through a backbone that runs through the four Pacific Alliance countries.*
5. *A regulatory environment that promotes competition and reflects technology and market changes.*
6. *Development of digital technology and associated services.*

Digital Connectivity Short term bets



Source: PwC Analysis

1. Innovative services and business models to promote universal Internet access

Global players such as Facebook have developed programs to promote no-cost access to Internet services and social networks for lower-income groups in each country through agreements with local operators and government authorities. A program of this type is already in progress in Colombia and Mexico. Google and Microsoft also are active in this regard. These efforts to advance toward universal coverage of affordable Internet services are welcome, provided network neutrality concerns are addressed, and should be considered as part of the overall regional connectivity strategy.

2. Measuring service quality and user satisfaction in specific markets

To test the effectiveness of digital services, it is essential to obtain transparent and fair measurements on the functioning of markets and the level of user satisfaction. This should be conducted both through traditional and non-traditional means – addressing both technical requirements related to bandwidth as well as customer satisfaction.

EAQ is a regulatory initiative launched in 2012 in Brazil to measure the quality of fixed broadband and mobile services. The program, funded by all relevant operators in the country, is responsible for measuring the quality of service of various fixed broadband parameters (instant speed, average speed, two-way latency, package losses, jitter, availability) and mobility variables (instant and average speed). ANATEL, Brazil's regulatory agency, regularly publishes the results of the indicators, integrated and evaluated by PwC, with a ranking of operators in each of the country's 27 states.[176] Proposed new legislation in Chile, the Minimum Internet Speed Act, uses Brazil's EAQ as a reference.

3. Development of domestic fiber optic broadband and high-speed wireless networks; use of alternative technologies to connect remote areas

Each PA country needs to integrate its urban and rural areas with fiber optic and wireless technology, to provide a robust domestic digital network. This could be complemented with micro-networks and non-conventional solutions to reach the most remote areas, like drones and globes.

These networks are the structures on which societies build national digital ecosystems. They are key to achieving universal, affordable coverage and equal opportunities for all income groups and regions. The Pacific Alliance can promote the exchange of experiences among member countries and serve as a sounding board for the international community to attract the investment required to roll out the networks. It can also promote the necessary public-private coordination for funding these projects.

The international public bidding process has begun for the largest telecommunications project in the history of Mexico, with proposals due on Aug. 8, 2016. The PPP contract will develop a national wholesale, shared public network to increase the coverage and quality of mobile services and to spark more market competition. The minimum coverage required is 85 percent of the total population. The network will use 90 MHz of the 700 MHz band spectrum, employing 4G technology. The investment is estimated at $8.387 billion from 2017-2023. The winning bidder will design, install, deploy, finance, operate, renovate, maintain and market the network for 20 years.[177]

4. Regional interconnection of domestic networks through a backbone that runs through the four Pacific Alliance countries

The creation of a digital ecosystem in the Pacific Alliance countries requires a backbone to physically link domestic digital networks. This infrastructure would enable more flexible regional communication and significantly enhance the capacity to develop local and regional content. Many regional public and private links are required to support the volume of exponentially growing services. The PA backbone could be linked to the electrical network connecting the Mesoamerican region (Mexico and Central America) and the South American region of the Pacific Alliance (Colombia, Peru and Chile, as well as Ecuador).

In addition to initiatives to develop regional backbones with large private telecommunications companies, it is advisable to add at least one public project promoted by the governments of the Pacific Alliance and Central America. This would create synergies with the proposed interconnection for electric power generation from Mexico to Chile.

The AMX-1 project by **America Movil** installed 17,800 kilometers of submarine fiber-optic cable to join seven countries, including Mexico and Colombia, and increased connectivity speeds by 50 times This project has led Colombia to be regarded as one of the best nations for digital connectivity.[178]

5. A regulatory environment that promotes competition and reflects technology and market changes

Based on worldwide experience in the field, the PA region must strengthen its regulatory institutions in order to enable it to take timely action to favor competition and innovation for the sector. This includes monitoring digital traffic management techniques to prevent discriminatory practices. Digital ecosystems characterized by modularity, economies and a constant change, require regulations based on functionality, rather than structure or technology. The exchange of experiences among regulatory bodies of the Pacific Alliance member countries can be of great benefit in this regard and would help them to prepare common guidelines for the long-term development of the regional digital ecosystem.[179]

The most important private ICT organization worldwide, the **World Information Technology and Services Alliance** (WITSA),[180] has signed a memorandum of understanding with the United Nations Trade and Development Organization (UNCTAD) to promote digital connectivity in Latin America. An initiative of the Pacific Alliance aimed at developing common guidelines on telecommunications regulations could be supported by this accord.

6. Development of digital technology and associated services

The true potential of the digital platform is its use- adapting to the specific needs of customers, industries and value chains (automotive, electronics, banking and finance, mining, oil, etc.). This ranges from *ad hoc* goods to service packages that combine information and communication technologies, including software development.

Telefónica Digital is providing cloud services tailored to the needs of companies in PA countries. The customer pays only for services and time used. Telefónica has also formed an alliance with computer manufacturer Dell to create a diverse portfolio of customer services. These actions are what has allowed the company to expand to most nations in the region, despite differences in them.

Chapter 4

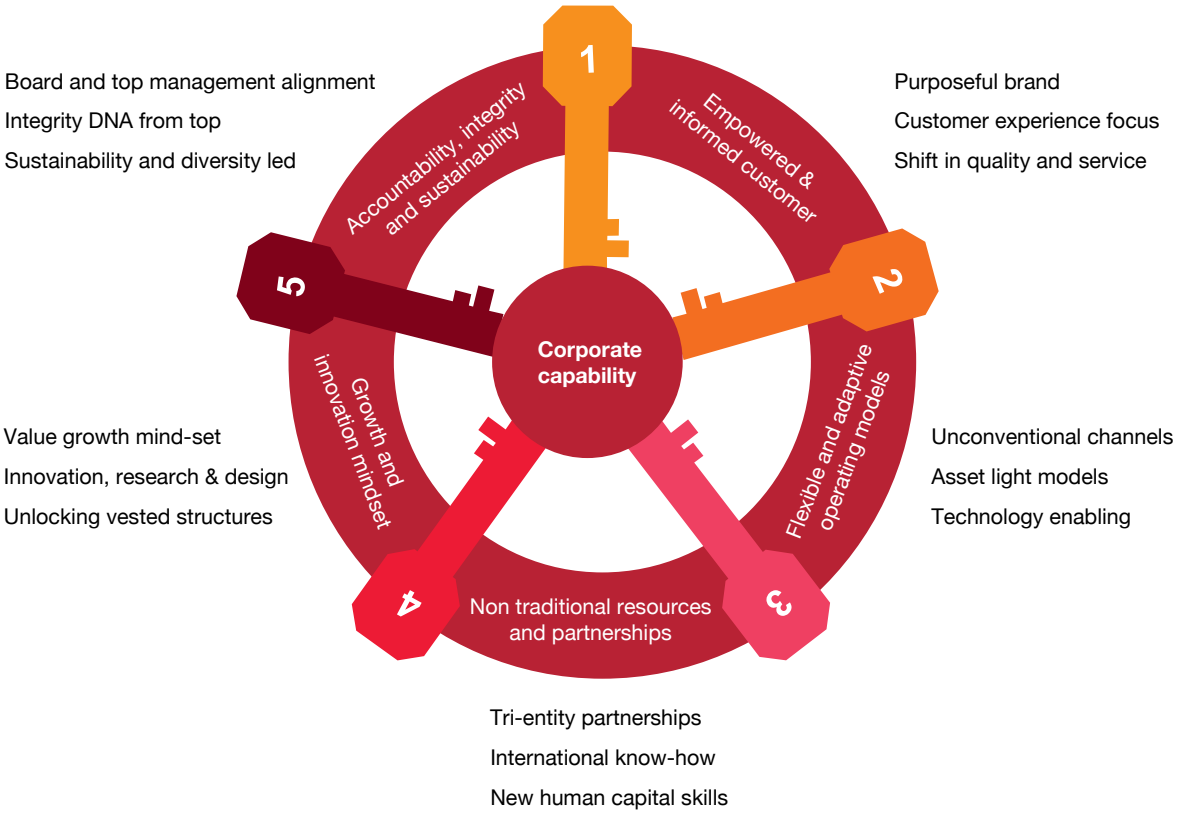
The Role of the Private Sector

In order accelerate economic growth, and to propel the Pacific Alliance to our ambition of an aggregate GDP of $6 trillion in the next two decades, the trade bloc must consolidate the contributions of its key stakeholders. The corporate sector's role will be essential in improving productivity through trade, producing more complex products and services, fostering technological innovation, and by investing in human, knowledge and physical capital.

