12th PLENARY MEETING
OECD INITIATIVE FOR POLICY DIALOGUE ON GLOBAL VALUE CHAINS,
PRODUCTION TRANSFORMATION AND DEVELOPMENT

KEY OUTCOMES

2 – 3 April 2019
Hilton Lima Miraflores Hotel, Lima
Huascaran Room
Peru

Contacts:
Secretariat: DEV.GVCnetwork@oecd.org

Annalisa Primi, Head, Structural Policies and Innovation Unit, OECD Development Centre
Email: annalisa.primi@oecd.org

Elisabeth Lambrecht, Policy Analyst, Structural Policies and Innovation Unit, OECD Development Centre elisabeth.lambrecht@oecd.org
TABLE OF CONTENTS

1. BACKGROUND INFORMATION ........................................................................................................... 3
2. THE INITIATIVE: TAKING STOCK OF PROGRESS .............................................................................. 4
3. THE PRODUCTION TRANSFORMATION POLICY REVIEWS (PTPRs): PEER REVIEW AND KNOWLEDGE SHARING FOR BETTER POLICIES .......................................................... 5
   3.1. The PTPR of Colombia: Unleashing Productivity ........................................................................... 5
   3.2. The PTPR of the Dominican Republic: innovating to compete .................................................. 6
   3.3. Peru has advanced in fostering innovation and participation to global value chains .................... 7
4. OTHER MAIN ISSUES DISCUSSED .................................................................................................... 10
   4.1. Making digital trade work for SMEs .............................................................................................. 10
   4.2. The future of agriculture: towards agriculture 4.0? ................................................................. 11
   4.3. Making technology transfer work in manufacturing .................................................................... 13
   4.4. More investment in statistical capacities is needed to measure globalisation ............................. 15
5. CALENDAR OF FUTURE PLENARY MEETINGS 2019-2020 .......................................................... 16
1. BACKGROUND INFORMATION

1. The 12th Plenary Meeting of the OECD Initiative for Policy Dialogue on Global Value Chains (GVCs), Production Transformation and Development was hosted by the Ministry of Economy and Finance, the Ministry of Foreign Trade and Tourism and the Ministry of Production of Peru, with the cooperation of PROMPERU, in Lima, Peru on April 2-3 2019.


3. The two-day policy dialogue followed the regular structure of the Initiative’s Plenary Meetings. It featured an update from the Initiative, a session on future-oriented issues, which focused on how to make digital trade work for SMEs; a session on the Production Transformation Policy Reviews (PTPRs); a government-business round table on the future of agriculture; a session on making technology transfer work in manufacturing; and an update on measurement challenges focusing on globalisation.

4. The following paragraphs summarise the key outcomes of the meeting and highlight the next steps.
2. THE INITIATIVE: TAKING STOCK OF PROGRESS

5. Participants highlighted the continued and increased importance of the Initiative as a space for peer learning and policy dialogue. The PTPRs (Production Transformation Policy Reviews) have been praised for their capacity to provide comprehensive empirical and policy assessments and for fostering peer learning. The mechanism of the Peer Learning Group (PLG), which is open to private and public stakeholders has also been considered a major value added of the PTPR process. All partners welcomed the fact that the PTPRs are not just reports, but that they are targeted processes of policy support and consensus building.

6. The 12th Plenary Meeting provided the occasion to welcome Brazil (through the Ministry of Foreign Trade) and Egypt (through the Ministry of Industry and Trade) as new members of the Initiative.

<table>
<thead>
<tr>
<th>Next steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders interested in joining the Initiative (as member countries or as partners) are invited to contact the Secretariat (<a href="mailto:DEV.GVCnetwork@oecd.org">DEV.GVCnetwork@oecd.org</a>).</td>
</tr>
<tr>
<td>Current members of the Initiative are reminded that they can present their interest in joining the Bureau of the Initiative until November 15 2019. For more information about the process of membership to the Initiative see document (OECD_DEV_2018) and contact the Secretariat for any assistance in the process and for information regarding participation to the Bureau (<a href="mailto:DEV.GVCnetwork@oecd.org">DEV.GVCnetwork@oecd.org</a>).</td>
</tr>
<tr>
<td>The renewal of the composition of the Bureau will be discussed among Bureau members (including those who will have sent their expression of interest to join until November 15) during the Bureau Meeting to be hosted in Egypt, back to back with the 13th Plenary Meeting of the Initiative.</td>
</tr>
<tr>
<td>At present the Bureau for 2020-2022 will be composed of Costa Rica, Chile and Morocco.</td>
</tr>
</tbody>
</table>
3. THE PRODUCTION TRANSFORMATION POLICY REVIEWS (PTPRs): PEER REVIEW AND KNOWLEDGE SHARING FOR BETTER POLICIES

7. The Production Transformation Policy Reviews (PTPRs) are a policy assessment and guidance tool elaborated in response to countries’ demand in the context of the OECD Policy Dialogue Initiative on Global Value Chains, Production Transformation and Development (hereafter referred to as the Initiative).

