Technological Forecasting & Social Change 77 (2010) 1457–1463

Contents lists available at ScienceDirect

Technological Forecasting & Social Change

Future memories

Michel Godet *

Conservatoire national des Arts et Métiers (CNAM) Paris, LIPSOR, 2 rue Conté - 75003 Paris, France

ARTICLE INFO

Article history:
Received 18 March 2010
Received in revised form 8 May 2010
Accepted 15 June 2010

Keywords:
History
Forecasting
Foresight
La prospective
Scenarios
Projects

ABSTRACT

Although the concept of foresight is now widely used by Anglo-American writers, the Romance-language countries have continued to refer to the concept of *la prospective* or *prospectiva* since the early 1960s. Despite cultural differences, the two concepts are very similar. Nevertheless, the author argues that *prospective* is closer to *strategic foresight*. The *prospective* attitude does not wait for change and then react; it aims to master expected change (preactivity) and to induce a desired change (proactivity). Preactivity is what guides all approaches to future studies, forecasting, scenario planning and foresight. Proactivity is more voluntarist, and aims to bring about the desired changes by means of strategic planning. This leads to a hopeful message: We just have to rethink the problems to move forward. The author highlights the enduring relevance of several key thinkers ranging from Saint Augustine and Seneca to Gaston Berger and Igor Ansoff. He emphasizes the importance of a collectivity's thinking together about the future and taking action. Overall the article pleads for rigor yet some common sense explains the utility of participatory foresight with simple tools (morphological analysis, *prospective* workshops). In conclusion, this article emphasizes two symmetrical errors: ignore the existence of a hammer when in front of a nail or consider every problem a nail because you have a hammer!

1. Glances in the rearview mirror

The year 2010 heralded good news for futurists. If all goes well, Olaf Helmer (b. 1910), one of the fathers (along with Ted Gordon and Norman Dalkey) of the Delphi method, should become a centenarian. Along with Hasan Ozbekhan,Igor Ansoff, Erich Jantsch and Fritz Zwicky, who have all left us in recent years, Olaf Helmer belongs to the corps of masters to whom I remain grateful for guiding me in this field. My debt is all the greater to authors less known in the English-speaking world, e.g., Gaston Berger, and Maurice Blondel, both philosophers[1]. Looking back, I realize that the historians, and especially the philosophers, have given me the most food for thought on the future. My readings range from Aristotle to Seneca to Descartes, without forgetting Saint Augustine for the distant past; Braudel Chaunu and Leroy Ladurie for the contemporary period.

Maurice Blondel [1] saw the future as a field to be constructed using material and restraints from the past. Blondel once said: "The future is not forecasted, rather it is prepared." With *la prospective,* Gaston Berger [2] went even further by stating that the future is the *raison d'être* of the present and that many of our actions may be explained by projects which justify them. Truth be told, these ideas were not new and could be found in Aristotle, who distinguished the efficient cause, that which provokes an effect, from the final cause, that which justifies our actions with a project. The concept of a project and an action plan to reach a goal is not new either. Here Seneca's statement resonates across the centuries: "There is no good wind for he who knows not where he is headed."

* Tel.: +33 6 07 54 53 54.
E-mail address: michel.godet@cnam.fr.

[1] See Philippe Durance's paper in this issue: Reciprocal influences in future thinking between Europe and the USA.

0040-1625/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.techfore.2010.06.008

Overall, *la prospective* is less interested in *futuribles* (poss*ible* futures)[2] than *futurables* (desir*able* futures). This distinction may be found today among those who think about the future in terms of scenarios and those who start up projects. Personally, I believe that since the early 1990s, futurists have overdone scenarios and underdone projects. However, I am partly to blame as I helped spread scenario-building methods and will return to this track record herein. In fact, what follows comes from my long professional experience and expresses my personal impressions.

After nearly forty years as a futurist in the managerial and corporate milieus, I would like to share the lessons learned. More often than not, I have rediscovered ideas that were certainly new to me but not to those who had come before. This should make us all modest, as what we believe we are discovering often reflects our own ignorance. That discovery itself is a necessary step if we are to appropriate a concept or method. Each generation spends part of its life searching and finally finding out what the previous generation knew and could have passed along, if only we had listened. All in all, the great invariable in history is Man. Human behavior changes little. The ability to motivate people in a common project and to manage change remains the springboard to building the future.

