

**Convegno “I neuroni delle scelte”, Prato  
12 novembre 2016**

**Incertezza di mercato, imprenditorialità e  
regole euristiche**

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# Sommario

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- **Strumenti per affrontare l'incertezza e attore imprenditoriale**
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- **Le condizioni di efficacia delle *heuristics***

# **Attori di mercato e incertezza**

# Attori di mercato e incertezza

Harvard  
Business  
Review



BEHAVIORAL ECONOMICS

## From “Economic Man” to Behavioral Economics

by Justin Fox

FROM THE MAY 2015 ISSUE

# Attori di mercato e incertezza

Commentary

## Why Behavioral Economics Is Really Marketing Science

Ironically, the discipline of marketing was started by economists!



*By Philip Kotler*

Economists rarely mention marketing. Occasionally an article appears in the *American Economic Review* on advertising or promotion or warranties. But to most economists, marketing is a sideshow in the economy. It is filled with too many particulars and virtually no theory. A cynical economist would even hold that marketing activity hurts the efficiency of the economy. Promotions distort the true price and lead consumers to buy on brand name, not real value.

PHILIP KOTLER



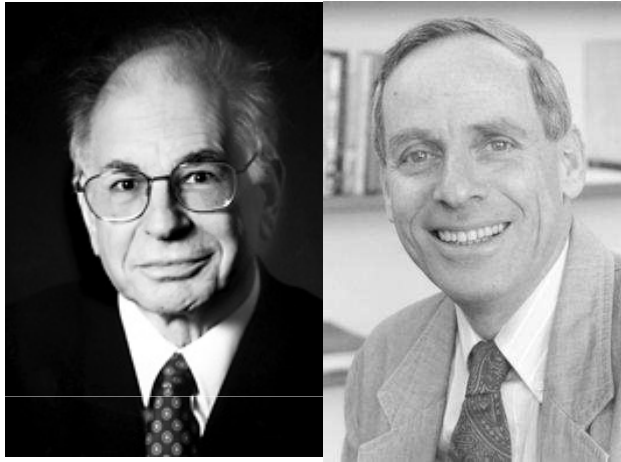
Philip Kotler is the S.C. Johnson & Son Distinguished Professor of International Marketing at the Kellogg School of Management at Northwestern University. He received his Masters degree at the University of Chicago and his Ph.D. at MIT, both in economics. He did postdoctoral work in mathematics at Harvard University and in behavioural science at the University of Chicago.

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# Attori di mercato e incertezza



“Choices among risky prospect exhibit several pervasive effects that are inconsistent with the basic tenets of utility theory. In particular, people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty. This tendency, called the certainly effect, contributes to risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses ...”

**(Daniel Kahneman & Amos Tversky, 1979, Prospect Theory: An Analysis of Decision under Risk, Econometrica, 47(2), pp. 263-292)**

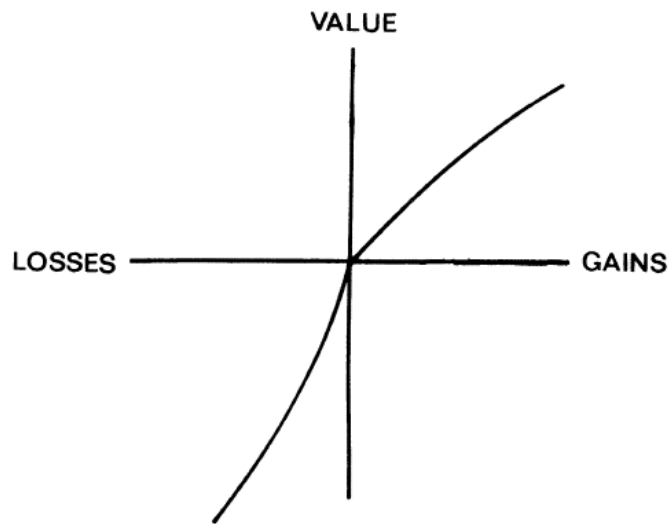


FIGURE 3.—A hypothetical value function.