8. Since their introduction in 2017 (OECD, 2017), two PTPRs have been completed (the PTPR of Chile (OECD/UN, 2018) and the PTPR of Colombia (OECD/UN/UNIDO, 2019). Two PTPRs are ongoing: the one of the Dominican Republic and the one of Shenzhen, People’s Republic of China, and Egypt expressed interest in starting a PTPR before the end of 2019. The 12th Plenary meeting focused on discussing the key outcomes of the PTPR of Colombia, on reporting the results of the Peer Learning Group Meeting of the PTPR of the Dominican Republic and on hearing Peru’s updates on its production transformation strategy.

3.1. The PTPR of Colombia: Unleashing Productivity

9. The PTPR of Colombia (OECD/UN/UNIDO, 2019) was implemented at the request of the National Planning Department of Colombia (DNP) and counted with the financial contribution of the State Secretariat for Economic Affairs (SECO) of Switzerland through the programme Competitive Colombia. The PTPR of Colombia benefited from the participation of two peers, one from Chile through the General Directorate of International Economic Relations (DIRECON) of the Chilean Ministry of Foreign Affairs and one senior expert from the private sector (Dr Paulina Beato, former REPSOL Strategic Adviser, Spain). The PTPR of Colombia has also benefited from the cooperation of ECLAC, UNCTAD and UNIDO. The PTPR of Colombia counted with a Peer Learning Group that steered the process and met on June 26 2018 in Boulogne-Billancourt, France hosted by the OECD in co-operation with DNP. The PTPR of Colombia involved three field missions that featured one meeting of the Task Force on Production Transformation, one Roundtable to discuss what policies, tools and partnerships are needed for a competitive Colombian economy, one high-level Consensus-Building Event and semi-structured interviews with more than 50 experts from business, government and academia in Colombia. The PTPR of Colombia was launched in Bogota, Colombia on February 12 2019 in a high-level event organised by the DNP.

10. The PTPR of Colombia highlights that Colombia is a growing, stable economy in Latin America. The peace process opened up new opportunities and the main challenge now lies in ensuring that those opportunities benefit all territories in the country. To do so, Colombia is counting on an effective planning system to respond to society’s multiple aspirations. The National Planning Department (DNP) is an institution with a good reputation and convening power, characterised by a tradition of dialogue with the private sector. These experiences represent an excellent foundation for Colombia to move forward and address its pending challenges of low productivity and high dependence on natural resources. Indeed, Colombia is now looking at mobilising new drivers of transformation to tackle the
issues that are holding back future progress. These obstacles include the low level of productivity, the scarce sophistication and diversification of exports, and poor investment innovation activities. Building on solid macroeconomic management, the country is experimenting with new forms of medium-term policies that aim at leveraging each region’s competitive advantage. Delivering results will depend on the capacity to connect up-to-date planning functions to an effective implementation process and on the ability to reap the benefits of the new technological and industrial revolution.

11. The DNP and all the stakeholders involved in the PTPR, including the Private Council for Competitiveness (CPC) and SECO highlighted the importance of the PTPR as an open, consensus building process. In particular, the DNP highlighted the relevance of the PTPR in terms of its capacity to review in a comparative perspective, the DNP’s methodology for prioritising actions for competitiveness with and for the regions in the country and the identification of the need to increase synergy between the production transformation and the digitalisation agenda. In fact, the National Development Plan of Colombia incorporates a chapter focused on digital transformation, which highlights the need to bridge the gap between the innovation, trade, competitiveness and trade agendas.

12. Since the launch of the PTPR, Colombia has already advanced in implementing reforms in line with the PTPR recommendations. For example, the country is, in cooperation with the World Economic Forum (WEF), investing in setting up an Industry 4.0 technology centre in Medellin with an initial investment of USD 6 million up to 2022. One of the main objectives of the centre is to leverage on the dynamic start-up scene of the city and increase the development and adoption of digital technologies in local firms.

