

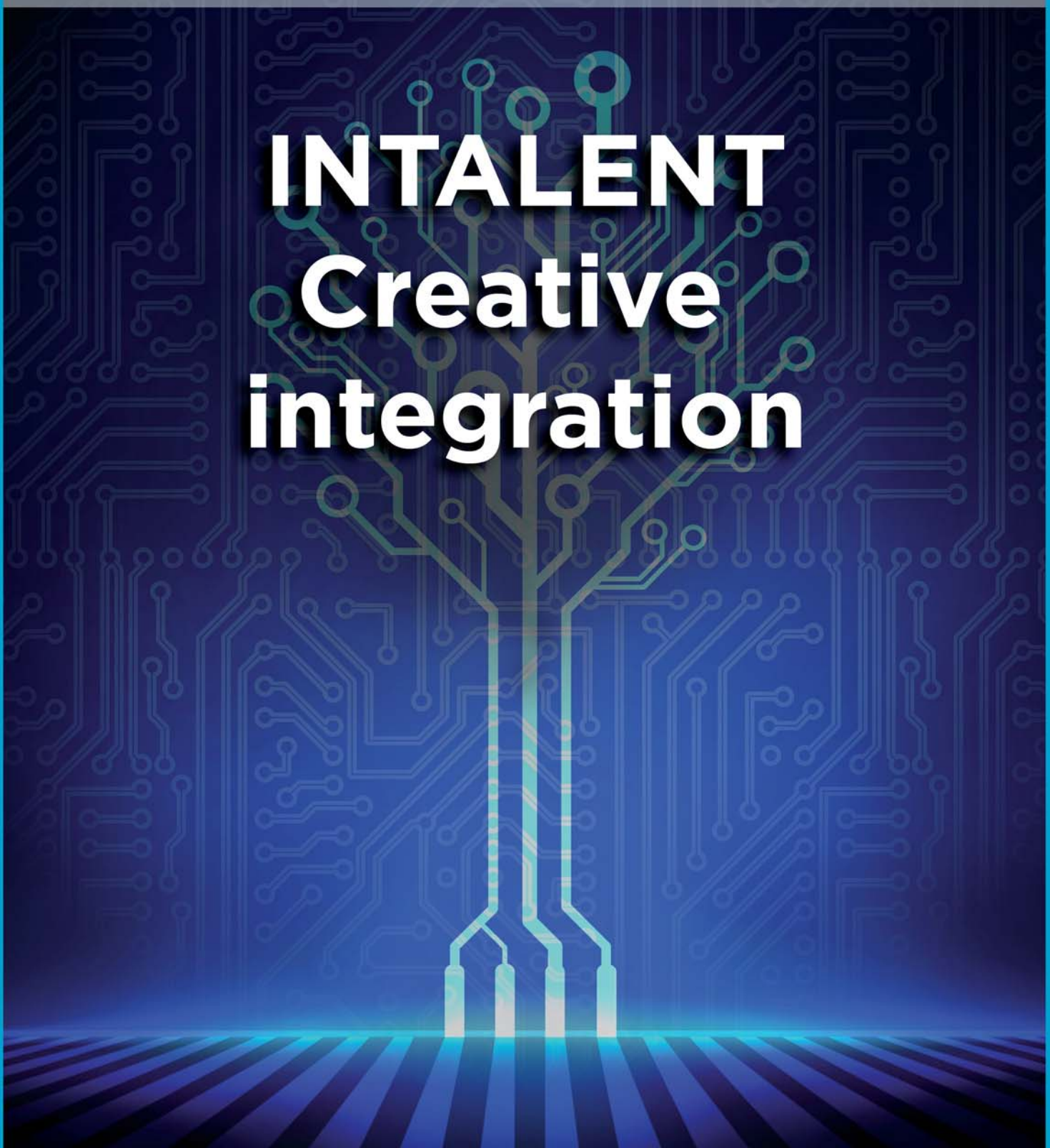
INTAL CONNECTION

BETTER CONNECTED / BETTER INTEGRATED

CONNECTION
NUMBER

239 July, 2016

INTALENT Creative integration



Integration Ideas

China's Technological Metamorphosis and Global Trade

- [Integration Ideas](#)
- [n239](#)

Preliminary data available at the time of writing indicate that in 2015, the nominal value of world trade in goods contracted by 11.9%.^[1] This drop is the first recorded since 2009, when international trade flows were seriously affected by the global financial crisis and fell by 23.9%. The 2015 downturn is entirely due to drops in prices, which are down an average 13.1%, heavily influenced by the deflationary pressures in markets such as petroleum and other commodities. However, it is perhaps even more important to underline that the increase in volumes of trade (+1.4%) was not only slight but also below the already low average growth rate for this variable between 2012 and 2014 (+2.2%).^[2]

The 2015 outcome should be interpreted in the context of the last four years, during which global trade seems to have entered a low-growth regime that stands in stark contrast to the levels reached in the period immediately before the financial crisis. This phenomenon is the subject of increasing interest on the part of academic and institutional analysts, and a debate has opened up between two alternative interpretations that describe the slowdown as being either “cyclical” or “structural.”^[3] Proponents of the former essentially explain low growth rates as being a consequence of the slow, unusual recovery of the global economy following the 2008–2009 crisis, noting that this still has not returned to a “true state of normality.” They argue that this affects trade, which will return to a healthier growth path once we have overcome the macroeconomic obstacles that are hindering growth at similar rates to the past.^[4] Supporters of the second approach draw attention to changes in certain profound characteristics of global trade that functioned as driving forces for the huge boom of the 1990s. They argue that this acceleration was associated with unique events that led to “structural” modifications: for example, the large-scale liberalization of tariffs, the incorporation of Eastern European countries

into the global economy, and China's opening-up, all changes that eliminated restrictions and created new sources of trade.

One particular aspect which is connected to one of these changes is the fact that China has become the heart of a network of global manufacturing value chains (GMVCs). This mode of production has led to the sudden creation of new trade flows, especially between developing countries in Asia and developed countries. Exploiting the advantages of specialization in the GMVC model is one of the pillars that have been holding up the expansion of global trade since the 1990s.

That said, how far was the emergence of these GMVCs a "unique event" whose role as a driving force for trade has gradually waned? More specifically, does China's technological metamorphosis as it slowly leaves behind a profile based on low-complexity technologies signal an erosion of the strength of its demand for manufactures within GMVCs? Will the gradual spread and consolidation of its production capacities tend to reduce the dynamism of its imports? Could this be one of the factors behind the lower rates of growth that global trade has experienced in the postcrisis years?

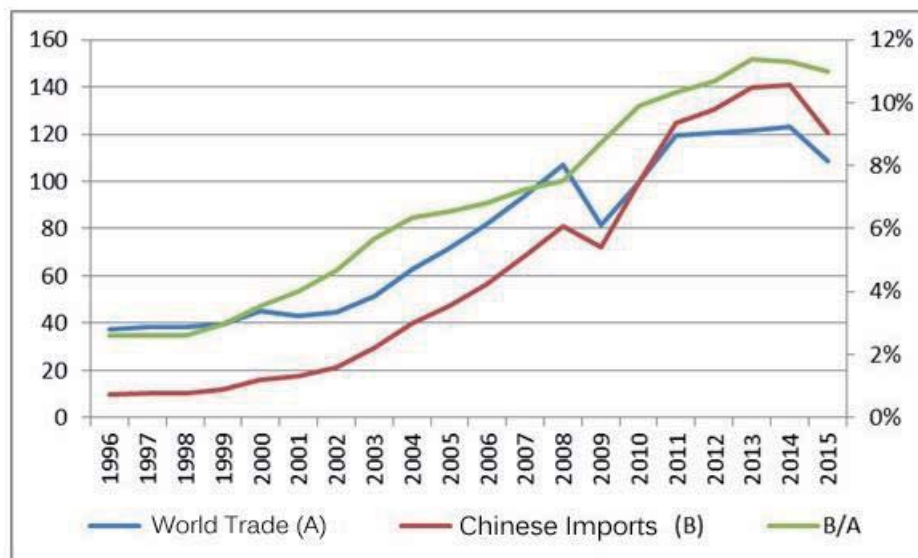
This article addresses certain aspects of these questions using preliminary information that is not exhaustive. In particular, it analyzes the pattern of China's trade in manufactures and the consequences of this on the country's role as a source of supply and demand in markets for manufactures.

The Beginnings of a Downturn in China's Role as the Driving Force for Global Trade?

First, it would be useful to establish an aggregate overview of the evolution of global trade and China's share in these flows (Figure 1). It is clear that the stagnation of international trade that began in 2011 was not initially matched by China's external demand (Figure 1).

Figure 1. Evolution of Global Trade and China's Imports, 1996–2015

(In current US\$, indexes 2010=100 and percentages).

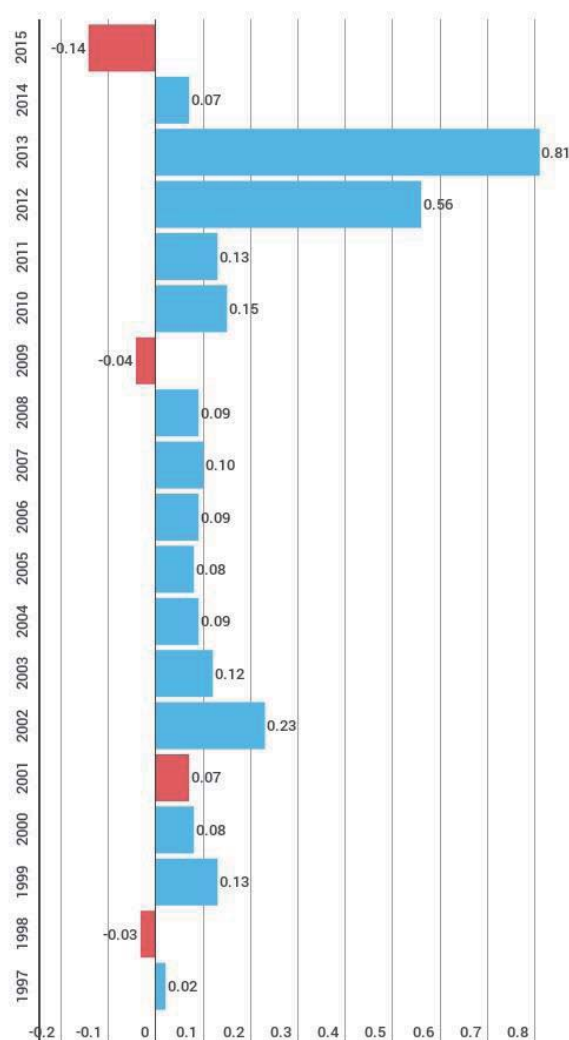


Source: Prepared in-house with data from the Netherlands Bureau for Economic Policy Analysis (CPB) and China Customs.

Up to 2003, China's total imports grew much faster than the global aggregate.^[5] The share of these purchases reached a maximum of 11.4% before dropping in 2014 and 2015. If this change becomes consolidated, it will represent an important shift in the pattern of one of the strongest driving forces for global trade in recent decades. Not even the 2008–2009 crisis halted the rise of China's relative importance as a market for the rest of the world. But in 2015, the estimated contraction of its imports (-14.4%) was 2.5 percentage points above that of global trade. Although it is hard to assess how this variable will develop over time, the signal that appeared in 2014–2015 clearly merits our attention.

Figure 2. Contribution of China's Imports to the Rate of Change in Global Trade, 1997–2015

(Coefficients calculated on the basis of current prices)
(Coefficients)



Notes:

1. The relative contribution is the ratio between the annual rate of change in China's imports and the absolute value of the corresponding annual rate of change in global trade.
2. The red bars indicate years in which the rate of change in global trade was negative.

Source: Prepared in-house with data from the CPB and China Customs.

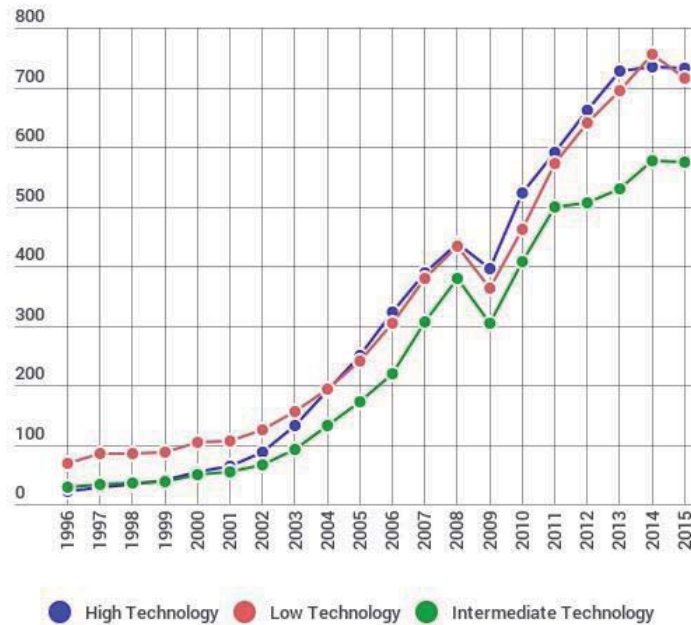
The year 2015 can also be seen as an anomaly as nearly 14% of the reduction in global trade is explained by the drop in Chinese imports (Figure 2). This is the third year since the second half of the 1990s in which China's demand has had a negative effect on trade. The previous two

critical periods were 1998 and 2009. In 2001, China was a driving force for trade even when global flows contracted. Furthermore, in 2015, Chinese imports curbed global flows much more than during the two previous episodes. On the other hand, last year's negative impact followed a five-year period of exceptionally high contributions on China's part (2010–2014). These explain, on average, 35% of the positive change in global trade, although during the 2003–2008 boom, this contribution averaged 12%. This is due to the fact that, in a context of weak demand from other economies, China's imports had been holding up the growth of total flows almost on their own. That support system broke down in 2015. It is clear that a large part of the 14.4% contraction in China's imports is linked to the drop in commodity prices. But what is striking this time is that its demand for manufactures dropped by 6.0%, which is higher than the 5.3% fall in total imports.^[6] In 2009, in contrast, China's imports of manufactures contracted by 8.8%, while total global imports of manufactures dropped by 21.7%. In 2015, unlike what happened in 2009, China did not compensate for the global downturn. The net result is a decrease in the relative share of its purchases in the global total. As we will show in the following sections, this could be in line with changes in the manufacture demand pattern in the global market.

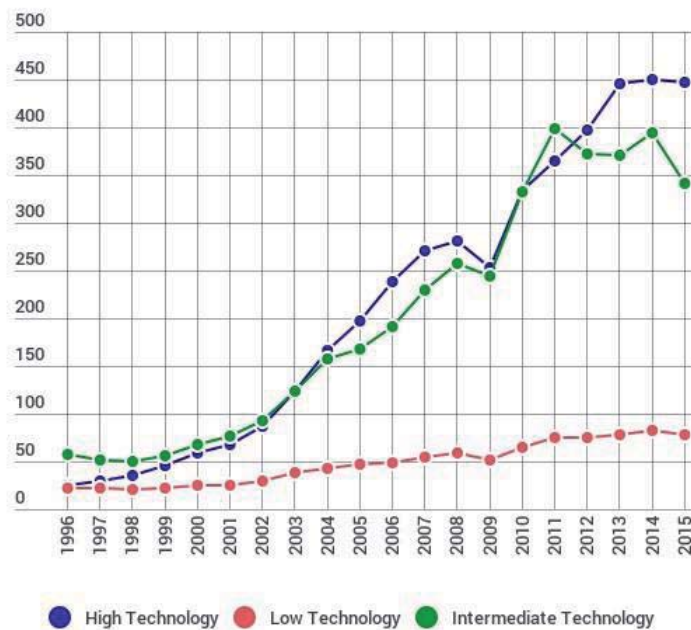
Changes in the Technology Content of China's Foreign Trade in Manufactures Since it became part of the global market, China has had a trade deficit in commodities and commodity derivatives and a surplus in manufactures. If manufactures are classified by technology content (Lall, 2000)^[7] into low-technology, medium-technology, and high-technology goods, very similar export levels for low- and high-technology goods are revealed, and slightly lower ones for medium-technology goods, especially after 2011 (Figure 3). China has a trade surplus in all three, although this is greatest in the low-technology category, where its surplus is much higher due to its very low import levels.

