

A QUESTION OF TIME: DO ECONOMISTS AND STRATEGIC MANAGERS MANAGE TIME OR DO THEY EVEN CARE?

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The article explores the notion of time in an economic thought. Opposite to the importance of time, it has been shown that economic thought has no clear conceptual frame of the relevance of time in its investigations. The usage of time as a context of economic processes is being discussed. Different approaches toward the future are presented. Management science forecasting tools are systematized and presented as a tool for controlling and perpetuating present behavior instead of creating future behavior. Management science needs to adopt a new form of the question eligible to it, as well as to adopt a new quality of the answers relevant in management science. Future development depends on the imagination and passion for creating a future behavioral pattern more than the passion for explaining and rationalizing the future as the continuity of the present behavioral pattern that management science has historically inclined to do.

1. INTRODUCTION

Comprehension related to time in economics is, opposite to its relevance, quite primitive. Time has been referred to in numerous contextual settings. It has been perplexing researchers for decades now (Becker, 1965; Georgescu-Roegen, 1971; Jacoby, Szybillo and Berning, 1976; Coveney and Highfield, 1990; Khaneman and Tversky, 1979; Prigogine and Stengers, 1982; 1984; Faber et al.; 1987; Godet, 1994; Leydesdorff, 1994; Allen, 1994) in their pursuit for the answers to the controvert parallelism of the old adages: "Nothing is new under the sun" and "Everything changes". Western science has, so far, shown preference toward timeless, permanent laws, eliminating the passage of time that resulted in time exterritoriality of economic theory (Prigogine and Stengers, 1982; 1984). Western cultures have a "linear - separable" view of

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time, comprehending time as a line stretching from the past to the future into discrete steps (Graham, 1981). Other cultures have different interpretations of time, but since western countries have dominated the scientific approach, this view is the most common way of perceiving time.

2. CONCEPTUALIZATION OF TIME

History of economic thought has been showing a substantial presence of so called “economic variables” (e.g. price, interest rate, investments, etc.), while time has often played the role of an unbiased, overall and general context (Berg, 1990). However, even if there is some kind of consensus in treating time as context, there is no consensus whether this context is causally or historically driven. Western societies and western science founded on the linear conception of time, together with the western scientific methodology based on the postulates of quantity, exactness, control and reversibility, are probably the main reasons for such a reduced exposure of time in economics (see Figure 1.).

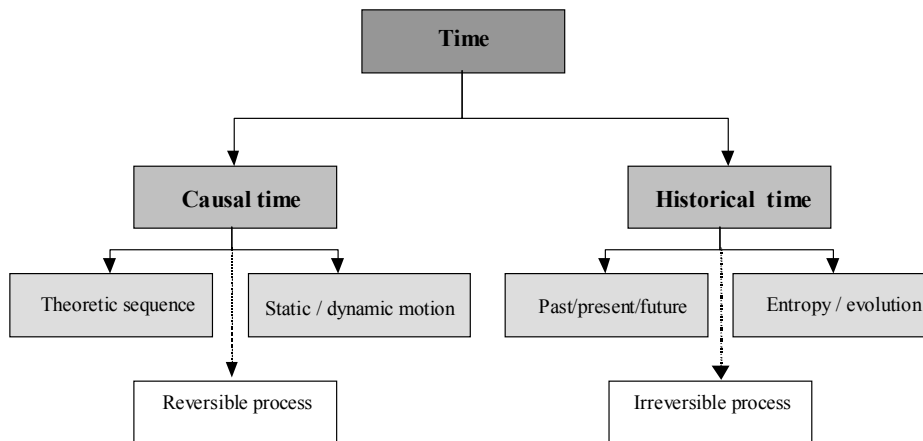


Figure 1. Contextual tree of time perception in economic theory

Economic theory is perceiving time in a two-fold way. The notion of time in economics has been divided between so-called causal and historical time (Samuelson, 1947; Schumpeter, 1954). The dynamics of economic processes was most usually represented by causal time. Causal time is a theoretical relation of economic variables. If all the variables are seen at the same moment of time, then the so-called static analysis is used. While if there are variables at different moments, then the dynamic analysis is used. Causal time is quite

independent of historical time. It is some kind of methodological convention, a theoretical sequence of specific functional relations autonomous of the history of performed trajectories.