13. Chile reported as highly positive the experience of participating as peer in the PTPR of Colombia. The Chilean Ministry of Foreign Affairs through DIRECON shared knowledge throughout the full PTPR process and highlighted they were pleased to share some good practices, notably on effective management of trade policy and increased integration of local providers in global value chains. They also stressed that participating as peer has enabled Chile to strengthen the ties with Colombia and to learn from Colombia on several dimensions, notably on planning long term and fostering a pro-active dialogue with the private sector.

3.2. The PTPR of the Dominican Republic: innovating to compete

14. The PTPR of the Dominican Republic has been requested by the National Competitiveness Council (CNC) in cooperation with the Ministry of Industry, Trade and SMEs (MICM). The PTPR of the Dominican Republic will benefit from cooperation with ECLAC, UNCTAD and UNIDO. The PTPR of the Dominican Republic will also benefit from the participation of peers from Singapore and Brazil. The PTPR of the Dominican Republic will offer a multidimensional assessment of the national development pattern and a comparative assessment of its institutional setting and strategy for economic transformation and will include perspectives on agro-food and nearshoring in logistics and manufacturing. Key outcomes of the PTPR of the Dominican Republic will be delivered to the requesting parties in November 2019, and the report will be published in the first trimester of 2020. An overview of the PTPR of the Dominican Republic (as of April 30, 2019) can be found here.

15. The government of the Dominican Republic is committed to transform the domestic economy by diversifying the production and trade specialisation and increase local value added to advance towards shared prosperity. The country counts with an initiative supported by the Presidency of the Republic and coordinated by the National Competitiveness Council (CNC): Dominicana Competitiva. This initiative facilitates a participatory public-private partnership for competitiveness by focusing on four objectives: i) increasing trade facilitation; ii) facilitating exports and productivity growth; iii) enabling innovation and
iv) creating more quality jobs. The country also counts with a Strategic Plan for Industry and Trade 2018-2030 (Plan Estratégico Sectorial de Industria y Comercio - PESIC) led by the Ministry of Trade, Industry and SMEs (MICM) which aims to foster export diversification and develop linkages within the domestic economy that relies on three main pillars: productivity, inclusion and sustainability. The PTPR is a timely tool for the Dominican Republic to review the national strategy for competitiveness and identify areas for future reform to unleash the country’s growth. The PTPR will also foster peer learning in areas that are of particular interest to the country and hold potential for contributing to future structural transformation, such as fostering upgrading in agriculture, attracting investments in manufacturing and logistics and promoting innovation, through the participation of Brazil and Singapore in the PTPR process.

16. The Peer Learning Group (PLG) of the PTPR of the Dominican Republic took place on April 1 2019 in Lima, Peru, back to back with the 12th Plenary Meeting of the Initiative. The PLG of the PTPR of the Dominican Republic counted with the participation of high-level government delegations from twelve countries (Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Egypt, Germany, Panama, Paraguay, Peru, Switzerland and the United States), representatives from the private sector from two countries (Italy and the Dominican Republic) and experts from academia. It also counted with the participation of two International Organisations (ECLAC and UNIDO) and of two OECD Directorates including the OECD Development Centre, the Statistics and Data Directorate. The PLG Meeting focused on three issues: i) the opportunities for upgrading in the agro-food value chains; ii) future scenarios for relocation of manufacturing activities and potential implications for nearshoring in the Dominican Republic and iii) how to foster innovation in the economy. The Agenda, List of Participants and Key outcomes of the PLG Meeting of the PTPR of the Dominican Republic are available for the Initiative’s member in the restricted web platform (please contact the secretariat at DEV.GVCnetwork@oecd.org if you experience trouble in accessing the platform).

3.3. Peru has advanced in fostering innovation and participation to global value chains

17. Peru is the sixth largest economy in Latin America and the Caribbean, and, with more than 32 million of inhabitants, the fifth most populous country in the region. With 5.1% average GDP growth between 2000 and 2017 Peru has also been the fastest growing economy in the region. However, despite the positive economic growth performance, the country suffers from a persistent productivity gap and a prevailing specialisation in natural resources. Almost 90% of the country’s exports were primary commodities in 2017, with ores and metals making up 46% of Peru’s exports. Manufactured goods accounted for below 10% of total exports, with the majority concentrated in low technology (43%) and resource-based (47%) products.

18. Peru has implemented several policies to strengthen its participation to global trade and increase the productivity of its economy, and is looking at improving coordination along the way. Peru counts with a National Policy for Competitiveness and Productivity, managed by the National Council for Competitiveness and Formalization, an agency under the Ministry of Economy and Finance, and with an export strategy, the Strategic National Export Plan (PENX) 2025, managed by the Ministry of Trade and Tourism (MINCETUR). The country’s efforts to improve policy coherence and coordination represents an advance with respect to the past. Another positive aspect of the PENX is the attention towards a place-based approach to trade policy and the development of Regional Export plans to foster diversification in all regions of the country.