Figure 3. Evolution of China's Trade in Manufactures, by Technology Content, 1996–2015 (in billions of US\$).

EXPORTS



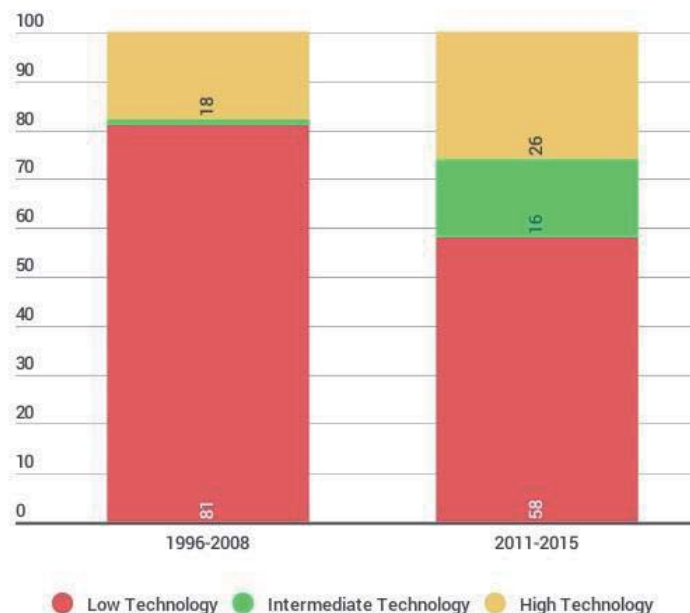
IMPORTS



Source: Prepared in-house using COMTRADE data.

China's gradual technological metamorphosis, which is reflected in the consolidation of its manufacturing sector, can be seen in changes to the composition of the surplus of trade in these activities.[8] The phenomenon is visible if we compare the structure of this balance of trade between two periods: 1996–2008, 13 years during which China consolidated its position as a major player in global trade and which culminated in the global financial crisis; and 2011–2015, a period which was characterized (as mentioned above) by the low growth of international trade.

Figure 4. Structure of China's Balance of Trade in Manufactures, by Technology Content, 1996–2008 and 2011–2015(in percentages).



Source: Prepared in-house using COMTRADE data. The most significant change is the drop in the share of low-technology goods, which fell from 81% to 58% of the surplus.

In contrast, the importance of medium-technology goods increased, as did that of high-technology goods, but to a lesser extent. This change reveals two things. First, despite the ongoing transformation in the manufacturing sector that this data points to, it is significant that three-fifths of China's trade surplus is in low-technology goods; in other words, the data reveals a certain "backwardness" on China's part. Second, the relative expansion of the balance of trade originating in goods with greater technology content took place during a period in which exporting to the global market has been more difficult. This reveals that China's production

capacities have effectively matured and it may point to an increase in the number of production stages that can be carried out within the country's borders. In any case, this would characterize the emergence of an intermediate skill profile. This overview is compatible with evidence that shows that the predominant type of technical change in China is of the "incremental, modular, and product architecture" type, while those forms traditionally classified as "technological innovation," which give rise to disruptive change, are less significant (Warner, 2016). In any case, although the net improvement in high-technology goods (which now represent 26% of the balance of trade) may largely indicate exports linked to the more labor-intensive stages of those products, there is greater potential technological spillover in these activities than in those for low-technology goods. Integrated circuits are a noteworthy example. In 2005, China's exports and imports represented, respectively, 6% and 24% of global trade; by 2015, these values had leaped upwards, reaching 21% and 39% of the global totals for these flows. However, China's balance of trade was a deficit, with export levels representing around 35% of imports. It is clear that reducing these gaps is a matter of concern within Chinese public policy-making, given the importance that the 13th Five-Year Plan places on scientific and technological innovation, including the development of "intelligent manufacturing" and the use of robots (Tang, 2016). In short, in the postcrisis years, China's trade in manufactures has been underpinned to a greater extent by activities of higher technological complexity. This is evidence that the of the gradual metamorphosis of the structure of the country's comparative advantages, which are nudging it toward a state of intermediate technological mastery. However, what consequences has this relative progress had on its role as a source of demand in global trade?

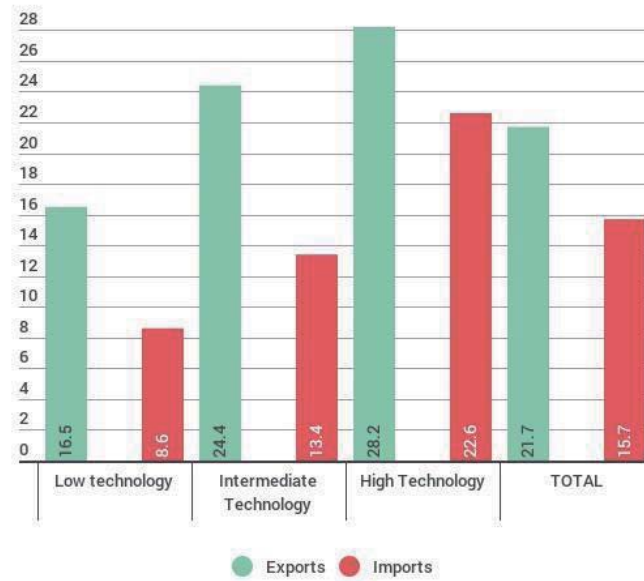
China's Trade and the Dynamics of Global Manufacturing Value Chains

As we argued in the first section, China's integration into global trade has partly come about through the creation of GMVCs. The breaking down of goods production processes into different phases and the relocation of these to different countries have been driving factors for the import and export flows of the different economies that take part in GMVCs. This is a particular type of intra-industrial trade, one dominated by flows of intermediate goods. In dynamic terms, the stable growth of this type of chain requires a certain balance between the flows of inputs (imports) and outputs (exports) from the countries involved. A downturn in the growth of imports from one country in relation to an increase in its exports would make the international production chain less stable, which would lead the country in question to start to cover production stages that had previously been located elsewhere. This would have a negative impact on demand for the other countries that form part of the chain, in contrast to a state of balanced growth. The ongoing modification of

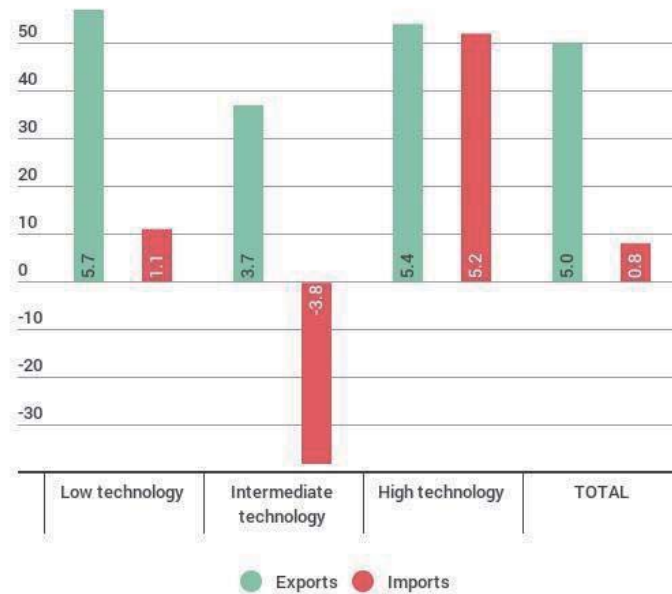
China's trade pattern that we described above shows early signs of this type of dynamic (Figure 5).

**Figure 5. Growth in China's Imports and Exports of Manufactures, by Technology
(Average annual rate of change, in percentages)**

1997–2008



2012–2015



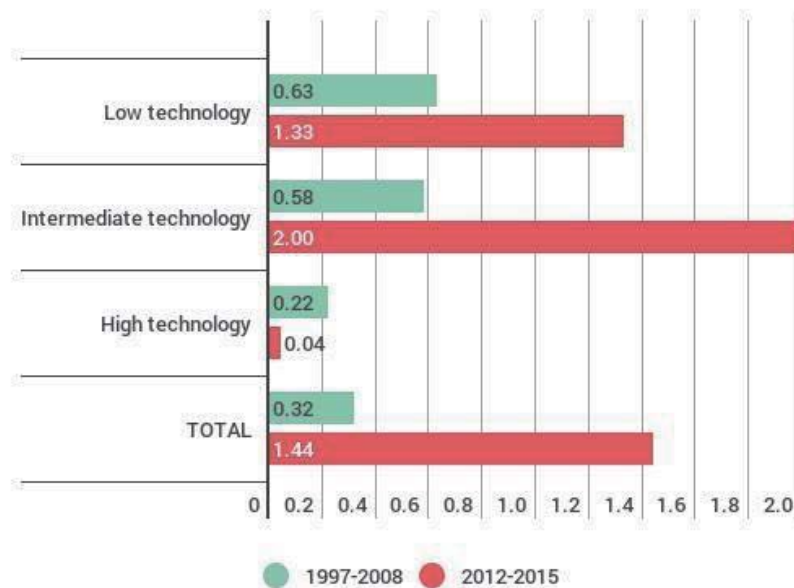
Note: The rate of change corresponds to the geometric average, taking 1996 and 2012 as benchmark years.

Source: Prepared in-house using COMTRADE data.

In the run-up to the financial crisis, China's imports and exports of manufactures grew at solid rates of 21.7% and 15.7% per year, respectively, taking into account the three aforementioned technology-related manufacturing segments. It is worth pointing out that during this period, the lowest relative dynamism was recorded in China's demand for low-technology goods, a signal of its budding capacity to cover a greater number of production stages without having to obtain inputs from abroad. In parallel with the stagnation of global trade, there was a noteworthy deceleration of growth in total imports and exports of manufactures (5.0% and 0.8% per year), which involved all three categories. It is worth analyzing the difference in the disparity in growth rates for the two types of flows between the two periods, that is, for the factor that guarantees the stability of GMVCs. One indicator to synthetically measure this disparity by product type and for the total could be defined as: $\frac{g_x}{g_m}$, where g_x and g_m are, respectively, the average rate of change in exports and imports (Figure 6). The coefficient is zero in the event of the two rates being equal, and it increases when exports grow faster than imports, as is the case for China.

Figure 6. Coefficient of the Disparity between the Growth in China's Exports and Imports of Manufactures, by Technology Content, 1997–2008 and 2012–2015

(Average annual rate of change, in percentages)

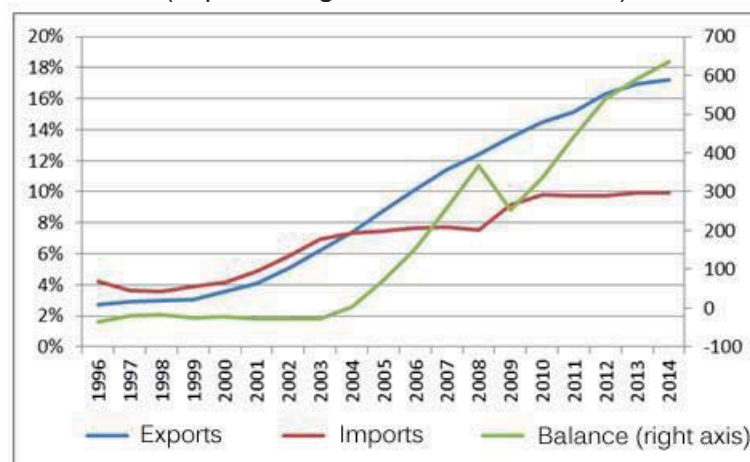


Note: The rate of change corresponds to the geometric average, taking 1996 and 2012 as benchmark years.

Source: Prepared in-house using COMTRADE data.

This measure shows that, during the period of accelerated growth in global trade and the expansion of GMVCs (1997–2008), this imbalance remained limited even though China's exports grew at faster rates than its imports. In contrast, following the crisis, China's contribution as an export supplier is notably higher than its contribution as an importer. In disaggregated terms, the significant exception to this is high-technology products, which have maintained a balanced dynamic of growth for both flows. In other words, in this sector alone, China's growth as a market for suppliers outside its borders has tended to balance out its own contribution as a supplier. The remaining categories reveal an incipient erosion of the GMVCs which China takes part in: the growth in its exports tends to far exceed that of its imports. In other words, these activities are tending toward concentration within China, to the detriment of the international disintegration of the different stages in GMVCs. Additional evidence in this direction appears in a subsegment of China's trade in manufactures that is made up of products that are related to production processes, including both capital goods and inputs (Figure 7).^[9] These industrial manufactures (IMs) are linked to the typical trade in GMVCs themselves, excluding consumer goods and commodities.

Figure 7. Proportion of China's Imports and Exports of Industrial Manufactures in Comparison to Global Trade Flows and Balance of Trade, 1996–2014
(in percentages and billions of US\$)



Note: Industrial manufactures include headings 2.2, 4, and 5 of the BEC classification.

Source: Prepared in-house using COMTRADE data.

China's share of global trade in IMs has grown very unequally for imports and exports. Up to 2003, both flows represented similar, increasing shares of the total global flows under this heading. However, since 2004, the share of Chinese exports has steadily continued to increase, reaching 17.2% in 2014. It is worth noting that the curve does not show any signs of having been affected by the large-scale cyclical disturbance that resulted from the 2008–2009 crisis. In contrast, China's share of the global total of imports under these headings initially stabilized at about 8%, before moving up a step to 10%. This disparity is reflected in the growing surplus of China's trade under this heading. The consolidation of these trends would point to a weakening of trade in manufactures, and they may be compounded by other incipient phenomena, such as the replacement of labor-intensive processes carried out in developing countries by automation and robots in developed countries (Shotter and Whipp, 2016; O'Connor, 2016).

Conclusions

In the postcrisis context of weak global trade, in 2015, China's share in total imports fell for the first time since its dramatic entry into the global market. The ongoing changes in China's international integration profile, which currently place it at an intermediate technological skill level, and the gradual lengthening of its own production chains may be having a negative impact on the strength of its external demand. This phenomenon centers on trade in manufactures and may partly explain the lower growth rates currently experienced by global trade.

References

Constantinescu, C.; Mattoo, A.; and Ruta, M. 2014. "Slow Trade." *Finance & Development* 51 (4), December. Constantinescu, C.; Mattoo, A.; and Ruta, M. 2016. "Trade Developments in 2015." *Global Trade Watch*, World Bank Group. ECB. 2015. "Understanding the Weakness in World Trade." *Economic Bulletin* 3: 33–42. Giordano, P., coordinator. 2014. "Facing Headwinds. Policies to Support a Trade Recovery in the Postcrisis Era." *Trade and Integration Monitor*. Washington, DC: Inter-American Development Bank. Giordano, P., coordinator. 2015. "Double-Dip: Latin America and the Caribbean Facing the Contraction of World Trade." *Trade and Integration Monitor*. Washington, DC: Inter-American Development Bank. Hoekman, B., editor. 2015. *The Global Trade Slowdown: A New Normal?* A VoxEU.org eBook. London, UK: CEPR Press. IMF. 2016. "Dissecting the Global Trade Slowdown." *World Economic Outlook* (April): 54–56. Lall, S. 2000. "The Technological Structure and Performance of

Developing Country Manufactured Exports, 1985–1998.” QEH Working Papers Series No. 44. Oxford. O’Connor, S. 2016. “Robots May Cut off the Path to Prosperity in the Developing World.” *Financial Times*, June 21. Shotter, J. and Whipp, L. 2016. “Robot Revolution Helps Adidas Bring Shoemaking Back to Germany.” *Financial Times*, June 8. Tang, S. 2016. “Nueva visión de China en el próximo lustro [New vision of China in the next five years].” China.org.cn. Available at: http://spanish.china.org.cn/txt/2016-03/14/content_38020673.htm (link in Spanish). Warner, E. 2016. “Intangible Innovation as an Engine of Development.” *Integration and Trade* 40 (Made in Chi-Lat): 282–297.

[1] According to data from the Netherlands Bureau for Economic Policy Analysis (CPB).

[2] Between 2003 and 2008, volumes of trade grew at an average annual rate of 6.2%.

[3] For Latin America and the Caribbean, see: Giordano (2014 and 2015); on the global phenomenon, see, among others: Constantinescu et al. (2014 and 2016); ECB (2015); IMF (2016); and Hoekman (2016).

