


Chapter 4

Policy and Management Issues of Artificial Intelligence

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ABSTRACT

The capacity for AI research, technology, and application is seen as vital to national competitiveness, security, and economic strength. In the last few years, several countries and regions have developed and released AI strategic plans, thus setting up a race to become the global leader in the field. The chapter starts with an overview of the latest development in AI legislation and governance principles. The first section begins with a review of available policies and strategies on AI by countries and regions. Some best practices in AI governance are presented as well. The specifics of AI ecosystems are discussed in the second section. Gephi software tool is used to visualize the mapping of the Italian AI ecosystem. The chapter ends with conclusions and recommendations aimed at the future development of policy and management for responsible AI implementation.

INTRODUCTION

The capacity for AI research, technology, and application are seen as vital to national competitiveness, security, and economic strength. In the last few years, several countries and regions have developed and released AI strategic plans, thus setting up a race to become the global leader in the field (Olley, 2020:14). The chapter starts with an overview of the latest development in AI legislation and governance principles. The first section begins with a review of available policies and strategies

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on AI by countries and regions. Some best practices in AI governance are presented as well. The specifics of AI ecosystems are discussed in the second section. Gephi software tool¹ is used to visualize the mapping of the Italian AI ecosystem. The chapter ends with conclusions and recommendations aimed at the future development of policy and management for responsible AI implementation.

BACKGROUND

Globalization has changed the strategic context for business and nowadays it is viewed not only as a geographical expansion, but rather as a new operating theory of the world based on connectedness among pre-existing political, social, economic, thematic, and geographic boundaries (Singer, 2006: 51). Both the connectedness and complexity have become a source of instability and risk, as well as a driver for accelerating the reorganization of the global economic landscape. More or less, complexity has become the new norm for business, requiring a new perspective². Three main schools of thought can be distinguished in the field of complexity. These schools of thought originate from three different academic institutions: the Free University of Brussels, the University of Stuttgart, and the Santa Fe Institute. The concept of complexity was initially developed in Brussels and Stuttgart by chemists and physicists working on scientific topics connected with emergent structures and disequilibrium dynamics. The concept was further elaborated by researchers from the Santa Fe Institute in the late 1980s with a broad focus on and implication for the economy. In the sense of complexity, economy was defined not as something given and existing, but something which is formed from a constantly developing set of institutions, arrangements, and technological innovations (Arthur, 2013). According to the “Santa Fe” perspective³, complexity consists of six characteristics which are presented in Table 1.

The essence of complexity, according to Arthur (2013), is about the formation of structures and how this formation affects the objects causing it. Over the years it has been examined in different economic and cultural contexts, e.g. the “Austrian perspective” (Montgomery, 1999). Based on the abovementioned notions and views about complexity, a conclusion could be drawn that a system is complex when (1) it is an open system, (2) its behavior crucially depends on the details of its parts (Parisi, 1999:560), (3) it is a higher-order structure, arising from a set of lower level structures, (4) it may exhibit behaviors that are emergent, and (5) its relationships are nonlinear and contain feedback loops.

Following the characteristics of the complex adaptive systems Beinhocker (cited in Gintis, 2006:1) suggested that the market economy follows an evolutionary dynamics, hence the analytical tools applied in evolutionary biology can be used to

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