

HOW EMERGING MARKET LEADERS CAN SPUR TECHNOLOGICAL GAINS

New technologies help firms in emerging markets make significant gains. But these firms often face barriers to successfully incorporating new technologies into their businesses. Emerging-market leaders, however, can take steps to help firms overcome these barriers, including strengthening regulatory frameworks, improving education, fostering trade, and increasing access to finance.

Access to technologies is critical for firms in emerging markets. Genuine innovations, as well as technologies that have been adapted or adopted from other countries, allow firms to boost productivity, save time, better serve customers, and ultimately become more competitive in both domestic and international markets.

Emerging-market governments can play a major role in helping companies gain access to technology. By creating a proper environment for businesses to acquire new and existing technologies, they can improve the competitiveness of their countries' firms and develop their economies.

Rules of the Game

Regulations and laws at all levels—national, regional, and local—have a major impact on how firms can benefit from new technologies. Well-designed intellectual property rights, for example, ensure that firms profit from their innovations, and so encourage them to invest in research and development. Emerging-market governments can also lay the groundwork for new

Tribanco in Brazil

Brazil's strong regulatory framework for the financial sector allowed local financial institution Tribanco to boost business for its parent company, Grupo Martins, Latin America's largest wholesaler and distributor of food, electronics, home improvement supplies, and pet food. Tribanco was able to provide new services to Grupo Martins' clients such as business training, and new products including as loans and customer credit cards, enabling the company to maintain market share against foreign competitors.

Source: IFC, Inclusive Business Case Study: Tribanco, 2012.

technologies to take off by creating market entry and exit rules, reducing corruption, cutting red tape, and building up high quality and reliable infrastructure, including communications technology, electricity, and water services.

Access to Skills

Firms also need an educated and well-trained workforce to research and develop new technologies and to take advantage of existing technologies. By investing in high-quality education and research institutions, emerging-market governments can build such a workforce, keep skilled workers from emigrating, and foster the development of new technologies.

Millicom in Africa and Latin America

Intense international competition in the mobile services sector has driven Luxembourg-based Millicom to build and maintain market share in 12 countries across Africa and Latin America. Millicom provides value-added services such as borrowing for urgent calls or text messages if customers are unable to top-up their accounts, and text menus and services in countries with low smartphone penetration and data availability. Millicom also offers mobile financial services, such as person-to-person money transfers, international remittances, and payments to people who lack access to formal banks.

Source: IFC, Inclusive Business Case Study: Millicom, 2014.

Because skilled workers are critical for firms that want to adapt new technologies, they often invest in training their own workers, especially in regions that lack strong universities and research institutions. Governments can support private sector efforts by fostering education and training in much needed fields and connecting labor supply to potential employers.

