Chapter 14
Cooperative Way of Problem Solving to Avoid Misinforming:
Trans-Discipline and Data Philanthropy

ABSTRACT

This chapter discusses two other business practices addressing cooperative efforts in problem solving. The first one refers to a transdisciplinary approach in solving complex, multidimensional problems by exploring the opportunity for collective data interpretation and the synergy of cooperation. The second one discusses the cooperation of public and private entities to solve problems for the benefit of society. This is a new business practice – philanthropy of data – which is a form of public-private collaboration that allows sharing of data, expertise, and infrastructure possession of a private entity with the public institution to solve problems of society that need resources the public entity doesn't possess. This is especially true in avoiding misinformation in the case of exploring big data and other informing services for the benefit of entire society. Nowadays, a lot of private companies collect and store huge amounts of data, which can be reused for public goods.

INTRODUCTION

The first part of this chapter discusses the trans-discipline way to find an innovative, holistic solution of a complex problem. Trans-disciplinarity is the way to avoid misinforming that may lead to undesired side-effects in implanting solutions that emphasize only one of the sides of a problem. The complex multidimensional problem usually needs a holistic solution with emphasis on all possible consequences. Trans-

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disciplinarity is the next round of evolution in approaching complex problems that need expertise developed in many scientific or engineering areas.

The next section is dedicated to evolution of forms of cooperation in data assessment, interpretation, and mapping to the users' problem. Different forms of cooperation as inter-, multi-, and trans-discipline are discussed from point of view of mitigating the misinforming risks.

The complexity of problems users is facing nowadays originates from the nature of the problem. Nowadays reasonable solution of a problem requires variety of competences; uses a vast amount of potentially relevant data satisfying the 3Vs of Big Data phenomenon; needed special equipment and data processing software; and must account for potential side-effects. The advancement of science in all areas leads to accumulation of a vast amount of facts, models, approaches, methodologies developed in different scientific fields with different objectives. Multi- or inter-disciplinary forms of cooperation, widely adopted in the last centuries, do not allow the needed penetration of knowledge to solve real-life complex problems. Trans-disciplinary is the form of cooperation that exploring learning by adoption of knowledge instead of delegation.

Some problems faced by modern societies need cooperative efforts going beyond forming a trans-disciplinary team – the cooperation of different entities with their resources and accumulated expertise. The phenomenon of "Data Philanthropy" which emerged recently offers a form of cooperation between private and public entities. One specific aspect of data philanthropy is its role to overcome the misinforming problem by providing not only data and results but also expertise, methodology, and equipment to process and interpret data for public good.

MISINFORMING AND COOPERATION: TRANS-DISCIPLINARITY

Evolution of Cooperation in Solving Scientific Problems

Generation of new knowledge is always associated with solving problems, where essential is to understand different aspects associated with circumstances, nature, and the origin of the appearance of the problem. This understanding is combined with the existing knowledge to generate a solution to the problem. Complexity of problems, the number of factors, amount and diversity of analyzed data, and rules needed to investigate the problem, as well as constrained human cognitive capacity, leads to a narrow discipline analysis as the way to solve problems. Accumulated over the years scientific knowledge also impacts human ability to comprehend the entire set of factors influencing the problem. The cartoon of Figure 1. illustrates the results of analysis of a complex problem from a narrow uni-disciplined perspective.