Businesses will find reasons to work within the region, but they should also look beyond it to fully leverage their positions. They should encourage the PA to align interests and formulate common proposals when addressing global trade issues. And they should use the PA framework as a springboard to manufacturing supply chains in North American markets (via Mexico's NAFTA membership and its global industries, including electronics, automotive and aerospace).

The Alliance's growing labor market provides a favorable landscape for accelerated growth. However, even if the PA continues its upward, but average, growth for the next 20 years, member countries will lag behind their global income-group peers unless they boost multi-factor productivity, addressing Human, Physical, Knowledge, and Social capital.

The strategic bets highlighted in Chapter 3 spotlight market opportunities for local entrepreneurial companies, *multilatinas* and large multinationals. We have identified five broad categories in which business must build capabilities in order to tap these opportunities. These categories take into consideration the customer, operations, integrity, structure and institutions.



Within the Alliance, companies already are addressing some of these strategic bets. Peru's largest private network of schools, Innova Schools, is achieving scale by responding to the new education demands of the country's middle class. Sugar Clinics in Mexico is delivering cost-effective treatment for diabetes by sharing hospital infrastructure. BBVA is looking to help small and medium sized businesses find opportunities across PA borders. These examples provide a glimpse of what is possible en route to a productive and integrated Pacific Alliance.

Empower and inform customers

PA members are largely upper middle-income countries, using the 2016 World Bank definition as per-capita income of $7,901.[181] The rising connectivity of their higher-class citizens, in sync with greater information dissemination, gives business more channels for contacting consumers. A recent US Media Consulting study identified Mexico as the world's fourth-largest country in terms of mobile advertising traffic. Alliance member Peru has Latin America's highest social media penetration, at 96 percent.[182] These realities encourage companies to use communication focused on a larger, more complex customer base.

Build a brand that connects with regional growth dynamics and attracts FDI

If goals of integration were reached, private sector participants in the Pacific Alliance would be able to expand their market presence seamlessly. A company can jumpstart this process by establishing a regional brand that is aligned with the larger aspirations of the PA. Looking outward, a company in the PA can also take advantage of the Alliance's global brand, which will gain traction through global promotion (e.g. trade shows and expos in New York, London, etc, which spotlight investment opportunities).

Create convenient, customized, relevant solutions that respond to changing customer needs

The PA customer base is evolving, influenced by global and regional megatrends and by social development underway in each member nation. With this shift comes changing customers needs and buying behaviors. Companies must be proactive in identifying market trends so that they can customize value propositions. This is particularly important for businesses entering the region, as they will have less institutional knowledge to rely on.

Among these trends is consumer demand for end-to-end solutions that offer greater convenience and price and quality tradeoffs, often through digital channels. This shift affects both B2B and B2C businesses. In contrast, a distinctly different value proposition is needed in medical tourism, where the quality of professional service and success rate in operations would be among the principal selling points, along with lower costs. The example of medical tourism is distinct, with quality of service as a primary consideration; however, all of the other convenience, price, and experience considerations apply as well.

Focus on solutions that bring a quantum leap in service quality

With customer experience paramount, companies in the Pacific Alliance must move from a product-manufacturer to a solution-provider model. That recalibration carries different implications across the nine sectors highlighted in our analysis. For instance, in manufacturing, market players are rapidly moving to become providers of end-to-end solutions, and collaboration is growing among companies operating at different point in the value chain. A B2B manufacturer must keep track of its customers' B2C needs in order to develop relevant products and deliver post-sale service.

However, in sectors where underlying market need has seen drastic transformation, a quantum shift in the value proposition is often required. Rotoplas, a Mexican manufacturer of plastic water storage tanks has evolved from selling goods (tanks) to providing integrated solutions to residential and community water supply needs.

Flexible and adaptive operating models

Dynamic customer needs in tandem with market integration results in rapid change. Because of this, Alliance companies must be prepared to rethink their value propositions and operational models. An effective operating model incorporates an understanding of core business objectives across five areas—business capabilities, governance, organizational model, process and technology, and talent strategy—as well as how they interrelate.[183] Flexibility and adaptability allow companies to react quickly to market and business-environment needs.

Create asset-sharing models or adopt non-traditional assets

The rapid growth of e-commerce platforms has brought attention to asset-light operating models in which companies manage brick-and-mortar operations, which they do not own. These models are applied to outsourcing, marketplace, asset sharing and leasing at different stages of market evolution. They allow market players to scale their businesses rapidly while lowering operating costs and risks. They also pave the way for market players to focus on their key competence, to form strategic partnerships and to develop new solutions.

In Alliance countries, asset-light models in health care delivery have proven effective, allowing service providers to direct time and resources toward patient treatment. Outsourcing of electronic health records to dedicated technology providers, collaboration with third-party logistics providers and leasing partnerships with providers of expensive medical devices are all examples of transition toward asset-light operations.

Partner with unconventional channels

Companies need to build capabilities that enable them to target unconventional channels. To extend their reach and increase efficiency, they must also forge new partnerships, including with competitors, potential competitors and players in other sectors along the value chain.

Regional manufacturing clusters, or hubs, would permit PA competitors to share non-critical resources, create partnerships to manage increasingly complex distribution networks and control costs. In the finance sector, meanwhile, under-served populations can be reached via mobile phone services or non-traditional partnerships, rather than through physical infrastructure.

Create technology-enabled products and services for easier scalability

As Pacific Alliance members transition from "Break Out" to "Stand Out"[XXVII] in terms of their digital evolution, technology will become critical in opening and improving access to products and services. This is especially true in remote markets where the high cost of physical delivery of services has kept private enterprise away. Brick-and-mortar solutions require asset-intensive infrastructure investment. But technology-led solutions can make strategic bets scalable, affordable and flexible. In PA countries, technology-enabled solutions are especially promising in education and health care.

XXVII Break Out countries are those with the potential to develop strong digital economies. While their overall digital scores are still low, they are rising. Stand Out countries have shown strong digital development in the past and continue to remain on an upward trajectory.

Non-traditional resources and partnerships

The Pacific Alliance agreement provides market opportunity for private sector players in any country, and for companies outside of the PA. But there are still challenges and costs that companies must consider when expanding into PA markets, among them cultural differences, infrastructure shortfalls and regulatory disparities. Integration of the PA is not complete, but private sector pioneers that cross borders can speed the process. This is especially true in the finance and education sectors.

Non-traditional partnerships between firms with complementary capabilities are critical in reaching new markets. These partnerships and resource-sharing mechanisms provide an alternative approach for the private sector to expand into the larger PA market when government polices are not moving fast enough.

Create an operating approach that collaborates with government and the social sector

To facilitate PA growth, companies need to combine their insights and capabilities with those of the government and the social sector. These tri-entity partnerships are important for longer-term sustainability.

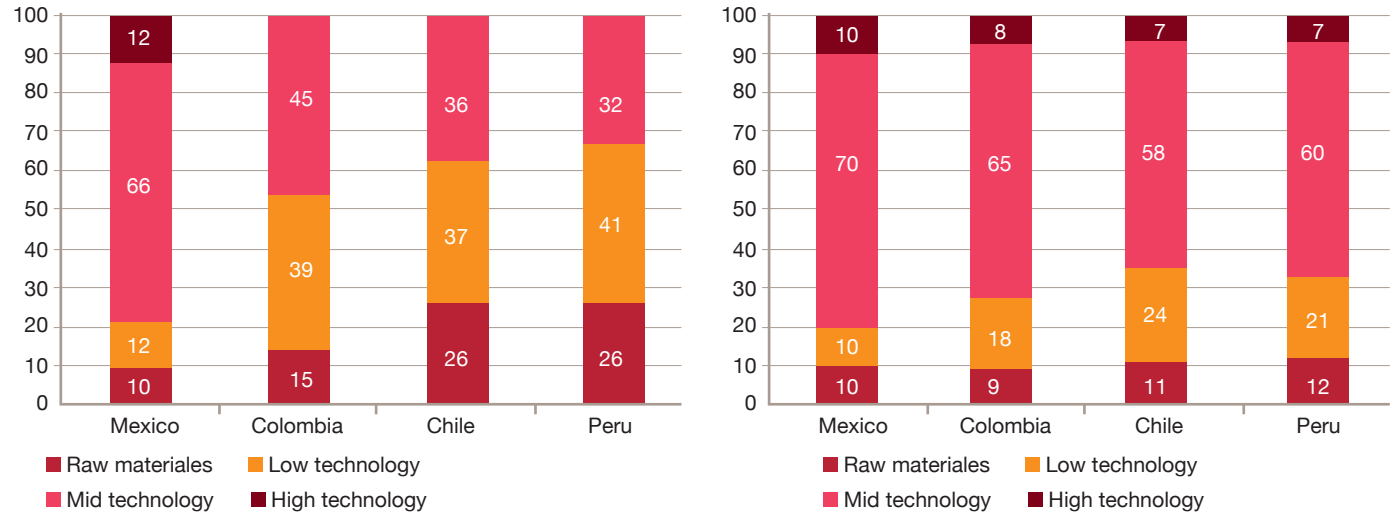
Our research across the nine sectors highlights the growing relevance of community challenges in the resource-driven sectors of mining and energy. For instance, as mentioned earlier, communication gap between the stakeholders has sparked anti-mining protests in the region. The PwC Mine report[186] stresses the need for a strong narrative on the sustainable, long-term benefits that mining investment creates in communities, as well as information on how those benefits are shared equitably among employees, shareholders, government and the community.

