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Note on Life-Cycle Analysis

As corporations seek to improve their environmental performance, they require new methods and tools. Life cycle analysis (LCA) is one such tool that can help companies to understand the environmental impacts associated with their products, processes, and activities. LCA is controversial and still evolving as a methodology. However, the principles behind LCA thinking are being adopted rapidly by manufacturers and service organizations alike as a way of opening new perspectives and expanding the debate over environmentally sound products and processes. The goal of LCA is not to arrive at the answer but, rather, to provide important inputs to a broader strategic planning process.

The Origin of LCA

LCA has its roots in the 1960s, when scientists concerned about the rapid depletion of fossil fuels developed it as an approach to understanding the impacts of energy consumption. A few years later, global-modeling studies predicted the effects of the world's changing population on the demand for finite raw materials and energy resource supplies.¹ The predictions of rapid depletion of fossil fuels and resulting climatological changes sparked interest in performing more detailed energy calculations on industrial processes. In 1969, the Midwest Research Institute (and later, Franklin Associates) initiated a study of the Coca-Cola Company to determine which type of beverage container had the lowest releases to the environment and made the fewest demands for raw materials and energy.²

In the 1970s, the U.S. Environmental Protection Agency (EPA) refined this methodology, creating an approach known as Resource and Environmental Profile Analysis (REPA). Approximately 15 REPAs were performed between 1970 and 1975, driven by the oil crisis of 1973. Through this period a protocol, or standard methodology, for conducting these studies was developed.³

In the late 1970s and early 1980s, environmental concern shifted to issues of hazardous waste management. As a result, life cycle logic was incorporated into the emerging method of risk assessment, which was used with increasing frequency in the public policy community to develop environmental protection standards.⁴ Risk assessments remain controversial procedures: the public is often disinclined to trust them, especially when conducted after-the-fact to justify an activity or when performed by an organization with a vested interest in their conclusions.⁵