[4] Macroeconomic factors have undoubtedly played a part in the current low growth rates of trade. The fact that the world’s main economies are recovering at different paces has not created positive feedback effects through external demand. Furthermore, the US dollar’s ongoing tendency to appreciate (which is due both to the fact that the US economy is performing relatively well and to the marked sense of uncertainty at the global level) is a deflationary factor for nominal flows, given that this is the currency that global trade is measured in. When the US dollar appreciates, a given price set in a local currency is then expressed as a lower number of dollars within the global trading system.

[5] According to data from the CPB and China Customs.

[6] Both rates were estimated on the basis of preliminary data with an available sample of 91 countries which accounts for nearly 94% of global exports in 2015.

[7] This tool does not allow the different production stages for goods to be rigorously separated, in particular for high-technology goods which may include components from labor-intensive phases, and does not necessarily reflect mastery of innovation capacities.

[8] Taking 2009 as a benchmark year, China’s surplus balance of trade in manufactures grew at an average annual rate of 14.6% but experienced a sudden slowdown in 2015, when it grew by only 1.2%.

[9] These are Broad Economic Categories (BEC) 2.2 (processed industrial supplies), 4 (capital goods, except transport equipment, and parts and accessories thereof), and 5 (transport equipment and parts and accessories thereof). The figures for this subset were taken from the total analyzed using the classification by technology content.

Updates to the South American Regional Infrastructure Project Portfolio

- [Integration Ideas](#)
- [n239](#)

Some 85% of the projects that make up the active [COSIPLAN](#) Portfolio were successfully updated by the countries of South America. This was possible thanks to support from multisectoral and multidisciplinary technical teams from different areas of government in these countries. The meetings between these teams were organized by [Integration and Development Hub](#) and held online during May and June 2016.

As the Secretariat of the COSIPLAN/IIRSA Technical Coordination Committee, [INTAL](#) ([link in Spanish](#)) has played a fundamental part in coordinating meetings and providing guidance to help work teams achieve the established objectives. The portfolio review process focuses on continually improving the quality of information on projects so as to foster the implementation of these and make the benefits of physical integration available to all the region's citizens.

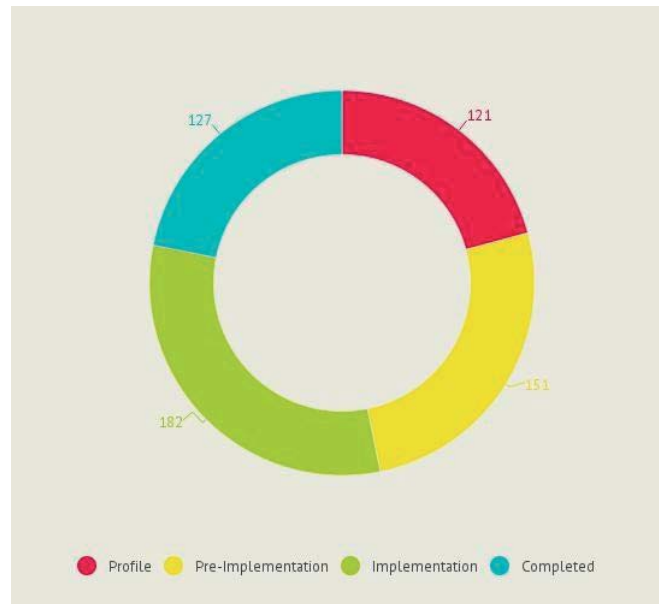
The number of projects in the [COSIPLAN Project Portfolio](#) went from 593 in 2015 to 581 in 2016. The estimated investment has increased by 3.2%, going from US\$182,436 million to US\$188,337 million. Most of the 12 projects that no longer form part of the portfolio belong to Argentina and Brazil. This is due to a serious review of the portfolio and investment priorities on the part of the new governments of both countries.

TABLE 1. TOTAL PORTFOLIO PROJECTS

Integration and Development Hub	High	Low	Balance	No. of Projects	Estimated Investment
Amazon	0	2	-2	72	27,022.8
Andean	2	3	-1	66	29,096.5
Capricorn	0	1	-1	81	16,676.2
Guianese Shield	0	0	0	20	4581.3
Paraguay-Paraná Waterway	1	4	-3	89	6325.1
Central Interoceanic	0	0	0	63	11,498.5
MERCOSUR-Chile	0	3	-3	120	56,802.2
Southern	1	3	-2	47	4506.7
Peru-Brazil-Bolivia	1	1	0	24	32,008.4
Total	5	17	-12	581	188,337.3

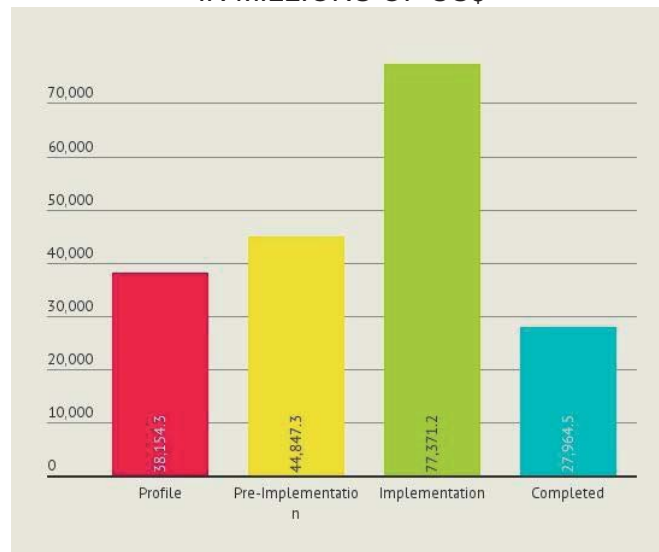
Source: COSIPLAN Project Information System, 2015-07-18

FIGURE 1. PORTFOLIO PROJECTS BY LIFECYCLE^[1]
IN % OF NUMBER OF PROJECTS



Source: COSIPLAN Project Information System, 2015-07-18

FIGURE 2. PORTFOLIO PROJECTS BY LIFECYCLE
IN MILLIONS OF US\$



Source: COSIPLAN Project Information System, 2015-07-18

TABLE 2. TOTAL PORTFOLIO PROJECTS VARIATION 2015–2016

	No. of projects according to 2015 Report	Number of projects included in GTE	Number of projects excluded from GTE	Changes between stages	Variation 2015–2016	No. of projects as of July 2016
Profile	114	0	-3	10	7	121
Preimplementation	173	2	-5	-19	-22	151
Implementation	191	2	-9	2	-9	182
Concluded	115	1	0	11	12	127
Total	593	5	-17	4	-12	581

Source: COSIPLAN Project Information System, 2015-07-18

The review process made it possible to reduce the number of projects at the preimplementation and implementation stages by 15% and 5%, respectively, and increase the number of concluded projects by 10%. The number of conclude projects increased from 115 in 2015 to 127 in 2016, confirming a trend that has been emerging over the last few years. Investment in concluded projects has also increased from 2015 to 2016, going from US\$26.11 billion to US\$27.97 billion. This is due to the investment review carried out as part of the updating process and also to the completion of 12 projects, which are presented in the following table.

TABLE 3. PROJECTS CONCLUDED BETWEEN OCTOBER 2015 AND JULY 2016

Code	Project Name	Group	Amount invested (in millions of US\$)	Country/Countries
AND01	ROAD CORRIDOR CONNECTING SANTA MARTA–PARAGUACHÓN	1	411	COLOMBIA
CAP77	BARRANCAS BLANCAS INTEGRATED BORDER CONTROL FACILITY (PIRCAS NEGRAS BORDER CROSSING)	5	5	ARGENTINA, CHILE
HPP117	HIGH-VOLTAGE TRANSMISSION LINE BETWEEN MERCEDES AND PASO DE LOS LIBRES	3	15	ARGENTINA
HPP127	CONSTRUCTION OF PUERTO BUSCH PORT	1	0	BOLIVIA
AMA03	ACCESS TO AND UPGRADE WORKS AT PUERTO ASÍS PORT (LA ESMERALDA DOCK)	1	30	COLOMBIA
AMA66	EL CALLAO MULTI-PURPOSE NORTHERN TERMINAL	4	390	PERU
AMA70	LETICIA DOCK	6	3	COLOMBIA
AMA71	PROVIDENCIA PORT	2	25	ECUADOR
AMA102	CONSTRUCTION OF NEW YURIMAGUAS PORT	3	50	PERU
IOC62	IMPROVEMENT OF MATARANI PORT	5	37	PERU
IOC71	CONSTRUCTION OF A FOUR-LANE ROAD CONCESSION BETWEEN DIEGO ARACENA AIRPORT AND IQUIQUE	5	173	CHILE
MCC163	UPGRADE OF THE LA SERENA–VALLENAR SECTION TO A FOUR-LANE ROAD	4	388	CHILE

Source: COSIPLAN Project Information System, 2016-07-18

The [Integration Priority Project Agenda \(API\)](#) currently includes 31 structured projects and 103 individual projects for an estimated investment of US\$21,66 billion.

FIGURE 3. INDIVIDUAL API PROJECTS BY LIFECYCLE IN % OF NUMBER OF PROJECTS

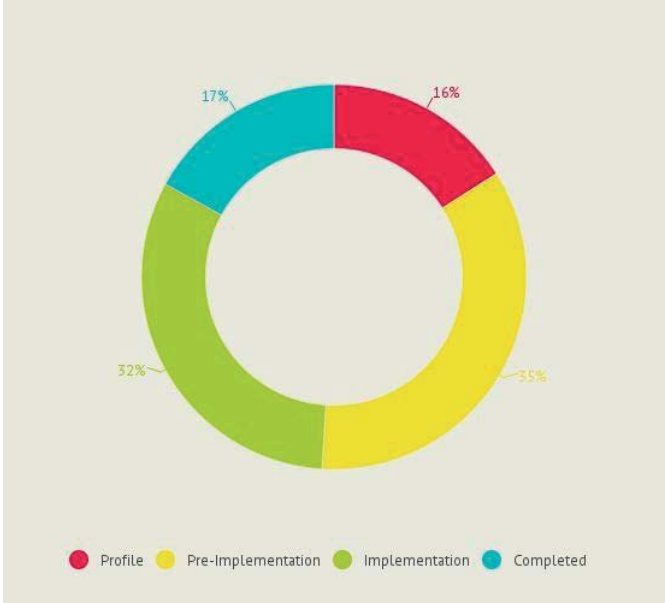
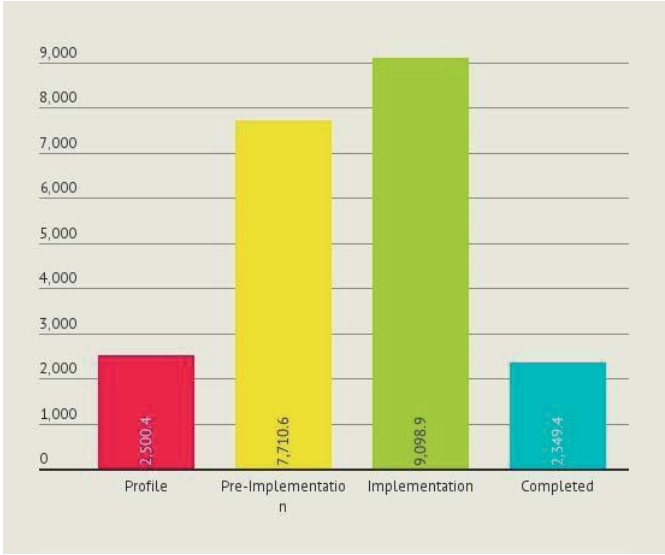


FIGURE 4. INDIVIDUAL API PROJECTS BY LIFECYCLE IN MILLIONS OF US\$



The results of these studies are reflected in the [COSIPLAN Project Information System \(SIP\)](#) (in Spanish) and will be compiled in the annual reports for the Project Portfolio and the API, which will be presented during the 6th Ordinary Meeting of COSIPLAN Ministers, scheduled for December 2016.

[1] The project lifecycle stages agreed upon by the COSIPLAN countries are as follows: 1) Profile: the context and background are studied to enable the technical and economic desirability and feasibility of the project to be assessed; 2) Preimplementation: this includes

projects at the following stages: pre-feasibility, feasibility, and investment; 3) Implementation: the set of activities needed for the physical construction of the project itself, which may include the signing of the contract, purchase and installation of machinery and equipment, and the installation of various facilities; 4) Concluded: the completion of construction of the entire physical project in question.

INTALENT. Creative Integration

- [Integration Ideas](#)
- [n239](#)

Designing everything from new apps that suggest music downloads to ones that can transform any type of online content into audio, Latin American entrepreneurs stand out because of their imaginations, their creativity, and the passion with which they try to make their dreams a reality while transforming our day-to-day lives through their ideas.

INTALENT, the creative industry competition that the Institute for the Integration of Latin America and the Caribbean (INTAL) has launched in partnership with the Massachusetts Institute of Technology (MIT) through the *MIT Technology Review*, has awarded prizes to the most innovative of the 680 projects that took part.

Entrepreneurs from 20 countries in the region answered the call seeking technology-based start-ups that form part of the [Orange Economy](#) and that have the potential to reach beyond national borders and contribute to the region's social and cultural integration.

The winner was [Stereothèque](#), a platform for exploring music on the basis of your location, preferences, and a touch of serendipity. The project's founder, Colombian Tomás Uribe, was awarded US\$10,000 and a trip to [Emtech 2016](#), an event on breakthrough technologies organized by the *MIT Technology Review* in Boston.

The second prize went to [Linguoo](#), a collaborative app featuring oral articles in Spanish and English. Its founder, Argentine entrepreneur Emanuel Vilte, won a trip to [Idear Soluciones](#), the IDB's regional start-up competition, where he will present the project.

Three other projects received honorable mentions: [Gran Mercado](#) ([link in Spanish](#)), an information system that connects food producers and consumers; [Tradr](#) ([link in Portuguese](#)), an e-commerce site that focuses on female designers; and [Bio360](#) ([link in Spanish](#)), a system of modules and capsules for green walls that include a passive watering system.

INTALENT also awarded a US\$2000 prize to the best photo on climate change. The winner was Argentine Adrián Feferbaum for his photo "On Another Planet."



The power of art to communicate the importance of caring for the environment was made clear by the quality of the photographs that were submitted to the competition.



Through this contest, INTAL rewarded innovative talent with the potential to impact the quality of life in the region and generate economic growth, in partnership with [Argentina's Ministry of Culture \(link in Spanish\)](#), the Mexican Embassy in Argentina, and the Spanish-language edition of the [MIT Technology Review \(link in Spanish\)](#).

The activities that make up the creative sector boost income generation, create jobs, and drive exports while also fostering social inclusion, cultural diversity, and human development. These knowledge- and ideas-based economic activities are linked to a range of production chains and are increasingly driving countries' external sectors by generating exports with high value added. The creative economy has been one of the most energetic areas of the economy in recent years and is the sector that has seen the most growth, creating 10 million jobs and exports worth US\$18 billion.

The large numbers of entrepreneurs who took part in [INTALENT](#), the caliber of those that did so, and the winning projects' potential reflect how important this sector could be for Latin America and the Caribbean, especially in terms of cultural integration and connectivity.

The awards ceremony will take place on October 5, 2016, in Buenos Aires, during INTAL's annual flagship event: Exponential Integration.

BREXIT and Its Impact on Trade in Latin America

- [Integration Ideas](#)
- [n239](#)

The United Kingdom's recent decision to leave the European Union (EU), known as "Brexit," has triggered analyses of the possible impact this change of affairs could have on Latin America and the Caribbean, particularly in terms of trade.

Britain is the second largest economy in the EU, after Germany, and its opt-out is a serious loss for the EU. To give a sense of the effect that Brexit may have on the integration process, we should mention that it will reduce EU citizen numbers by 13% and will imply a €11.3 billion budget cut and an 18% reduction in GDP.

Brexit in numbers: what does the EU lose?
13% of its inhabitants
18% of its GDP
€11.3 billion from its budget
13% in exports
15% in imports

The referendum has implied that the EU will first have to make significant efforts to put the issues on its internal agenda in order, to the possible detriment of external issues such as trade negotiations with other countries and regions: this could slow progress in negotiations with the MERCOSUR.

What the bloc stands to lose or gain in relation to the British market should it reach a bilateral agreement with the EU (without the United Kingdom) does not seem particularly significant for the balance of trade in itself as this only represents 7% of total trade between the two blocs.