Acquire international know-how and attract foreign investment to enable new methods

The PA economies spend less than .5 percent of GDP on research and development. As a result, there is little innovation. Developing international know-how from foreign multinationals or from *multilatinas* may help bridge the knowledge gap. Local companies benefit because they can increase speed to market, develop new solutions and access proven technologies. Foreign company partners not only have an opportunity to play in a growing Pacific Alliance market, but they gain local knowledge around commercialization and expand their distribution capability.

Chile, Peru and Colombia are reliant on low- to medium-tech manufacturing for value-added growth. This dependency exposes them to commodity price volatilities. Mexico, in contrast, has invested in high-tech manufacturing in key sub-sectors, including the automotive, plastics and aerospace industries. This has prompted large multinationals to establish a manufacturing presence, which in turn has advanced the sophistication of the country's manufacturing technologies. For example, Aerospace clusters in Mexico employ more than 43,000 people and post more than $5 billion in exports annually. From 1999 to 2014, Mexico's aerospace industry saw $3.2 billion in investment—0.8 percent of the country's total FDI.[187]

Distribution of Top 100 exports and imports by technological intensity, for each country (2014)



Fuente: SAI Law & Economy - Commerce and the Pacific Alliance.

Develop new human capital skills that align with the increasing need for complex and innovative solutions

For productivity improvement, Alliance companies will need to cultivate new human capital skills—at both the leadership and the employee levels. As the PA looks to add value to its existing offerings, its labor force must develop additional competences that align with market needs.

Indeed, talent management has emerged as a common theme underlying the strategic bets in our analysis. For example, in pharmacies with attached medical offices, clinicians would need to raise their skills beyond simply managing prescriptions. Similarly, telemedicine interventions, such as shifting the point of care to home, would rely on nurses to help with diagnosis and to relay accurate information to doctors. Teachers need to learn new skills for a more diverse and technologically advanced classroom. Labor productivity grows through "upskilling" or "para-skilling" of the workforce.

Growth and innovation mindset

Innovation, the backbone of a dynamic market, provides accessible and affordable solutions to meet ever-shifting consumer needs. Mexico and Chile perform well in terms of innovation in the Latin America region, but fall short when viewed against a global landscape.[188]

Most resource-driven economies fail to translate their resources into shared economic prosperity. After average annual expansion of 4.3 percent from 2004 to 2011, Latin America's economies have more recently managed growth levels of less than 3 percent. The reason? Low commodity prices. To hedge against commodity price volatility in the long term, it is critical that PA countries develop appropriate governance mechanisms, turn equitable use of resource wealth into broader economic development and focus investment toward priority infrastructure.

Create a mindset that adds value and looks beyond resource-driven growth

A quality growth mindset refers to a dynamic environment where skills and capabilities are developed or cultivated through focused efforts. These qualities get honed over time through application and experience.[189] A value-growth mindset is oriented toward building capabilities and solving customers' problems in new ways. It seeks growth that is sustainable, for the industry as well as for the community at large. To fulfil the 5.2 percent annual growth ambition of the Pacific Alliance, companies in the region will need to make this shift.

The PA mining sector provides a good example. Over the past decade, it witnessed sustained growth thanks to a commodity price boom. However, as prices decline, mining companies' focus has shifted to sustaining margins. Mining operators would, therefore, benefit from more flexibility in their competencies and capabilities.

The digital revolution compels companies to adopt a quality growth mindset. App development has become one of Mexico's fastest-growing activities, and most of the companies in this arena are now consolidating, due to their quality and understanding of clients and markets requirements. In particular, Mexico's state of Jalisco and its capital, Guadalajara, are emerging as hotbeds for mobile application development. Collaboration between Guadalajara's Western Institute of Technology and Education (ITESO, for its Spanish initials) and companies in the Proginnt technology park is quickly bridging the existing digital divide.[190] The finance sector could benefit greatly from working with these digitally oriented companies.

Yaqua a social enterprise founded by entrepreneur Fernando Tamayo, produces and sells bottled water, directing 100 percent of its profits to finance water infrastructure projects in remote areas of Peru. 8 million Peruvians lack access to drinkable water. In some rural areas, residents walk as far as 3 kilometers to collect water, and many people drink untreated water. Yaqua, created in 2013, wants to uses its business model as an agent of change by raising awareness and opening the way for consumers to contribute to its goal of potable water for all Peruvians by 2050. Initiatives like Yaqua, with a strong focus on sustainability, could be spread across the Alliance.

Shift focus toward higher innovation by investing in R&D and leading with technology

The World Bank Group's survey on innovation found that only 8 percent of firms in Latin America and the Caribbean have invested in R&D, with the total spending quite low at about 0.5 percent of annual sales.[191] These results reflect the region's growing shortfall in research and innovation at a time when pioneering mechanisms are needed to address the underlying needs of consumers. Margin pressures dictate that the PA mining sector focus on innovation for process improvements to drive both labor and capital productivity across the value chain. In health care, also, providers should focus on innovation to provide quality service. Partnerships and integration will be critical in absorbing foreign R&D capability.

In a FastCompany survey, Chile's Algramo has emerged as Latin America's most innovative company. On Santiago's outskirts, where affordable food was difficult to come by, Algramo introduced vending machines that distribute bulk staples such as rice, bean, lentils and sugar. In a year, it installed more than 300 machines, reaching an estimated 15,000 people. It now plans to expand the service to Colombia.[192]

Gain understanding in a local business context and the ability to manage the vested interest of multiple stakeholders

As the private sector increasingly steps in with services traditionally delivered by the public sector, it must overcome entrenched regulations and infrastructure that is inhospitable to new solutions, new business models and new approaches. Public institutions have been an integral part of large infrastructure projects across the PA economies, but these projects are fraught with delays in the project-tendering and execution phases. The reasons are many: government preference for populist measures; lack of professionalism; a dearth of clear, transparent and well-managed programs; and inappropriate financing mechanisms. It is imperative that PA governments find better ways to promote private sector participation and leverage businesses' financing, technical and managerial expertise.

As the PA coordinates strategic planning of infrastructure investment, which is expected to grow exponentially, the private sector must build comprehensive business cases that consider the long-term implications for multiple stakeholders. Colombia lists $112 billion in planned infrastructure investments between 2012 and 2020, and Mexico expects to complete some 1,100 projects worth about $400 billion over the next five years.[193] The Chilean government's planning and budgeting process offers a framework. Hailed internationally as a best practice, it removes a myriad of regulatory hurdles by encouraging proposals that are presented by the private sector with the support of technical and financial feasibility studies.

Accountability, integrity and sustainability focus

A challenge of companies that invest in developing nations is how to deal with corruption. In some countries, corruption is present in practically every interaction with the government, from obtaining a driver´s license to securing a contract for a multimillion-dollar project. Companies' concerns about corruption are based not just on morals, but also on the exposure created in home countries, including prosecution and penalties in the United States under the Foreign Corrupt Practices Act.

Each year, anti-corruption watchdog Transparency International scores countries' public sectors. Colombia, Mexico and Peru fall in the "red zone" of the perception index, reflecting widespread corruption, lack of governance and a failure to take corrective measures when problems are identified.[194] Improvement in the governance mechanism to address integrity issues would help improve the overall competitiveness of the PA. To support this, the private sector should focus on developing the right practices within its respective industries.

The Pacific Alliance countries also fare poorly on the World Economic Forum's Global Gender Gap Index. Out of 145 countries examined, Chile, Colombia, Mexico and Peru ranked 73, 42, 71 and 89, respectively, of 145.[195] These gaps stem from educational disparity and income gaps and reflect, among other things, women's low representation in key corporate positions. For balanced growth, it will be imperative to narrow the gender divide. A conscious effort should be made to address this at company level.

Sustainability is also an area of challenge. To support the sustainable growth ambitions of the Alliance, the private sector would need to develop internal capabilities that dovetail company growth prospects with sustainable outcomes. Sustainability is an area that also provides opportunities for forward-looking companies. For instance, reducing a company's carbon footprint by increasing the use of renewable energies in its electricity mix could lead to long-term cost savings.

