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Christoph Loch; , Kalyan Singhal; , Christopher Tang

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In Memoriam: The Pioneering Contributions of Martin K. Starr, Editor-in-Chief of *Management Science* (1967–1982)

Christoph Loch,^a Kalyan Singhal,^b Christopher Tang^c

^aIESE Business School, University of Navarra, 08034 Barcelona, Spain; ^bMerrick School of Business, University of Baltimore, Baltimore, Maryland 21201; ^cAnderson School of Management, University of California, Los Angeles, Los Angeles, California 90095

Contact: cloch@iese.edu,  <https://orcid.org/0000-0002-6569-7473> (CL); ksinghal@ubalt.edu,  <https://orcid.org/0000-0002-9704-1305> (KS); chris.tang@anderson.ucla.edu,  <https://orcid.org/0000-0001-9597-7620> (CT)

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Abstract. Martin K. Starr, aged 97, passed away January 25, 2025. During his 15-year tenure as editor-in-chief of *Management Science*, he became the longest serving editor of any INFORMS journal. During this period, he published dozens of books and more than 100 articles. Starr made significant contributions to delineating the domain of modern operations and supply chain management, building a framework for system integration, modular design and production, and high-risk systems. This essay intends to underscore Martin Starr's contributions to the field of management science, particularly emphasizing the crucial connection between theoretical analysis and practical applications in management.

Keywords: management science • history • legacy • memoriam

With 15 years at the helm of *Management Science*, Martin K. Starr was known to be the longest serving editor-in-chief of any INFORMS journal. He served as president of the Institute of Management Sciences (a predecessor of INFORMS) in 1974–1975 and as president of the Production and Operations Management Society (POMS) in 1995. He was elected a fellow of the American Association for the Advancement of Science in 1969, a fellow of INFORMS in 2002, and a fellow of POMS in 2003. In 1980, he received the Distinguished Teaching Award from the Columbia School of Business. In 2006, POMS instituted the Martin K. Starr Excellence in Production and Operations Management Practice Award to recognize practitioners who, like Starr, make exceptional contributions to the field.

Given the multidisciplinary nature of *Management Science*, Starr created a structure under which each department editor was responsible for a specific discipline with autonomy in processing papers. This decentralization and delegation made *Management Science* the first leading academic business journal to adopt such an editorial organization, setting a precedent for other journals in the field.

In June 1965, Starr launched the *Management Science* “Free for All” column, which strove to answer questions about the future of the new field of management science. The column ran until 1970 with contributions from leading and well-known scholars as well as executives. Starr himself contributed columns on a variety of topics, including the articulation of ideas and the qualities of a catalyst; Eric Berne's transaction analysis in *Games People Play*; his concern with the growth of

“nonscientific” literature on parapsychology, astrology, etc.; the adoption of the metric system; science fiction literature as a precursor to simulation and conflict resolution; the mathematical properties of history, ethics, and management science; and the role of management science in a service-oriented society.

Along with Elwood Buffa, Starr delineated the domain of modern operations and supply chain management (OSCM). Buffa (1961) articulated OSCM's internal architecture, while Starr (1964) focused on its relationship with other business disciplines, such as finance and marketing. Along the way, he created a framework for system integration, noting that, whereas we knew how to do analysis, we did not know how to do synthesis with the result that the impact of our work was miniscule. Starr's concept of the permeable boundaries of OSCM became even more important when globalization and outsourcing created a new paradigm for managing supply chains.

In his seminal article (Starr 1965), “Modular Production—A New Concept,” published in the *Harvard Business Review* (HBR), Starr coined a new term: “modular production.” HBR editors noted that the new concept by Martin K. Starr characterized a newly developing capacity to design and manufacture parts which can be combined in the maximum number of ways. The concept of modular design and production quickly became part of the business vocabulary. In 1972, Starr extended the concept of modularity to services. Using the example of restaurants, he identified menu variety, food quality, service quality, atmosphere, and many other factors as modules, presenting a design tree of 7,200 different restaurants.

In addition, Starr (1971) analyzed high-risk systems and described threshold-constrained models for dealing with catastrophic outcomes. He noted that, in these models, strategic sequence was speculative; evolving environmental configurations were forecast with varying degrees of believability, network branches were associated with probabilities of “ruin,” and ruin paths were associated with involving a large percentage of total assets at stake. These models use the statistics of extremes and can be used either to maximize profit or to minimize ruin (for example, discarding plans that exceeded a certain probability of catastrophe). Starr pointed out that these models could be applied to floods, earthquakes, gamblers’ wagers, self-insurance, liquid reserves, break-even points, and contests. He saw that these models would be increasingly important in dealing with the uncertainties arising from short product lives, dynamic technology, and forceful societal factors.

Starr (1972) explored management and organization theory in the context of operations research, information theory, and statistics. David Hertz of McKinsey’s operations research group said that Starr’s was “one of the three books that he would take if he was isolated on a deserted island.” On the increasing role of models in managing complex organizations, Starr observed that the successful user must be both an artist and a scientist.

Starr was influenced by many people, including West Churchman, founding editor of *Management Science*, who once recommended a young Starr for a consulting job; Herbert Simon, Nobel laureate and father of artificial intelligence, who often visited Columbia; Lotfi Zadeh, creator of fuzzy systems, who served on Starr’s dissertation committee; and Edward Deming, quality

guru and Starr’s friend and colleague at Columbia. Starr himself influenced a generation of scholars. He shaped the field of operations management as we know it.

Some may argue that the era of *Management Science* during Martin K. Starr’s tenure was a golden age, in which making significant contributions seemed easier because of the wide-open spaces in the field. However, Starr’s work demonstrates that many of the issues he addressed remain highly relevant today. He consistently challenged established wisdom and employed innovative approaches to tackle pertinent questions. Starr’s ability to create opportunities in seemingly open spaces is a testament to his pioneering spirit. He remains a role model for today’s scholars even as our world becomes more chaotic and demands change. The structures of publishing and inquiry may have become more rigid, making it harder for young researchers to navigate. Nevertheless, Martin Starr’s journey serves as an inspiration, highlighting the importance of seeking new approaches in the face of rapid technological advancements and societal instability.

Starr’s legacy will continue to inspire and influence us, remaining ever-present in our hearts and minds.

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