

# Info-Gap Approaches to Planning for an Uncertain Future

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## Abstract

Models—both qualitative and quantitative—are used in design and strategic planning in many areas including engineering, economics, public policy, homeland security, biological conservation, medicine, and so on. Uncertainty is a major challenge in model-based planning. Uncertainty, ignorance, and the potential for surprise are all unbounded.

The practical implication of uncertainty is that we must ask: What outcomes are required? What performance is necessary? How can we be robust against surprise? This decision strategy is called *robust satisficing*: choose the design that satisfies the requirements over the largest range of deviation of reality from our current understanding. This is different from asking: What is the best possible outcome that we can achieve?

We will explain the info-gap theory of robust satisficing and its application to decision dilemmas under uncertainty in project management and in mitigation of climate change.

### *Selected References*

- Yakov Ben-Haim, 2006, *Info-Gap Decision Theory: Decisions Under Severe Uncertainty*, 2nd edition, Academic Press.
- Yakov Ben-Haim, 2010, *Info-Gap Economics: An Operational Introduction*, Palgrave-Macmillan.
- Yakov Ben-Haim, Craig D. Osteen and L. Joe Moffitt, 2013, Policy Dilemma of Innovation: An Info-Gap Approach, *Ecological Economics*, 85: 130–138. Link to pre-print at: <http://info-gap.com/content.php?id=88>
- John K. Stranlund and Yakov Ben-Haim, 2008, Price-based vs. quantity-based environmental regulation under Knightian uncertainty: An info-gap robust satisficing perspective, *Journal of Environmental Management*, 87: 443–449. Link to pre-print at: <http://info-gap.com/content.php?id=95>
- Barry Schwartz, Yakov Ben-Haim, and Cliff Dacso, 2011, What Makes a Good Decision? Robust Satisficing as a Normative Standard of Rational Behaviour, *The Journal for the Theory of Social Behaviour*, 41(2): 209–227. Link to pre-print at: <http://info-gap.com/content.php?id=23>
- Lots of additional sources at: <http://info-gap.com>

### *About the speaker:*

Prof. Yakov Ben-Haim initiated and developed info-gap decision theory for modeling and managing severe uncertainty. Info-gap theory is applied in engineering, biological conservation, economics, project management, climate change management, homeland security, medicine, and other areas (see [info-gap.com](http://info-gap.com)). He has been a visiting scholar in many countries around the world and has lectured at universities, technological and medical research institutions and central banks. He has published more than 90 articles and 5 books. He is a professor of mechanical engineering and holds the Yitzhak Moda'i Chair in Technology and Economics at the Technion — Israel Institute of Technology.