

## Chapter 10

# Strategic Data–Based Wisdom: Applying Aristotle’s Theory of Action to the DIKW Model

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### ABSTRACT

*In an increasingly complex world, efficiently extracting meaning from the available amount of raw data is critical. We need a different view of technology, leadership, and culture to meet this challenge. In this chapter, a theoretical framework is proposed that reformulates the DIKW (Data-Information-Knowledge-Wisdom) model with the use of Aristotelian categories concerning the profiles of action (praxis and poiesis) and taking into account the dimensions of the agent (autos and nomos) derived from Kant’s theories. Furthermore, the authors match the DIKW Pyramid and the DBW (Databased-Wisdom Model) in a new framework for Strategic Data-Based Wisdom, which can also be applied to the different phases of the problem solving process (the WIK model for problem solving).*

### INTRODUCTION

In an increasingly complex world, efficiently extracting meaning from the torrent of raw data presented to us every day is critical. Big Data is a trending topic but, as it has recently been stressed, “data is not evidence” and we need to “move from Big Data to Big Wisdom” (McKeever, 2013). Very well-known is the DIKW model (Data, Information, Knowledge, Wisdom) – otherwise referred to as the hierarchy of cognition,

as data moves to information on the back of its relationships, to knowledge on the understanding of patterns, and then to wisdom through the application of principles (Hancock, 2013). In this model, only when we link data together do we begin to see concepts, questions, and context emerge as information. Only when we begin to structure, interpret, and evaluate that information do we gain the insights which form the basis of knowledge. And knowledge leads to wisdom only when we begin to synthesize, weave, and apply

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this knowledge to other and new situations. “The presentation of the relationships among data, information, knowledge, and sometimes wisdom in a hierarchical arrangement has been part of the language of information science for many years” (Wallace, 2007).

Nevertheless, literature reviews and a survey - carried out by C. Zins (2007) among a group of scholars working in relevant fields - indicate that there is not a consensus as to definitions used in the model, and even less “in the description of the processes that transform elements lower in the hierarchy into those above them” (Zins, 2007, p. 489). As Rowley (2007) points out: “Typically information is defined in terms of data, knowledge in terms of information, and wisdom in terms of knowledge, but there is less consensus in the description of the processes that transform elements lower in the hierarchy into those above them, leading to a lack of definitional clarity. In addition, there is limited reference to wisdom in these texts” (p. 163).

In this chapter we propose a theoretical framework, reformulating the DIKW model with the use of Aristotelian categories concerning both the profiles of action (*praxis* and *poiesis*) and the dimensions of the agent (*autos* and *nomos*) derived from Kant’s theories. After a literature review on the well-known – but also much debated – DIKW pyramid, and taking into account some critical issues of knowledge management, we explore the dimensions of the action and the dimensions of the agent, recalling both Aristotle’s and Kant’s theories. We then map the DIKW Pyramid with Aristotle’s categories creating a three level model. This model is further developed into a Strategic Data-based Wisdom framework, taking into account also the dimensions of the agent. In the final part of the work, with the goal of creating a framework in order to “make sense of data”, we explore the “upper” part of the DIKW Pyramid

and create a WIK Model for problem solving, that is “mapped” onto the three levels and the two dimensions of the Strategic Data-based Wisdom framework.

## BACKGROUND

### The DIKW Pyramid

The hierarchy referred to variously as the “Knowledge Hierarchy”, the “Information Hierarchy” and the “Knowledge Pyramid” is one of the fundamental, widely recognized and ‘taken-for-granted’ models in the information and knowledge literatures (Rowley, 2007, p. 163). It is often quoted, or used implicitly, in definitions of data, information and knowledge in the information management, information systems and knowledge management literatures. Many authors agree that the first appearance of the hierarchy was in T.S. Eliot’s poem *The Rock* in 1934 (Eliot, 1934). This poem contains the following lines:

*Where is the wisdom that we have lost in knowledge?*

*Where is the knowledge that we have lost in information?*

Although the author of the pyramid is considered Ackoff (1989), whose paper is often cited when the DIKW hierarchy is quoted, some precursors can be found.

In 1955, Kenneth Boulding presented a variation on the hierarchy consisting of signals, messages, information, and knowledge (Wallace, 2007). However, according to Wallace (2007), the first author that distinguished among data, information, and knowledge and that also employed the expression “knowledge management” was in 1974

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