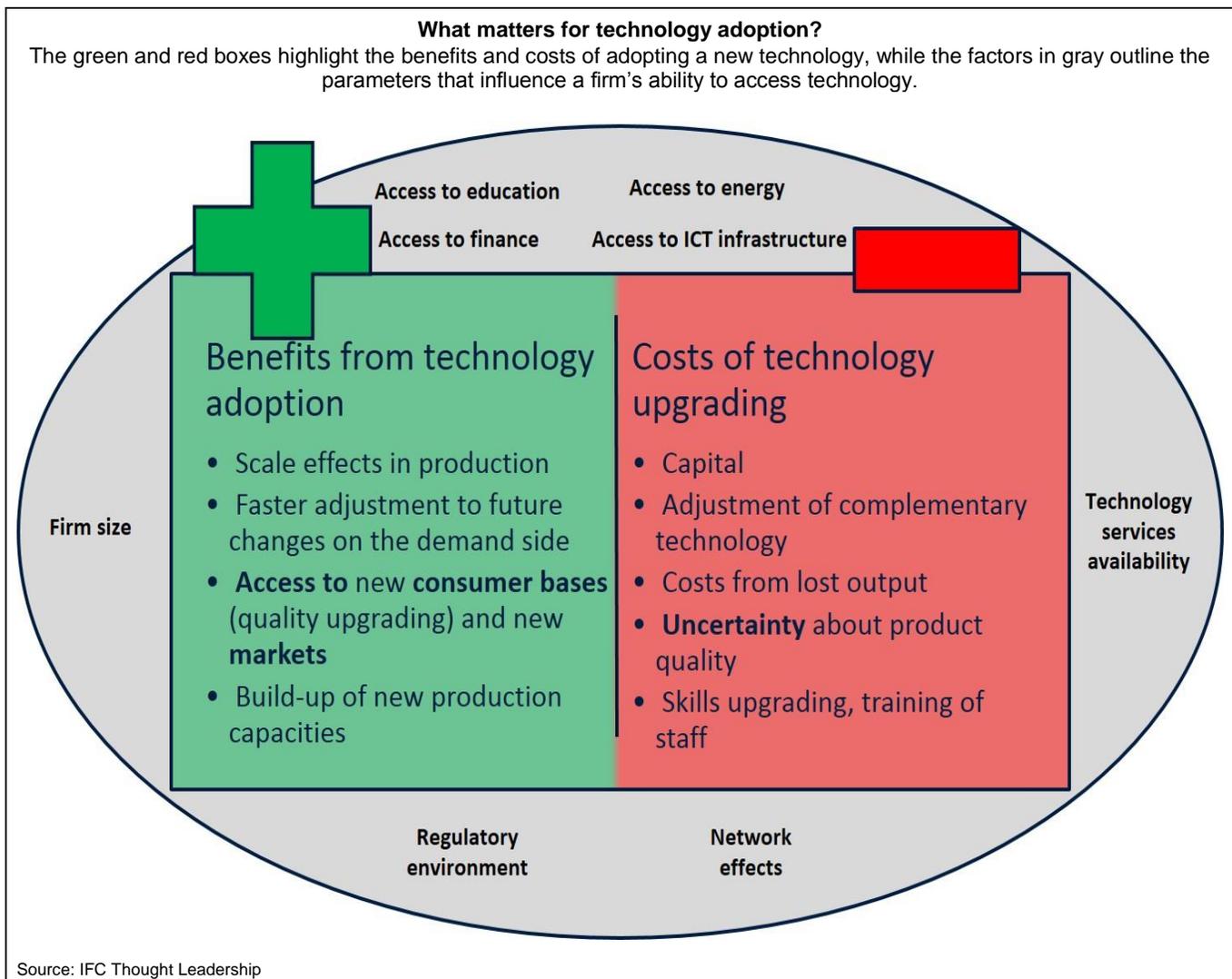
Market Access and Exposure

Competition, at both the national and international levels, drives firms to invest in a new technology, innovation, or business model. For example, when a firm spots an opportunity in an international market, it may adopt a new technology to raise quality standards and cut production costs in an attempt to generate customers abroad. By opening up markets beyond their borders, emerging-market governments can help firms expand their consumer bases. With more customers in more countries, firms may be able to reduce production costs and improve production quality by taking advantage of economies of scale.

Bridge International Academies in Africa

Bridge International Academies is a private company that provides high quality and low-cost education to low-income students across Africa. Students pay \$6 a month to attend classes. Bridge uses smartphones and tablets to closely monitor teacher and student performance, deliver standard lessons, and manage billing. In order to identify and train teachers, Bridge developed an International Training Institute with a 235-hour intensive training course. In 2015 Bridge had 414 academies in Kenya, Uganda, and Nigeria. The company plans to expand to Asia in coming years.

Source: Brookings, "Bridge International Academies – Delivering Quality Education at a Low Cost in Kenya, Nigeria, and Uganda," 2016.



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Accessing New Markets

New technologies have been crucial to the provision of products and services to the 4.5 billion people who live on \$8 a day or less. These people have combined spending power of \$5 trillion annually, but they often live in areas with poor infrastructure, an obstacle that prevents their participation in markets. Companies that want to serve these markets must offer affordable, accessible, and relevant products and services. The most successful companies have moved beyond merely selling to low-income consumers to working directly with them using local talent and business models. They use technology to overcome constraints such as inadequate physical infrastructure, lack of skills and financing, and weak regulatory environments.

Utilizing Mobile Telephony. The growth and spread of information and communication technologies have spurred low-cost innovations in the field of mobile telephony. Mobile bank branches and innovations such as mobile money, which allows money transfers between mobile phone user accounts, have played a significant role in bringing financial services to low-income customers. About 80 percent of low-income customers without access to physical financial services now use digital financial services. In Bangladesh, for example, bKash facilitates salary payments, international remittances, and payments at local mom-and-pop shops around the country. It now has 23 million customers.

Overcoming Constraints. ECOM Agroindustrial Corp, one of the world's leading commodity traders, provides direct financing and technical assistance to small, low-income coffee growers, helping them improve productivity, increase quality, and gain the certification necessary for premium pricing. As of 2012, ECOM had purchased more than 81,000 metric tons of certified coffee in the six years since its inclusive business model was established, paying farmers about \$15 million.