With regard to the agreement between the EU and other countries in the region (Mexico, Chile, Peru, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), these, of course, do include free trade agreements with the United Kingdom. Brexit means that these agreements will no longer apply to the United Kingdom, which will eventually imply the need for new negotiations.

In relation to the exchange and finance markets, one of the immediate consequences of Brexit was a slight devaluation of the region's currencies. Furthermore, both public and private debt became relatively more expensive as a result of the flight to quality that followed the referendum.

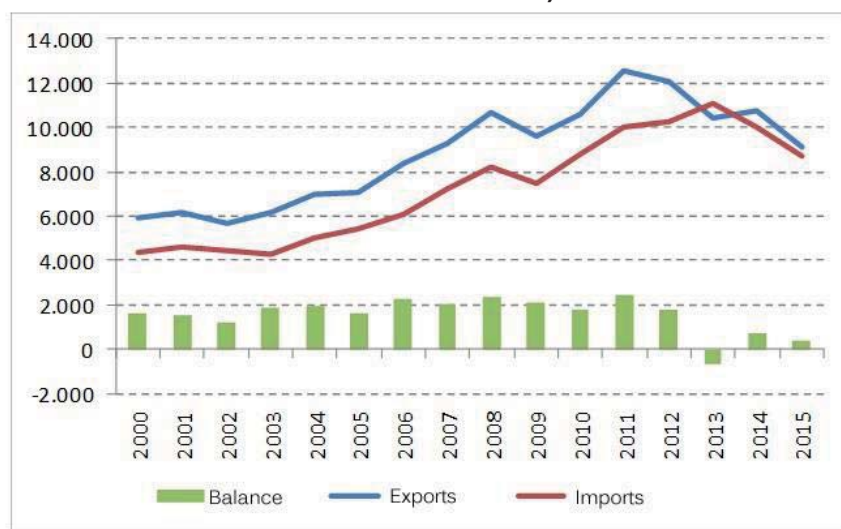
From the trade perspective, the effects of Brexit will be felt in the medium term, but it may increase the possibilities of greater trade protectionism in Europe and other parts of the world, which will definitely impact Latin America's regional development.

Description of Bilateral Trade

Trade in Goods

Latin America has a trade surplus with the United Kingdom that averaged US\$1.9 billion between 2000 and 2012. In 2013, there was a deficit in the balance of trade (US\$650 million), mainly as a result of the 45% reduction in Mexican gold exports to the British market (worth US\$1.17 billion). There has also been significant growth in petroleum imports from Chile. In 2014, the region went back to having a surplus, although it has not yet managed to reach its earlier levels of trade.

Figure 1. Balance of Trade between Latin America and the United Kingdom (2000–2015, in millions of US\$).

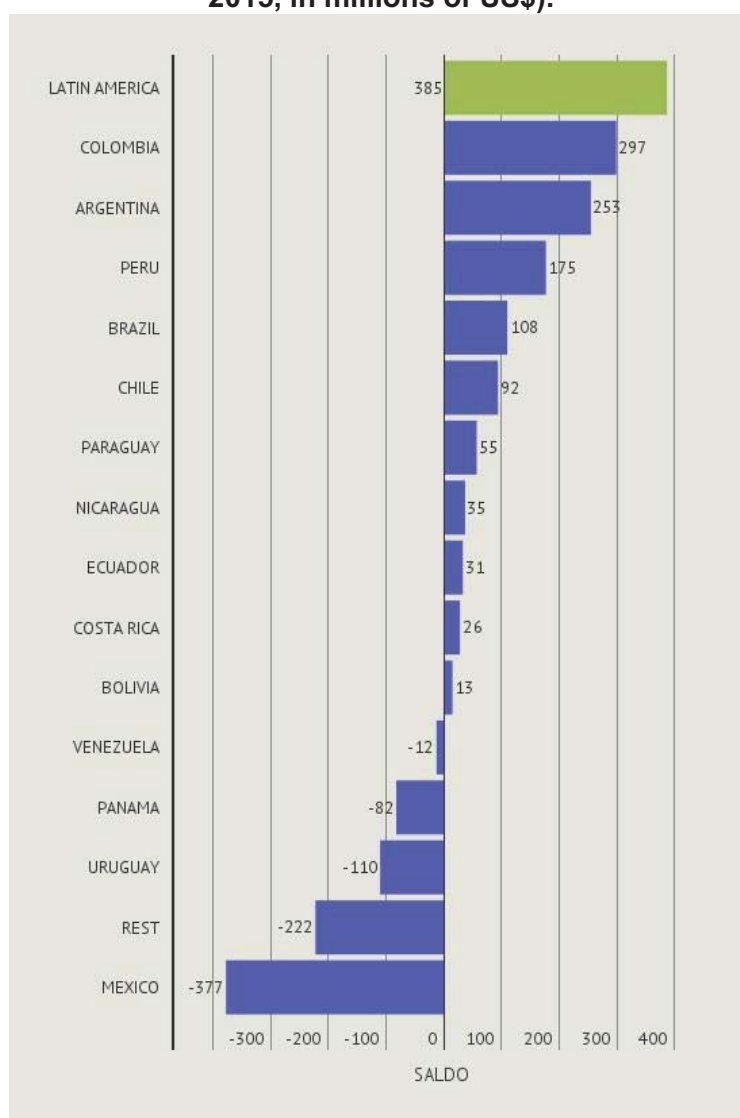


Source: Prepared in-house using data from INTRADE and DOTS (IMF).

In 2015, the balance of trade (exports + imports) stood at around US\$18 billion, 20% below the 2011 peak. Latin America had a surplus of US\$380 million, fundamentally due to the results of the balance of trade with Colombia, Argentina, Peru, and Brazil. In contrast, Mexico, Uruguay,

and Panama had higher deficits with the United Kingdom. According to customs figures, the United Kingdom's share in the region's total exports and imports is very low, close to 1%. Of course, this only takes into account the specific flows that originate from or arrive at British ports—though some trade may move through other entry/exit points in Europe (which would be hard to identify).

Figure 2. Balance of Trade between Latin America and the United Kingdom (by country, 2015, in millions of US\$).



Source: Prepared in-house using data from INTRADE and DOTS (IMF).

The United Kingdom's share in the region's total exports and imports was very low in 2015, close to 1%. Likewise, over the last decade, this share has become relatively less important in

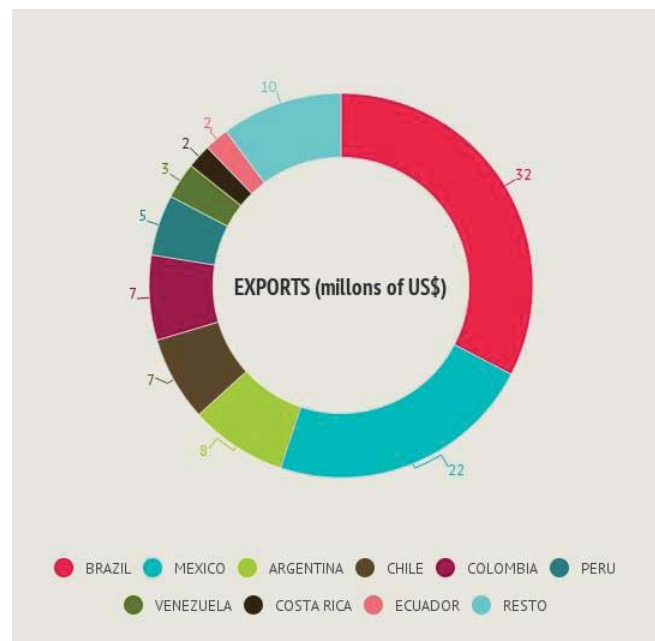
comparison with Latin America's global trade, although the levels have always been largely insignificant in recent years.

In the case of some Caribbean countries, the situation is rather different: Belize and Guyana sell 10% and 5% of their exports, respectively, to the United Kingdom. This is certainly influenced by the historic ties between their economies and that of Britain.

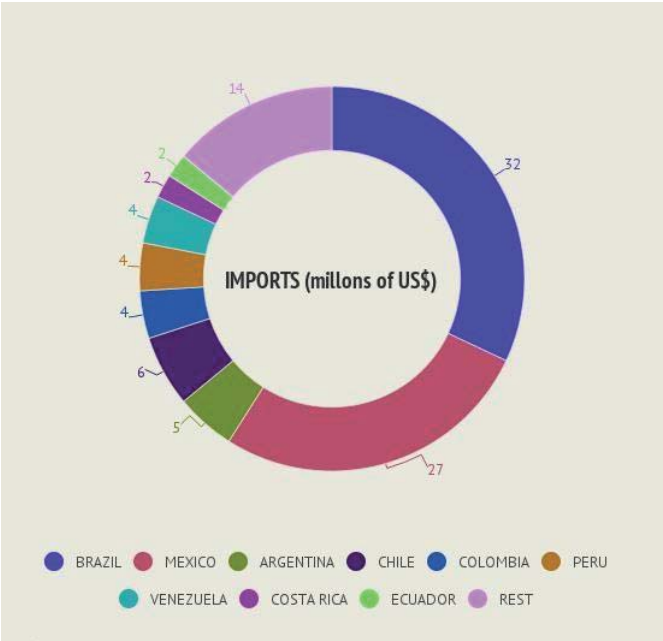
In this context of low levels of trade, the two largest markets in Latin America, Brazil and Mexico, account for over half of trade with the United Kingdom. However, these flows represent just 1.5% of Brazil's total trade and 0.5% of Mexico's.

Figure 3. Distribution of Trade between Latin America and the United Kingdom (by country, 2015, in percentages).

Exportations



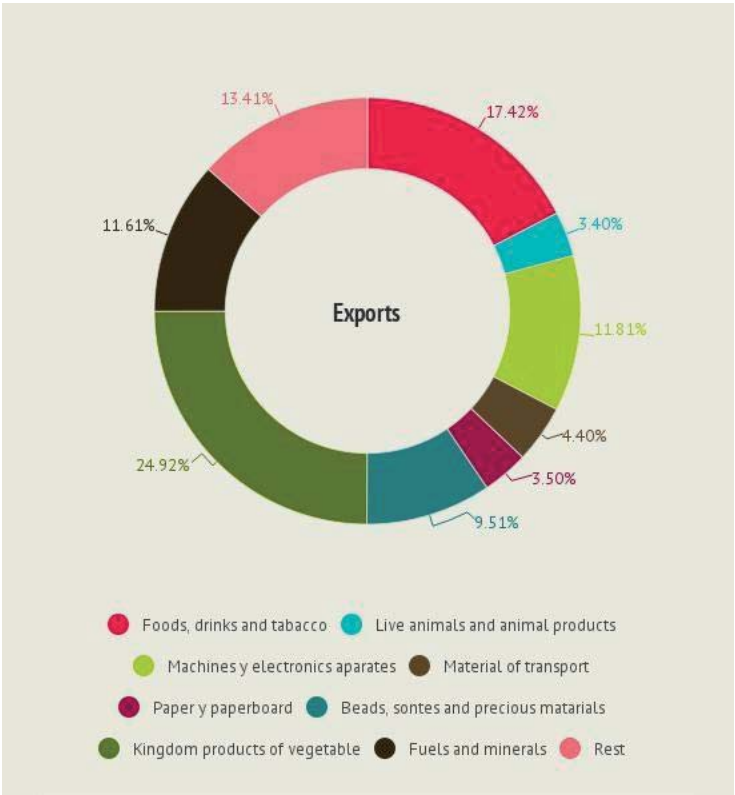
Importations



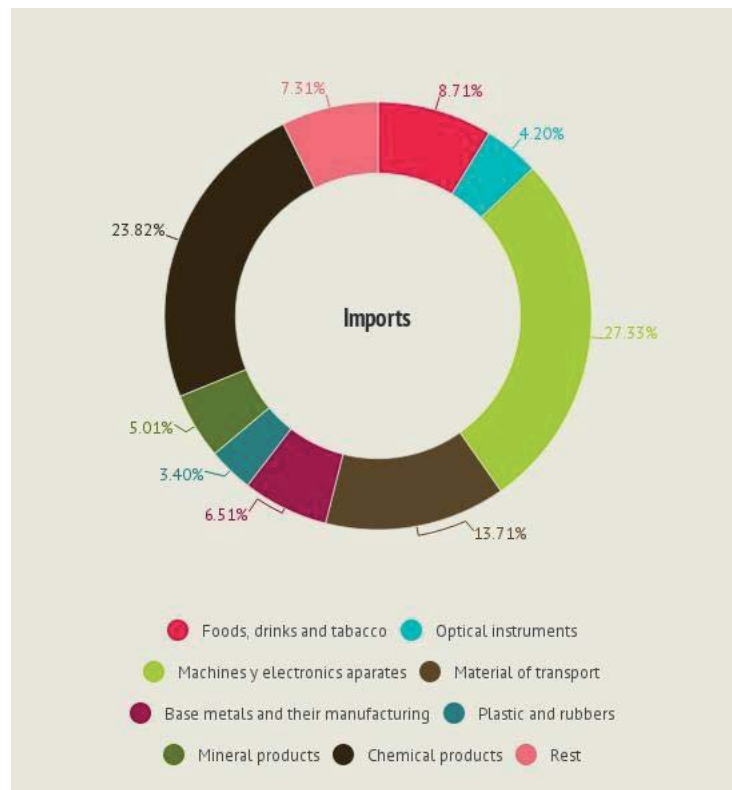
Source: Prepared in-house using data from INTRADE and DOTS (IMF).

Figure 4. Sectoral Composition of Trade between Latin America and the United Kingdom* (2015, in percentages).

Exportations



Importations



* Calculation based on mirror statistics on trade between the United Kingdom and Latin America.

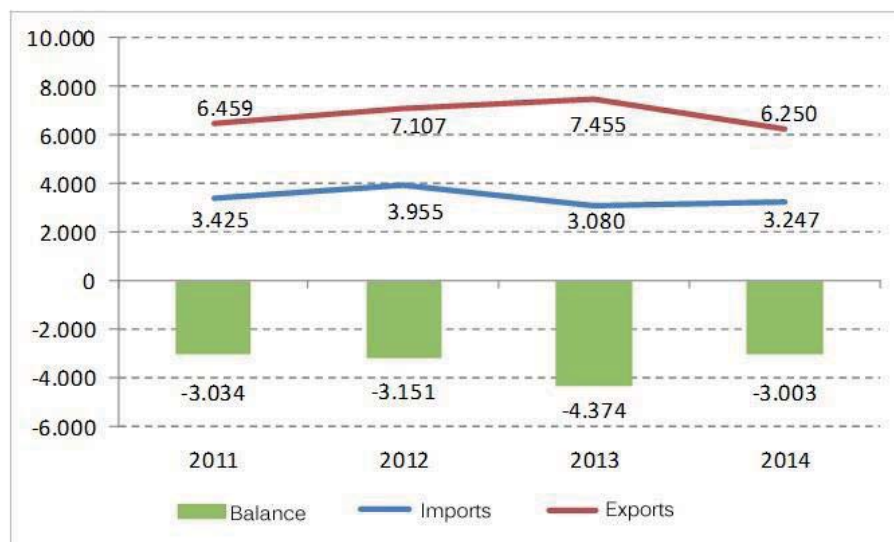
Source: COMTRADE

It is worth noting that trade between Latin America and the United Kingdom is intra-industry, given that the former's exports are largely products from the plant kingdom and food and beverages, while the most significant sectors that it imports are machinery and electrical and mechanical appliances, chemical products, and, to a lesser degree, transportation equipment. When classified at the product and country level, the most noteworthy exports to the United Kingdom are raw gold from Brazil and Mexico, bananas from Colombia in the Dominican Republic, and soybean meal from Argentina. In terms of Latin America's imports from the British market, of note are passenger vehicles in Brazil, Mexico, and Chile, and medications and alcoholic beverages in Brazil and Mexico.

Services

Unlike the situation for trade in goods, Latin America has a deficit in trade in services with the United Kingdom which reached a total US\$3 billion in 2014 as a result of exports of US\$3.25 billion and imports of US\$6.25 billion.

Figure 4. Sectoral Composition of Trade between Latin America and the United Kingdom* (2014, in percentages).



Source: Prepared in-house using data from EUROSTAT.