Create diverse and adept boards that balance strategic growth with risks

Board diversity is a success differentiator in global markets. Today's corporations need boards capable of challenging management and collaborating to successfully accommodate both strategic growth and risks. Productivity ambitions in the Pacific Alliance require boards that value long-term sustainable growth over short-term benefits. Among other things, effective boards will require a minimum number of independent directors who ensure objectivity. Private sector companies should look to define independence clearly—for management and for controlling shareholders.

Given Latin America's showing on the Gender Gap Index, it is perhaps no surprise that nearly half (47) of the 100 largest companies in Latin America have no women on their boards, according to a Corporate Women Directors International (CWDI) study. This lack of diversity works against corporate success. Prior empirical research has documented a correlation between diverse board composition and a company's financial profitability.[196]

Create strong integrity DNA by going beyond a compliance approach and deploying self-regulation

Senior leadership teams need to promote integrity at all levels of their companies, dealing honestly and fairly with leaders, co-workers, customers, suppliers and other stakeholders. The strategic bets in Chapter 3 rely on a high degree of integrity, in no small part because customers develop a stronger bond with companies they perceive as being principled. Trust is a key factor in the adoption of non-traditional solutions. Hits to company image not only can negatively affect an individual firm, but also the greater PA brand.

Link sustainability agenda to stakeholder and customer agenda

The PA countries share a common understanding on sustainability and climate change policies, and their governments have made it a priority for the region's longer-term development. Since the Alliance countries are vulnerable to climate impact, companies must build climate-impact resistance and mitigation considerations into their decisions. They must also manage community concerns. Sustainability-led growth is especially important for sectors such as mining, oil and gas, and power, where the cultivation of relationships with local communities is critical for success.

For **Iberdrola**, the largest private energy generator in Mexico, sustainability is built on three pillars: to serve the communities in which it operates, to maximize its contribution and to maximize its economic and social impact.[197] The Spanish company has tapped 366 megawatts of wind power in the state of Oaxaca and is currently developing as much as 360 megawatts in the state of Puebla; over the past 15 years, Iberdrola has been behind almost 5,000 megawatts of gas-powered generation. In 2014, the company dedicated $206 million to R&D activities, primarily in connection with smart grids, clean-energy generation and offshore wind energy.

"In integration processes, economic agreements advance at a faster rate than political agreements. Because of this, participation of both public and private sectors is very important."

Eleonora Silva, *Peru's Representative to CAF*

Chapter 5

The Role of Government

The Pacific Alliance countries must undertake reforms at the cross-sectorial, macroeconomic and regional levels to enable the private sector to drive growth and enhance productivity. Sector-specific reforms will bring improvement across the four countries, with government playing a key role in ensuring access to funds, simplifying processes, forming sector centers of excellence and deepening the research and development ecosystem. At the macroeconomic level, the focus should include creation of an open economy with regulations for favorable trade and FDI norms, improved political and legal transparency and fostering a business-friendly environment. PA member governments would need to focus on regional reforms in order to meet the goal of integration: the free flow of goods, services, capital, ideas and people. These reforms would address challenges such as talent shortages across many of the analyzed sectors, notably health care, education, manufacturing, mining, and oil and gas.

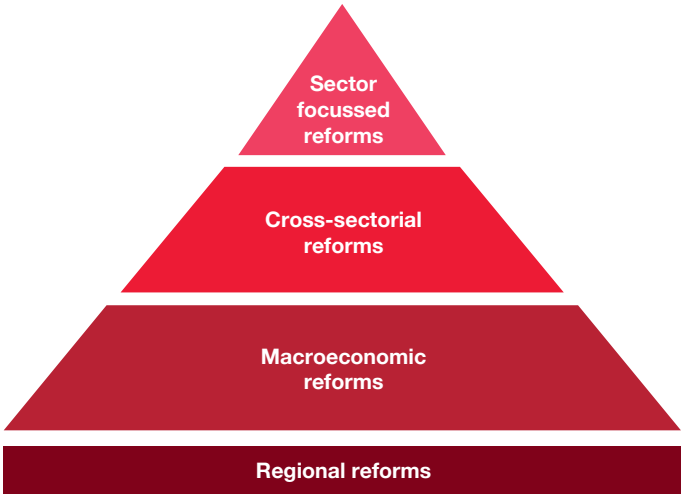
Ease of doing business in the four countries is favorable relative to other emerging economies, but certain elements—such as the process for launching a business and the enforcement of contracts—need improvement. Process streamlining, increased automation and the use of digital technology can go a long way in addressing these challenges. A strengthened institutional and judicial framework, and greater predictability in the regulatory environment, will foster a stable business environment.[198]

Four levels of reforms for meeting Pacific Alliance ambitions by 2035

These reforms will need to be completed while still maintaining focus on economic, social and sustainable development. The social driver of our MFP (Multi Factor Productivity) measurement is based in large part on government actions.

Levels of government reforms essential for Pacific Alliance ambition:

- **Sector specific reforms** composed of national or multinational public policies are needed for the development of specific sectors. Instruments such as **investments, tax breaks, subsidies and favorable policy regimes** are used in this case.
- There must be a key focus on sectorial reforms in the areas of **digital, physical and financial services**, since they form a base for other sectors and because they typically witness a large degree of public participation.
- **Openness of the economy, with favorable trade partnerships and FDI norms, the removal of political and legal uncertainty and the development of a favorable business environment** are needed at the macroeconomic level. These would be strengthened through standardized reforms across the four Alliance economies.
- Beyond national-level reforms, **regional reforms** focused toward deeper integration are imperative to ensure the free flow of goods, services, capital, ideas and people as a platform for the success of the Pacific Alliance.



Sector-specific reforms will drive growth

Sector-based reforms have a critical role to play in improving individual sector competitiveness and productivity, in driving investment (local and global) and in expanding employment opportunities. That said, there is no single way to address policymaking in this area. Policy for a resource-driven economy will differ from that of an economy driven by consumer demand. For example, mining, which taps Chile's rich natural resource endowment and contributes a lion's share to GDP, requires policies that are distinct from those of a country with much manufacturing, like Mexico.

The sector-based reforms need to be focused toward market players to encourage their participation and toward end consumers to drive their adoption of new channels for purchasing goods and services. The fiscal limits of individual governments mean that sector-based reforms must be prioritized so as to ensure greater social good, strong returns and alignment with overall economic ambitions. FDI policies go a long way in encouraging foreign company participation in growth sectors.

"It is very hard for a private company to enter another country. Beyond the regulatory issues, physical movement and the cost, there are also huge cultural differences. You have to learn about the cultures of the nations … little things like what emails are like. This takes learning costs of time and money. The role of the government could be to help the private sector with setting up the platform for movement across the four countries to lessen these costs."

Christian Laub, *CEO of Credicorp Capital and President of the Lima Stock Exchange*

Sector	Sector-focused reforms to improve sector competitiveness
Education	• Provide funding means for critical initiatives, among them teacher-training programs, digitization of schools and university research. • Develop governance structure in infrastructure projects. • Improve, simplify and standardize accreditation processes for educational institutions. • Increase overall spending on education as percentage of GDP to match spending levels of OECD countries. • Work with Universities to incentivize and fund more R&D.
Healthcare	• Simplify and standardize accreditation process for health care delivery alternatives and for doctors. • Provide incentives or mandates for increased adoption of new solutions (electronic health records, hospital information systems). • Provide funding mechanism for critical social initiatives. • Robustly define intellectual property rights so as to safeguard patents since pharmaceuticals and medical devices rely heavily on R&D.
Mining	• Foster development of clusters and partnerships through coordination, events, investment in infrastructure, subsides for R&D and research. • Invest in education in mining areas, make citizens aware of educational opportunities and adopt policies to communicate with these communities before mining locations are sold. • Streamline regulation to reduce 'red tape' to improve efficiency of permitting and other processes.
Manufacturing	• Develop a robust intellectual property rights regime to safeguard patents. • Provide funding for critical initiatives: higher education research labs, incubators, mentorship cells, innovation hubs, etc. • Foster development of industrial clusters with investments into infrastructure, subsidies for R&D and tax breaks to encourage regional collocation.
Oil & Gas	• Develop a regional approach to policies supporting exploration, production, and transportation. • Streamline regulatory requirements while focusing on social, environmental, and economic impact of the sector (and specific projects).
Power & renewables	• Foster an ecosystem for investment into renewable forms of energy with adequate incentives and promotional mechanisms. • Partner with market players to plan and implement energy-saving initiatives such as smart grids and distributed grids. • Advance policies that ensure all citizens have access to energy.