# Attori di mercato e incertezza



RISK, UNCERTAINTY  
AND PROFIT

BY  
FRANK H. KNIGHT, Ph.D.  
ASSOCIATE PROFESSOR OF ECONOMICS IN THE STATE UNIVERSITY  
OF IOWA



REPRINTS OF ECONOMIC CLASSICS  
Augustus M. Kelley, Bookseller  
New York 1964

“It will appear that a *measurable uncertainty, or "risk" proper, as we shall use the term, is so far different from an unmeasurable one* that it is not in effect an uncertainty at all. We shall accordingly restrict the term "uncertainty" to cases of the non-quantitative type. It is this "true" uncertainty, and not risk, as has been argued, which forms the basis of a valid theory of profit and accounts for the divergence between actual and theoretical competition.”

(**Frank Knight, 1921**, Risk, Uncertainty and Profit, p. 20)

# **Strumenti per affrontare l'incertezza**

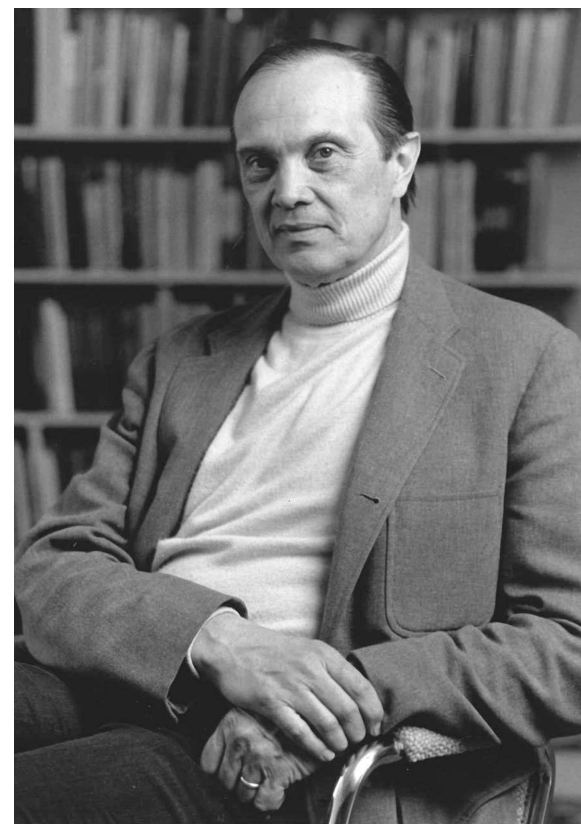


# Strumenti per affrontare l'incertezza e attore imprenditoriale

“... anything that increases the variance also increases the amount of information ... if the variance is very small, we know in advance how our observation must come out, so we get little information from making the observation ...

There is a clear and definite limit to the accuracy with which we can identify absolutely the magnitude of a unidimensional stimulus variable. ... this span is usually somewhere in the neighborhood of seven ...”

(**George Miller, 1956**, The Magical Number Seven ..., *Psychological Review*, p. 343-352)



# Strumenti per affrontare l'incertezza e attore imprenditoriale



“The idea that humans make choices has proven robust enough to become a major matter of faith in important segments of contemporary western civilization ... they share three conspicuous interrelated ideas”

“The first idea is the pre-existence of purpose. We find it natural to base an interpretation of human choice behavior on presumption of human purpose ...

The second idea is the necessity of consistency. We have come to recognize consistency ...

The third idea is the primacy of rationality. By rationality I mean a procedure of deciding that is correct behavior by relating concequencies systematically to objectives ...”

**(James March, 1976, The technology of foolishness, p. 339)**

# Strumenti per affrontare l'incertezza e attore imprenditoriale



“... A variety of terms have been used in the literature of social sciences to denote a smooth sequence of behavior that functions, in some sense as an effective unit ... “plan”, “script”, “habit”, “routine” ...

... skilled human performance is automatic in the sense that most of the details are executed without conscious volition”

**(Richard Nelson & Sidney Winter, 1982, An Evolutionary Theory of Economic Change, ... pp. 74-75)**

# **La ricerca sulle *heuristics***

# La ricerca sulle *heuristics*

Tra i termini individuati da Nelson e Winter si collocano anche le heuristics, intese come “any principle or device that contributes to the reduction in the average search to solution”

(**Newell, Shaw & Simon**, 1962, *The Process of Creative Thinking*, p. 85)

“Some heuristics are applicable across very wide ranges of problems – “work backward from the goal” – while others are relevant only in highly specific problem contexts ... the broad ideas that shape the most critical high-level discussions of a business enterprise may also be viewed as heuristics ...” i.e.: “Develop a strategy”