Brazil is the main destination market in Latin America for exports of British services (37%), followed by Mexico (14%). In terms of British imports of services from Latin America, this order is reversed: Mexico ranks first as a market of origin (28%) while Brazil is in second place (21%). Brexit will certainly have a direct and varying impact on the region in terms of trade, investment, and cooperation. The indirect impacts will be related to a potential shift towards less open trade policies that will hamper access to markets and investments. This possibility needs to be carefully monitored by the countries of Latin America and the Caribbean. One task those that countries in the region with agreements with the EU must broach immediately is re-articulating a separate link with the United Kingdom.

China's Transition to a Knowledge Society

- [Integration Ideas](#)
- [n239](#)

China set out to close the gaps between it and the traditional world powers in the spheres of industry, science, and technology and achieved higher standards of development by the start of the 21st century. China's new position in the international system as a result of this economic development has been closely linked to its focus on education. At the same time, it has created a strategy to intensify its cultural influence in regions that are important to its interests, such as Latin America.

The Free University of Berlin's Pamela Arostica has carried out a study published in [MADE IN CHI-LAT \(the latest issue of the *Integration & Trade Journal*\)](#) that analyzes the education, research, and development policies that China has adopted as part of its transition towards the knowledge society. The study also examines the connection between this process and the unfolding of its cultural soft power in Latin America.

In recent years, China has implemented key policies in order to become an innovation-driven nation by 2020. Even though the United States and the European Union continue to rank highest at the international level in terms of investment in R&D in 2015, emerging countries are becoming increasingly competitive in this regard, and China tops this list. For example, the share of researchers from developing countries went from 30% in 2012 to 38% in 2007, and China accounted for two-thirds of this increase. Similarly, the share of publications produced by China has increased more than twofold over the same period, going from 5.2% to 10.6% (UNESCO, 2010). On the basis of the UNESCO study from 2015, four indicators reveal China's steady progress: its growing share in global GDP, national gross expenditure on R&D (GERD), number of researchers, and number of publications.

Download the complete article here: [MADE IN CHI-LAT](#).

ROBOTlution: The Empowerment of Machines

- [Integration Ideas](#)
- [n239](#)

It is not the first time that human beings are facing a radical change to their way of life. However, what is different this time round and is a source of concern for many is the speed at which the change is taking place. We've been resilient to changes in the past, but the question we're asking ourselves today is whether we will be able to adapt to this new state of affairs fast enough to avoid widespread chaos.

Many of today's trade treaties, including free trade agreements, contain special chapters on technology transfer and labor policies. New technologies impact specific aspects of trade ties and regulations, such as patents and intellectual property rights or the handling of new tax regimes, customs processes, and rules of origin. The way that trade and integration mechanisms function will need to adapt to these new production techniques.

The situation is complex, to say the least. The global economy is not managing to get back onto the path to growth as it is weighed down by the economies of developing countries. As global trade stagnates, world powers are placing their hopes on innovation as a way of gaining competitiveness, increasing productivity, and boosting their economies.

Given the faltering growth of global GDP, some analysts are pointing to trends towards gradual deindustrialization (Edwards and Lawrence, 2013) and a decoupling of productivity and employment at the global level. Productivity is on the rise, but so are unemployment numbers (Bernstein and Raman, 2015), partly due to technological advances. The speed at which these new developments are unfolding and changing the realities of life (often problematically so) makes it hard to find the right solutions.

Technology brings about exponential changes, and our generation will be the first to experience more than one of these changes in its lifetime. The competitions organized by the Institute for the Integration of Latin America and the Caribbean (INTAL) in partnership with Endeavor ([INTAL D-TEC](#)), and the Massachusetts Institute of Technology ([INTALENT](#)), reflect the potential of Latin American entrepreneurs to engage with the latest technology, including artificial intelligence, and incorporate it into regional start-ups.

We have witnessed the birth of the Internet and how it has spread into all parts of our lives. It is no longer possible to imagine an offline world. But while we are busy adapting to these circumstances, other newer ones are emerging. We are learning to manufacture automated

minds that will be able to carry out our jobs and replace us. Machines are getting increasingly intelligent and becoming independent of us. The robot revolution is already upon us. As a result, the world's leading consultancy firms are already working to help companies get past their fears and incorporate artificial intelligence into their production lines (see the KPMG report "[Got Automatonophobia? Four Steps for Overcoming Your Fear and Getting Started with Process Automation](#)").

Global think tanks such as the World Economic Forum, in its publication on [the future of work](#), and the University of Oxford, through the work of [Carl Frey](#) and M. Osborne, are placing this challenge at the top of their priorities. In Latin America and the Caribbean, there are some recent studies, such as the publication by the [University of Montevideo \(link in Spanish\)](#), that estimate that 54% of jobs in Uruguay run the risk of being automatized in the next 10 to 20 years.

According to Juan Enríquez, director of the Life Science Project Center at the University of Harvard, technology has become an existential dilemma (Lafia, 2016). We can try to cling on to cynicism and ignore it, but its impact will be inevitable. The most intelligent path to take would seem to be to try to understand how it will affect us and work to find solutions that will undoubtedly emerge from collective action. It may be a global revolution but it will particularly affect those countries that are unable to adapt. So how are Latin America and the Caribbean going to go about this?

The Race to Manufacture an Artificial Mind

For years, we've been trying to artificially reproduce the human mind. Although initially the results were largely insignificant, in recent years, science has taken giant steps forward. Robotics has advanced so much that we've gone from machines that carried out simple, repetitive tasks to supercomputers that are capable of processing vast quantities of data, diagnosing lung cancer, or saving someone from a natural disaster.

Experts believe that these types of advances will be a door into the mysteries of the human mind and the nature of biological intelligence; they hope that we will one day be capable of reproducing these exactly. The concept of machine learning^[1], or automated learning, is where we are really seeing progress. With minimal human intervention, robots are capable of learning from experience and accumulating this, becoming increasingly effective at making decisions. We depend more and more on robots to confirm data, to cross-check an analysis, or to test results.

Are today's robots as intelligent as we are? Not yet, but they will be. Just like a child who needs to learn to expand their skills, robots that learn will one day become as or more intelligent than we are. At the very least, they will be more productive, because they won't need to eat or sleep. With this idea in mind, in 1993, Rodney Brooks—then director of the MIT Artificial Intelligence Lab—created Cog, one of the most sophisticated humanoid robots ever developed. Cog gave rise to the idea that the key to artificial intelligence lies in a robot being able to perceive and learn like a child.

It's no longer about being surprised by the idea that a machine like Deep Blue won a chess game against the world champion Kasparov in 1997, or that AlphaGo beat the world's best Go player last year.^[2] What is really behind these advances are the levels of automation and deep learning that enable machines to carry out tasks that previously only humans were capable of. And that terrifies us.

Martin Ford describes that fear in his book *The Rise of the Robots*, in which he claims that not even highly skilled people are safe from being replaced by machines. The world's most advanced robots are managing to carry out tasks that up to now we had thought were the exclusive domain of human beings.

What Types of Tasks Can Robots Carry out?

The military and defense industry has historically been at the forefront of technological development. Technologies such as GPS or voice command (SIRI) were developed and driven by the US Department of Defense. Although these went on to be used commercially among the civilian population (Steve Jobs bought the license for SIRI from SRI International), the level of investment needed to research and develop this sort of application tends to be more possible in government sectors.

A clear example of this are the robots created by Boston Dynamics, a spin-off from MIT that was acquired by Google. Its robot BigDog could become a soldier's best friend by carrying heavy loads in the field. In contrast to its canine counterpart, WildCat's skill is being able to cross difficult terrain at high speed. Atlas is a humanoid robot trained to carry out search and rescue tasks. It has two systems of vision and its arms enable it to carry out complex tasks, including climbing steep terrain. All of these robots could easily be included in any combat squadron and could also be used for rescue tasks in cities that have been devastated by an earthquake or to help a group of mountain climbers who have been trapped by an avalanche.



Boston Dynamics' most advanced humanoid robot, Atlas. Credit: Boston Dynamics.

But not all robots have the noble purpose of defending or rescuing us. Some will simply make our lives easier. Several Silicon Valley-based companies have already started to market potentially superproductive roboemployees. Talley, created by Simbre Robotics, is a tower that roams the aisles of stores and rapidly recognizes which products are not on display. Another firm called Savioke has recently launched a robot concierge called Botlr that will bring you your room service order without you even needing to get dressed to open the door: discretion is guaranteed. When it comes to surveillance, KnightScope has created the K3 and K5 robots, which can monitor their surroundings, distinguish between normal and suspicious activity, record everything in real time, and sound the alarm if necessary. While hundreds of robots are populating the earth, others are taking to the skies. Drones will start soon bring us our mail, our morning coffee, medicine...

If there are machines that will really change the world for the better, it will be the ones that can cure us, save lives, or even revolutionize the ways we produce goods and services. The transportation sector is witnessing how autonomous cars will be taking over our city streets before long. Among the many advantages of this is the possibility of responding more efficiently to a problem that is currently plaguing all countries with heavy traffic flows. Over 1.3 million people per year die in road accidents, and most of these deaths happen in developing

countries. The development of autonomous cars and their ability to predict what is happening around them in real time could reduce this rate drastically.

Robots are also becoming experts in human health. At the last International Conference on Robotics and Automation (held in Stockholm, 2016), scientists from MIT presented a tiny robot that looked like a chewing gum wrapper and that was called Origami Robot. It's designed to patch holes in the stomach or even retrieve objects that a child might swallow, such as a watch battery (a common household accident that can cause serious damage), and remove them. IBM is also in the race and wants to make Watson the best doctor in the world.

But if it's a global revolution that we're talking about, experts are quick to point out that the biggest, most significant changes to global employment will be in the manufacturing sector. This will have a global impact and is already sparking widespread debate and concern. What interests people about this robot revolution is not so much if artificial intelligence will mean the end of the human race (a terrifying thought, but one that's still too far away to be a serious source of concern) or if it will enable us to reach the closest star system to earth, Alpha Centauri. What people are most interested in—and most afraid of—is whether robots will steal our jobs, leaving us without the means that have historically enabled us to live.

Take, for example, Baxter, a friendly robot with big eyes and large hands that has already earned himself the employee-of-the-month badge in several factories around the world. His creators, Boston-based firm Rethink Robots, claim that Baxter “is a flexible, safe, low-cost alternative to outsourcing and automation”. They are marketing him as the ideal employee for carrying out repetitive, monotonous tasks so as to free up skilled workers for more complex tasks. Factory employees look on apprehensively as Baxter carries out increasingly more tasks, getting better and better at doing so without ever getting tired or asking for holidays or bonus pay, all while getting cheaper by the day.



Baxter at work in a factory. Credit: Rethink Robotics.

Job Creation Versus Job Destruction

Some experts are confident that robotics will be the decisive factor in job creation in coming years. According to a study published by Metra Martech in 2011, the more than one million robots that are currently at work have been responsible for creating between three and five million new jobs. Trends indicate that in the next few years, another million quality jobs will be created around the world. Robots will help to create more employment opportunities in the most critical industries of this century, such as solar and wind energy, battery manufacturing, food production, or electronics (Metra Martech, 2011).

As Peter Gorle points out in the same report, robots will grow in three areas that are critical for development. First, in sectors that are dangerous for humans such as working in mines, exploring the seabed, or at nuclear power plants. Second, in activities that people cannot carry out, such as exploring the surface of Mars or stars in the solar system. Third, in sectors where high salaries make it more efficient to invest in robots who are capable of carrying out those tasks, such as the transportation industry, manufacturing, or security (Metra Martech, 2011).

The most recent report from the World Economic Forum, *The Future of Jobs*, suggests that no sector will escape the impact that technology will have on the creation, destruction, or relocation of jobs. The report estimates that 65% of the children that are currently starting primary school will eventually carry out jobs that still do not exist. However, the most worrying aspect of this report, which contradicts more positive outlooks, is the possibility that over the next four years net employment creation will be negative, to the tune of around 5 million jobs. In other words,

although around 2 million new jobs will be created as a result of these changes, another 7 million jobs will simply disappear (World Economic Forum, 2016).

Some of these burgeoning trends can already be seen, mainly in developing countries. With efficient, productive, cheap robots like Baxter, large manufacturing companies have started relocating their factories to the places where this technology is designed and the greatest purchasing power is: Europe, the United States, or Japan. Adidas, for instance, has started automating its factories and has decided to try relocating them to Germany but without having to worry about prohibitively high European labor costs. Its “employees” (that is, the robots) are built nearby, and production is also now much more efficient in terms of transportation costs, as its consumers are just around the corner (Shotter and Whipp, 2016).

This tendency is becoming increasingly marked, and its impact is twofold. On the one hand, robots are replacing low-skilled workers (and even not-so-low-skilled workers), intensifying the trend towards unemployment in the manufacturing sector. On the other hand, countries that traditionally relocated their factories to be more efficient in terms of labor costs are now deciding to locate them on the basis of their markets, which are countries with the greatest purchasing power. By so doing, the richest countries will concentrate not only capital and the consumer market but also the “labor force” (which will now be robots). So what will be left for developing countries? “In the short term, robots may impact the labor market. But in the long term, the research shows that each robot generates two new jobs because companies become more efficient and profitable,” says Phil Webb, professor of robotics and automation at the University of Cranfield in the United Kingdom, in an interview with the BBC (2013).

“The speed of these changes is what is making it different this time,” explains Nico Miai, co-founder of The Future Society at Harvard University. “The speed at which the value of knowledge and know-how can be transferred from one sector of the population to another is what we should be worrying about and focusing on.”

In their book *The Second Machine Age*, Erik Brynjolfsson and Andrew McAfee argue that the dizzying rate of technological change is out of sync with our ability to adapt. Technology will enable us to live longer and better, but it won’t benefit all people in the same way. Those with better educations may be able to survive this situation, although there are no guarantees, even for them (Brynjolfsson and McAfee, 2014).

The authors argue however that there are still key areas of work in which humans play and will play a fundamental role, such as coming up with ideas, scientific discoveries, artistic creativity... Technology will simply amplify people’s capacities (Bernstein and Raman, 2015). Emotions, leadership, and dexterity are skills that robots find it hard to emulate, at least so far.

Adaptation in Latin America and the Caribbean

Latin America and the Caribbean are taking part in this robot revolution in some ways, although its impact on the region's economy is still limited. According to the [International Federation of Robotics](#), it is estimated that by 2018 there will be more than 1.3 million industrial robots installed in factories throughout the world. Depending on the country, up to 85% of manufacturing jobs could be replaced by machines. In Latin America and the Caribbean, the countries making the greatest attempts to automate their factories are Mexico and Brazil. According to the Robotic Industries Association (Anandan, 2016), between 2014 and 2015, Mexico tripled its purchases of industrial robots to more than 6000 units. This is partly due to the recovery of the US market and the need to automate the automotive industry.

One of the keys to keeping up with this global transformation will be the progressive automation of our industries in order to achieve higher productivity levels. However, it will also be fundamental to ask ourselves how to contribute to the development of the robotics sector and technology in general at the global level. Innovation and internationalization are decisive factors for the region's structural transformation, productive growth, and macroeconomic performance in general (ECLAC, 2016). The region's entrepreneurial drive will also be key.

Young enterprises, especially those that grow at a rapid rate, will be a source not only of new jobs but also of breakthrough innovations that will increase productivity in many sectors. In today's world, the Internet gives us access to a global market of consumers and enables us to rapidly convert an idea or prototype into a product or service that is ready to be consumed. In the near future, everything will be stored in the cloud, ready to be transported by a drone.

Some companies or entrepreneurs have worked hard to make inroads into the world of artificial intelligence and robotics. One such example is Sensus 3D, a surgery simulator designed by young Argentine engineers which drastically reduces malpractice rates in surgery. Or Jarvis, a robot developed by Chilean scientists that can interact with humans and help them during events like natural disasters.

Latin America is also home to successful start-ups run by young people who have been awarded prizes by the *MIT Technology Review* in the fields of autonomous transportation, robots that convert sound into sign language, or minisubmarines that can explore the seabed through a supercomputer. All these advances contribute not only to the local economy but also have a significant impact on these countries' international trade and are a driving force for integration. For example, INDIGO is a company started by the young Costa Rican Sergio Ballester that uses drones to help improve crop productivity through aerial mapping and photography and precision agriculture. What sets the company apart is automatic learning

software that allows a computer to learn on the job, improving its results the more it is used. The company is already reaching the markets of neighboring countries.



Sergio Ballester, MIT Technology Review prize-winner in 2015. Credit: MIT Technology Review en español.