Economic literature, furthermore, shows semantical flexibility in the conceptualization of the statics and dynamics (Schumpeter, 1954). Static systems have been seen as those with a constant, permanent function, while dynamic systems have been seen as those which change their function from time to time. On the other side, statics and dynamics have been treated as levels of generalization with quite an opposite subordination between them. For instance, some authors subordinate dynamic analysis to the static one because dynamic analysis is closer to reality and, therefore, less abstract. For others, static analysis is subordinated to the dynamic one because it can be derived from the dynamic analysis by equalizing dynamic moments with zero. Apparently, the history of economic thought can offer neither precise decomposition of the time in economics, nor precise conceptualization of the particular composition, nor clear distinction between two standard time methods. Frontiers of the time conceptualization in economics are the distinction of the discrete and continuous variables and their theoretical functional causality (Brabb, 1968; Szego, 1982). Economic processes have been operated as reversible processes, which can be moved forward and backward independently of changes in the system definition due to the performed causal relation.

Schumpeter (1947), Samuelson (1954) and Hicks (1946, 1973) were among the first who had accented the importance of historical time and natural laws of time: entropy and evolution. The historical passage of time leads toward the growth of uncertainty (the law of entropy) and toward the continuous qualitative change in the conditions of functioning (evolution). Uncertainty, changeability, disorientation, and fuzziness are becoming prevalent characteristics of the economic and global environment. For the past decade numerous theories (such as a thermodynamics, catastrophe theory, autopoiesis, chaos theory, synergetics and evolution game theory) have tried to embody these features of time into the functioning of economic processes.

Georgescu-Roegen (1971), Daly (1989), Faber and Proops (1987) treat the passage of time as a historical passage, with a three-fold impact. The first impact is seen as the transformation of the energetic potentials in a way that irreversibly rises energy dissipation (second law of thermodynamics or entropy). Historically, rising entropy is a one-way, irreversible process, and leads mankind toward exhaustion of the sources of low entropy. The

importance of this “arrow of time” can be seen through a new concept of growth that emphasizes the moral obligation to minimize the ecological consequences of existing growth rates on future generations.

The second impact of the historical passage of time is seen through the natural tendency of development from relatively simple toward bigger and more complex systems. Evolution and differentiation represent a long-term impact of time. Entropy and evolution are both an irreversible, qualitative change whose importance was, among the first, recognized by A. Marshall who wrote: “Mecca of the economists lies in the economic biology, rather than economic dynamics.” (as quoted in Hamrin, 1980). In light of the rising responsibility toward future space, the category of time no longer plays a featureless frame, but an active role of a scarce resource and moderator. The economic environment is becoming more complex, heterogeneous, turbulent, and propulsive for weak signals.

Economic systems need new conceptual tools for dealing with such features, a new frame of reference. They need new sensitivity to the time dimension. The resource is, by definition, the material process or conceptual whole which has got present or potential value. Evaluation of time as a resource is a multidimensional problem. Often used parameters of the resource evaluation are: scarcity, renewability, availability, resourcefulness, and utility. Regarding the above mentioned parameters, time is a relatively scarce, non-renewable resource with limited availability (in a sense that the increase of knowledge and political or economical maneuvering can prolong, more or less fixed, time deadlines). Furthermore, time as a resource has a multi-faceted utility.

The passage of time is unidirectional and irreversible – unused opportunities are not repeated. No one can remodel the past, and yet the past can influence the creation of the present or the future with variable meanings. Many historical events play an important part in the present. The expectation of the particular future can change the particular way it unfolds. For instance, stock exchange markets are almost perfect examples of the importance of the expectation of future and present prices (Canerelli, 1995).