19. Peru has also made progress on the innovation agenda reforming the institutions and policy mix for innovation. Innóvate Perú, a public agency established in 2014 under Peru’s Ministry of Production
tasked with boosting productivity in firms, is looking to strengthen the local innovation ecosystem so that business are better able to take advantage of the opportunities afforded by global production and innovation networks. To do this, Innóvate Perú funds research and development (R&D), innovation and entrepreneurship projects that boost clustering and connectivity among firms. For example, the agency’s Programme of Cluster Support (Programa de Apoyo a Clúster), co-finance initiatives for clustering in SMEs for up to 4 years (up to USD 606 thousand, or 70% of costs). Within 3 years, more than USD 3.24 million has been committed in non-reimbursable resources, with private participation amounting to USD 1.57 million. These projects have taken place in sectors that build on Perú’s traditional economic activities, such as support services for mining (28%), cocoa and coffee (11%) and fruits and vegetables (11%), but also in new ones, such as software (11%). Innóvate Perú also encourages SMEs to tap into global knowledge flows and build their absorptive capacity through its Technology Mission programmes. Under this programme SMEs spend up to 6 months abroad to observe the use of technologies that are relevant to them, and Innóvate Perú co-finance up to 75% of expenses (up to USD 30 000). In the 3 years of this programme, 86% of businesses have incorporated new technologies and 27% have realized technology transfer activities. Perú’s revamped innovation ecosystem has facilitated new investments in high-tech manufacturing activates. For example, the German firm AGP has developed in Lima a highly automated line for laminated automotive glazing and supplies some important car makers, such as Tesla.

20. Peru has also showed continuity in certain successful policies such as the one on country branding. In 2009, MINCETUR and the Commission for Promotion of Export and Tourism (PROMPERÚ) introduced Marca Perú, to support exports, attract investment and promote tourism. The initiative is associated with a logo that relates to the country’s identity and its ancestral origins. The experience of Marca Perú showed that awareness and communication with national and international companies and consumers, is key for success in a highly competitive global economy. The successful case of Marca Perú coupled with the emerging demand for functional and healthy food worldwide led the Peruvian Government to the launch of the Superfood branding strategy in 2017 to promote the country’s fresh and functional food production such as grains, vegetables and fruits.

21. International partnerships are important in fostering upgrading in Peru. For example, the Swiss State Secretariat for Economic Affairs (SECO) has an active cooperation programme with Peru to foster competitiveness. SECO is working together with the Ministry of Economy and Finance, the National Council for Competitiveness and Formalization, to foster value chains development in Peru. The programme, BeCompetitive- SeCompetitivo, counts with a USD 12 million budget for 2018-2021 and is active in private sector development in priority value chains such as coffee, cocoa and tourism, in different regions of Peru.

22. Peru has recognised that the PTPR process could add value to their country by providing a sounding board to assess the implementation process and to identify new reforms that could be put in place through peer review and global knowledge sharing.

---

**Next steps**

National and local governments interested in implementing a PTPR are invited to contact the Secretariat (DEV.GVCnetwork@oecd.org).

Chile is invited to continue reporting on any progress/ new reforms implemented since the launch of the PTPR in 2018.

The DNP in Colombia together with SECO and the Secretariat of the Initiative are discussing about setting up a monitoring process for the implementation of the PTPR.

Peru has recognised that the PTPR process could be of high value added in supporting the country in
advancing in the economic transformation agenda. Peru is invited to contact the Secretariat for any additional information regarding the PTPR process.

Egypt will start a PTPR before the end of 2019. The Peer Learning Group (PLG) Meeting of the PTPR of Egypt (by invitation only) will take place in November 2019 in Cairo, Egypt, back to back with the 13th Plenary Meeting of the Initiative.

Paraguay has expressed interest in starting a PTPR in 2020.

Peru has recognised that the PTPR process could be of high value added in supporting the country to advance in its economic transformation agenda. Peru is invited to contact the Secretariat for any additional information regarding the PTPR process.
4. OTHER MAIN ISSUES DISCUSSED

4.1. Making digital trade work for SMEs

23. Building on previous Plenary Meetings, this session explored what governments and businesses can do to enable SMEs worldwide to reap the benefits of digital trade.