New Directions

We need to emphasize driving technology in the sectors that are key for our economies. In an interconnected world, it's not about being the best at everything, but rather at what sets us apart. Knowledge will be increasingly specialized and collaborative. As Harvard professor Ricardo Hausmann says, countries will stand out because of their technological development, which he defines as their capacity to create the tools, write the code, and develop the necessary know-how to revolutionize a given sector.

It's not just about driving education in itself, but about teaching individuals specific skills and how to work in teams. According to this theory of economic development (Hausmann and Hidalgo, 2014), it's like learning to play Scrabble. The number of letters we get allows us to make different possible combinations and write more words. Countries will differ from one another in the number of letters they get and the number of combinations they manage to make.

The more they specialize in a given sector, the more words they will write. It's about diversification and ubiquity.

Like many other experts, Hausmann is not worried about decreases in employment in Latin America and the Caribbean. Historically speaking, there have always been cycles that have shaken up the labor market. What worries Hausmann is that the countries in the region still don't seem to understand that until we generate sufficient know-how in our more competitive sections to set us apart, we won't even be able to sit down to play the first round of Scrabble.

Another recommendation is to drive entrepreneurship in the region. Young, dynamic, resilient firms will adapt better to the new rules of the game, creating new, better-quality jobs and demanding improvements in the skills that workers need to have.

Third, we need to foster integration, cooperation, and migration between countries. The exchange of knowledge and collaboration on projects that require high levels of investment or a wide field of knowledge will be the keys to success. At the same time, this integration needs to take place not just between countries and regions, but also within each country. Institutions like universities, private companies, the public sector, and nongovernmental organizations need to function as collaborative spaces where ideas, financing, and creativity flow, feeding the bloodstreams of all their members.

Technology is not our destiny, but is instead a tool to help us choose what our destiny will be. Technology may enable us to live better, but it depends on us whether the result will be increased prosperity for all or increased inequality. If we insist on believing that developing artificial intelligence and robotics signals the end for our jobs and our futures, this will become a self-fulfilling prophecy.

We can't ignore progress. What we *can* do as individuals, as organizations, and as societies is to make the right decisions early enough to decide our own fates, as we've done so many times in history. In response to the specific problem of falling employment as a result of robotics, among other things, specialists like Martin Ford propose compromises such as a universal living wage to ensure we all earn enough to survive. Others are more optimistic: Vivek Wadhwa, professor at Singularity University, animatedly suggests that robots will perform part of our work, and that will allow us to focus on the sciences, the arts, and, ultimately, on being happier.

It might take a little longer for robotics to impact employment in Latin America and the Caribbean than in developed countries. This delay may be an opportunity for us, giving us room to maneuver, adapt rapidly, and make decisions that will help us cushion the impact of these changes. But if we just put off dealing with it, the blow will be even heavier. No sector in any country will escape the robot revolution and the reach of artificial intelligence. The balance of

positive and negative impacts will ultimately depend on us, our institutions, and our capacity to set the global agenda and decide how we want to prepare ourselves for it.

When will all this happen? While you've been reading this article. The ROBolution is already upon us. What are we going to do about it?

References

Anandan, T.M. 2016. "Mexico, Land of Automatización Opportunity," [Robotic Industries Association](#), April 22.

BBC. 2013. "Los robots avanzan sobre la economía mundial [Robots are advancing on the world economy]."

Bernstein, A., and Raman, A. 2015. "The Great Decoupling: An Interview with Erik Brynjolfsson and Andrew McAfee." *Harvard Business Review* (June).

Brynjolfsson, E., and McAfee, A. 2014. *The Second Machine Age*. New York: Norton & Company.

Edwards, L., and Lawrence, R. 2013. *Rising Tide. Is Growing in Emerging Economies Good for the United States?* Washington, DC: Peterson Institute for International Economics.

Ford, M. 2015. *The Rise of the Robots*. New York: Basic Books.

Hausmann, R., and Hidalgo, C. 2014. *The Atlas of Economic Complexity*. Cambridge, US: MIT Press.

Hernández, R.; Hualde, A.; Mulder, N.; and Sauvé, P. 2016. *Innovation and Internationalization of Latin American Services*. Chile: ECLAC.

International Labour Organization (ILO). 2015. *2015 Labour Overview: Latin America and the Caribbean*. Lima: ILO, Regional Office for Latin America and the Caribbean.

Lafia, M. 2016. *Revolution of the Present*. Documentary, 1:24, <https://www.rebelmouse.com/revolutionofthepresent/>

Metra Martech. 2011. "Positive Impact of Industrial Robots on Employment." Report. London, UK: Metra Martech Limited.

Powell, A., coordinator. 2016. *Time to Act: Latin America and the Caribbean Facing Strong Challenges*. Washington, DC: IADB.

Shotter, J. and Whipp, L. 2016. "Robot Revolution Helps Adidas Bring Shoemaking Back to Germany." *Financial Times*, June 8.

World Economic Forum. 2016. *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*. Geneva: World Economic Forum.

Websites

[The Future Society](#)

[MIT Computer Science and Artificial Intelligence Laboratory](#)

[International Federation of Robotics](#)

[Boston Dynamics](#)

[Rethink Robotics](#)

[1] Machine learning is a branch of artificial intelligence which aims to develop techniques that enable machines to learn.

[2] In 1997, the IBM supercomputer Deep Blue defeated world chess champion Garry Kasparov. In 2011, another IBM computer, Watson, defeated the champions of the famous American TV gameshow *Jeopardy*. In March 2016, AlphaGo, a supercomputer trained to play one of the most complicated games in the world, Go, beat the world's best player, South Korean Lee Se-dol.

[3] www.rethinkrobotics.com/baxter.

Inspiring Activities

Regional Integration 4.0

- [Inspiring Activities](#)
- [n239](#)

The technological revolution that we are currently experiencing challenges traditional forms of trade and integration in Latin America and the Caribbean, both in terms of soft factors, such as institutions and regulations, and hard factors, such as the physical trade in goods and services. The major event of the year organized by the Institute for the Integration of Latin America and the Caribbean (INTAL) will look at the future of integration. Building this future implies coming up with creative responses to problems, moving towards the knowledge frontier to perfect international negotiations, adding value to intelligent decision-making, and consolidating productive linkages through sustainable employment.

INTEGRACIÓN REGIONAL 4.0

PRÓXIMAS FRONTERAS TECNOLÓGICAS Y NUEVAS CONVERGENCIAS GLOBALES

CÓMO EL BIG DATA, LA INTERNET DE LAS COSAS, LA INTELIGENCIA ARTIFICIAL, LA NEUROCIENCIA Y LA INNOVACIÓN PUEDEN CONSTRUIR UNA NUEVA INTEGRACIÓN CON INCLUSIÓN SOCIAL EN AMÉRICA LATINA Y EL CARIBE.



SIMON RUDA
Behavioral Insights
Team, UK



CHARLES SABEL
Columbia
University



COLIN MACLAY
Harvard
Business School



MARTIN RHISIART
South Wales
University



FACUNDO ALVARADO
Paris School of
Economics



PETER HARRIS
Comisión de Productividad,
Australia



FRANCISCO CABRERA
Ministro de Producción,
Argentina



FACUNDO MANES
Universidad
Favaloro



MARTA LAGOS
Latinobarómetro



ANDRÉS FREIRE
Ministro de
Modernización, CABA



JUAN CARR
Red Solidaria



LINO BARAÑAO
Ministro de Ciencia
y Tecnología, Argentina



GUSTAVO BELIZ
INTAL-BID



MARITA CARBALLO
Voices!
World Values Survey



MARCOS GALPERIN
MercadoLibre



LUCIO CASTRO
Ministerio de Producción,
Argentina



**WALTER
SOSA ESCUDERO**
Universidad
de San Andrés



MARIANO SIGMAN
Laboratorio de
Neurociencia:
Integrativa, UBA



ÁLVARO GARCÍA
Oficina de Planeamiento
y Presupuesto,
Uruguay



FÉLIX PEÑA
Fundación ICBC



**GLORIA VIDAL
ILLINGWORTH**
Embajadora de Ecuador
en la Argentina



**JOSÉ ANTONIO
VIERA-GALLO**
Embajador de Chile
en la Argentina



**FERNANDO
CASTRO TRENTI**
Embajador de México
en la Argentina



CAROLINA CASTRO
Ministerio de
Producción,
Argentina



GABRIEL CASABURI
BID



MARIO SÁNCHEZ
BID



ALEJANDRA RADL
INTAL-BID



**ALEJANDRO
RAMOS MARTÍNEZ**
INTAL-BID



IGNACIO ESTÉVEZ
INTAL-BID

At [INTAL's 2015 event](#), we looked at how new technologies impact production and trade. The new industrial revolution, industry 4.0, is bringing about a true metamorphosis in the physiognomy of world trade, with increasingly complex and sophisticated global value chains and a blurring of the border between goods and services. This is opening up infinite possibilities for production, but it also brings threats to education, the world of work, and job retention. As a consequence, we need a new form of governance that will coordinate efforts and build a shared regional agenda.

Argentina and Mexico Seek to Renew Their Ties

- [America](#)
- [Inspiring Activities](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

The president of Mexico, Enrique Peña Nieto, met with the president of Argentina, Mauricio Macri, on July 29, 2016, during his official visit to Buenos Aires. At the meeting, the two heads of state assessed the possibilities of a convergence between the MERCOSUR and the Pacific Alliance ([for more on this issue, see the analysis in INTAL Connection no. 238](#)).

“We are building a new stage in the relationship, with a shared vision of what our societies need in order to reach greater levels of development and social justice,” said Mr. Peña Nieto. The local press highlighted that he had not ruled out the possibility of the two countries eventually making headway on a free trade agreement.

With Mr. Macri were the cabinet chief, Marcos Peña; the minister of foreign affairs, Susana Malcorra; the minister of finance, Alfonso Prat Gay; and the secretary for strategic affairs, Fulvio Pompeo.

Mr. Peña Nieto was accompanied by Mexico’s minister of foreign relations, Claudia Ruiz Massieu; the minister of the economy, Ildefonso Guajardo; and the Mexican ambassador to Argentina, Fernando Castro Trenti, and other government officials.

Before the meeting, Ms. Ruiz had insisted that Mr. Peña Nieto’s visit to Argentina “seeks to renew our relationship with one of the most important players in the region.”

Ms. Ruiz weighed up the possibility of Argentina becoming a Pacific Alliance observer country and claimed that the two countries had found “new spaces of dialogue and understanding; we are strategic partners.”

Likewise, the Mexican authorities advised that they would support Argentina’s application to become part of the Organisation for Economic Co-operation and Development (OECD), one of the main foreign policy objectives for Argentina in the medium term.

COSIPLAN's New Geographic Information System on Infrastructure

- [Inspiring Activities](#)
- [n239](#)

For the first time ever, the countries of South America have brought together official geospatial information in a single tool that can be downloaded from a public access website and worked on using standard desktop software. The challenge from here on is keeping the information the tool contains up-to-date while incorporating new thematic layers that are relevant for analyzing the region and planning actions and projects within all UNASUR work areas.

The Republic of Argentina coordinated a [Workshop on June 28, 2016, \(link in Spanish\)](#) and a [Videoconference on July 5, 2016 \(link in Spanish\)](#) to move forward with the second stage of developing and implementing the [COSIPLAN Geographic Information System \(GIS\) \(link in Spanish\)](#). These events were attended by representatives from all 12 countries in South America, officials from the General Secretariat of UNASUR, and [INTAL](#) in its role as the Secretariat of the [COSIPLAN/IIRSA](#) Technical Coordination Committee.



The Challenge of Integrating Strategic Information

A GIS is a tool that enables users to visualize and manage data so that they can interpret the phenomena and trends taking place in the different territories more precisely than traditional map formats allow. The system uses continental geospatial databases in unified thematic layers for each subject area and is compatible with the provision of geoservices.

- » Identifying infrastructure that is related to international integration, its main characteristics, and current operational levels
- » Providing information on the geographical coverage of projects that form part of the COSIPLAN Project Portfolio and how they unfold on the ground, as well as their areas of influence
- » Representing and analyzing trade, transportation, and energy and communications flows
- » Analyzing infrastructure networks, assessing needs, and defining new development alternatives
- » Communicating results through integrated maps

The GIS was published in November 2014 and currently includes 21 information layers: projects from the COSIPLAN Project Portfolio; built-up zones; settlements; railway lines; railway stations; roads (forming part of the road network); ports; rivers; lakes; conservation areas; administrative borders; administrative zones (level 2); administrative subzones (level 3); border controls; border crossings; airports; and connections.

The documentation for the COSIPLAN GIS includes a catalog of features, data dictionary, topological rules, metadata profile, system documentation, and the user manual. All these materials are available on the GIS website.

This work was made possible by a participative methodology that included a technical support team and individual and group work on the part of the countries involved, which took place through video conferences and on-site workshops. To provide support for this project, a sum of US\$230,155 was assigned from the UNASUR Common Initiatives Fund (FIC), which is administered by Argentina's Subsecretariat of Territorial Planning, representing the COSIPLAN GIS Working Group.

Regulatory and Technical Aspects

The countries agreed that the composition of the thematic layers of the COSIPLAN GIS would be the outcome of integrating the information from official sources provided by each member country. The [Basic Technical Guidelines for the Development of a COSIPLAN Geographic Information System \(link in Spanish\)](#), adopted at the 3rd Ordinary Meeting of COSIPLAN Ministers (Lima, November 2012), set out the technical aspects that were agreed upon by the countries:

The Technical Features of the GIS:

- » Scale of reference: 1:250,000, in terms of precision, information density, and representational geometry
 - » Reference system: SIRGAS (Geocentric Reference System for the Americas)
 - » Data coordinate system: longitude and latitude, in degrees and decimal degrees
 - » Standards for cataloging feature types and feature concepts based on ISO 19110 and ISO 19126
 - » Metadata: Latin American Metadata Profile (LAMP) based on ISO/TC211 (Standard 19115)
 - » Data availability: ESRI Shapefile as the native format, available through transactional online WMS and WFS geoservices
-

Data Access and Using the GIS

The core of the COSIPLAN GIS is the set of 21 thematic layers described above. The most useful aspect of these layers is that they can be used intensively by integrating them into other datasets. In addition, spatial analysis processes can be applied to them.

You can start using the GIS from your own computer through specific software that can be used with this type of data, or by accessing the map display on the COSIPLAN GIS website.

What Can Be Done with the GIS?

- » Download the thematic layers, metadata, and standards
- » Open and visualize all graphic information and its alphanumeric attributes
- » Search for information
- » Make queries and select components from one thematic layer in comparison with another
- » Customize the graphic display by applying colors and line and polygon patterns to attribute values
- » Create tags for place names and thematic values
- » Edit all contents
- » Focus on specific graphic components to define spatial working units
- » Integrate information from the GIS with your own geographic databases or online ~~geoservices~~
- » Carry out spatial analysis procedures
- » Create maps on different scales, particularly 1:250,000 and below

GIS Management

Managing the COSIPLAN GIS is an ongoing activity that entails updating information, adding new layers, designing new applications, and improving the tool itself. For this process to be successful, one fundamental input is user observations. The COSIPLAN GIS Working Group, which is coordinated by Argentina, is responsible for carrying out these tasks so as to maintain the quality, reliability, and validity of the contents of the GIS. Given this aim, the Working Group established the following activities for 2016:

Activities Planned for 2016?

- » Updating and improving the quality of the geographic information in the GIS on the basis of the document entitled "Procedural Protocol for Updating the Thematic and Development Layers of the COSIPLAN GIS." One of the key factors in the updating methodology is that each country is responsible for managing its own layers.
 - » Incorporating the thematic layers that were identified during the first stage of the project and have not yet been added.
 - » Proposing new thematic layers that arise from COSIPLAN work (as a layer relative to disaster risk management and prevention) and inviting other UNASUR work areas to suggest other thematic layers.
 - » Improving information visualization and the COSIPLAN GIS website.
-

Integration in Motion

Broadband Can Help Low-Income Populations

- [Integration in Motion](#)
- [n239](#)
- [The SME Space](#)

There are many such cases around the world. In 2014, the Inter-American Development Bank (IDB), published *The Broadband Effect: Enhancing Market-based Solutions for the Base of the Pyramid*. The book, which was created by the consulting firm Hystra for the Opportunities for the Majority initiative, includes case studies and stresses the importance of this technology for creating opportunities for low-income populations in Latin America and the Caribbean.

