Chapter 5
The Analytics Asset

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ABSTRACT

We can treat analytics as a multi-discipline profession because the body of knowledge required for analytics has become extensive, and businesspeople have started to designate teams and departments as being specialists in analytics. An ecosystem of service providers has evolved for this profession, including conferences, degrees, consulting services, certifications, etc. Analytics is best understood as an organizational asset that is used to improve decision making and execution. This chapter outlines the analytics landscape and aims to help organizations gain a shared understanding of issues that must be addressed to plan, build, and use the analytics asset.

A BRIEF HISTORY OF ANALYTICS

The INFORMS definition of Analytics as: "the scientific process of transforming data into insight for making better decisions" is broad. Analytics has come to bear finance, operations, and economy connotations only since late last century. Mid-century references are mainly to Aristotle's philosophy, and in 1940 the book titled "Brief Course in Analytics" related to geometry (Hill, 1940). Searching Google Scholar for papers with "Analytics" in the title, one appears in The American Economic Review in 1957 (Bator, 1957), and then it starts popping up in other economics journals (Tedford, 1964). It was used in the domain of decision analysis

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when, in the 1970s, Thomas L. Saaty labeled his technique for analyzing complex decisions as the "analytic hierarchy process" (Analytic hierarchy process, n.d.), and in the same decade it started getting used in medical and engineering journals.

The Systems and Procedures Association of America (SPA), chartered in 1947, gave impetus to industrial engineering and operations research. The members of the association called themselves the "systems men". The systems men quickly aligned to the use of computers in government and companies. The "management information system" (MIS) concept debuted in 1959 at a conference sponsored by the American Management Association (Haigh, 2001). The MIS concept, a grand design for data-driven management, can be treated as a predecessor for "analytics" for the industrial engineering and operations research communities. By 1968 it was already facing a backlash from being overhyped. In the 1980s, terms such as managerial computing, decision support systems (DSS), or executive information systems (EIS) served to rebrand and de-scope the MIS idea into more feasible applications.

Progress in technology, however, was making the enterprise-wide dreams of MIS feasible. In 1988, IBM researchers published the first paper for an "enterprise data warehouse" (Devlin, 1988), and in the 1990s companies constructed expensive data warehouses (DW). The Data Warehousing Institute (TDWI) was founded in 1995. The "business intelligence" (BI) term was brought into use in the late 1990s as a label for new reporting technologies, and both BI and DW became aligned to the Information Technology discipline.

The return of "artificial intelligence" (AI) is the big change for Analytics today. Along with "machine learning" (ML), an AI technique, it has become a huge part of the Analytics conversation, overshadowing other aspects. AI is associated with the computer science community, and while AI technologies steadily progress and permeate the economy, they are also subject to boom and bust cycles (History of artificial intelligence, n.d.).

Analytics, therefore, is used by different disciplines to deal with analysis and decision support. The "systems men" differentiated into Operations Research, Decision Analysis, Industrial Engineering, Systems Science, and Information Technology (IT). The leading institute for advanced analytics and operations research, INFORMS, traces its roots back to 1952 (Horner, 2002). The American Statistical Association (ASA) was founded in 1839 and statistics is pervasively used in data analyses. In drawing sets based on the stated aims of academic disciplines and the aims of Analytics, we frame Analytics as containing Statistics, Operations Research, Decision Analysis, Industrial Engineering, and Accounting, and overlapping with Finance, Economics, Computer Science, Systems Science, Data Stewardship, and Information Technology.