

# Chapter 25

## Strengthening the Capabilities in Data Analytics: A Case Study in Bogotá, Colombia

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### ABSTRACT

*In the framework of digital economy and the fourth industrial revolution, it is very important that companies have internal capabilities for the analysis of data and of the information they produce, as well as to generate value in the decision-making process. In 2017 the EAN University implemented the Program for Strengthening Capabilities in DA (PSCDA) with 15 companies from different economic sectors in Bogotá, Colombia. The main purpose of the program was to diagnose, qualify, and accompany the participating companies, in the process of strengthening their DA capabilities. Among the most important results we highlighted that 90% of the companies from the program have applied technological tools for the analysis of their data, while an 80% were able to design and implement a plan of improvement for their processes in data analytics and its use in decision making.*

### INTRODUCTION

The strengthening of data management capabilities in economically emerging companies is fundamental for economical development. The need becomes stronger in a context in which information technologies allow access to a huge amount of structured and unstructured data, that companies should benefit from as a competitive advantage (Parra y Argote, 2017; Bell & Pavitt, 1992).

Information is power. Data and information have been gaining prominence in the field of business over the past 30 years. The computer systems have responded to the needs of companies and institutions for the management of data in relation to management of inventory, of individuals, products, financial accounts and many other variables that could be systematized, however, this area

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was relegated to a technical staff of the organizations for many years. In a knowledge society we can not treat data, management and generation of information as an isolated area of the strategic part of organizations, as the previous situation weakens the potentials of the technological capabilities that strengthen companies. Actually a global and integral vision is necessary and Data Analytics (DA) is a set of tangible and intangible technologies that allow the transformation of information into power (Castellanos, Funeque, Ramires, 2011; Parra y Argote, 2017:188; Argote y Parra, 2016a:9; Argote, 2016b:230; Bell & Pavitt, 1993).

Eventhough there is a perspective or, as defined by other authors (Park and Lee 2011; Castellanos et al 2011; Argote, 2016b) a theory of resources and capabilities that define a set of capabilities that organizations have or don't have, but no references were found about the capabilities in Data Analytics. First of all, it is not feasible to translate the English term since it defines a multidisciplinary topic in relation to the tools it uses and the term of "data analysis" or "Analysis is different because it refers only to a process of disintegration for the understanding of the parts as the whole of a particular theme. Which is why, throughout the chapter the concept of DA is defined, in order to understand the case of the Program for Strengthening Capabilities in DA (PSCDA) in Colombian companies.

Once the importance of DA is recovered in the field of business the reason for being in the program was born, with the question: Which Colombian companies have capabilities in DA? According to various researches, which were reviewed and carried out by the authors of the present chapter and by other (Parra & Argote, 2015, 2016), important exponents of economical development in Latin America and of the structural change, such as Katz (2000, 2007, 2013), Kantis, Angelelli, Moori (2004); Kantis, Postigo, Federico and Tamborini (2002<sup>a</sup>); Kantis, Ishida, and Komori (2002b) it was expected to find a low percentage of companies in Latin America that have such capabilities, according to several researches who allowed us to show that approximately 80% of the companies are micro and small (SMEs) with a low capacity in data management (Audrestch, Kuratko & Link, 2016; Acs, Astebro, Audrestch & Robinson, 2016; Acs, Audrestch & Strom, 2009; Parra y Argote, 2016<sup>a</sup>). Although the percentage of companies with growth potential in the Colombian economy could be growing as a result of support policies, to research, development and innovation (R+D+I) at country level, and the strengthening of the National Research System (NRS) with investment and policies to support entrepreneurship, even if the probability of finding companies with DA capacity is very low, as we are going to show in the following sections (Bell y Pavitt, 1993).

In this order, the present chapter begins with the development of the theoretical framework, which is fundamental when you bear in mind that no referents have been found for the term "capabilities in DA", it goes on with the description of the socio-economical context of emerging economies, within which is Colombia, and the details of the Colombian context, from the support policies to the economical development which has been implemented in the last 10 years. With this frame of reference, we proceed to present the data and methods used to design and implement the program beginning with a survey collected in the companies (main input for diagnostic in DA). After that we describe the characteristics of the PSCDA, developed during the first semester of 2017. Finally, we present the results of the program and the conclusions. As it is one of the few DA programs that has been completed in itself from the diagnosis up to the implementation of specific solutions, we considered it was necessary to include the section of learned lessons with the objective of generating knowledge for future versions of the program, either with a larger sample of companies or its replication in different socio-economical contexts.

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