Economic theory is still insufficiently sensitive on the problem of time as one of the traditional noneconomic and external variables. Recently, the multidisciplinary, generic character of new technologies, (i.e. informatics), turbulence, globalization, regionalization, and atomization increases the complexes of the environment. A complex environment becomes characterized

by numerous indirect interactions and non-transparent causal relations, or even frontiers of a particular economic process. Economic processes become endlessly dimensional, and therefore, incomprehensible for the traditional, rational, analytical, mechanistic models. The revolution in the comprehension of the time concept, initiated in the natural sciences (Prigogine and Stengers, 1982; 1984), is under way in the social sciences too, and gains increasing scientific attention (Capra, 1982; Faber, and Proops, 1987; Daly, 1989; Henderson, 1991; Allen, 1990; 1994.).

3. REVELATION OF THE FUTURE

Interest in the future as an aggregation of time is the historical human longing for the elimination of uncertainty, randomness, surprises and the promotion of order, law, and certainty. Economic theory shows a few different approaches to the conceptualization of the future. Revelation of the future takes many forms: the form of prophecy, prediction, projection, forecast, futurology, plan, scenario and prospective analysis (Godet, 1994). Such a wide range of different concepts of the future is often the source of misunderstandings. Table 1. offers a comparative insight into the presumptions and definitions of the few main concepts of the revelation of the future in economics (see Table 1.)

Economic literature has neglected the question of the methodological approach toward the future for a long time, showing neglect of analytical insight into the presumptions of different concepts and the lack of synergy between them. Classical economic forecasting techniques are based on the western, predominantly axiomatic, scientific heritage, and pure mechanical transfer of physical sciences into social sciences (Makridakis, Wheelwright, McGee; 1983).

Table 1. Differing main concepts of the future

CONCEPT	DEFINITION
prophecy	statement of the future usually made irrationally or by divine inspiration
projection	extension of the past behavioral pattern into the future
forecasting	prediction of the future relying upon preferably quantitative models
futurology	wide variety of "What if" scenarios on the future
prospective analysis	multidimensional, qualitative and quantitative, proactive attitude toward the future

Futurology, as the second approach toward the future, is significantly less axiomatic and usually lacks full scientific acknowledgement (Henderson, 1991). Recently, more scientific attention has been given to the so-called prospective analysis as the third approach toward the future. None of these types are monolithic. They usually use the same tools, but on different presumptions. Table 2. compares the main features of the mentioned approaches. While futurology is usually contrasted or opposed to classical forecasting, prospective analysis is a kind of synergy between them.

Table 2: Summary of the presumptions and attributes of the main concepts of the future

	CLASSICAL FORECASTING METHODS	FUTUROLOGY	PROSPECTIVE ANALYSIS
Data	Quantitative, objective, preferably numeric data. Data on non-economic character seen as "externalities"	Qualitative, soft data, not necessarily numeric, economic and non-economic	Simultaneous use of the qualitative and quantitative data
Connections between data	Transparent, fixed, reversible	Fuzzy, irreversible, evolving	Dynamic, irreversible, evolving
Presumptions	Concept of linearity, final dimensionality, homeostasis	Concept of nonlinearity, endless dimensionality, morphogenesis	Nonlinearity, endless dimensionality, evolution
Methods	Reductionism, analytics, determinism	Holism, synergy, uncertainty	Structural, morphologic analysis, cross-impact analysis, multiple scenarios
	Precise, quantitative, exact	Qualitative, global orientation on social, political, economic values	Qualitative focus
Objective	Discovery of the prevailing effects	Discovery of the latent potential	Future as the presumption of present actions
Attitude toward future	Reactive, adaptive (accent on the invisible hand of the market economics)	Proactive (accent on human responsibility and choice)	Creative (accent on the creation of the desirable future)

The mentioned approaches are not mutually exclusive, and frequently, methods of classical forecasting are incorporated into scenarios or global trends. A significant difference among these approaches is overall attitude toward the future. Classical forecasting is performed on the presumptions that the past behavioral pattern reveals general laws of motion which will stay unchanged in the future. An important presumption is that the future is a continuation of the present. Therefore, the future is, up to a certain extent, controllable and forecasts can perform a high degree of accuracy.