24. Digitalisation can open up opportunities for SMEs to grow and trade more. According to estimates from the *Future of Business Survey*, conducted in partnership between Facebook, OECD and The World Bank, firms that use online tools traded more internationally compared to those that did not use them. In fact, 58% of exporting SMEs surveyed across 33 countries in 2017 said that using online tools for selling internationally has increased their revenue or sales internationally and 28% said that this has allowed them to increase employees. SMEs can benefit from the growth of online networks and e-commerce platforms that are pushing down costs for connecting buyers and consumers and reaching global markets. They can also find opportunities in digital services that can be traded instantly and often at zero cost, which reduces the benefits of having a larger business size.

25. However, benefiting from digitalisation is not automatic and especially SMEs face major obstacles in harnessing digital trade. While digital trade has enabled new opportunities for small firms to access regional and global markets, the use of digital technologies for business remains uneven across firms of different sizes. For example, on average among OECD countries, only 20.8% of SMEs engaged in sales via e-commerce in 2017, compared to 43% of large firms. Facilitating the use of digital trade for SMEs could also contribute to reduce informality and to increase transparency in global supply chain by favouring responsible business conducts and traceability across all actors participating in the value chain.

26. The debate focused on four main issues on which reforms are needed to make digital trade work for the development of SMEs:

- *Improving access to and quality of digital infrastructure* to enable SMEs’ access and use of digital trade technologies. For example, even though Internet access has increased in Africa and Latin America in the last decades, major gaps persist with advanced economies in terms of quality and speed of Internet connection. Africa still suffers from a severe connectivity gap: only 33.8% of its population uses the Internet, compared to an OECD average of 78.6%. Broadband speed in Africa is the lowest in the world: loading a 7.5 gigabytes high definition movie in Congo (0.72 Mbps) takes 23.3 hours, as opposed to 20 minutes in Singapore (DEV/GB/RD, 2018).

- *Improving regulatory frameworks* at the national level to reduce red-tape and make use of digital technologies for trade easy for all, especially for SMEs. In Latin America, for example, in 2015 ECLAC has proposed in the framework of the Ministerial Conference on the Information Society - eLAC the creation of a Regional Digital Market (RDM). The RDM would operate as a regional integration initiative promoting cross-border e-commerce. The RDM responds to the need of expanding the scale of national markets and promoting greater competition. ECLAC is currently
carrying out a comparative analysis of different legal systems on cybersecurity and data protection to support the definition of regional standards.

- **Advancing on the measurement agenda.** More granular data is needed to measure the participation, opportunities and challenges faced by SMEs in participating to the digital economy. The OECD is committed to advance on this measurement agenda and to collaborate with regional institutions to carry out activities in emerging and developing economies.

27. To make SMEs benefit from digital trade there is no one size fits all approach. However, participants agreed on the need to define and implement differentiated policies, that take into account the level of development of different countries and the different needs across regions and cities within countries, and to take into account business ownership, with a particular focus on fostering women participation in e-commerce. For example, in Peru, the Commission for Promotion of Export and Tourism (PROMPERÚ) is looking to enable businesses to reap the potential of e-commerce. Peru counted with 3.27 million online consumers in 2017 (approximately a third of its population), and 57% of e-commerce sales took place via mobile phones. As there is scope to leverage more on e-commerce to increase exports, PROMPERÚ offers a services package for SMEs including training, technical assistance and trade promotion to increase SMEs’ participation to digital trade.

### 4.2. The future of agriculture: towards agriculture 4.0?

28. Building on the outcomes of the 11th Plenary Meeting, this session explored how digital technologies are reshaping agriculture.

29. New technologies from nanotechnology, biotechnology and the wide range of emerging digital technologies are transforming agriculture. The convergence of these different technologies has the potential to increase productivity and sustainability of agriculture. Digital technologies can contribute to improving the competitiveness of the value chain, from using drones and sensors to quickly inspect field conditions and enable precision farming (e.g. targeting fertilizer and other input use to various specific soil conditions across a field), to using automated farming equipment and robots to prepare fields, plant and harvest. For example, Peruvian firm Spacedat develops drones equipped with infrared cameras that can capture the parts of a crop that are deficient in chlorophyll, an indicator of problems in the blooming of plants. Knowing this information, farmers can act quickly and re-apply inputs where needed.