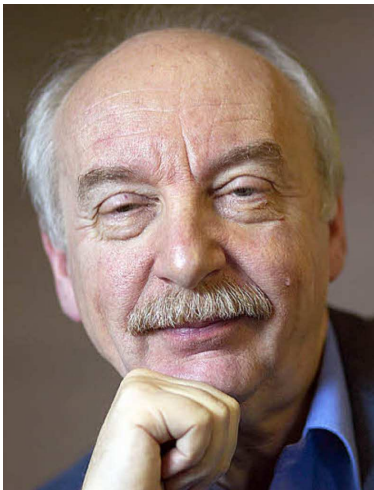
(**Richard Nelson & Sidney Winter**, 1982, *An Evolutionary Theory of Economic Change*, p. 132-133)

## La ricerca sulle *heuristics*



**Simon** (1967) argues that human beings rely on heuristics not only due to cognitive limits (Miller 1956) but because of the task environment

**Tversky and Kahneman** (1974) brought the term “heuristic” to the forefront, associating it to that of “bias”. Heuristics at first described as a means to make computer “smarter”, began to be used as a way to explain the reason why people are “not smart”



**Gigerenzer**'s research studies (Gigerenzer et al 1999) have led to a different perspective on heuristics processes, which constitute a means for “fast and frugal” decision-making

# La ricerca sulle *heuristics*

La traduzione di heuristics in modelli formali che possono essere testati rappresenta per certi aspetti il principale contributo di Gigerenzer alla evoluzione della ricerca sulle heuristics.

**Le heuristics sono articolate in tre “building blocks”:**

**(1) “search rules”** – il modo in cui individui guardano all’informazione nella forma di “cues”

**(2) “stopping rules”** – quando una data ricerca viene ad essere interrotta

**(3) “decision rules”** – come la decisione finale può essere fatta basandosi sull’informazione raccolta

# **Le condizioni di efficacia delle *heuristics***



# Le condizioni di efficacia delle *heuristics*

“... It is a common credo that in prediction the future, one should use as much information as possible and feed it into the most sophisticated computer. A complex problem demand a complex solution, so we are told. In fact, in unpredictable environments, the opposite is true”

(**Gerd Gigerenzer, 2007**, Gut feelings. The intelligence of the unconscious, p. 81)

“... The phenomenon of overfitting is easily explained ... a model overfits a training set if an alternative model exists that, even though it does not do as well on the training set, nonetheless is more accurate when it generalizes to the entire data set ...”

(**Gigerenzer et al., 1999**, Simple heuristics tht make us smart, Oxford University Press, pp. 128)

# Le condizioni di efficacia delle *heuristics*

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## Simple versus complex forecasting: The evidence



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### ABSTRACT

This article introduces this JBR Special Issue on simple versus complex methods in forecasting. Simplicity in forecasting requires that (1) method, (2) representation of cumulative knowledge, (3) relationships in models, and (4) relationships among models, forecasts, and decisions are *all* sufficiently uncomplicated as to be easily understood by decision-makers. Our review of studies comparing simple and complex methods – including those in this special issue – found 97 comparisons in 32 papers. None of the papers provide a balance of evidence that complexity improves forecast accuracy. Complexity *increases* forecast error by 27 percent on average in the 25 papers with quantitative comparisons. The finding is consistent with prior research to identify valid forecasting methods: all 22 previously identified evidence-based forecasting procedures are simple. Nevertheless, complexity remains popular among researchers, forecasters, and clients. Some evidence suggests that the popularity of complexity may be due to incentives: (1) researchers are rewarded for publishing in highly ranked journals, which favor complexity; (2) forecasters can use complex methods to provide forecasts that support decision-makers' plans; and (3) forecasters' clients may be reassured by incomprehensibility. Clients who prefer accuracy should accept forecasts *only* from simple evidence-based procedures. They can rate the simplicity of forecasters' procedures using the questionnaire at [simple-forecasting.com](#).