Broadband helps commercially viable business models become more efficient in terms of access to goods and services and the development and delivery of these to the base of the pyramid in areas such as agriculture, health, education, and financial services. Some examples and success stories:

- **Better information at lower costs:** broadband minimizes transportation costs and provides users with better information and connections. *Urban Planet Mobile*, for example, has 250,000 daily subscribers who receive English lessons on mobile phones in audio or video format; in India, *eKutir* connects farmers with experts who give them advice on business- and harvest-related decisions.
- **Increased competitiveness and accessibility:** broadband enables small franchises and businesses to improve the diversity, quality, and competitiveness of their products. Small stores offering *Barared's* broadband-based services in Mexico typically double their revenues through commissions. It has also made banking services more accessible, as an average of 35 transactions per day are carried out in these small stores. In this way, clients from lower-income groups can make these transactions closer to their homes and at a lower cost than what a local commercial bank would charge them.
- **Greater efficiency:** broadband empowers employees, entrepreneurs, and intermediaries to perform complex tasks more efficiently, including by hiring lower-skilled workers from the

base of the pyramid. Connectivity generally allows complex tasks to be standardized, simplified, and monitored, and provides real-time technological support for those carrying them out. In Kenya, *Kilimo Salama* uses GPRS weather stations to determine which farmers will receive payouts, replacing costly field visits. This simplified payout process significantly reduces operational costs. *Narayana Health* leverages its most costly resources, specialists, who can be called via Skype to diagnose a patient in another location.

- **Empowerment of providers:** at *Bridge International Academies*, connectivity provides teachers with all the tools they need to teach and follow up on pupils' learning every day. This helps students to acquire new skills educators to provide better teaching and while giving them time to build relationships with pupils and families, which increases their motivation.

Although these cases are examples of the benefits of using broadband, the report also warns of the challenges this entails: in most cases, the greatest obstacle is the investment in infrastructure that is required.

The IDB defines broadband as connections with a minimum speed of 256 Kbps (a quarter of a megabyte). This minimum speed has direct implications on the type of services and applications that can be provided. The greater the bandwidth and speed, the greater the quality associated with the service.

Broadband adoption by companies that serve the base of the pyramid can help them to reach their objectives and serve users more efficiently and effectively. The cases highlighted in this study demonstrate that there are opportunities for those who are interested in leveraging connectivity for development.

REFERENCES

Kayser, O.; Klarsfeld, L.; and Brossard, S. 2014. *The Broadband Effect. Enhancing Market-based Solutions for the Base of the Pyramid*. Hystra for Opportunities for the Majority, Inter-American Development Bank.

United Nations Pursues Sustainable Trade

- [Integration in Motion](#)
- [International Scenario](#)
- [n239](#)

During the recent meeting of the [United Nations Conference on Trade and Development \(UNCTAD\)](#), which was held in Nairobi, Kenya, between July 17 and 22, 2016, the following forums were also held:

4th World Investment Forum

7th Global Commodities Forum

Civil Society Forum

World Leaders Summit

1st Youth Forum

G77 Ministerial Conference

The event emphasized the importance of UNCTAD's role in implementing the 2030 Agenda for Sustainable Development, and different [documents](#) were published in relation to this.

The president of the conference, Kenya's cabinet secretary for foreign affairs, Amina Mohamed, called her political statement "Nairobi Azimio" (meaning "Nairobi Declaration" in Swahili), which she said was "firmly anchored in the heritage of achievements of UNCTAD since its creation in 1964."

[\[V1\]](#)Soledad: hay un problema en el original acá, ya que está mal traducido. El texto dice: "... Denominó su Declaración Política "Nairobi Azimio", que en swahili significa "algo que está firmemente anclado en una herencia de logros"." pero en realidad Nairobi Azimio solo quiere decir "Declaración de Nairobi", y Amina Mohamed después lo califica como algo que es "firmly anchored in the heritage of achievements of UNCTAD since its creation in 1964", pero es su descripción.

Chile and South Korea Expand Their Free Trade Agreement

- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)
- [Southern Cone](#)

Former Chilean president Eduardo Frei Ruiz-Tagle, in his role as special envoy to Asia-Pacific, and the head of Chile's General Directorate of International Economic Relations, Andrés Rebolledo, met with Korean ministers and government officials in Seoul to [move towards expanding the free trade agreement \(FTA\) \(link in Spanish\)](#) that has existed between the two countries since 1994.

"The [FTA with Korea](#) was the first step towards Chile's integration with Asia and functioned as a model and example for its subsequent FTAs with other major economies in that region, such as China and Japan (...) We have reached consensus with Korean authorities on the need to update the agreement and include new disciplines that will allow us to boost trade and reciprocal investment even further," said Andrés Rebolledo in reference to having made the wish that DIRECON [had expressed \(link in Spanish\)](#) in 2014 come true.

Mr. Frei and Mr. Rebolledo appreciated the presence of Korea's minister of land, infrastructure, and transportation, Mr. Kang Ho-in, at the [11th Summit of the Pacific Alliance \(link in Spanish\)](#), in the city of Puerto Varas. The two also met with Korean prime minister Hwang Hyo-ahn; the minister of agriculture, Lee Dong-phi; the minister of trade, Joo Hyung-hwan; and the minister of foreign affairs, Yun Byung-se.

At the same time, a [seminar on economics](#) was held in Seoul in partnership with the Federation of Korean Industries (FKI), at which members of the Chilean business community and government authorities were able to get to know Korean firms from sectors including renewable energy, infrastructure, communications, mining, food, and water treatment, so as to evaluate possibilities for business and investment.

CARICOM Seeks to Move Towards a Single Market

- [Caribbean](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

The [37th Regular Meeting of the Caribbean Community \(CARICOM\)](#) was held between July 4 and 6, 2016, in Georgetown, Guyana. The [event](#) was attended by the heads of state of all member countries and other authorities, including Chilean president Michelle Bachelet.

The working sessions and presentations advocated for a deepening of integration in the region as a key factor for economic development, against an international backdrop that was shadowed by the Brexit referendum in the United Kingdom and the resulting decision for the country to leave the European Union. In this sense, the prime minister of Dominica, Roosevelt Skerrit, asked that countries work together to strengthen cooperation and union within the entire Caribbean Community.

Emphasis was also placed on the need to join forces to fully develop the [Caribbean Single Market and Economy \(CSME\)](#). The prime minister of Trinidad and Tobago argued that although CARICOM has made great progress, especially in relation to functional cooperation, it still has significant challenges ahead of it. The CSME would enable the free movement of goods, resources, labor, and services in the region through the implementation of economic policies to eliminate barriers to trade. This would boost trade, competitiveness, and the development of CARICOM member countries. [Prime Minister Skerrit gave an overview](#) of the CSME's achievements so far, but also of its failures, and insisted that CARICOM should prioritize solving issues that are preventing the CSME from fully coming into being.

Other major issues that were addressed during the summit included security, tourism promotion, strengthening relations with neighboring countries that are not yet CARICOM members, settling border conflicts, and being prepared for natural disasters and climate change. Working groups were established to tackle these issues and will continue to do so in the coming months.

Andean Community Focuses on Renewable Energy and Gas to Combat Climate Change

- [Andean Group](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

It has been confirmed that the fourth [Gas Exporting Countries Forum](#) (GECF), will be held in Bolivia in November 2017 and will be attended by the presidents and leaders of the countries that make up the group,^[1] which controls 42% of the global gas supply, 70% of proven gas reserves, 40% of supplies through gas pipelines, and 65% of the global market for liquefied natural gas (LNG).

The GECF predicts that within 25 years, in 2040, the world's dependence on fossil fuels will decrease from 80% to 75%, that is, that three-quarters of the global demand for energy will still need to be met by these sources.

Given this context, the GECF stresses that large natural gas reserves continue to exist in the world. For example, Saudi Arabia has gas fields containing reserves that will last almost 120 years, while those in Russia and Iran will last 150 years. Like markets for renewable energies (solar, wind, hydro, geothermal) which are being looked to in order to limit climate change, gas consumption is expected to grow as it is a cleaner fuel than coal and oil.

Research is currently being carried out on technologies that will allow the carbon dioxide released by coal to be extracted so as to make coal a clean fuel, which is thought might happen within 20 years. In many countries in Asia, Africa, and Latin America, gas is the ideal replacement for firewood because it is accessible, cheap, and does not require sophisticated technology, in contrast to that needed to set up solar power stations, and the cost that this entails.

^[1] Russia, Iran, Qatar, Algeria, Bolivia, Egypt, Equatorial Guinea, Libya, Nigeria, Trinidad and Tobago, Venezuela, and the United Arab Emirates are all GECF member countries, while the Netherlands, Iraq, Oman, Peru, and Norway take part as observers.

Argentina Signs Cooperation Agreements with Germany

- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)
- [Southern Cone](#)

As part of Argentine president Mauricio Macri's official visit to Germany in July 2016, the minister of foreign affairs, Susana Malcorra, signed a series of [bilateral agreements](#) that aim to promote joint work on cooperation in the fields of technology, economics, trade, and investment. The agreements were also signed by the minister for economic affairs and energy and vice chancellor of Germany, Sigmar Gabriel; the state secretary at the Federal Ministry of Education and Research, Georg Schütte; and the state secretary at the Federal Ministry of Labor and Social Affairs, Yasmin Fahimi.

During the visit, Ms. Malcorra also accompanied Mr. Macri to his working meeting with Chancellor Angela Merkel.

Diplomatic relations between Argentina and Germany have gained momentum since Argentina's change of government—the last visit at this level took place in October 2010. Likewise, at the start of June 2016, Germany's minister of foreign relations, [Frank-Walter Steinmeier \(link in Spanish\)](#), visited the office of the President of Argentina, the Casa Rosada, and expressed great interest in “strengthening the bridge between Germany and Argentina.” On that occasion, the minister traveled to Buenos Aires with a delegation of members of the Bundestag, business people, scientists, and representatives from the cultural sphere with the aim of leveraging and boosting bilateral relations in the areas of economics, culture, and politics.

Free Trade Agreement between Colombia and South Korea Enters into Force

- [Andean Group](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

Colombia's Ministry of Trade, Industry, and Tourism (MINCIT) [announced that it had officially reached a free trade agreement \(FTA\) with South Korea \(link in Spanish\)](#), its first such agreement with the Asian market.

The [FTA \(link in Spanish\)](#) will allow 56% of Colombia's agricultural exports supply to enter the South Korean market with preferential tariffs over a five-year period from its entry into force. Tariffs will be eliminated on a further 25% of goods over a ten-year period, and on the remaining 19% over a period of more than 10 years. This includes products such as flowers, meat, green and roasted coffee, cocoa, fruit, vegetables, tobacco, sugar, jams and marmalades, juices, biscuits, beauty products, and footwear.

With regard to industrial goods, 96% of products will be able to enter duty-free immediately, 3% will be able to do so within five years, and nearly all the remaining 1% within 10 years. This includes machinery, chemical and steel products, electrical appliances, autoparts, and some pharmaceutical products.

[Bilateral trade between Colombia and South Korea](#) has been increasingly dynamic over the last decade, going from US\$388 million in 2003 to US\$1.44 billion in 2013.

Colombia's minister of industry, María Claudia Lacouture, underlined the importance of the agreement for her country in that it opens up relations with Asia, which she described as "a region that accounts for almost 65% of trade, 60% of the population, and 35% of GDP at the global level. Since 2000, Asia's middle class has grown sevenfold and Latin America's has doubled, which shows the region's high levels of purchasing power and the potential this has," she added.

Colombia Is Pursuing the Orange Economy as a Driver for Development

- [Andean Group](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

The Orange Economy, or creative economy, is a resource based on talent, intellectual property, collectivity, and, of course, cultural heritage—in this case, that of Latin America. This is the definition laid out by the Inter-American Development Bank (IDB) in its publication *The Orange Economy: An Infinite Opportunity* (2013).

In relation to this, in early July 2016, the [Chamber of Commerce of Bogota \(CCB\)](#) ([link in Spanish](#)) announced figures that indicate that 73% of the country's digital content firms and 55% of its videogame companies are based in Bogotá. It also highlighted that this industry already contributes around 3% of local GDP.

Among other [initiatives](#) ([link in Spanish](#)), the CCB pointed out that Bogotá has 74 film and television recording studios, while over 55,000 professionals, technicians, and technologists have graduated in the last 10 years in areas related to audiovisual production.

The CCB also supports firms through the Music Cluster and the Creative and Content Industry Cluster. Furthermore, this year Colombia will host the Southern Cultural Industries Market, [MICSUR 2016](#) ([link in Spanish](#)).

The Orange Economy and the creative industry have been growing trends in Latin America over the last few years.

Peru Ratifies WTO Trade Facilitation Agreement

- [Andean Group](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

Peru's Ministry of Foreign Trade and Tourism (MINCETUR) has confirmed that the country has [ratified the Trade Facilitation Agreement \(TFA\) \(link in Spanish\)](#) that was proposed at the World Trade Organization (WTO) Ministerial Conference in Bali in 2013. The agreement contains provisions to ease the flow of goods across borders, including measures aimed to reduce costs in terms of both time and money, and to streamline the shipping and pick-up of goods. It also establishes measures to aid efficient cooperation between customs authorities and includes clauses on transparency in the publication of regulations.

The [TFA](#) will enter into force once it has been formally accepted by two-thirds of the members of the WTO, which amounts to 108 signatures. Peru's ratification raises the number of signatories to 86. It is the first Pacific Alliance country to ratify the TFA and the third in South America to do so, after [Brazil and Paraguay](#).

According to the WTO Secretariat, the agreement, once implemented, is [expected](#) to reduce the total costs of trade by 14.5% for low-income countries.

Costa Rica and China Consolidate Their Strategic Alliance

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

On July 18, 2016, Costa Rica's minister of foreign affairs, [Manuel González Sanz](#), received his Chinese counterpart, [Wang Yi](#), and the state councilor, [Yang Jiechi](#), to bolster the strategic alliance between the two countries, which is based on equality, trust, cooperation, and mutual benefits.

Although there have been diplomatic relations between Costa Rica and China for several years, the two countries officially became an alliance in January 2015, when President Luis Guillermo Solís visited China.

During the meeting, the officials reviewed the agenda of commitments and joint activities that bind the two governments and talked about strengthening the relationship yet further. "The caliber of these reciprocal high-level visits demonstrates the understanding that we have reached in this budding but dynamic bilateral relationship, and the fact that we are working together for the benefit of both nations," Mr. González said to the state councilor. They also planned an event to celebrate the 10th anniversary of diplomatic relations between the two countries to be held in June 2017.

These concrete cooperation initiatives are contained in the Joint Action Plan on China–Costa Rica Cooperation 2016–2020. They include issues such as education, trade, policy, agriculture, technology, and communications.

Andean Community Creates Observatory for Pacific Alliance SMEs

- [Andean Group](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

As part of the 16th Meeting of the Pacific Alliance Council of Ministers, held on June 30, 2016, in Frutillar (Chile), PA authorities announced the [creation of a regional observatory for SMEs \(link in Spanish\)](#), which will provide entrepreneurs with relevant information on best practices, legal frameworks, and business opportunities.

The [observatory \(link in Spanish\)](#) will initially be coordinated by a technical team from Peru, which will undertake initiatives that aim to facilitate trade, internationalize companies, and promote the free movement of goods, services, persons, and capital.

At the meeting, the ministers present also signed an agreement to recognize the validity of electronic signatures, which will enable the interoperability of Single Windows for Foreign Trade (VUCEs). This is a major step forward and compliments the observatory's objective.

"The implementation of the interoperability scheme will enable anyone who decides to sell their products in another country to be able to do so by submitting the relevant documents at the single window in their country of origin, which will send the paperwork on to the destination country," [explained](#) (link in Spanish) Peru's minister of foreign trade and tourism, Magalí Silva.

Mexico and Brazil Review Economic Agreement to Add Industrial and Agricultural Goods

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

In early July 2016, the 4th Round of Negotiations for Expanding and Deepening Economic Complementarity Agreement No. 53 (ECA 53) was held in Brazil.

Mexico's deputy minister of the economy, Francisco de Rosenzweig, led his country's delegation, while Brazil's was headed by the sub-secretary-general for South and Central America and the Caribbean, Ambassador Paulo Estivallet de Mesquita.

The aim of the round of negotiations was to make headway on reviewing the market access interest lists they have already exchanged. Furthermore, the meeting entailed an analysis of the texts for the different disciplines that the deepening of ECA 53 may entail, with a view to reaching an agreement that includes both agricultural and industrial goods.