30. To fast track the transition towards agriculture 4.0 and materialise the benefit of new technologies applied to it, participants highlighted five main areas that businesses and policy makers need to consider:

- **Strengthening the science and research infrastructure for agriculture.** Agricultural research is one of the key factors in increasing productivity and yields, and this becomes even more important as science- and knowledge-intensive technologies are gaining ground in agriculture. Some countries are moving towards an integrated approach where advanced research takes into account territorial characteristics. For example in Brazil, public agricultural research is conducted at both federal and state levels. The Brazilian Agricultural Research Corporation (Embrapa) is the country’s main federal agency and operates also in several states. Embrapa counts with 41 research centres. 14 are product-based, such as the Cassava & Tropical Fruits lab located in Cruz das Almas, 10 are cross-cutting labs, such as the Agriculture Informatics Lab in Campinas that focuses on information technology for agribusiness, and 17 are focusing on specific eco-regional systems, such as the Embrapa Acre in Rio Branco that undertakes research on agroforestry systems. In regions where agriculture is more productive, it also benefits from
linkages with manufacturing (e.g. packaging) and with targeted research. The Emilia Romagna region in Italy is aiming to increase such synergies by investing USD 20 million in 74 applied research projects with a time horizon of 2014-2020 to connect the regional agro-food value chain to new technologies. In Latin America there is need to modernise the National Agricultural Technology Institutes (INTAs) and increase their budgets. This will contribute to raising the R&D intensity of agriculture in the Latin American and Caribbean, which currently stands at 1.15% of agricultural value added, almost 7 times lower than the Netherlands (8%), a leader in the field.

- **Advancing in improving quality and coverage of digital infrastructure.** Access to a high-speed and reliable internet connection is critical for effectively using and developing new technological solutions for agriculture. However, developing regions lag behind in digital infrastructure and use. For example, 82% of the population in Latin America and the Caribbean enjoys 4G coverage, the current frontier in mobile telecommunication services, compared to 97% in Europe, according to data from GSMA. The divide in infrastructure is even larger among urban and rural areas, which poses barriers for digitalising agriculture. According to ECLAC (2017), the gap between urban and rural access to the Internet in Latin America and the Caribbean is on average 27%.

- **Enhancing the capacity of farmers to utilize advanced technologies in agriculture.** A new generation of services and training for farmers is needed to favour the change in mind-set needed to apply and benefit new technologies to agriculture. Greater integration between agriculture, food manufacturing and ICT services can help to expand the knowledge base and increase productivity and sustainability. For example in Ethiopia, the Ministry of Industry agreed in 2015 to host a three-year project to foster farm management practices among small Ethiopian coffee growers, as part of the Ethiopia Programme for Country Partnership. The project is supported by the Italian Agency for Development Cooperation, comes with a budget of USD 2.5 million and is implemented by UNIDO in cooperation with Illy Caffè and the Ernesto Illy Foundation. Specific activities involved the introduction of new technologies to improve quality and production capacity, the adoption of best agronomical practices, the promotion of advanced sustainable production systems, as well as processing and international marketing capacity building. With the increasing market-orientation of farming and the complex innovation environment, the decisions taken by farmers need to be strategic and forward looking oriented.

- **Ensuring the organisation of agro value chains is conducive to the effective adoption of new technologies.** Agricultural goods are very heterogeneous and each crop entails a different way to organise the supply chain. In value chains where most of the producers are very small farmers (e.g., coffee and cocoa) the way in which local farmers are organised and how the lead firms interact with them determines how they can benefit from new technologies and how quickly. For example, in Guatemala in 2017, 70% of Arabica coffee was produced by small holders, up from 20% in 2000. However, the yields of smallholders are on average 700kg of green coffee per hectare, almost three times less than the best performing estates (2100 kg per hectare). To enable farmers to make investments and improve their yields, Illy is offering integrated supply chain solutions to smallholders, which include long-term supply contracts that enable farmers to get access to credit, combined with technical assistance.

- **Partnerships are increasingly important to harness the benefits of new technologies in agriculture.** In several cases, public agencies and/or local agro-businesses are partnering with technological firms, whether start-ups or lead multinationals, to develop and use targeted technological solutions. For example digital technologies can be powerful allies in bridging
information gaps. In Peru, the program Smart Agro 4.0, implemented by the Ministry of Agriculture (MINAGRI), in cooperation with the United Nations Food and Agriculture Organisation (FAO) and Telefónica-Movistar, is providing services to foster upgrading in local small-scale cotton production. Since 2018, three pilot programmes have been implemented in the cities of Ica and Lambayeque to gather data on weather and humidity of the soil to recognise the optimal moments to provide water, thereby economising on a scarce resource. The program also includes a targeted module to train farmers to understand and use the information in a productive way.

