Chapter 13
Scaffolding the OEEU’s Data–Driven Ecosystem to Analyze the Employability of Spanish Graduates

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ABSTRACT
This chapter outlines the technological evolution experimented by the Observatory for University Employability and Employment’s information system to become a data-driven technological ecosystem. This observatory collects data from more than 50 Spanish universities and their graduate students (bachelor’s degree, master’s degree) with the goal of measuring the factors that lead to students’ employability and employment. The goals pursued by the observatory need a strong technological support to gather, process, and disseminate the related data. The system that supports these tasks has evolved from a standard (traditional) information system to a data-driven ecosystem, which provides remarkable benefits covering the observatory’s requirements. The benefits, the foundations, and the way the data-driven ecosystem is built will be described throughout the chapter, as well as how the information obtained is exploited in order to provide insights about the employment and employability variables.

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1. INTRODUCTION

The Observatory of University Employability and Employment (also known as OEEU using the Spanish initials for Observatorio de Empleabilidad and Empleo Universitarios) http://www.oeeu.org/, is an organization composed by researchers and technicians who work together from different parts of Spain with a unified methodology. The purpose of the Observatory is to produce, analyze and spread information and insights regarding the graduates’ employability and employment in Spain. The Observatory is under the direction of the UNESCO Chair in University Management and Policy (based in the Universidad Politécnica de Madrid, Spain) and it relies on the mentoring of an Expert Council composed of national and international academic and university experts. This project is also developed in collaboration with the “La Caixa” Foundation, the Conference of Rectors of Spanish Universities (CRUE) and the GRIAL Research Group of the University of Salamanca (Peñalvo et al., 2012).

The Observatory’s vision is to become the information reference for understanding and exploiting knowledge about variables related to employability and university employment and its behavior. To reach this vision, the Observatory has the following goals (Michavila, Martín-Gonzáles, Martínez, García-Peñalvo, & Cruz-Benito, 2015; Michavila, Martínez, Martín-Gonzáles, García-Peñalvo, & Cruz-Benito, 2016):

- To understand the evolution of the employability and employment, and its characteristics related to university graduates.
- To develop a system and a uniform methodology for measuring indicators about employability and employment of graduates.
- To generate information on the employability and employment of university comparable between regions, branches of study (knowledge areas) and professional profiles, among others.
- To support the development of strategies and employment policies for universities, basing it on well-founded studies and information.
- To understand the mechanisms and actions that use the Spanish universities to promote employment and employability of their graduates.
- To provide information to individual universities to adjust their academic supply and training demands to the labor market based on reliable data.

These objectives seek to resolve the lack of public information (and its analysis) regarding employment and university employability. To achieve them, the Observatory is developing, implementing and exploiting a series of data-driven products (Patil, 2012).

This data-driven approach helps the Observatory gain knowledge and wisdom from the gathered data. The data gathering procedure of the Observatory and its storage are useless if there are no other procedures to generate knowledge from raw data. Large volumes of data do not provide knowledge and wisdom by itself, but data is the base of the taxonomy of knowledge (Zeleny, 1987), and that is why it is also the base of the Observatory’s system. In order to act wisely, it is necessary to have knowledge, information and data about the tasks to be solved (Zeleny, 1987).

The Observatory’s studies are supported by an information system implemented to accomplish the organization’s main goals. As referenced before, the Observatory products, as well as the organization itself are data-driven (Patil & Mason, 2015). This means the information system built for the Observatory