

**Beyond the Illusion of Certainty: Rethinking Knowledge, Innovation, and Society through *Uncertainty and Imperfection***

Piero Formica's *Uncertainty and Imperfection: Science, Society, and Art in the Economy* is a book of unusual range and temperament. It is not a narrowly technical contribution to economics, nor a standard work of policy argument. It is better read as a reflective and cross-disciplinary meditation on how human beings, institutions, and societies live, learn, innovate, and judge under conditions that are never fully stable and never entirely transparent. At a time when public discourse is saturated with the language of prediction, optimization, resilience, risk management, and data-driven decision-making, Formica offers a deliberately different point of departure. He asks us to recognize uncertainty not as a temporary failure of knowledge, but as a durable condition of historical life.

That shift matters. Much of modern intellectual and institutional culture still rests, implicitly or explicitly, on the promise that with enough information, better models, and more refined systems of measurement, the unknown can be progressively reduced to a manageable margin. Formica writes against that confidence. His argument is not that knowledge is futile, nor that science, data, or technology should be distrusted as such. Rather, he suggests that the desire to eliminate uncertainty altogether has too often hardened into a cultural illusion, one that narrows our educational imagination, distorts economic reasoning, and weakens our ability to respond wisely to complex realities. In that sense, this is not simply a book about uncertainty. It is a book about the limits of modern certainty.

One of its most appealing features is that Formica does not treat uncertainty as a purely abstract or contemporary issue. In Chapter One, he places it within a broader historical landscape, moving through the instability of the late Roman Republic, the upheavals of the Early Middle Ages, and the ferment of Renaissance cities. This

historical framing is more than decorative. It reminds the reader that uncertainty has never been an exception to human life. On the contrary, periods of transition, vulnerability, and incompleteness have often been the very settings in which new forms of thought and creativity emerged. Formica's treatment of the Renaissance is especially suggestive. He presents the city not as a place of finished certainty, but as a space in which knowledge and ignorance, order and flux, risk and invention remained in active relation. That is an important insight, and it gives the book a depth that a purely contemporary diagnosis would have lacked.

This historical sensibility also strengthens one of the book's central criticisms, namely its critique of narrow technocratic reason. Formica is particularly sharp in his reflections on economics. He argues that modern economics has become overly insulated from history, philosophy, institutions, moral reflection, and the lived complexity of social life. He makes this argument more concrete by recalling the famous question posed by Queen Elizabeth II after the 2008 financial crisis, when she asked economists at the London School of Economics why no one had foreseen the crash. He also gestures toward later calls to "rethink economics," especially from students and scholars dissatisfied with curricula too detached from crisis, inequality, climate change, and real institutional life. These moments help anchor his broader claim: economics, when cut off from history and broader human inquiry, risks becoming technically elegant but socially thin.

This argument deserves attention well beyond economics itself. One of the more enduring values of *Uncertainty and Imperfection* is that it addresses a wider crisis in the organization of knowledge. Formica writes across economics, history, philosophy, innovation studies, environmental thought, art, and education. The result is essayistic in form, but intellectually refreshing in effect. At a time when many academic and policy conversations are fragmented into specialized languages and increasingly procedural habits of thought, Formica insists on recovering a more integrated

intellectual horizon. The major problems of our century do not arrive in neatly separated disciplinary forms. Ecological instability, technological concentration, social fragmentation, geopolitical strain, and educational uncertainty are deeply entangled. The book's cross-boundary method is therefore not merely stylistic. It is part of its substantive claim about the nature of the world we now inhabit.

This is one reason the book has unusual educational value. Formica is not simply concerned with what experts know; he is equally concerned with how societies learn. His reflections on transdisciplinary studies are among the most important sections of the book. He does not treat education as the orderly transfer of already-settled truths within well-defended disciplinary walls. Instead, he presents learning as a more searching and unfinished activity, one that requires openness to ambiguity, movement across domains, and a willingness to connect thinking with making. Especially in the later parts of the book, transdisciplinary learning appears not as an academic slogan, but as a response to the inadequacy of older forms of compartmentalized knowledge. This is a point of real consequence for universities, and indeed for the international community more broadly. Educational systems that produce only narrow expertise, however advanced, will not be adequate for a world whose defining problems do not respect disciplinary boundaries.