4.3. Making technology transfer work in manufacturing

31. Technology transfer is a systematic process by which technologies are disseminated from where they originated to a new user. New technologies in manufacturing are generated by different actors across the economy - from businesses, to academia and the public sector - and are embodied in diverse forms, such as new goods, the machinery to produce it and the intangible skills needed to manage the production process. Accordingly, different forms of technology transfer can take place:

- **Learning from business partners.** Participation in international value chains and production networks fosters close interactions with clients and suppliers and this is becoming an increasingly important avenue for technology transfer. RESEMIN, a Peruvian company specialised in equipment for underground mining, was established in 1989 and since then it has grown to export to more than 20 countries and has production facilities in Mexico, Argentina, Congo, Zambia and India. A key strategic factor in increasing RESEMIN’s productivity has been technology transfer from its contractors. While the company wanted to access more advanced technologies to stay competitive, it found local universities lacked the specialisation it needed on high-tech manufacturing. RESEMIN looked at its business partners, such as ABB and Bosch, to fill this gap and adopt best practices in lean manufacturing. Moreover, after almost 30 years of operation and continued learning from clients and suppliers the company established an R&D department in 2018 focusing on new technologies. RESEMIN’s own investments in R&D have also grown thanks to tax incentives and grants from Peru’s National Science and Technology Council (CONCYTEC) that pushed costs down for the firm to develop innovations.

- **Learning from universities.** Certain production systems, as the one of the United States have developed a strong culture that fosters and enables the transformation of university research into viable commercial options. This requires a mind-set that looks at universities as active partners and effective institutional set-ups in knowledge and technology transfer, as in the case of the technology transfer offices present and functioning in most top rated US universities. This also requires legal frameworks that enable universities and university researchers to engage in commercial activities. In this respect, intellectual property regulations are particularly important. According to estimates by the Association of University Technology Managers, in the United States, 1,080 start-ups were formed through technology transfers from universities in 2017. Approximately 72.4% of businesses remained in their institutions’ home state, thereby making a direct contribution to the local economy. The United States has also been enabling technology transfer in manufacturing by financing public-private partnerships in manufacturing R&D, as in the case of the Manufacturing USA programme, launched in 2014. Manufacturing USA is a network of 14 institutes, operated by the interagency Advanced Manufacturing National Program Office, headquartered in the Department of Commerce. About USD 100 million is channelled to each institute with matching funds requirements of 50% of above from the private sector.
• Learning from the public sector. In some cases, governments also contribute to the development and diffusion of new technologies through, for example, specialised technology parks, institutes and centres that aim at stimulating local innovation capabilities. For example, in South Africa the Department of Science and Technology (DST) developed the Technology Localisation Implementation Unit (TLIU) to support technology transfer and increase the productive capacity of local firms. The unit assists original equipment manufacturers (OEM) to procure intermediary products from local suppliers and provides technology support to foster procurement from local firms to state-owned companies. The TLIU operates on four different levels by i) benchmarking and technology capability evaluation services, ii) providing access to technology platforms and shared technology facilities, iii) providing technical expertise, iv) operating high-end technical skills development programmes. The TLIU is hosted and incubated by the Council for Scientific and Industrial Research (CSIR). The CSIR is the largest R&D organisation in Africa and accounts for about 10% of the entire African R&D budget. It has a staff of approximately 3,000 technical and scientific researchers, often working in multi-disciplinary teams. Thanks to the technological upgrading offered by the TLIU, Airbus awarded a contract to a South African manufacturer, Cobham Satcom, the supply for the Light Inmarsat Satcom package for the new engine of the A320 and A330 aircrafts.

32. The debate enabled to identify two key factors that can make technology transfer more effective:

• Adopting a clear market perspective. Technology transfer programmes work better when they focus on technologies that address market demand, otherwise the risk is investing in technologies which cannot be commercialised. This is the case of the leather cluster in Sab Benito, Bogotá in Colombia. The cluster developed in the early 1990s and relied on low-end technologies to serve close by markets at low prices. The emergence of new technologically advanced competitors in Asia coupled with the collapse of neighbouring markets, such as Venezuela, revealed the lack of competitiveness of the cluster. Instead of upgrading production to meet new market demands, the cluster continue to rely on old technologies that were also highly polluting. In less than a decade from 2008 to 2016, Colombia’s exports of leather declined from USD 400 million to USD 130 million. In 2018 50 % of the firms in the cluster San Benito were closed with a net loss of 15 000 employees.