The most effective forecast can only be made in cases when major structural elements of the problem under investigation remain unchanged and constant. Continuity of the structure of the problem under investigation can be met only occasionally and for short-term time frames. Therefore, classical forecasting turns out to be ineffective on the long-term basis (usually - more than one year).

Futurology has been using methods that were often not acceptable for the scientific standards of economics, and therefore, quite unpopular among economists. Prospective analysis treats the future as freedom of choice. Prospective analysis is a kind of creative approach to the future. Expectation of a certain desirable trajectory of the future alters irreversible present behavior of the actors involved in the problem under investigation.

3.1. Anticipation tools dilemma

Classical forecasting methods are usually grouped into three types (Morgenstern et al, 1973, Buble, 2000):

- judgmental models (subjective, qualitative, intuitive models as Delphi, crossimpact, scenario, morphological analysis, etc),
- causal models (basically regression analysis) and
- time series analysis (basically trend analysis).

Judgmental models are rather qualitative while others engage more quantifiable and objective probabilities. Effective management should use, and often does use the combination of these forecasting tools to chart the troubled water ahead. Judgmental models, based predominantly on intuition, subjective probability, creative thinking and other “soft” variables, are well suited for the multidimensional impact of time on the economic processes, especially in regard to discontinuity and prospective behavior.

Causal methods are based on the presumption of final dimensionality and continuity of time and economic processes. Besides this, they depend on some theoretical sequence of the main investigating variable, e.g. the historical behavioral pattern will pervade the future behavior of the system. Time series analyses has a reputation of theoretically independent methods, with accuracy depending on the expertise and skill in mathematics and statistics.

Although, causal and time series analyses can both produce satisfactory results in the segment of explanation of historical patterns, the prime motive for using them - discovering the structural changes, discontinuities, new habits, new values, new technologies - still remains unsatisfied. Therefore, classical forecasting is methodological compromise. Consciousness about the shortcomings or presumptions of a certain method can reduce surprises.

Applicability of a particular method, technique or tool for the revelation of the future is a multicriterial, and multidisciplinary problem. Business systems are complex, living, evolving, and contextually dependent. Selection of a particular method has its reasons that are far away from being simple or harmless.

However, one possible generalization of the problem of the forecasting method selection is shown in Figure 2. Usage of a particular method is dependent on the goal, prognostic domain, the problem itself, environment attributes, the researcher, etc.

Criteria for the selection are not final, unchangeable or universal. The figure merely illustrates that the situation of few and unreliable information, long-term horizons and nonrepetitive problems prefers less structured, less analytical, and less rational methods as are judgmental methods.

On the contrary, in the presence of the short-term horizons, repetitive problems and available and objective information, the quantitative methods are recommended. The majority of economic problems today have a hybrid structure and require delicate synergy and permeability of various methodological and managerial approaches.

Forecasts can be very effective for tactical situation in which "hard information" can be easily obtained, and repetitive decisions in management. A strategic, nonrepetitive, and information-poor situation in decision-making should be oriented more toward qualitative methods.