Both delegations underlined their commitment to achieving an ambitious, balanced agreement.

The Mexican delegation also held informational and consultation meetings with the private sector, in order to share the progress that had been made at each negotiation table.

Support from the United States for Guatemala, Honduras, and El Salvador

- [Central America and Mexico](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

The announcement of US support for the alliance in the region was made by the president of Honduras, Juan Orlando Hernández, who held a series of meetings with Democratic and Republican congresspeople in Washington, DC. The aim of the plan is to [encourage \(link in Spanish\)](#) the fight against poverty and violence.

“US Congress has approved US\$750 million for 2017,” Hernández said. These funds are to be divided between the three nations that make up the Northern Triangle and will start to be disbursed in October 2016.

The strategic lines of action for the plan are: i) invigorating the productive sector to create economic opportunities; ii) developing opportunities for human capital; iii) improving citizen security and access to justice; and iv) strengthening institutions to boost the population’s confidence in the state.

The Rapprochement between the MERCOSUR and the European Union Continues

- [America](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

In early July, Argentine president Mauricio Macri met with the high representative of the European Union for foreign affairs and security policy, Federica Mogherini, at the European Commission headquarters.

After the meeting, both parties claimed that “highly positive, concrete steps” had been taken in terms of cooperation between Argentina and the European Union.

Furthermore, they initialed three cooperation agreements and agreed that the European Investment Bank “could be important for opening up opportunities in Argentina in the short term.”

For his part, Francisco Assis, a Portuguese member of the European Parliament, acknowledged that the rapprochement between Argentina and the EU is an “unmistakable sign of the Argentine government’s determination to support the negotiation process between the two blocs.”

Assis has repeatedly [expressed \(link in Spanish\)](#) support for the process and informed the relevant EU authorities of the potential implications of this agreement.

Argentina and Mexico Seek to Renew Their Ties

- [America](#)
- [Inspiring Activities](#)
- [Integration in Motion](#)
- [n239](#)
- [Regional Panorama](#)

The president of Mexico, Enrique Peña Nieto, met with the president of Argentina, Mauricio Macri, on July 29, 2016, during his official visit to Buenos Aires. At the meeting, the two heads of state assessed the possibilities of a convergence between the MERCOSUR and the Pacific Alliance ([for more on this issue, see the analysis in INTAL Connection no. 238](#)).

“We are building a new stage in the relationship, with a shared vision of what our societies need in order to reach greater levels of development and social justice,” said Mr. Peña Nieto. The local press highlighted that he had not ruled out the possibility of the two countries eventually making headway on a free trade agreement.

With Mr. Macri were the cabinet chief, Marcos Peña; the minister of foreign affairs, Susana Malcorra; the minister of finance, Alfonso Prat Gay; and the secretary for strategic affairs, Fulvio Pompeo.

Mr. Peña Nieto was accompanied by Mexico’s minister of foreign relations, Claudia Ruiz Massieu; the minister of the economy, Ildefonso Guajardo; and the Mexican ambassador to Argentina, Fernando Castro Trenti, and other government officials.

Before the meeting, Ms. Ruiz had insisted that Mr. Peña Nieto’s visit to Argentina “seeks to renew our relationship with one of the most important players in the region.”

Ms. Ruiz weighed up the possibility of Argentina becoming a Pacific Alliance observer country and claimed that the two countries had found “new spaces of dialogue and understanding; we are strategic partners.”

Likewise, the Mexican authorities advised that they would support Argentina’s application to become part of the Organisation for Economic Co-operation and Development (OECD), one of the main foreign policy objectives for Argentina in the medium term.

Connecting Voices

Glocal Future: Integration and the Transformation of Production

- [Connecting Voices](#)
- [n239](#)

INTAL organized [a colloquium on the transformation of production and integration](#), in conjunction with Argentina's Ministry of Production and the Inter-American Dialogue. Some of the presenters talk here about the conclusions reached at the event.

Reading Material on Integration

Sanitary Restrictions and Beef Exports in the MERCOSUR

- [n239](#)
- [Reading Material on Integration](#)
- [Reviews](#)

A study by Juan Labraga ([link in Spanish](#)), produced with the support of IDB/INTAL and the South American Network on Applied Economics/Red Sur, documents episodes when the exports of the countries analyzed were affected by sanitary restrictions and draws lessons from these.

After an initial outline in which the author reviews the current state of beef exports and sets out the methodology and data used in the study, he demonstrates that in multilateral negotiations, the signing of regional trade agreements and the unilateral opening of economies has led to a significant reduction in tariff barriers.

However, he also makes it clear that other subtler, more complex components of trade costs continue to exist, such as technical requirements, sanitary and phytosanitary measures, or private standards.

As a consequence, as part of the valid concerns about human and animal health and life, new and more stringent sanitary measures have been established which limit market access, particularly for developing countries.

The paper then analyzes the impact of three of these measures on beef exports from Brazil, Argentina, Paraguay, and Uruguay: those relating to foot-and-mouth disease and bovine spongiform encephalopathy (popularly known as “mad cow disease”), and the EU’s prohibition of meat produced from cattle that have been fed growth promotion hormones.

One of the author’s main findings was that foot-and-mouth has a significant, negative impact on exports.

Finally, the study demonstrates the importance of including information services in order to overcome the asymmetries which explain the rationales behind sanitary standards. It also presents an estimation of the effects and implications of these issues for public policymaking.

Labraga, Juan. 2016. Exportaciones de carne bovina del MERCOSUR: Una cuantificación de los efectos comerciales de medidas sanitarias nuevas y tradicionales [MERCOSUR beef exports: a quantification of the effects of new and traditional sanitary measures on trade] (link in Spanish). INTAL.

The 10 Technologies That Will Change the World in 2016

- [n239](#)
- [Reading Material on Integration](#)
- [Reviews](#)

The [Top 10 Emerging Technologies of 2016](#) report, compiled by the World Economic Forum's Meta-Council on Emerging Technologies and published in partnership with *Scientific American*, reviews the technological advances that have the greatest potential for improving the future of the planet.

The list includes technologies that have existed for several years but have only recently become mature enough to have a positive impact on the world, given that one of the criteria used by the council members was the probability that 2016 would be a turning point in their development.

The 10 technologies that make up the list this year are:

1. Nanosensors and the Internet of Nanothings
2. Next-Generation Batteries
3. The Blockchain
4. Two-Dimensional Materials
5. Autonomous Vehicles
6. Organs-on-Chips
7. Perovskite Solar Cells
8. Open AI Ecosystem
9. Optogenetics
10. Systems Metabolic Engineering

Technology has a key role to play as we try to tackle each of the major challenges the world is currently facing. However, it also entails significant economic and social risks that deserve to be the focus of a chapter of their own in any in-depth analysis of future scenarios—which are, in fact, becoming ever more real.

The authors conclude that as the repercussions of the fourth industrial revolution begin to manifest themselves, it is essential for us to develop shared regulations and protocols to ensure that technology is at the service of humanity and contributes to a prosperous, sustainable future.

[Top 10 Emerging Technologies of 2016](#). 2016. WEF.

Trade Thermometer

Exporting Knowledge

- [n239](#)
- [Trade Thermometer](#)



Services have been a leading sector in the global economy for some time now. Knowledge-based services (KBSs) are becoming increasingly important and, thanks to progress in information and communication technologies (ICTs), these are now easy to export. These services tend to demand skilled human resources, so well-trained labor forces are fundamental to their success. Latin America and the Caribbean have started to play an active part in global trade in KBSs, and several countries in the region show particular signs of dynamism in this area. However, the expansion of this enormous market will depend on efforts to improve and expand the region's capacities in this area.

Legal Instruments of Integration (IJI) Observatory

- [n239](#)
- [Trade Thermometer](#)

The [Legal Instruments of Integration \(IJI\)](#) database is a compilation of regulatory texts, commentaries, and follow-up on legal commitments and developments of an analytical nature concerning the various integration processes taking place in Latin America and the Caribbean. For news and to learn more about the progress made on trade agreements and negotiations, visit [IJI](#).

This month's trends

Between the end of June and July 26, 2016, as was the case during the previous month, the regional trade policy agenda was defined by the marked leadership of the Pacific Alliance which, following the outcomes of its 9th Summit (held in July), continues to be the most dynamic regional integration scheme, defining much of the map of regional trade agreements in Latin America and the Caribbean. In comparison with the preceding period, there was greater activity within the other agreements and integration schemes in the region. The agreements that most stand out in this regard are those of Argentina, Chile, and Mexico; also noteworthy are major integration schemes such as the MERCOSUR, SELA, SICA, and UNASUR.

360° Panorama

Over the course of the month, progress was made on 18 existing agreements, three new agreements, and seven trade negotiations (one new negotiation and six at an advanced stage).

New Negotiation

- Bolivia–El Salvador [Bolivia and El Salvador make headway on a trade agreement in the interests of improving cooperation and complementarity \(link in Spanish\)](#)

Advanced Negotiations

- Trans-Pacific Partnership (TPP): [Government of Peru sends TPP to Congress to be ratified \(link in Spanish\)](#)
- Central America–South Korea: [Central America and South Korea finalize details of FTA for the end of the year \(link in Spanish\)](#)

- Chile–Central America: [Advantages and ways of leveraging the Free Trade Agreement between Chile and Central America \(link in Spanish\)](#)
- Chile–South Korea: [South Korea and Chile hold a forum to celebrate the 12th anniversary of their FTA \(link in Spanish\)](#), [Delegation seeks to expand markets for Chile in South Korea \(link in Spanish\)](#), [Chile and South Korea sign a cooperation agreement on water resources \(link in Spanish\)](#)
- Colombia–Panama: [Colombia prepares a new decree to make up for the WTO ruling on its dispute with Panama \(link in Spanish\)](#).
- Community of Latin American and Caribbean States (CELAC): [EU analyzes relations with Cuba and draws up agenda with CELAC \(link in Spanish\)](#).
- Ecuador–European Union: [EU to deliver the text of its trade agreement with Ecuador this month \(link in Spanish\)](#)
- MERCOSUR–European Union: [MERCOSUR–EU move forward with technical consultations and set dates for the meeting of the Biregional Negotiations Committee \(BNC\) \(link in Spanish\)](#)

New Agreements

- Colombia–South Korea: [FTA between Colombia and South Korea enters into force \(link in Spanish\)](#)
- Peru–Honduras: [Peru ratifies its free trade agreement with Honduras \(link in Spanish\)](#)
- Colombia–Costa Rica: [FTA between Costa Rica and Colombia valid from August 1 \(link in Spanish\)](#)

Selected news on trade agreements currently in force

- Pacific Alliance: [Pacific Alliance or MERCOSUR: a false dichotomy \(link in Spanish\)](#), [Panama moves closer to becoming part of the Pacific Alliance \(link in Spanish\)](#), [Commitments signed at the Pacific Alliance Summit \(link in Spanish\)](#), [Argentina's rapprochement with the Pacific Alliance \(link in Spanish\)](#), [Presidents of Chile, Colombia, Mexico, Peru, and the IDB analyze the Pacific Alliance's achievements and prospects \(link in Spanish\)](#), [Mexico highlights agreements with Chile, Colombia, and Peru \(link in Spanish\)](#)
- Argentina–Brazil Partial Scope ECA 14: [42nd Additional Protocol \(link in Spanish\)](#)
- Argentina–Mexico Partial Scope ECA 6: [Mexico and Argentina may expand their economic agreement \(link in Spanish\)](#)

- Latin American Integration Association (ALADI): [10th Negotiation Meeting for the ALADI General Regime of Origin \(link in Spanish\)](#)
- Central America–European Union: [Central America and the European Union launch support program for entrepreneurs \(link in Spanish\)](#)
- Andean Community (CAN): [Ecuador asks CAN to contemplate immediate safeguards \(link in Spanish\)](#)
- Caribbean Community (CARICOM): [CARICOM asks Belize and Guyana to take their disputes to the ICJ \(link in Spanish\)](#), [Communiqué issued at the conclusion of The Thirty-Seventh Regular Meeting of the Conference of Heads of Government of the Caribbean Community \(CARICOM\)](#)
- United States of America–Panama: [We need to take advantage of FTAs \(link in Spanish\)](#)
- Southern Common Market (MERCOSUR): [Former president of the IDB highlights the importance of the Pacific for the MERCOSUR \(link in Spanish\)](#), [Uruguay: No consensus over the transfer of the presidency of the MERCOSUR \(link in Spanish\)](#)
- MERCOSUR–Venezuela: [Venezuela adds common external tariff for MERCOSUR \(link in Spanish\)](#),
- MERCOSUR–Bolivia: [Paraguay signs Bolivia's protocol of accession to the MERCOSUR \(link in Spanish\)](#).
- Mexico–European Free Trade Association (EFTA): [Mexico and Norway to strengthen relations in matters of energy \(link in Spanish\)](#)
- Mexico–Costa Rica: [Lala to sell its products in Costa Rica \(link in Spanish\)](#)
- Mexico–Panama: [Panama increases exports to Mexico by almost 500% \(link in Spanish\)](#)
- Dominican Republic, Central America–United States of America (CAFTA–DR): [ADOZONA insists that CAFTA-DR played a part in regaining Dominican free trade zones \(link in Spanish\)](#), [The Dominican Association of Exporters \(Adoexpo\) calls for action to help the country leverage CAFTA-DR \(link in Spanish\)](#)
- Central American Integration System (SICA): [Costa Rica returns to SICA \(link in Spanish\)](#), [Central American business community asks to reduce barriers to trade \(link in Spanish\)](#)
- Latin American Economic System (SELA): [SELA concludes seminar on strategies and methodologies for productive articulation, clusters, and export consortia: experiences from Central America and the Caribbean \(link in Spanish\)](#)

- North American Free Trade Agreement (NAFTA): [Mexico willing to modernize free trade agreement with North America \(link in Spanish\)](#), [Mexico removes restrictions on beef imports from Canada \(link in Spanish\)](#)

Union of South American Nations (UNASUR): [South American citizenship was the main topic at the 5th Round Table of Convergence \(link in Spanish\)](#)

Impact assessment.

COSIPLAN Geographic Information System

- [Impact assessment.](#)
- [n239](#)



The [document](#) outlines the main features, contents, forms of access, and benefits of the GIS. It is addressed at those government officials and professionals who may potentially use the system. The publication acknowledges the efforts made by a team of authorities, public officials, executives, professionals, technicians, and specialists from all the countries that make up the UNASUR, all of whom contributed to this initial achievement.

Editorial

_ Editorial
_ n239

This is a monthly publication property of the Institute for the Integration of Latin America and the Caribbean, Inter-American Development Bank (IDB-INTAL). All rights reserved.

Information sources: Press releases and clippings from: LAIA; IDB; CARICOM; Andean Community;

Euro-Lat; Group of 77; ACS; Group of Rio; MERCOSUR; PARLATINO; LAES; SG-SICA; SIECA.

Official and International Agencies. INTAL Press.

Steering Committee:

Antoni Estevadeordal

Gustavo Beliz

Coordination:

Alejandro Ramos Martínez

Technical advisory:

Andrea Benítez

Santiago Chelala

Ramiro Conte Grand

Carlos D'Elía

Ignacio Estévez

Alejandra Radl

Linda Plata Curran

Verónica Toscani

Editing:

Ana Basco

Santiago Chelala

Alejandra Wulff

Web Editing:

Juan Manuel Hernandez

Federico Mazzella

Alejandra Wulff

R.P.I.: 5234654

ISSN: 1027-2550

Copyright © 2016 Inter-American Development Bank. This work is licensed under a Creative Commons IGO 3.0 Attribution-NonCommercial-NoDerivatives (CC-IGO BY-NC-ND 3.0 IGO) license

(<http://creativecommons.org/licenses/by-nc-nd/3.0/igo/legalcode>) and may be reproduced with attribution to the IDB and for any non-commercial purpose. No derivative work is allowed.

Any dispute related to the use of the works of the IDB that cannot be settled amicably shall be submitted to arbitration pursuant to the UNCITRAL rules. The use of the IDB's name for any purpose

other than for attribution, and the use of IDB's logo shall be subject to a separate written license agreement between the IDB and the user and is not authorized as part of this CC-IGO license. Note that link provided above includes additional terms and conditions of the license. The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank, its Board of Directors, or the countries they represent.



Download PDF