• Investing in increasing the absorptive capacity of firms. Technology transfer needs a previous and parallel investment in enabling firms to be receptive to new technologies and know how. Policies to support the update and development of skills and competences within firms are necessary complements to technology transfer schemes. Without the appropriate skills base even a well-designed technology transfer mechanisms can result in limited or null impact. UNIDO is actively involved in increasing the effectiveness of technology transfer in manufacturing globally. An interesting example is the Centre for Industry Automation and Mechatronics (CAIME), set up in 2015 in Uruguay. The centre benefits from the partnership of the Ministry of Industry, Energy and Mining, the Council for Professional Technical Education and the Technological Laboratory of Uruguay (LATU), and counts with the technical support of UNIDO and equipment and support provided by the German firm FESTO. The centre provides training in automation technologies to help local firms adopt best practices and improve their technical competence in automation-related technologies. The modular structure of the courses (each module lasts for two to four days) makes it accessible not only to university students but also to workers that want to update their skills.
4.4. More investment in statistical capacities is needed to measure globalisation

33. There is a growing demand to better measure globalisation. Better harnessing national account measures and linking them to firm-level data can help shed light on how globalisation is unfolding and its impact on the competitiveness and productivity of businesses. The OECD/WTO Trade in Value Added Database has been a landmark in this respect. The 2018 edition of the OECD TiVA database provides indicators for 64 economies, including all OECD members, several East and South East Asian economies and selected countries from Latin America. It contains information for 36 industrial sectors and covers the period from 2005 to 2015.

34. Future expansions and linking of TiVA to more granular and new databases can provide additional relevant evidence. The ongoing OECD work on quality FDI and on the role of Multinational Enterprises (MNEs) are important steps in this direction. A breaking down of trade statistics by types of firms is also useful to better measure the reality and to better define policies. Domestic firms are found to export value added indirectly, through their links to exporting MNEs, a phenomenon that is not captured by gross trade statistics. For example, in Denmark non-MNEs account for less than 30% of gross exports, but for over 40% of exported value added if indirect exports are taken into account.

35. Some countries are developing new methodologies to assess the potential of regional value chains. Chile’s General Directorate for International Economic Affairs, Ministry of Foreign Affairs (DIRECON) has developed a methodology based on trade data and tariff measures. This methodology aims at identifying the potential for building productive linkages between countries in Latin America. The methodology is developed in two steps. It identifies the products a country (e.g. Guatemala) exports to final markets not directly, but through ‘export platforms’, i.e. to countries that process imported products before they export them to final markets. It then compares that to what another country (e.g. Chile) already exports to final markets and identifies the overlap. The results are also complemented by an analysis on whether the product transformation could meet the rules of origin that exist for the various Free Trade Agreements (FTAs) covering the countries of the analysis, as well as the tariff barriers facing the final exporter to assess the level of market access. For example, Guatemala exports fruit or concentrates to ‘export platforms’ to be turned into flavoured mineral water before they reach China. Chile already exports such water to final markets, but does not yet do it with imported citruses from Guatemala. This represents an untapped opportunity for Chilean businesses to process Guatemalan fruits and increase their exports of flavoured mineral water to China. Public-private consultations in the countries involved, complemented by detailed case-by-case analysis could help coordinate stakeholder actions to strengthen regional integration in the areas identified.

Next steps

The PTPRs can be an important tool to contribute to improving the availability and quality of statistical information. The PTPRs could be used to pilot the collection of new data and to report new country efforts, as the one developed by DIRECON in Chile.

Members and partners are invited to contact the Secretariat to report in future Plenary Meetings advancements and results of new methodologies that they are developing to better measure globalisation and integration of their firms into them.

Featured new report:
5. CALENDAR OF FUTURE PLENARY MEETINGS 2019-2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Location</th>
<th>Host</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>November, Cairo, Egypt</td>
<td>Meeting of the Bureau of the Initiative [only Bureau Members]</td>
<td>Cairo, Egypt</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>November, Cairo, Egypt</td>
<td>Peer Learning Group of the PTPR of Egypt, hosted by the Ministry of Trade and Industry of Egypt [by invitation only]</td>
<td>Cairo, Egypt</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>November, Cairo, Egypt</td>
<td>13th Plenary Meeting, hosted by the Ministry of Trade and Industry of Egypt</td>
<td>Cairo, Egypt</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>June/July (Date TBC) Addis Ababa, Ethiopia</td>
<td>14th Plenary Meeting hosted by the United Nations Economic Commission for Africa (ECA)</td>
<td>Addis Ababa, Ethiopia</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>November (Date TBC), Paris, France</td>
<td>15th Plenary Meeting, hosted by the OECD</td>
<td>Paris, France</td>
<td></td>
</tr>
</tbody>
</table>

Next steps

The Initiative will continue organising two Plenary Meetings per year.

Countries and partners willing to host a Plenary Meeting are invited to contact the Secretariat.