

## Chapter 3

# The Use of Technology in Organizations

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### ABSTRACT

*Multinational Corporations (MNC) face the challenge of compete in the new interconnected business environment. In particular technology is recognized as a factor that boost productivity and competitiveness and drives the business connectivity which in turn involves cross-borders goods, services and financial flows. MNC is recognized as being possessed of high-tech assets, and also, resources including capital, management skills and R&D capabilities and subsidiaries can get them, from its holding company, and they transfer technology to local businesses. A knowledge transfer, running parallel to the technology transfer take place benefiting to the local economy. Foreign Direct Investment (FDI) is considered as the primary vehicle to facilitate technology transfer (and underlying knowledge flows) toward emerging countries. The ultimate goal of the MNC is related to leverage technology and knowledge transfer in order to maintain a competitive edge and move toward even higher value-added activities.*

### INTRODUCTION

Cemex, the world's third largest cement company, reached their size thanks to the use of a technique called "The Cemex Way", a corporate philosophy that allows the Mexican company to transfer and obtain the knowledge from an acquired foreign company. Originally designed as a computer system that allows Cemex CEO, Lorenzo Zambrano, to know in real time how the cement plants were performing, "The Cemex Way" today is one of the best examples of how a Multi National Corporation (MNC) can transfer technology using the Direct Foreign Investment (FDI) to create a competitive advantage based in knowledge to their subsidiaries along the world. Zambrano, as many others Multi National CEO's, learned the value of information in an interconnected world. A world in which the difference between a company based on a developed nation and a global leader based in a country like India, Mexico or

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Brazil is not as clear as before. Technology has been part of the success, because thank to it, these organizations have been able to take advantage of the knowledge and innovation regardless of where they are located. (Stewart, 2015)

The knowledge can flow from the parent company to the subsidiary and from the subsidiary to the local companies or vice versa, leveraged by through Direct Foreign Investment (FDI) and technology, the mix will determine different scenarios that describe the way in which organizations create or absorb knowledge. The challenge for the MNCs will be decide which of these scenarios will has the potential to increase their productivity and innovation in line to find their own “Cemex Way”.

In this chapter the use of technology in the Multinational Corporation (MNC) is addressed. An interconnected world is emerging and that circumstance implies an increase in worldwide goods, services and financial flows. Technology is well recognized as an enabler of these flows and the MNC faces the challenge to diffuse knowledge across borders taking advantage of the transfer of technology that takes place among headquarters and its subsidiaries. Governments of emerging economies recognize MNC as having superior technology so in recent years have changed their public policies to open the doors to foreign investment. FDI plays the principal role as the technology transfer facilitator. In this chapter the 3M case is presented in order to understand how the following factors; FDI, the factors driving productivity and competitiveness within a country and the country’s particular stage of economic development are enablers of technology and knowledge transfer. Also this case helps to understand how using the matrix *Knowledge transfer based on technology and FDI*, helps to select what technology transfer strategy is appropriate to compete. A final section clarifies that MNC must not just use technology to compete, but to diffuse knowledge associated to those technology transfers in emerging countries.

## **AN INTERCONNECTED WORLD**

The rapid advances in technology and infrastructure (nowadays mainly cloud-based), coupled with the pervasiveness of the Internet have brought unexpected growth in ICT access and connectivity to the enterprises around the world, causing major changes in global business scenario. According to the Telecommunication Development Bureau, a business division belonging to International Telecommunication Union (2015), between 2000-2015 global Internet penetration grew 7 fold from 6.5% to 43%, meaning that globally 3.2 billion people are using the Internet and from those about 2 billion come from developing countries. Even though the rate of Internet penetration in emerging countries is increasing quickly (25% per year over 5% in developed countries), this is due to the still low Internet penetration in emerging countries (35% in most of the emerging countries against 70% on average in developed countries) (Nottebohm, et al., 2012).

The Mobile broadband is certainly the most dynamic market segment, reaching an overall 47% mobile penetration in 2015 (a value that increased 12 times since 2007). By end 2015, there are more than 7 billion mobile cellular subscriptions, corresponding to a penetration rate of 97%, up from 738 million in 2000, Mobile-broadband penetration levels for developing countries are around 39 active subscriptions per 100 inhabitants, however in the Americas it is one of the highest (77.6), ranking second globally (ITU, 2015), In developing countries global subscriptions increased from 53% in 2005 up to 73% by 2010, such that the development path taken by emerging countries is partly a result of the high levels of mobile phone adoption(Nottebohm, et al., 2012). Bock et al (2015), emphasized that this new business environment is deeply impacted by a whole new universe of connectivity “that’s local (it’s always

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