Introduction:
Economics of Knowledge Organization Systems
by Marjorie M.K. Hlava

EDITOR'S SUMMARY
The special section of this ASIS&T Bulletin addresses the economic value of knowledge organization systems (KOS), including taxonomies and metadata. Denise Bedford notes that the value of taxonomies is not universally recognized and discusses their economic characteristics as well as some potential liabilities. Gail Hodge focuses on the economics and value of government-funded information as it affects the economics of KOS, considering open access and the public good as well as public concern for return on investment. Jane Greenberg targets metadata as capital, a valued asset or commodity. She poses the challenge of gathering empirical evidence to quantify the value of metadata. Taxonomist Barbara Gilles indulges in a thought experiment by digging into an analogy between data mining and mineral mining. As a professor of economics, Rick Szostak notes the ubiquity of knowledge organization systems despite the lack of understanding of their importance. Szostak proposes a synthetic approach to KOS by combining terms for fuller concept expression and muses that KOS may achieve the importance of Cutter’s and Dewey’s knowledge classification systems.

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In recent decades, the fields of information science and economics have been expanding and overlapping to some extent. Information economics has been an area of study for several years now. With the ever-increasing recognition of the value of knowledge organization systems (KOS), especially in the context of improved technologies and practices for them, the time is ripe to take a close look at them from the perspective of economics. Such an examination is exactly what the authors of the articles in this issue have done.

Denise Bedford, the Goodyear Professor of Knowledge Management at Kent State University, is the author of “Understanding and Managing Taxonomies as Economic Goods and Services.” She writes, “Those of us who have worked with taxonomies tend to think of them as inherently good because we have seen what value they can produce. However, the economic value of taxonomies as products and services is not obvious to everyone.” She discusses various ways in which thesauri and semantic networks may add value, when well designed and properly used. On the other hand, “They may also produce significant liabilities. Where a thesaurus or semantic network exists, but is not well designed, suited to its purpose, governed or implemented, it may fail to meet the organization’s expectations.” She asks, “What are the economic characteristics of taxonomies?” She answers this question by asking and then answering several more questions, covering such factors as economic value, costs, externalities, public good and opportunity costs.

Gail Hodge, senior information scientist with Information International Associates, Inc., has served as director-at-large of ASIS&T and is co-chair of the task force developing the DCMI-KOS Application Profile for the KOS resources. She succinctly describes her article, “Government Knowledge
Organization Systems: Valuing a Public Good,” as follows: “It is within the context of open access, as well as the long history of government information management, particularly in the area of scientific and technical information management, that we will discuss the economics of government-based knowledge organization systems. This paper will give a short introduction to the unique aspects of determining economic benefit in the government environment, seek to put these aspects into a useful framework for thinking about the benefits, and then turn to what the renewed emphasis on information management, access and dissemination may mean for the economics of government-based KOS.” She discusses return on investment (ROI) vs. public good and the value of government taxonomies as a public good. The article tackles questions regarding the impact of such factors as big data and open access on the value of government taxonomies.

Metadata as capital is the focus of an article by Jane Greenberg, professor at the University of North Carolina School of Information and Library Science (SILS), Chapel Hill, director of the Metadata Research Center and 2014 Data Science Fellow, National Consortium for Data Science. In “Metadata Capital: Raising Awareness, Exploring a New Concept,” Dr. Greenberg discusses the challenges of recognizing metadata as a valued asset or commodity. She asks, “Can we recognize metadata as an asset? Where and how might we begin an inquiry on this topic? And, more precisely, can we quantify the value of metadata in some way that will allow us to gather empirical evidence as to its value?” To answer these questions, she introduces and explores the concept of metadata capital. And she succinctly summarizes the rest of the article: “The sections that follow discuss metadata and cost, present the initial idea of metadata capital in connection with metadata reuse and hone the definition of metadata capital. The last part of this article provides an overview of research targeting metadata capital that has been recently launched via the National Consortium for Data Science.”

In “Taxonomies for Categorization and Research: Is a Mining Analogy Valid?” Barbara Gilles, a taxonomist at Access Innovations, indulges in a thought experiment to see how far an analogy can be stretched. She observes that references to “data mining” or “text mining” suggest a parallel between the value characteristics of mineral mining and using taxonomies in searching for information. Research platforms combining a literature database and a taxonomy may be thought of as a mine and raw material source and a specialized tool for extraction.

Rick Szostak, a longtime professor of economics at the University of Alberta and, in addition, an expert in interdisciplinarity, brings a unique perspective to the examination of KOS economics. In “The Importance of Knowledge Organization,” he starts out: “Knowledge organization systems (KOS) are ubiquitous in the world. Yet we have no precise idea of just how important they are.” As an economist, he agrees with taxonomists that it is difficult to quantify the value (or the “aggregate productivity contribution”) of KOS, and that “such an exercise would be fraught with difficulty.” Accordingly, he examines the importance of KOS in a non-quantitative manner and then proposes what he calls a synthetic approach to KOS, an approach that would take full advantage of combining terms (some of which taxonomists would call qualifiers) to create fully descriptive expressions of concepts. Finally, he points out that several of the innovations he suggests have been made practical by the arrival of a digital world. Looking to the future, he anticipates further changes in the use of KOS. He suggests that “perhaps the digital imperative will lead us to the most significant change in classificatory practice for well over a century. Cutter and Dewey may not have foreseen the staying power of their classifications; we may well be at another historical turning point for KOS; how well we handle it will reverberate throughout society.”

We hope that these varying perspectives will stimulate more thought on this important topic.