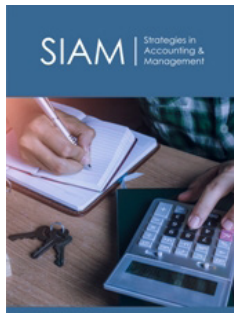


The Issue of Uncertainty in Management

ISSN: 2770-6648



Janusz Zawia Niedzwiecki*

Faculty of Management, Warsaw University of Technology, Poland

Opinion

The need for a precise definition of the concept of uncertainty in management science stems from the growing importance of crisis management theory and theories of risk management, particularly operational risk. I have repeatedly noted that scholarly work in this field tends to limit itself to intuitive interpretations of this concept. Meanwhile, let us ask ourselves – is this correct? Is this concept completely unambiguous? Perhaps this is a problem worthy of reflection and in-depth work, which this article could contribute to. Philosophical concepts inspired by various scientific disciplines, especially the discoveries of physics, can serve as a starting point. The first issue is the position and stance of the researcher, as the position of a human being as a researcher of nature relies primarily on the fact that human cognition occurs from within the object being studied, and the researcher is part of its mechanism. Furthermore, a vast number of phenomena and products important to humanity are the direct actions of humans or the result of such actions. Therefore, should inferences about the future based on human experience assume (1) the rationality of nature, and associate risk with its uncertainty from the perspective of the limitations of human perception, and (2) the rationality of human behavior aimed at positive goals, both from the perspective of the individual and society? Or should we also take into account the randomness, chaos of natural processes, and the perversity of human attitudes, which together result in their unpredictability? The questions posed are not resolved by science, and their awareness is intellectually important, as it leads to the conclusion, perhaps axiomatic, that everything humans encounter is marked by uncertainty, and whatever they choose to do is fraught with risk. Let us examine why.

The issue of uncertainty has two fundamental approaches. The first, historically earlier, related uncertainty in human action and the prediction of phenomena, primarily physical phenomena, to limited human knowledge of the surrounding nature. With this approach, one could say that uncertainty is the incompleteness or imperfection of human knowledge and the result of imperfect human cognitive abilities. In the physical and natural sciences, this concept of uncertainty was accompanied by a belief in determinism as a principle governing nature itself and fully explaining all phenomena. This view was expressed by existentialists, including Heidegger and Jaspers in philosophy. With the discovery of probability theory, the concept of uncertainty, and with it, risk, took on a new dimension. Their static definitions were replaced by the terms chance, threat, and probability. The deterministic view was ultimately discredited by the discoveries of physics (spacetime theory, wave theories, quantum mechanics, and atomic mechanics). Consequently, uncertainty became a feature of the physical world, completely independent of the quality of human perception. This is expressed, for example, in Heisenberg's uncertainty principle (1926).

The problem of uncertainty, thus finding its justification in the foundations of reflection on the essence of nature's functioning, is of course addressed separately within individual

***Corresponding author:** Janusz Zawia Niedzwiecki, Faculty of Management, Warsaw University of Technology, Poland

Submission: 📅 February 09, 2026

Published: 📅 February 16, 2026

Volume 6 - Issue 1

How to cite this article: Janusz Zawia Niedzwiecki*. The Issue of Uncertainty in Management. *Strategies Account Manag.* 6(1). SIAM. 000629. 2026.
DOI: [10.31031/SIAM.2026.06.000629](https://doi.org/10.31031/SIAM.2026.06.000629)

Copyright@ Janusz Zawia Niedzwiecki, This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use and redistribution provided that the original author and source are credited.

sciences, which, within their own domains, according to their epistemological assumptions and for the purposes of their practice, formulate domain-specific interpretations. Thus, decision theory exists at the intersection of management science and mathematics, where decisions made under various conditions of incomplete knowledge are of particular interest. Uncertainty is a consequence of the lack of complete information, which leads to uncertainty in the information upon which decisions are based and uncertainty in the outcomes of the decisions made. Management science, as a social science, and therefore with less categorical rules than basic science, based largely on concepts that are de facto proven "best practices," points to a particular problem with the manifestation of uncertainty. Most so-called "best practices" in organization (management) are based on deterministic forecasting. Meanwhile, the conditions of "best practice" are, in fact, accidental in nature, and therefore difficult to forecast. This accidental nature is a specific

embodiment of uncertainty in management science. Based on the above considerations, a preliminary definition can be proposed: Uncertainty means that an observer (real or imagined) of any phenomenon, at a given time and place, is unable to determine with complete certainty the further course of that phenomenon. This is an absolute regularity within the reality known to humans. The degree of uncertainty is objectively related to the mechanism (essence) of the phenomenon, which is always random to some extent. From the perspective of a human or a human-made system, it is exacerbated by the imperfect perception of the phenomenon's factors, inherent to the specificity of human perception (subjectivity of perception). Uncertainty gives rise to a sense of risk, which is inextricably linked to the activity of people and social systems operating in an environment characterized by organic uncertainty, and operating through people and their products, which in turn are characterized by peculiar uncertainty.