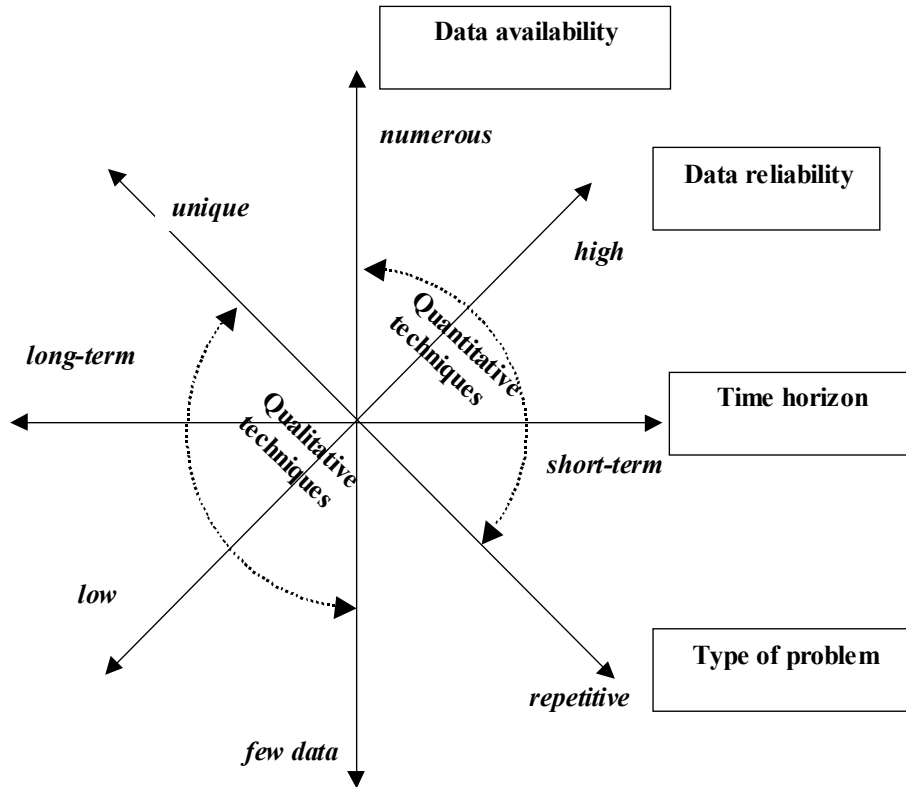


Figure 2. Multicriterial option of future anticipation techniques

3.2. Anticipation as presumption of management

For the past few decades, the field of strategic management has aroused increasing attention. Forecasting is usually understood as a basis for a plan or strategy, while planning and strategizing is understood as the anticipative behavior. Anticipation, consequently, is becoming an important factor of the strategic behavior. Literature, concerned with strategic management, argues different approaches toward the future and anticipation: from the heuristic - rational dichotomy, toward reactive - proactive dichotomy.

Their mutual aim is anticipation and action on various alternatives of the expected future. The future is one source of uncertainty, but it is also a source of

freedom of choice and creation. Table 3. shows some of the frequently used techniques of management anticipation.

Table 3. Review of the managerial techniques oriented toward temporal or spatial strategy formulation

TECHNIQUE	DESCRIPTION	APPLICATION
Driving forces	Identification of the forces that cause incentives or pressures for change in the enterprise environment	Industry and competitive analysis
Stakeholder analysis	Stakeholder map, issues, evaluation	Industry and competitive analysis
PIMS	Consequences of feasible changes in strategies	Business strategies analysis
Competitive situational analysis	Identification of market and competitive forces	Market, industry and competition analysis
Value chain analysis	Identification of value-added matrix	Knowledge of the value-cost by function
Benchmarking	Comparative analysis of business policy of the competition	Business strategy analysis
SWOT	Identification of strengths, weaknesses, opportunities and threats	Business strategy analysis, Environment analysis
Key success factor analysis	Identification and ordering of critical factors and strategic problems	Business strategy analysis, market and industry analysis
Life-cycle analysis	Identification of strategic alternatives in the life cycle of the product or business	Business strategy analysis
Experience curve	Identification of scale and cost relationship	Industry analysis
Portfolio analysis	Identification of business strategic alternatives	Business strategy analysis
Competitive analysis	Identification of the critical factors of success	Competitive analysis
SPACE analysis	Identification of generic strategy for business running	Business strategy analysis
Metagame analysis	Strategic alternatives and directions	Market analysis
Strategic gap analysis	Identification of gap and strategic alternatives to close it	Sales analysis
McKinsey 7-S framework	Framework for implementing strategic plan	Business policy analysis

Apart from time passage as a source of risk and uncertainty, interaction of the environment and business system is becoming shorter. Nervous business systems (with fast reactions on the action of the environment) dominate the slow ones. Furthermore, a turbulent environment and its dynamics erase the distinction between short and long-term politics in the sense that firms need to live every day to be able to plan for a long-term future. As a result of increasing turbulence, i.e. complexity, dynamics and novelty, management theory has produced numerous tools, a few of which are reviewed in Table 3. Some of them are purely diagnostic and analytic, while others have some deductive, or even visionary role.