Enabling reforms that spur growth across the Pacific Alliance economies

Our analysis of the Pacific Alliance highlights the importance of physical, digital and financial infrastructure in enabling the four economies on their higher growth path. Without the basic foundations of good roads, ports, rails, broadband connectivity, access to banking services and easier credit availability, other sectors would not be able to enable their respective sectoral productivity shifts. The underlying theme of the role of the government in these enabling sectors has been that of ensuring clear governance structure, developing transparent norms, financing big-ticket projects and developing a strategic mindset while planning and prioritizing projects.

Physical connectivity reforms for improved logistics performance in the Pacific Alliance

Physical infrastructure within and across PA countries would provide the backbone for growth within the trade bloc. But topographical complexities have made these interconnections difficult. Inherent challenges from the planning, tendering, awarding, financing, approval and execution of big-ticket infrastructure projects have also been obstacles. Colombia's Girardot toll road expansion in Bogota, for example, is one of several infrastructure projects plagued by unprecedented delays. The government could take on multiple roles—as an enabler, advocate, negotiator, partner and approver—at various stages in the project.

Central banks and supervisory authorities

Central Banks (CBs) and Supervisory Authorities (SAs) will play an extremely important role in the successful economic integration of the Pacific Alliance countries. Member countries' CBs and SAs will have to work in sync to define common policies, including tax treatments and data-sharing boundaries as well as to address cross-border obstacles. A truly coordinated effort among the leaders of these institutions, in tandem with lessons learned from other integrated geographies with institutions, such as the European Central Bank, will be key to this economic integration.

Central Banks and Supervisory Authorities are the principal actors in monetary policy formulation and implementation, currency issuance, economic policy, financial stability, market supervision and payment systems. To facilitate the Pacific Alliance's economic development, member country finance ministers and central bankers should work together to establish a mechanism that assures common policies and tax treatments. Among other things, these policies should cover global risk management, regulatory frameworks and capital and liquidity in the financial markets.

The Alliance's financial sector will have to comply with all global regulatory policies, including Basel II and III, Solvency II, FATCA, Dodd-Frank, Volcker Rules, GAAP/IFRS and AML. Working as a geographic cluster, the Alliance can carry more powerful negotiation leverage with the United States, European Union, etc., in designing a realistic implementation time frames.

By complying with international rules and policies, the Alliance will assure transparency and trust to its citizens, its customers and the international financial markets.

Hernan Navia, *PwC Hispanic Americas Advisory Services*

Digital connectivity reforms for easier deployment of technology solutions, coupled with increased adoption

Digital connectivity would underpin growth in the new digital paradigm. Digital infrastructure evolution is rapid, and governments and regulators have scrambled to keep pace with technology upgrades. Digital infrastructure would need buy-in from both suppliers and consumers. While government policies and regulations would support supply side, norms would need to be designed to create an ecosystem that helps the adoption process as well. This includes focus on education and R&D.

Empowering consumers, entrepreneurs, enterprises and multinational corporations with easier access to capital

An efficient financial system mobilizes savings and allocates it to desired resources. This would require that consumer and corporate savings be appropriately redistributed to benefit investment (with appropriate risk-mitigation mechanisms in place) across the PA. In this, the role of government is critical at every stage: mobilizing savings, allocating funds, developing risk-mitigation mechanisms and designing coherent financial policies. The MILA regional stock exchange is one initiative that could drive the movement of funds between the investors and credit seekers.

The standardization of financial sector policies across the Alliance's four member countries would eliminate the existing friction that marks capital movement. Since credit information is an important cog in mitigating investment risk, governments could create mandates around credit information, integration of data and the generation of credit-behavior analytics. In Colombia, Mexico and Peru, the challenge of the informal economy would also have to be addressed.

Macroeconomic reforms to improve the global competitiveness of the Pacific Alliance economies

There is a strong correlation between a country's sustainable economic development and its ease of doing business. But to gain productivity across the many different sectors of the economy requires an enormous effort. The government's role would be to help the four member markets function efficiently and improve the social driver of productivity.[199]

The World Bank Group's annual Ease of Doing Business ranking compares the regulatory environments of 189 economies across 10 dimensions. The PA economies have done reasonably well in the rankings, but there are still areas needing improvement, notably "distance from frontiers," "starting a business," "enforcing contracts" and "trading across borders".[200]

Regional reforms to drive the key objectives of Pacific Alliance

The Pacific Alliance would have an instrumental role to play in helping local governments to develop consensus on issues that would open the way for an unhindered flow of goods, services, capital, ideas and peoples across the trade bloc's countries. The PA nations must look at common or complementary ground when it comes to goods and services currently exchanged. Increasing volumes of high-tech exports from Mexico to Chile, Colombia and Peru would both power growth and boost the global competitiveness of the four economies.

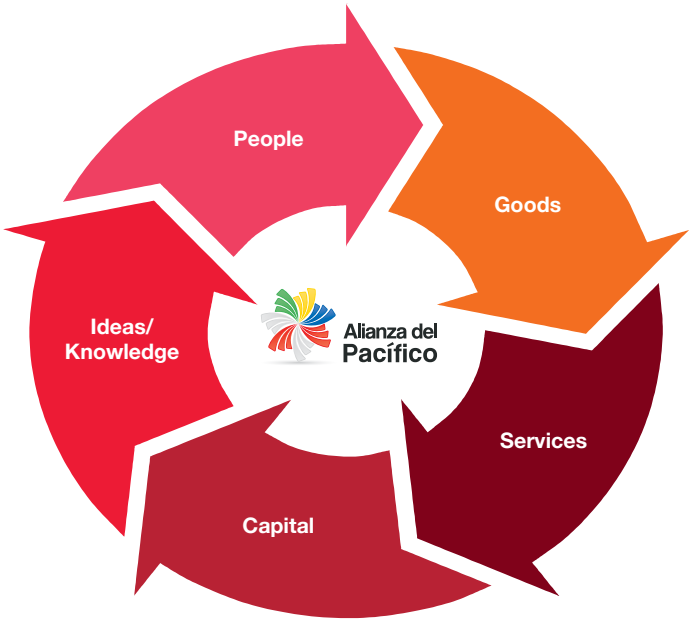
The funding needs of the four countries, meanwhile, could be helped by the free flow of capital. Each PA member has a different risk-reward profile. Integration of national stock exchanges via MILA is one way to move capital freely. For example, true integration of the stock markets would open the door for a Peruvian enterprise to freely invest in Chilean companies that align with its investment appetite, while providing the Chilean companies with a wider investor base to tap for capital. In particular, free flow of capital would benefit investors seeking to enter key growth areas: manufacturing, construction and telecom industries in Mexico; retail in Chile; mining in Peru; and oil and gas in Colombia.[201]

Our strategic bets for each sector underscore a reliance on best practices and dynamic use of the Alliance platform to share ideas. National governments could leverage the PA platform for summits, fairs and conferences that disseminate pioneering ideas.

A shortage of talent is a challenge across many of the analyzed sectors, notably health care, education, manufacturing, mining and oil and gas. Integration provides another avenue for addressing the differences in workforce competency among the four economies. By easing visa and immigration policies and standardizing labor norms across the PA member countries, workers could be tapped from any of the member countries. In the important tourism industry in particular, unrestricted movement of people between and among PA countries would prove a great fillip by providing labor and by making the region a more attractive destination, not just for residents within the PA but for international travelers, as well.

Policies that would expedite regional reforms:

- Development of measures that would enable coherent capital movement from investors in different countries. MILA has not yet yielded its true integration potential due to regulatory hurdles in listing companies on the common stock exchange.
- Leveraging of business summits, trade fairs and conferences to attract industry players and share PA best practices.
- Easing of visa norms and immigration policies in order to enable citizens of one country to easily move across PA borders and work within other Alliance countries.
- Specifically expanding coordination among the nine sectors highlighted in this report.
- Development of Pacific Alliance promotion centers to boost the trade bloc's profile while fomenting interest from other world economies.



Interview with Mexican Ambassador Socorro Flores

After five years of existence, the Pacific Alliance has achieved substantial and concrete results, that motivate its members to deepen even more their integration process. There are many ongoing initiatives focused on the promotion of member countries' competitiveness, foster investment and regional value chains, to brand the Pacific Alliance as a dynamic and pragmatic mechanism, but at the same time, with ambiton.

Observer countries are important allies. The Pacific Alliance must still improve its foreign relationship schemes in order to generate the greatest possible collaboration with countries interested in working with the mechanism.

Regarding the number of members and future incorporations, The Pacific Alliance, based in its inclusive nature, is open to accept new countries that are willing to comply with the compromises expressed in the current instruments.

It is not easy to know for sure how many countries will be joining the mechanism in the future, or if the Pacific Alliance will transform into a Latin American Community, since the region is characterized by its plurality. But the Pacific Alliance integrationist vocation is clear and its commitment to advance firmly towards free mobility of people, goods, services and capitals is reflected on facts.