Formica's treatment of innovation follows a similar line. Several later chapters, including those on "creative ignorance," the "Sigmoid Curve," and the place of imperfection in open environments, return to the idea that discovery rarely emerges from complete control. The phrase "creative ignorance" is particularly striking. Formica uses it to suggest that genuine innovation often depends on the ability to suspend the authority of inherited categories and to remain open to questions that existing frameworks cannot easily absorb. This is not an argument for anti-intellectualism. It is an argument for intellectual freedom. Likewise, the discussion of the Sigmoid Curve offers a helpful reminder that trajectories of growth, success, and

institutional form are never indefinite. The very structures that once drove expansion may later become obstacles to renewal. In a world increasingly committed to efficiency and path dependence, Formica insists on the importance of recognizing when continuation itself becomes a form of blindness.

Closely related to this is the book's defense of imperfection. Formica does not romanticize disorder for its own sake, but he does challenge the modern tendency to equate seriousness with flawless design, perfect prediction, and seamless optimization. In his account, imperfection can be generative. It leaves room for improvisation, revision, experiment, and the accidental opening from which something genuinely new may emerge. At points this argument is illustrated through artistic and inventive lives, including the unfinished and exploratory quality associated with figures such as Leonardo da Vinci. The broader implication is clear. A culture obsessed with perfection may end by stifling precisely those exploratory qualities on which learning and invention depend. This gives the book a quiet humanistic force. It speaks not only to innovators and entrepreneurs, but also to teachers, researchers, and institutions increasingly tempted to value control over curiosity.

The book becomes especially suggestive when read against the background of our own technological moment. Formica's contrast between "Dataists" and "Dadaists" is intentionally playful, but it captures a serious dilemma. Contemporary societies are increasingly dependent on systems of calculation, prediction, and data extraction. At the same time, they risk losing forms of imagination, judgment, and moral attentiveness that cannot be reduced to data processing alone. Formica does not call for a rejection of analytical intelligence. What he seeks is a more fruitful encounter between measurement and imagination, between rigor and surprise, between structured knowledge and the creative capacities that unsettle closed systems. Read today, this aspect of the book has particular significance for debates surrounding

artificial intelligence, digital governance, and the future of human agency under computational conditions. The question is not whether we should use advanced tools, but whether we still possess the intellectual and ethical depth to govern them rather than merely adapt ourselves to them.

Another major thread running through the book concerns the modern cult of growth. Formica is skeptical of the tendency to elevate economic growth into an unquestioned social good. His critique is not simplistic. He does not deny the importance of prosperity, material improvement, or innovation. What he does ask is whether growth, when detached from ecological limits, ethical judgment, and public purpose, has become a kind of totem. That question gives the book a broader civilizational dimension. It invites readers to consider not only how societies produce, but what they value, what they neglect, and what forms of life their prevailing measures of success encourage or erode. In the later chapters, especially where Formica turns toward essential goods, democratic responsibility, and the governance of technology and innovation, one senses clearly that the book is moving beyond economic criticism toward a larger reflection on social direction.

To be sure, *Uncertainty and Imperfection* is not without unevenness. Readers looking for a tightly structured academic argument, carefully delimited concepts, or systematic empirical demonstration may sometimes find its movement associative and its architecture loose. Formica proceeds less by formal proof than by historical juxtaposition, conceptual provocation, and reflective synthesis. Some contrasts are stylized, and not every chapter bears equal analytical weight. Yet this should not be mistaken for mere weakness. Part of the book's value lies precisely in its refusal of overly closed systems. It is trying to think across boundaries without pretending that reality itself is tidier than it is. The price of that freedom is some unevenness. The reward is that the book remains intellectually alive.

In the end, the significance of Uncertainty and Imperfection lies less in any single doctrine than in the orientation it encourages. It asks readers to recover humility without surrendering seriousness, to value imagination without abandoning rigor, and to understand uncertainty not as the enemy of thought, but as one of its enduring conditions. It is, in this sense, a book about intellectual maturity. It resists the temptation to offer total reassurance. Instead, it invites us to think more honestly about what it means to build institutions, educate students, govern technologies, and imagine futures in a world that has not become simpler simply because our systems of measurement have become more sophisticated. Its deeper value lies not in offering a closed doctrine, but in helping readers recover a more mature intellectual posture toward complexity, incompleteness, and change.

For readers concerned with the future of knowledge, the fate of universities, the ethics of innovation, and the broader direction of international society, this is a valuable and stimulating book. It does not offer a closed program, and it does not need to. Its deeper achievement is that it reopens questions that many contemporary institutions have tried too quickly to settle. How should we educate in a time of complexity? What kind of judgment remains possible in a culture increasingly governed by metrics? What forms of social and civilizational renewal become imaginable once we give up the fantasy that uncertainty can be permanently mastered?

These are not small questions. Formica does not answer them once and for all. But he restores them to seriousness. In a world rich in information and increasingly poor in orientation, that is already a considerable achievement.

*Raymond J. Wu*

*Executive Vice Secretary-General, CORE Academy*