Few years ago, for instance, a majority of the papers concerned with management discussed portfolio models, or the experience curve. Their popularity, due to their reactive and adaptive function, is diminishing. On the contrary, scenario analysis or analysis of the weak/early signals has increased its popularity. The future of the modern managerial practice lies in the creation of possible or desirable alternatives of the future, and in their active attitude toward proaction instead of reaction, anticipation instead of adoption, and creation instead of repetition.

The strategist's focus should be on making discontinuities happen and not on the repetition of the present or past behavior and structures. The power of imagination and vision as a part of the procreative attitude toward the future has already established its landmarks. Amnesty International was founded by Peter Benenson; National Consumer's League was established by Florence Kelly; Irwing Stowe had a crucial role in Greenpeace, etc. A few people have already changed the reality they were or are living in by the sheer power of their visions.

Every business system has several layers it consists of (Hamel, 2000) (see Figure 3.). There are day-to day operations that make the present operating system of a company and everyday living of company possible. On top of the operating system, there is a strategic system of the company that presents all the choices the company is willing to make about the various components of the operating systems. On top of the strategy system, there is a mental system which encompasses all conscious and unconscious beliefs about what is necessary for the success of an organization. It is a prevailing set of notions about customers, competitors and other actors of the industry market.

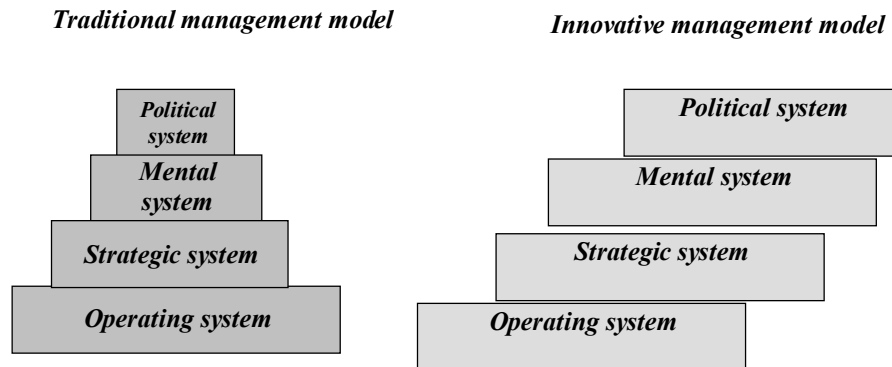


Figure 3: Bringing the future into the business system: contrasting traditional vs. innovative management model

Standing atop the mental system is a political system which presents the way the power is distributed throughout an organization. Usually, most of the power to reinforce the mental system and all other layers is given to top management. This also means that top management has the power to create the mental system which is crucial for the determination of the strategic or operating system of a business organization.

Traditional strategic management preferred alignment of these four layers in a way that each of the layers is sited squarely atop the one below. Such alignment has been hostile to the innovative behavior of a business organization. In the age of discontinuity, creating some disorder in the complexity of the structure of the organization is a necessity of the business' future creation. When a business system experiences difficulties, the usual reaction is to add more human or capital resources into an operating system to fix the problem. However, usually adding more resources does not fix the mature or ineffective strategic system.

Healing the operating system requires a new strategy. A new strategy can not be given without allowing some significant shifts in the mental or political system of the business organization. Having mental or political systems perfectly atop the strategy or operating system make major innovative shifts almost impossible. The most usual trajectories in such situations are recycling instead of the creation of new possibilities. Since innovative behavior is more a function of imagination and passion rather than of political power, the creative approach toward the future should start with each individual's active role in strategy making.

