

# AID FOR TRADE AND VALUE CHAINS IN INFORMATION AND COMMUNICATION TECHNOLOGY

## EXECUTIVE SUMMARY



Information and communication technologies (ICT) value chains cover a wide array of activities carried out by both manufacturing and services firms. While the majority of top ICT firms are still located in OECD countries, major transnational corporations have emerged in developing countries. Asian countries are now home to some of the world's largest electronic manufacturers, while multinational telecommunications operators can also be found in emerging economies outside Asia such as Mexico and South Africa.

Due to technical standards and standardised design and interfaces, ICT manufacturing value chains are modular in nature where suppliers produce components following the design of lead firms. As a result of this modularity, ICT manufacturing is among the industries where the production process is the most fragmented internationally, relying on a high share of imported inputs.

ICT manufacturing is exemplary for the emergence of "Factory Asia". China, Japan and Korea are the largest producers of ICT goods and other Asian economies, such as Malaysia, Singapore, Thailand or Philippines, have also become major ICT manufacturers. China is also the largest exporter of ICT goods accounting for 37% of world exports. However, gross export flows do not accurately reflect how much value a country captures in value chains. In particular, China tends to conduct lower value added activities at the later stages of the ICT value chain such as the final assembly of intermediate components while countries like Japan and the United States tend to conduct more high value added activities such as specialized component production, marketing services or engineering services.

Least-developed countries (LDCs) and low- and middle-income countries (LMICs) are of marginal importance for production and trade in ICT manufacturing chains with the exceptions of India, Indonesia and the Philippines. The potential for a developing

country to successfully integrate into ICT manufacturing value chains depends, among other things, on its closeness to a big market or to a regional production networks such as "Factory Asia".

The emergence of international ICT value chains has been fostered by relatively low tariffs, which are below the average tariff rate of non-agricultural products for all income groups except LDCs. In particular, tariffs on ICT goods are the highest in LDCs and African countries with average rates of about 12% and lowest in OECD countries with average rates of less than 2%. Low tariff rates are also the result of the WTO Information and Technology Agreement (ITA) in which 75 participants have fully liberalized trade on a MFN basis for 190 IT products covering more than 60% of ICT trade.

The increasing interdependence of economies fostered by value chains requires a trade policy that reaches beyond pure market access. Trade reform in the fields of non-tariff measures (NTMs) and trade facilitation promises greatest benefits as lead firms organize production across many countries and trade in intermediate goods is particularly sensitive to time.

In many developing countries ICT services activities, such as telecommunications and computer services, generate significantly more value added than ICT manufacturing. Furthermore, ICT services constitute vital inputs to the activities of manufacturing and other services sectors. Since ICT services offer also a myriad of possibilities to entrepreneurs, they might be of higher priority to developing countries compared to ICT manufacturing.

India represents the most prominent success story of a developing country successfully integrating into ICT value chains by developing export-oriented software services industries. India accounts for 60% of the global market for IT services offshoring and for about 20%

of world exports in computer services. However, other developing countries, such as the Philippines and the Latin American countries Argentina and Costa Rica, have also successfully built up comparative advantages in computer services exports.

Telecommunication regulation plays an important role for the productivity of firms and economic development by promoting universal access and ensuring competition. Since the mid-1990s developing countries have privatized state-owned incumbent operators, set up independent regulators and introduced competition. Most countries in America have introduced full competition in their telecommunications markets, while in Africa and the Arab States still some monopolies or limited competition tend to be in place. In particular, more efforts are needed to increase competition in the markets for international gateways, which connect domestic networks to undersea cables and are hence crucial for the affordability of broadband access.

Similar to developed countries, developing countries face regulatory challenges such as spectrum management or IP interconnection. While developing countries have made significant progress in liberalizing their telecommunications market, few countries still apply foreign ownership restrictions or maintain discretion regarding the licensing and entry of foreign firms.

ICT infrastructure access and use are necessary conditions for economic development and can be an important catalyst to the achievement of the Millennium Development Goals. Developing countries have made significant progress in ICT infrastructure development since 2005. Mobile phone penetration in LDCs increased from 7% in 2005 to 52% in 2012. Despite these positive developments, the digital divide between developed OECD countries and developing countries, LDCs in particular, is still large. Only 8% of LDC inhabitants use the internet and fixed

broadband penetration is below 1%. Hope is coming from rapid growth in mobile broadband access where subscriptions in Africa are expected to increase from 6% in 2012 to 11% by the end of 2013.