One of the key subjects under discussion recently within Pacific Alliance is precisely the future relationship with the forty two countries that are now observers. Such a high number of observer countries in a mechanism that does not have a permanent secretariat undoubtedly generates challenges for a meaningful collaboration. Nevertheless, this has not been an obstacle to design and execute joint projects (12 finalized and 8 ongoing) with 19 countries and the European Union.

The observer country status does not generate compromises nor obligations of any sort, since it is of a voluntary nature. But many of these countries have generously offered their help to Pacific Alliance through several initiatives.

To assure collaboration follow-up between the Pacific Alliance and observer countries, Foreign Affairs Ministers are designing a new strategy to organize the tasks with these countries in a systematic way, taking into account each country's distinctive features and the mechanism' priorities. This new strategy will be presented in the XI Pacific Alliance Summit, in Chile next July. We hope that all observer countries, current and new (there are four more candidates), will then have a greater certainty of the Pacific Alliance's proactive attitude and its compromise to strengthen the link with them.

The Additional Protocol enters into force next May 1st will imply tariff elimination in 92% of traded goods among Pacific Alliance member countries. This will boost our trade and allow new schemes. The fact that The World Bank, in its Doing Business report, considers our countries' business environment as the best in the region, is not a minor thing.

In the short term, we will continue improving our schemes for free mobility of people –an essential element to multiply trade, investment and tourism-, our academic cooperation programs –like the academic and student mobility platform-, and fostering dual education, innovation and SMEs strengthening.

Regarding SMEs, for the Pacific Alliance, I must highlight the relevance of loan granting, capital access facilitation, and a comprehensive strategy to foster entrepreneurship and internationalization of small and medium entrepreneurs. Emphasis has been given to SMEs strengthening within global value chains, because they are an important source of employment in the region, and their development generates direct benefits to our citizens. A fund that will provide equity to SMEs now exists, as well as several training projects through which member countries have transferred experience and knowledge to our businessmen.

The Pacific Alliance's ambition is also reflected in the process to form the Latin American Integrated Market (MILA, in Spanish) with the four countries stock exchanges. This is the biggest stock market in Latin America by the number of listed companies (780 issuing companies valued at more than a billion dollars), and capitalization level. Through MILA, Colombian, Chilean, Peruvian and Mexican companies can operate and increase their investments in the four countries.

There is potential and strengths in many more areas in which we are currently working; for example, mining and fishing, issues that are now being discussed at technical level. All this actions, plus the potential that will be generated the Additional Protocol of the Agreement General Framework comes into force, starting May 1st, will increase our presence in the world and will contribute to enhance our competitiveness.

Ambassador Socorro Flores,
Undersecretary of foreign affairs for Latin America and the Caribbean, and member of the Pacific Alliance High Level Group

Chapter 6

Pacific Alliance 2035

The Pacific Alliance is well positioned to emerge as a star among global markets, a Latin American leader in growth, resilience and sustainability. Envisioning it 20 years into the future provides a snapshot of its possibilities.

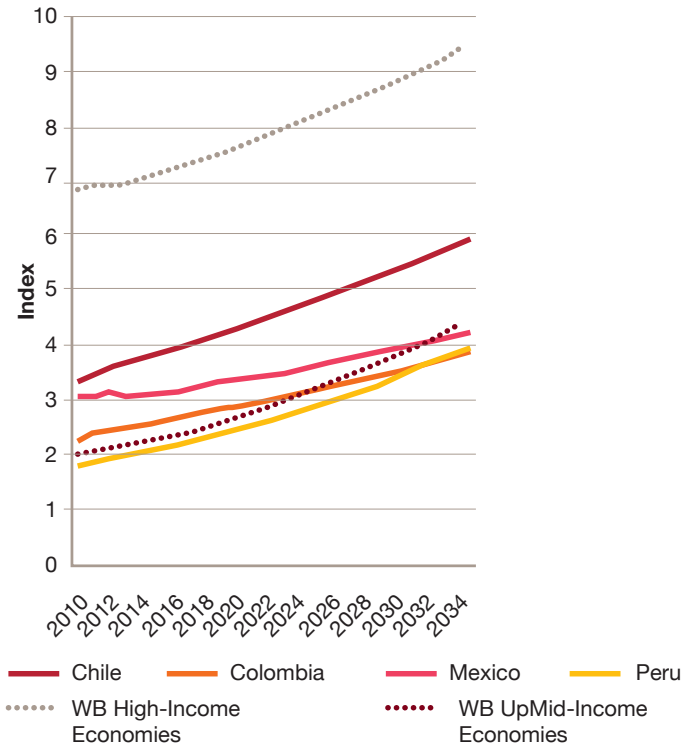
By 2035, the Alliance is posting annual growth of 5.2 percent, and its citizens are enjoying the unprecedented benefits of equitable and inclusive development. The environment—including some of the planet's richest natural resources—is well managed, communities are adapting to climate change and the impact of extreme weather is being mitigated in effective ways. The health and quality of life of citizens in the Alliance countries are protected. PA businesses are flourishing, secure and supported by solid and safe investment.

The trade bloc is leveraging its demographic dividend: Its large labor force is productively employed. These workers not only support themselves but they are contributing to the well-being of the previous generation, which is enjoying longer life.

The fact that this working age population is productive has implications for the middle class. In 2035, we see the middle class growing by at least 5 percent in Mexico, 6 percent in Colombia and 13 percent in Peru. In Chile, citizens are taking the next step, moving from the middle class into the upper class. These predictions are cautious. With additional economic growth of 2 percent, especially if inequality is lowered as envisioned, there will be much higher numbers of empowered consumers with greater disposable income.

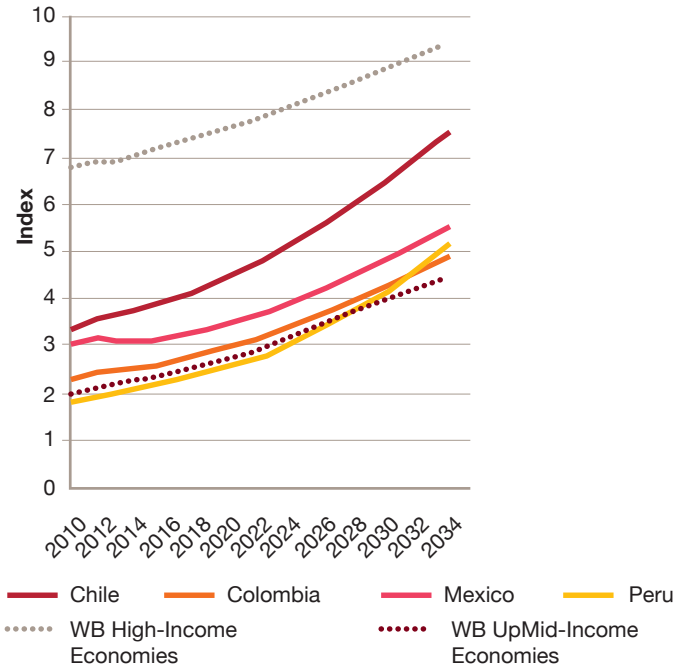
This economic growth is both driven by and a driver of improvement in multi-factor productivity of the PA nations, as illustrated in the following graph.

Multifactor Productivity Contribution to GDP



Source: Pardee Center for International Futures.

Multifactor Productivity Contribution to GDP
Keeping Up with the Upper Middles



Source: Pardee Center for International Futures.

The Pacific Alliance in 2035 is translating innovation and productivity into growth and relative competitiveness. Companies have social, physical and knowledge resources that they did not have two decades earlier. Businesses are working with the public sector, and with each other, to advance best practices. Their labor force matches market needs, largely due to improved educational systems, in-company training and the ability to draw upon skilled labor in other PA member countries. New technology is propelling companies forward. Government policies have removed barriers to business growth.

Goods, services and people move freely among the member nations of a fully integrated Pacific Alliance in 2035. Overall trade among the nations has grown. FDI from outside actors has also increased. The PA governments have adjusted their national policies in order to make that happen, and companies are able to look at Alliance markets as local markets. Companies have identified strategic connections in value chains—increasing productivity and opening new opportunities. In some cases this has led to the production of more complex goods.

The PA in 2035 is a major trade bloc with an economy worth $6 trillion. Growth is sustainable and will continue to be now that the region has moved away from a reliance on commodities. It stands as an example for the Americas and the world.

Costa Rica- On the path to enter the Pacific Alliance?

Any nation can be invited to enter the Pacific Alliance if they have bi-lateral trade agreements with all member nations. The fist nation to truly start going down this path has been Costa Rica.