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# Le condizioni di efficacia delle *heuristics*

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## **RATIONAL HEURISTICS: THE 'SIMPLE RULES' THAT STRATEGISTS LEARN FROM PROCESS EXPERIENCE**

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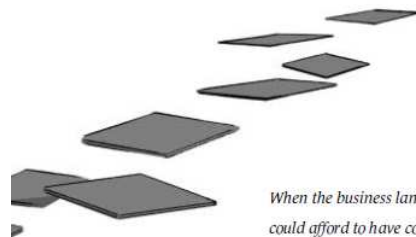
*While much research indicates that organizational processes are learned from experiences, surprisingly little is known about what is actually learned. Using a novel method to measure explicit learning, we track the learned content of six technology-based ventures from three diverse countries as they internationalize. The emergent theoretical framework indicates that firms learn heuristics. These heuristics have a common structure centered on opportunity capture and are learned in a specific developmental order. This results in a deliberately small, yet increasingly strategic, portfolio of heuristics. Broadly, we contribute to the psychological foundations of strategy by highlighting the rationality of heuristics as strategy, capability creation as the cognitive transition from novice to expert heuristics, and simplification cycling as a critical dynamic capability for sustaining competitive advantage. Copyright © 2011 John Wiley & Sons, Ltd.*

# Le condizioni di efficacia delle *heuristics*



“... simple rules offers a fresh perspective on a fundamental question: How can people manage the complexity inherent in the modern world? Our answer, grounded in research and real-world results, is that simple rules tame complexity better than complicated solutions ... simple rules are not immutable – they can evolve in light of new evidence, shifting objectives, and changed conditions ... four common traits that define simple rules: ... [1] number of rules matters ... [2] tailored to the situations ... [3] applied to a single well-defined activity or decision ... [4] concrete guidance without being overly prescriptive”  
(**Kathy Eisenhardt, 2015**, Simple rules, pp. 14-23)

# Le condizioni di efficacia delle *heuristics*



*When the business landscape was simple, companies could afford to have complex strategies. But now that business is so complex, they need to simplify. Smart companies have done just that with a new approach: a few straightforward, hard-and-fast rules that define direction without confining it.*

## Strategy as Simple Rules

by Kathleen M. Eisenhardt  
and Donald N. Sull

SINCE ITS FOUNDING IN 1994, Yahoo! has emerged as one of the blue chips of the new economy. As the Internet's top portal, Yahoo! generates the astounding numbers we've come to expect from stars of the digital era—more than 100 million visits per day, annual sales growth approaching 200%, and a market capitalization that has exceeded the value of the Walt Disney Company. Yet Yahoo! also provides something we don't generally expect from Internet companies: profits.

“... fitting a model too closely to historical data harwires error into the model which is known as overfitting. The result is a precise prediction of the past that may tell us little about what the future holds. Throwing more data and computing horsepower into the mix doesn't necessarily resolve this problem, because big data mixed with little theory is a recipe for overfitting

”

...

(Kathy Eisenhardt, 2015, Simple rules, pp. 14-23)

# Le condizioni di efficacia delle *heuristics*

## CONCLUSIONE 1

la crescita di esperienza vede l'attore non solo apprendere, ma mantenere un atteggiamento "vigile" sulle regole euristiche che fanno parte del proprio portafoglio, la cui ragione d'essere è unicamente l'efficacia, per cui le euristiche che dovessero dimostrarsi "obsolete" per effetto del cambiamento del contesto o comunque non efficaci dovrebbero essere prontamente eliminate dal portafoglio stesso;

# Le condizioni di efficacia delle *heuristics*

## CONCLUSIONE 2

la numerosità delle regole euristiche presenti non è un dato associato positivamente con l'utilità del portafoglio euristico, dal momento che esiste un "trade-off" tra il vantaggio dato dall'utilità apportata con l'aggiunta di una nuova regola euristica e la perdita di flessibilità che potrebbe derivare da un portafoglio più ampio nel conteso decisionale reale; se cancellare euristiche può produrre un sottoutilizzo di esperienza passata e aumentare la possibilità di ripetere errori, un numero eccessivo di regole euristiche può generare una minore prontezza di risposta in relazione alla necessità di consultare un repertorio più ampio quando non contraddittorio

# Le condizioni di efficacia delle *heuristics*

## CONCLUSIONE 3

le aziende possono tenere il numero di euristiche presente nel proprio portafoglio ulteriormente più basso anche per mantenere quella che viene definita come “neural plasticity”, intesa come capacità del sistema cognitivo di cambiare ed evolvere; in questo senso un basso numero di euristiche può rendere più facile l’aggiunta di nuove euristiche nel momento in cui è possibile e tempestivo, mantenendo flessibilità dato che si opera in condizioni di non saturazione delle capacità di memorizzazione.



**Grazie per l'attenzione!**