Following the diffusion of mobile phones, developing countries face the challenge to ensure the proliferation of broadband access, which can bring high speed internet to individuals and businesses fostering thereby economic growth and development. While infrastructure investments in undersea cables are to a large extent private sector driven, development finance and public-private partnership can incentivise and leverage such investments. Besides facilitating infrastructure investments, policy makers and regulators face the challenge to increase competition in the access to undersea cables so that lower access prices will accelerate the proliferation of broadband.

ICT is an enabler of economic and social development for firms and households using them. Internet and mobile phones have allowed the rise of e-commerce. E-commerce provides entrepreneurs with improved access to domestic and foreign markets and allows for new types of services such as mobile money. However, developing countries still face significant challenges regarding e-commerce such as the lack of internet access, insecure payments systems, lack of digital literacy or inadequate distribution networks and customs procedures for the shipping of goods sold online. ICT furthermore enables and catalyses social development in areas such as health, education and women's empowerment towards the achievement of the Millennium Development Goals.

The analysis of the replies of 80 suppliers and 44 lead companies to the OECD-WTO private sector questionnaire provides insights regarding the main difficulties developing country firms face when trying to enter, establish or move up ICT value

chains. Access to trade finance and customs procedures are the most often mentioned trade-related difficulties by suppliers, and are also highlighted by lead companies. Lead companies furthermore consider informal payment requests as a typical trade problem when dealing with developing country suppliers.

Access to finance and lack of labour force ICT skills are the main national supply-side constraints for suppliers from developing countries. The absence of a sound business environment and of transparency in the regulatory environment is the most typical obstacles for lead companies when establishing a commercial presence in developing countries. When it comes to physical infrastructure, power supply problems are considered by both suppliers and lead companies as the main constraint, even before telecommunications and transport infrastructure.

Hence, in many instances, ICT firms face similar problems to suppliers in other value chains, and would benefit from Aid-for-trade interventions targeted at significant horizontal constraints such as access to finance and trade financing, the business and regulatory environment and customs procedures and delays.

Aid for Trade donors and partners consider ICT services as a priority. More than 55% of partners have identified communication services and computer and information services as sources of growth in their development strategies and the majority of donors are engaged in public-private partnerships that have ICT as a sectoral focus. On the other hand, the manufacturing of office and telecoms equipment is only mentioned by 12% of partners in their development strategies.

ICT-related Aid-for-trade projects can have different objectives. They may support firms in the ICT sector, help firms or governments to use ICT, assist telecommunication regulators or support and facilitate investments in ICT infrastructure. Aid-

for-trade disbursements on ICT projects amounted to US\$418 million in 2011 accounting for only 1.2% of total Aid for Trade, which is significantly lower compared to 30% in the case of Transport and storage and 21% in the case of Energy generation and supply. The marginal importance of ICT-related Aid for Trade reflects the fact that investments into ICT infrastructure tend to be less capital intensive and more private sector driven than in the case of transport and energy infrastructure. Consequently, Aid for Trade on ICT constitutes only a small fraction of private sector investment and capital expenditure in most developing countries.

However, the digital divide between developing and developed countries still exists and is widening in the case of LDCs. Furthermore, for the majority of the 39 least connected countries (LCCs) the share of ICT projects in total Aid for Trade is below the average of partner countries. Hence, there might be a more prominent role for Aid for Trade in some LDCs and LCCs to support ICT development and facilitate private investments.

There are ICT-related Aid-for-trade interventions cheaper than infrastructure development that can still bring significant benefits to developing countries. In particular, projects can aim at increasing the ICT skills of the workforce, which is a major constraint highlighted by suppliers in developing countries.

Furthermore, Aid for Trade can achieve significant development outcomes by supporting the capacity-building and the policy-making of telecommunications regulators. For instance, existing Aid-for-trade projects support regulators to harmonize telecommunications legislation and regulation at a regional level with the objective to foster regional integration and competitiveness. Besides fostering competition and low prices, a sound regulatory environment can facilitate private investment in ICT infrastructure.