In February 2014, Costa Rica received a formal invitation to enter the Pacific Alliance. Soon after, in May 2014, the government of Costa Rica changed and Luis Guillermo Solís took office. While in his march to the presidency President Solís expressed intrest in exploring entrance to the Pacific Alliance, after his entrance pressures began to mount against this. The first pressure being that of Solís's party, which do not support free trade agreements. But the biggest pressure has come from the agricultural sector of the nation.

The agricultural sector has fought hard, specifically in FTAs with Peru and Colombia, to protect certain products in trade agreements with its neighbors. In principle, entering the Pacific Alliance includes agreeing to the movement to make 92% of goods tariff free. So, products that the sector has worked to protect in earlier individual FTAs could no longer be protected. While not a huge threat for exports, the Agricultural Chamber argues that lowering of tariffs could threaten a few sectors in the agricultural business within Costa Rica.

Pressure has mounted from the private sector of agriculture, Ministry of Agriculture and the Ministry of Economy. Although the rest of the private sector, Ministry of External Relations and the Ministry of Foreign Trade are very much in favor of joining the Pacific Alliance, as of now the discussions and negations have been on hold basically since February 2014.

The offer to Costa Rica to join the Pacific Alliance will not expire, and it seems unlikely that they will re-open the negotiations while Solís holds the presidency for the next 2 years. The president's party does not support these type of agreement, national support is currently unstable for the leadership, and also Costa Rica is about to enter discussions on taxes. Politically, then, it is not ideal timing to negotiate a topic such as the Pacific Alliance. It is clear that is not a priority for Solís Government.

If Costa Rica were to make steps, before Solís leaves office in 2 years, it would most likely be when Chile takes the Presidency of the Pacific Alliance this July, as Costa Rica has a very good relationship with Chile. But if not, it will be a longer wait. That being said, Costa Rica in the medium to longer-term will surly enter the Pacific Alliance.

***Fernando Ocampo,** LEAD University and former Vice Minister of Foreign Trade of Costa Rica*

Chapter 7

Conclusion: A Call to Action

With more than 60 bilateral agreements, Latin America is no stranger to trade integration efforts.[202] But none have garnered as much international interest as the Pacific Alliance. Its practical, global, economic-oriented approach along with its governments' commitment to democracy, are a welcome respite from the many politically focused blocs. Moreover, its member countries are attractive investment destinations. Chile, Colombia, Mexico, and Peru are Latin America's top four countries for doing business, according to the World Bank.[203]

Any nation in the world can become a member as long as they have free trade agreements with all of the member countries.[204] This is the case of New Zealand and Japan.

The PA has accomplished a lot in a very short time, from the original presidential agreement to when it came into force in May 1st 2016—ratification of the Trans-Pacific Partnership and the eventual accession of Colombia to it will spur even greater integration and harmonization. The Alliance holds tremendous potential for creating a vibrant economic and cultural presence in Latin America and for building the distinctive strengths of Chile, Colombia, Mexico and Peru. It seeks to bring shared prosperity by channeling investment of economic, political and social capital. And it aspires not only to grow economically, but also to post ambitious human development (HDI) and environmental sustainability (EPI) goals.

Despite its important and ongoing activity, the Alliance's momentum seems to have slowed and PA members are struggling to build on their initial gains. Trade integration has proved challenging, as has progress on labor mobility. Intra-bloc value-chain integration has also been elusive. Still, the world of private equity investment has largely embraced the PA and its members. The Pacific Alliance is featured prominently in East Asian academic discourse on Latin America.

The Alliance's efforts to brand its members as open and trustworthy investment destinations arguably appeals to Chinese investors, many of whom have sought in recent years to limit political and economic risk in their overseas ventures. But Chinese companies largely remain focused on a handful of sectors—primarily commodity related—in the four PA member countries. As a result, Chile, Colombia, Mexico and Peru, by and large, still occupy the bottom rungs of China's value chains.

The ability to succeed in a market hinges on both the external market position and the internal capabilities of a company. As *The Future of the Pacific Alliance* highlights, a coherent strategy that aligns both external and internal factors at every level is critical for success within the PA. Companies need a clear strategic direction and they must provide products and services that will thrive. Business must also embrace sustainability and cultivate connections to the communities in which they operate. Continual HDI and EPI improvement is important for the Alliance, the countries within it and companies themselves.

To stand as a credible economic force on the world stage, PA countries must diversify their economies, trading a dependence on commodities for a more combined focus with value-added growth with increased productivity. Preserving common values and sound policies, Alliance members will need to work in new and innovative ways, using their resources more efficiently.

This is an opportune moment for the Pacific Alliance, and its prosperity will hinge on stakeholders that herald a shared vision and commitment to the trade bloc. The private sector, including entrepreneurs, can take the lead in this journey by building capabilities that match opportunities. At the same time, governments can enable innovation and development.

We call on business, entrepreneurs, government, nongovernmental organizations and the Pacific Alliance itself to set the transformation agenda through 2035 and to outline a road map to the future. Key stakeholders will have the following roles:

"The success of the Pacific Alliance will be reflected in the activity growth in value chains within the Alliance, seizing NAFTA as a penetration platform to the biggest market in the world, thus creating the foundations to new formal and quality jobs, contributing to the HDI and the competitiveness and joint prosperity."

Juan Manuel Ferron Solis, *Advisor to the PA Business Council and Partner of PwC Advisory Hispano-America*

Private sector:

- **Pivot to Productivity:** Focus on levers that will lead to productivity gains across the four dimensions, taking advantage of a large labor force and, hence, benefiting the sector as well as the larger economy.
- **Innovate:** Create an innovation ecosystem while devising new solutions. Collaborate across the value chain and extended enterprise.
- **Invest:** Channel resources toward building and renewing capabilities. Human capital merits specific attention and cooperation with universities can develop skills.
- **Actively promote regional production chains in technology-intensive manufacturing industries with better potential to connect with global value chains.** This specifically includes auto parts, aerospace, telecommunications, electronics and software industries. Leverage Mexico's established position in these markets to upgrade the industrial base in Colombia, Peru and Chile.
- **Invest in research and development** in theme-specific regional networks of government, private and university formats. Apply these to challenges in energy and mining, specifically.

Government:

- **Integrate:** Renew commitments to the Pacific Alliance's ambition, move ahead with the reduction of formal trade and integration barriers, and address informal barriers with enthusiasm.
- **Define clear rules of the game:** Governments can play a powerful enabling role by providing a predictable business environment with transparent regulatory and tax regimes. Specifically, remove regulations and currency exchange fees that prevent MILA from realizing its full potential.
- **Develop business-friendly regulatory and tax schemes for economic activity** that spark innovation, job creation and investment.
- **Create a regional infrastructure investment fund** that takes advantage of regional expertise in international development banking and the financial interests of observer countries.
- **Pivot to productivity:** Channel resources to areas that have a direct impact on multi-factor productivity. Prioritize education, health care and connectivity development to grow a robust and mobile workforce.
- **Formulate common regional guidelines** to complex issues such as information and communication technologies development. This will facilitate affordable access, taking advantage of available international institutional support (such as WITSA, UNCTAD, etc.).
- **Promote physical connectivity** projects from Mexico to Chile through Central America. Focus on robust highways, railways and ports.
- **Promote digital connectivity** projects, including fiber-optic cabling, to facilitate e-commerce, distance learning and inter-connectivity.

Pacific Alliance:

- **Address formal and informal aspects of market integration:** Provide a consistent framework that helps companies view the Pacific Alliance as a unified market with a clear view of business opportunities.
- **Coalesce views and actions:** Serve as a platform that brings together the opinions and actions plans of the participating governments and facilitates focus on key enablers.
- **Focus on key sectors,** especially sectoral interventions that improve productivity dimensions.
- **Promote the Pacific Alliance:** A stable market of $6 trillion in GDP by 2035, plus a common language and refreshed infrastructure, is a compelling case to many investors outside the region.

At its best, the Pacific Alliance will create a large, single market for goods and services, a free-flowing market for ideas and people, and a sanctuary that protects and preserves natural capital. Domestic efforts will be strengthened by this larger common market, the exchange of knowledge, increased FDI, expanded international cooperation and the search for competitive articulation of production in regional value chains.

This report, which attempts to communicate a shared vision for the Pacific Alliance, can serve as a platform for constructive engagement. While it is difficult to predict the future, we believe that a shared vision for the Alliance can play an instrumental role in bringing together the relevant stakeholders and galvanizing them into meaningful action. The likelihood of the PA's vision becoming a reality will depend on a common view of the future and a commitment to results. Each of the trade bloc's member countries must channel their resources toward this purpose. For its part, the private sector must embrace its important role. The reward will be a favorable destination marked by an attractive and enabling environment for global businesses. With a shared vision and a commitment to action from all the stakeholders, the Pacific Alliance can position itself as a dynamic regional market ready to take a leadership role on the global stage.