Nelson Mandela, Vaclav Havel, Mahatma Gandy did not start their movements from the top downward. They were not asked by the top to perform what they did. No one from the political top gave them permission to do what they did. However, they had an imagination, a passion and persistence to bring the future expectation in the present. They took the active role in their future anticipation, sometimes with a dear price, but finally, they changed the world. There are no excuses for not taking the initiative in one business model changing. All it takes, is imagination and passion rather than position and political power.

4. CONCLUSION

The anticipation of the future is the historical human longing for the elimination of uncertainties, randomness, and surprises in order to promote determinism, controllability and certainty. Therefore, the revelation of the future has a long history, but only moderate effects. The majority of economic problems today have got a hybrid structure and require the delicate synergy and permeability of various approaches, as well as the coexistence of opposites, like order and chaos.

Economic theory has been developed under the concept of externalization of time. Time has been treated as a convention used for the standardization of reality measurement (Giddens, 1990). It was institutionalized through the Gregorian Calendar and the western linearly separable time appropriation of the past, present and future. Since this appropriation has been seen as discrete, there was an overall neglect of irreversibility, evolutionary impact, and space/culture determination of temporality. An economic neutral, reversible and culturally empty time framework (Shimada, 1995) has been only recently (in the last few decades) suffused by the new time description and meanings.

Time has become a unique resource and heterogeneous, multidimensional unity with different meanings and constructions. Each of them jointly construct the meaning of the time flux. The holistic approach to time, apart from the linear, addresses the question of the integration of contingencies and inferences introduced by time conceptualization in economic science. Spatial and time uncertainty can be neutralized only by the increase of knowledge, social adaptation to the form of question eligible to the science and social adaptation toward the new quality of answers relevant in the particular field of science.

Anticipation of the future alters the possible futures' alternative, it broadens the horizons of perception and action. Information congestion or

information absence is a frequent problem of the functional description of economic processes. However, since they are somewhat beyond logic, they might be interfered by the power of intuition and imagination, by the openness toward multiple and coexistent truths. Activists and discontinuity initiators are needed for bringing these coexistent truths into reality. Given the complexity of the modern world, business models do not last forever. What is needed when things start to go wrong is an invention of the new strategy, a new mental model of the business organization, as well as some political power redistribution. The power of the mental model has its role models. A few succeeded in changing the whole world by merely taking the active role toward the future.

Ray Kroc had a vision of the whole world having fast food restaurants. Someone else saw the potential of the Internet, making e-business possible. However, they were driven by the passion for imagination and innovation. Therefore, anticipation of the future should be more flexible to prospective techniques such as scenario analysis, early signals analysis, cross-impact analysis, etc. Allowing the management model to build a hierarchy of imagination, with individuals sharing the voice of strategy making and innovating, is one possible solution for bringing desirable discontinuities of future anticipation into present operation systems.

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**PITANJE VREMENA: UPRAVLJAJU LI EKONOMISTI I STRATEZI
VREMENOM I BRINU LI UOPĆE ZA TO?**

Sažetak

U radu se istražuje shvaćanje vremena u ekonomskoj teoriji. Suprotno značenju vremena, pokazuje se da ekonomska misao nema jasan konceptualni okvir za vrednovanje značenja vremena u svojim razmatranjima. Razmatra se korištenje vremena kao konteksta ekonomskih procesa, a naročito odnos prema budućnosti kao odsječku vremenskog tijeka. Prezentirani su različiti oblici pristupa budućnosti. Sistematizirane su tehnike predviđanja koje manageri koriste uglavnom za održavanje sadašnjih a ne kreiranje budućih osnova ponašanja. Management kao znanost mora usvojiti nova pitanja kao i nove vrste odgovora koje smatra relevantnima u okvirima svoje znanstvene discipline. Razvijanje budućnosti ovisi o imaginativnosti i pregnuću za stvaranjem, više nego li o pregnuću prema racionalizaciji i objašnjavanju budućnosti kao neizbježnog sljednika postojećih obrazaca ponašanja, što je management povijesno bio sklon činiti.