Adapting Processes. A Mexico City eye care provider, salaUno, uses a hub-and-spoke model to reach customers in far off locations and offer prices that are 40 percent lower than those of its competitors. All of the company's processes are designed to increase efficiency and lower costs, while at the same time maintaining its high quality of care.

Differentiating the Product. Vinte is a housing developer that offers affordable, quality homes to first-time low and middle-income home buyers in Mexico. The company incorporates technologies into its designs that not only increase the appeal of its homes but also lower the ongoing costs of home ownership. For example, Vinte's homes are designed to reduce gas bills by 75 percent. They also provide the option of rooftop solar cells, which can significantly reduce fuel bills. Homeowners can monitor the electricity, gas, and water consumption with individual meters and adjust their habits as needed to save money.

Sources: Karolien Bais, "The Base of the Pyramid as a Development Strategy," *Oxfam Novib*, 2008. Raphael Kaplinsky, "Bottom of the Pyramid Innovation and Pro-Poor Growth," *World Bank*, 2011. Triki Thouraya and Faye Issa, "Financial Inclusion in Africa," *African Development Bank*, 2013. World Bank, "World Development Report 2016: Digital Dividends." IFC, "Shared Prosperity through Inclusive Business: How Successful Companies Reach the Base of the Pyramid," 2014.

In addition, an open trade policy can boost foreign direct investment. Access to markets allows a firm to operate different stages of a production process in different countries or to establish production facilities in a foreign country in order to avoid tariffs and other trade costs. Investments in modern infrastructure and transportation networks help countries gain even more from open markets.

Beyond individual firms, entire economies can benefit from global trade ties, as high-value global production creates skilled jobs and facilitates the sharing of knowledge between economies.

Access to Finance

New technologies can be expensive and risky to invest in, and they require investments in worker training and production upgrades. Therefore firms also need ready access to finance—including loans, equity, or bond issuances—in order to adopt new technologies.

Firms may need one or more of these sources of capital to invest in upgrades, depending on the technology. In its 2014 Transition Report, the European Bank for Reconstruction and Development found that firms in Europe's transition countries tended to use bank loans to fund the licenses and technical capacity needed to adopt new technologies. When those technologies needed to be modified or adapted to the local context, larger investments were required for research and development. For that they often turned to alternate sources of funding such as private equity or venture capital.

Firms with access to finance are around 30 percent more likely to introduce a new product, according to the EBRD report,¹ while companies that lack financial resources are less innovative, and those that pay high rates of interest struggle to upgrade technology.²

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The public sector can help remedy the financing situation. It can boost the amount of credit available by promoting competition among existing financial institutions and promoting new financial start-ups. Such start-ups gather data from multiple sources and use that data to verify credit, help banks make better loans, and ultimately increase access to finance.

Conclusion

Firms in emerging markets face numerous obstacles to incorporating beneficial new technologies in their operations. These obstacles include lack of access to financing, a shortage of qualified workers, obstructive regulatory frameworks, and substandard infrastructure. While there is no standard approach to getting firms to adopt new technologies in emerging markets, significant investments in education, infrastructure, and business environments, as well as improved access to finance, can help emerging-market countries overcome these obstacles. ■

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Engro in Pakistan

Since 2009 IFC has provided financing to Engro Foods Limited, the second largest producer of processed milk in Pakistan. Engro employs 1,700 workers to manufacture, process, and sell dairy products, juice, ice cream, and frozen desserts. It has also brought 300,000 milk farmers into its supply chain. In addition to a subordinated loan of up to \$50 million, IFC continues to provide Engro funding during difficult market conditions. This financing has allowed the company to develop a management information system called Engro Milk Automation Network that enables a village-wide procurement network. Engro collects, transmits, and monitors real time data from its Milk Collection Centers. After testing and accepting milk from a farmer, a unique magnetic card assigned to each farmer is swiped at a point-of-sale terminal. Engro's network uses that data to make improvements to the process. In addition, the network can pay farmers with direct electronic deposits or send money to collection centers, which pay farmers in cash. Farmers can also seek veterinary support for sick cattle, apply for loans, and top up their mobile phones. In the future, Engro may expand the role of the networks to include more banking services.

Source: IFC, "Shared Prosperity through Inclusive Business: How Successful Companies Reach the Base of the Pyramid," 2014.

¹ European Bank for Reconstruction and Development, "Transition Report 2014: Innovation in Transition."

² Yuriy Gorodnichenko and Monika Schnitzer, "Financial Constraints and Innovation: Why Poor Countries Don't Catch Up," *Journal of the European Economic Association*, September 2013.