Appendix 1. Research Methodology

The Future of the Pacific Alliance incorporates multi-factor economic forecasting and sector-level analysis to understand the challenges, imperatives and strategic interventions necessary for inclusive growth in the region over the next 20 years. The research used four core components to build and validate growth hypotheses analyzed in the study.

I. External interviews

The team conducted more than 50 interviews with eminent corporate leaders, academicians, sector experts and policymakers from the region. The purpose of these interviews was to understand how corporate and government leaders viewed the challenges faced by the four Pacific Alliance countries, the need for reforms and the role of stakeholders in creating a shared vision and ecosystem for growth. Most importantly, the interviews also explored these thought leaders' views on the capabilities that must be built by the private sector as it takes a leadership role in this journey. The interviews were valuable in structuring the analysis as well as in validating emerging hypotheses and sector solution themes.

II. Engagement with PwC experts

To complement the external insight, the team worked closely with PwC sector experts, both from the region and internationally, to understand sectoral issues and to develop a view across the nine highlighted sectors. Multiple rounds of discussions were undertaken to validate each sector's growth hypotheses and to arrive at the 'strategic bets' for delivering desired productivity. International experts were also consulted about growth benchmarks and global best practices for the sectors.

III. Large-scale, long-term, integrated growth model

PwC collaborated with Pardee Center, an international research and analytics center at the University of Denver, to outline the baseline growth modeling for the Pacific Alliance from 2015 to 2035. A scenario-based approach projected the current growth trajectory (or baseline scenario) forward to 2035 to identify key inputs driving the growth. The scenario explored multi-factor productivity improvements in physical, human, knowledge and social capital.

EThe Frederick S. Pardee Center for International Futures is based at the Josef Korbel School of International Studies at the University of Denver. The core tool supporting its work is the International Futures (IFs) forecasting system, a mechanism for thinking about long-term country-specific, regional, national and global futures. The IFs dynamically integrates multiple issue-area models, including those addressing: population, economy, agriculture, education, energy, sociopolitics, international politics, environment, technology, infrastructure and health. The IFs system includes and builds upon a database of several thousand variables. Visit the Pardee Center website to download IFs (free of charge) or to explore the technical documentation on each model (http://pardee.du.edu/).

The IFs Base Case forecast, used in this report for the baseline scenarios of the PA nations, is a fully integrated, non-linear scenario of how the future may unfold given historical patterns. The Base Case assumes no paradigm shifts, major policy changes or 'black swans' (very low probability but high-impact events, such as a global pandemic or a nuclear war). It is regularly compared with other forecasts in the various issue areas. All parameters and multiple intervention points in the IFs are available for change, allowing the system user to create alternative forecasts from single alternative assumptions (for instance, to test policy-based changes) or to build complex alternative scenarios.

***Mickey Rafa, Drew Bowlsby, Shelby Johnson** - Pardee Center*

IV. Secondary Research

The team conducted extensive secondary research for every section of the report, with a focus on the macro-economic view of the countries and the nine sectors. The research was aimed at developing an understanding of the challenges being faced by the countries, the impediments to growth and the structural issues, along with a granular view of the sectors and imperatives. The team relied on global databases from recognized agencies such as the World Bank and the United Nations for country level statistics. Government websites and national databases were consulted for local insights and to get an understanding of the policy and institutional framework. Sector level research reports and academic commentaries were referred to for an understanding of the sector value chains.

Appendix 2. List of Interviews

1. Gabriela Acosta, President of Mexican Cluster of Animation
2. Lourdes del Carmen Arana Flores, Coordinator for Latin America and the Caribbean, ProMéxico
3. Manuel Araya, Manager of Regulatory and Corporate Affairs, ENTEL Chile
4. Alexis Arthur, Energy Specialist
5. Carlos Berzunza, General Director, National Chamber for Cosmetic Products
6. Sergio Bitar, Director of the Global Trends program at the Inter-American Dialogue
7. Jorge Buitrón, Vice- President of the National Council of Software Clusters of Mexico
8. Rosaura Castañeda, Head of Office of International Negotiations, Secretary of the Economy of Mexico
9. Ignacio Chávez, Institutional Planning, Mexican Institute for Social Security
10. Rodrigo Contreras, Director, COMCE
11. Sergio Contreras, Vice President of COMCE and Sherpa of the Pacific Alliance Business Council
12. Benjamen Creutzfeldt, PhD, Associate Professor at Los Andes University, Political Science Department
13. Santiago Cueto, Principal Investigator, GRADE
14. Ramiro de León, General Director, MASISA
15. Hugo Díaz Díaz, President, National Council for Education Peru
16. Valentín Díez Morodo, President of COMCE and Pacific Alliance Business Council
17. Jorge Errázuriz, member of the Pacific Alliance Business Council, Chapter Chile
18. Ambassador Socorro Flores, Sub-Secretary for Latin America and the Caribbean, Secretary for Exterior Relations of Mexico
19. Carlos Fuentes, Executive Director of International Promotion, ProMéxico
20. José V. Gallegos, Research Associate, Vindeza Consultores
21. Piero Ghezzi, Minister of Production, Peru
22. Diana Gómez, Director of Message Managment, ProMéxico
23. Eduardo González Pier, Sub-Secretary of Health, Mexico
24. Oscar González Rocha, President, Southern Copper
25. Santiago Gutiérrez, President of the World Information Technology and Service Alliance, WITSA
26. José Juan Haro, Director of Operations, Telefónica Chile
27. Neil Herrington, Executive Director, Americas, U.S. Chamber of Commerce
28. Diego Hernandez, former CEO, Antofagasta Chile
29. Christian Laub, CEO Credicorp Capital and President of the Peruvian Stock Exchange
30. Beatriz Leicegui, Partner, SAI Consulting
31. Enrique Lendo, Lead of International Coordination, Secretary of the environment and natural resources Mexico
32. Jorge Llano Salamanca, Director of Economic Studies, ASOFONDOS Colombia
33. Isabel Londoño Polo, President, Foundation of Women for Colombia
34. Jason Marczak, Director of the Adrienne Arsht Latin American Center at the Atlantic Council
35. Jose Martinez, Vice President of Investments, RIMAC Peru
36. Angélica Matsuda, President, National Competitiveness Council, Peru
37. Eleodoro Mayorga, Former Minister of Energy and Mines, Peru
38. Franz Meiners, Director of Arauco Mexico
39. Margaret Myers, Director China-Latin America Program, Inter-American Dialogue
40. Manuel Molano, Deputy General Director, Mexico Competitiveness Institute
41. Maurits Montañez, Managing Director of Manuvo
42. Rafael Nava, Director of Institutional Relations, COMCE
43. Fernando Ocampo, Lead University and former Vice Minister of Foreign Trade of Costa Rica
44. Scott Odell, PhD in Geography, Clark University
45. Jorge Ortiz, President of FinTech Mexico
46. Juana Ramírez, C.E.O. of Group SOHIN
47. Bruno Ramos, Director for Latin America, International Union of Telecommunications
48. Jorge Ramos, CEO, Sura Peru and President of AFP Integra
49. Mauricio Reyes, Director of Institutional Relations, FEMSA
50. Carolyn Robert, Trade Representative, Inter-American Development Bank
51. Carlos Rojas, CEO, Agropecuaria Santa Genoveva
52. Diego Rosado, Vice President, InRetail Peru
53. Fernando Ruiz, Vice-Minister of Health, Colombia
54. Gonzalo Ruiz, President of the Board, Supervisory Agency for Private Investment in Telecommunications (OSIPTEL), of Peru
55. Jaime Serra Puche, CEO, SAI Consulting
56. Eduardo Solís, CEO of the Mexican Association of the Automotive Industry (AMIA)
57. Eleonora Silva, CAF Representative, Peru
58. Carlos Slim Domit, President of the Board of America Movil and member of the Pacific Alliance Business Council, Chapter Mexico
59. Eduardo Torres-Llosa, CEO, BBVA Peru
60. Vicente Tuesta, CEO, Profuturo
61. Fredy Vargas, Technical Secretary of the Transition Commission, Ministry of Labor Peru
62. Jorge Yzusqui, CEO, Innova Schools
63. Rogelio Zuleta Galindom, Office of the Deputy Minister for Higher Education, Colombia
64. Carmen Zeña, Coordinator of Foresight and Strategic Studies, Center for Strategic Planning of Peru

Appendix 3. PwC Contributors

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- *Colin Becker, PwC Chile*
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- *Juan Carlos Mandujano, PwC Peru*
- *Darren Chapman, PwC Colombia*
- *Matthew Conway, PwC US*
- *Matthew Crayne, PwC US*
- *Andrew de la Mare, PwC Chile*
- *Jorge de los Reyes, PwC Colombia*
- *Gustavo Dreispiel, PwC Colombia*
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Endnotes

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