Chapter 20
Managing Social Innovation Through CSR 2.0 and the Quadruple Helix:
A Socially Inclusive Business Strategy for the Industry 4.0

José Manuel Saiz-Alvarez
https://orcid.org/0000-0001-6435-9600
EGADE Business School, Tecnologico de Monterrey, Mexico

ABSTRACT

The quadruple helix models are widely used when you want to have an integrating vision of the strategies used to combat poverty in emerging countries, including Mexico. The objective of this chapter is to propose a novel model of quadruple helix based on ethics and CSR 2.0 that can lay the foundations to develop the Industry 4.0 in emerging countries. To achieve this objective, the author distinguishes between CSR 1.0 and 2.0. Second, these concepts are united with the economy of the common good and the economy of solidarity. These conceptual bases will allow us to develop the relationship between business ethics and the Industry 4.0 to reach some conclusions.

INTRODUCTION

When applied to desired social changes, social innovation is composed of changes in the cultural and regulatory business structure that optimizes collective resources focused on improving socioeconomic development (Heiskala, 2007). These changes are reinforced with the use of Corporate Social Responsibility (CSR) 2.0 policies integrated into a quadruple helix model that is proposed in the chapter. The combination of this socially comprehensive business strategy reinforces the firm and increases its efficiency and the generation of EBITDA (Earnings Before Interests, Taxes, Depreciation, and Amortization). The

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objective of this work is to propose a Model of Quadruple Helix rooted in CSR 2.0 and the Economy of the Common Good with the goal of promoting the Industry 4.0 grounded in ethics.

Although Bowen (1953) is considered the modern father of the CSR, also Bernard (1938) and Kreps (1940) have seminally thought about this issue (Milian, 2015). These seminal works have been enlarged by Davis (1960, 1967), cited by Schwartz and Carroll (2003), in which he asks what the entrepreneur owes to society (social mortgage)(Ramírez, 2016; Saiz-Álvarez, 2017a) and what responsibility companies have in front of the community. The role of the entrepreneur in almost all the entrepreneurial ecosystems of the planet is fundamental, especially when technology is applied (Bernal-Conesa *et al.*, 2017). These ecosystems create triple helix models (Carlsson and Stankiewicz, 1991; Carlsson *et al*., 2002; Edquist, 2005; Bergek *et al*., 2005) defined by their diffuseness, heterogeneity, intense focus on institutions, low visibility of the role of individuals in the innovation process, and system boundaries (Ranga and Etzkowitz, 2013). Triple helix models that are drifting toward quadruple helix models (Figure 1). As a result, quadruple helix models are permeating both civil societies and organizations, the need for greater awareness and social support towards the most disadvantaged and that population at risk of social exclusion. Models formed by the positive effects created by the interaction between:

- *Universities*, defined by the 7-K (Know-how, know-why, know-who, know-where, know-whom, know-when, and know-what) (Saiz-Álvarez and García-Ochoa, 2008);
- *Non-governmental organizations* (NGOs) established by the social assistance and the fight against poverty and inequality;
- *Business organizations*, with the creation of positive externalities regarding job creation and wealth for a good part of society; and
- The *public sector*, whose processes of public intervention, mainly through fiscal policy, generate crowding-in effects to benefit the population.

The Latin American and the Caribbean (LAC) countries are strengthening quadruple helix models for social change. While in developed nations individual entrepreneurship is the predominant one, in the developing countries it would be more desirable to create a social enterprise that aims to integrate the most disadvantaged communities, as well as to achieve a process of sustainable social change. Thanks to social entrepreneurship, combined with CSR-based business policies, the methods of social transformation lead to the achievement of more just and solidary societies defined by the creation of a broad middle class that sustains with the payment of taxes to the State. For this reason, public intervention in developing countries is more necessary due to the crowding-in effects it generates since the private sector is fragile. In this sense, the model existing in the countries of the first world must necessarily be different from that which arises in the third world if a real social change is desired.

Based on Carayannis and Campbell (2008) who affirm that the quadruple helix is formed by the sum of multi-level innovation systems and networks, knowledge clusters, and technology-based life cycles, the quadruple helix model defined in this work is created by the amount of:

1. *Universities and academia*, characterized by R&D, knowledge, and innovation;
2. *Industry and firms*, where the combination of investment and employment is vital to creating social wealth;
3. *Civil Society and NGOs* focused on aid and social assistance, and