Here I am using the verb construct or build rather than predict or foresee the future, the terms used in the 1970s when futurology was the latest fashion, expected to become a science of the future just as history was the science of the past. Daniel Bell considered futurology to be an exercise in sociology in that its purpose is not to foresee the future but make explicit the societal structures. Its purpose is to try to know which social changes are occurring and to explain why they are heading in any given direction. Raymond Aron echoes Bell when he states that futurology begins with a science of the present, society as it is, and that futurology is worth what the social science underlying it is worth [3]. It already seemed clear that we could not imagine the future as merely an extension of past trends and that this could not continue especially when only taking into account quantifiable parameters led us to neglect qualitative factors that played an equally determining role, e.g. balance of power, actor behavior and projects. In fact, I began my career in 1971 at the Atomic Energy Commission as an econometrician trying to build forecasting models for France's long-term energy needs, notably the role nuclear energy could play. I soon realized that there was a forecasting crisis. Something new was definitely needed in France. That something new had been called *prospective* since 1957. Unfortunately it had no close equivalent in English until the rise of the concept of foresight in the mid-eighties under the influence of technology assessment, as seen in Joe Coates' work [4], and in the UK in the mid-1990s with technology foresight programs, as seen in Ben Martin's work [5]. This situation is well described in Ian Miles' contribution to this issue. As we shall see, however, the two concepts are not fully synonymous.

The late 1960s and early 1970s proved productive in terms of reflecting on the future and on the role people might play in building it, especially through technology and systems analysis which would allow us to analyze, understand and finally master the complexity of economic and social systems. This was, after all, the Space Age, man on the moon and Daniel Bell's post-industrial society. In fact his 1973 book was titled *The Coming of Post-Industrial Society: A Venture in Social Forecasting* [6]. Far from neutral, the subtitle translates the idea of a technological change which could be accelerated and mastered through forecasting and planning. The methods do exist. In fact, Erich Jantsch listed them at the OECD in his famous compilation-report *Technological Forecasting in Perspective* which remains a monument in the collective memory as a work from the post-war years up to the first oil shock [7]. The journals of reference from those days still exist, *Long Range Planning*[3], *Technological Foresight and Social Change* and *Futures*. Technology has played a key role and justifiably so in the way societies have developed. Nonetheless, one could not reduce thinking about the future to this one dimension of uncertainty. Demographics, geopolitics, values, beliefs... these are all equally important determining factors as witnessed in unforeseen events like the Fall of the Berlin Wall, China's rise, and the collapse of the Twin Towers on September 11, 2001.

Before the first oil shock shattered illusions about the ability to foresee the future by extrapolating on the past, there was a memorable debate on the limits to growth. The report of the same title *The Limits to Growth*, sponsored by the Club of Rome reminds us [8]. This debate resembles today's questions about sustainable development. One major difference: Global warming was not even mentioned back then. In fact, a form of ice age was feared, as Le Roy Ladurie shows in his *Times of Feast, Times of Famine* [9]. Periods of warming have a positive image. One such period in the Middle Ages is referred to as small optimum versus the great optimum that occurred 5000 years BCE.

We believed that the hypotheses of the Club of Rome were rejected after the *Interfuture: Facing the Future* study launched by the OECD in 1976 [10]. An international team, headed by Jacques Lesourne for three years, showed that there were no physical limits to growth rather only regulation problems. The famous line generally attributed to Daniel Bell: *The states have got too big for the small problems and are too small for the big one* comes from this period yet remains incredibly current. Today, however, I find governance is the current buzzword rather than regulation. The concept may have grown broader and more mature, but we are dealing with the same thing.

In the early 1970s, all the systems analysis tools inspired by work done at the RAND Corporation and described Jantsch's book [7], such as Delphi or cross-impact, were still on the front cover of academic's journals of the day, e.g., *Technological Foresight and Social Change, Futures*. Yet almost simultaneously these methods started to go out of fashion in North America where a less rational

[2] The approach using *futuribles* (contraction of *futurs possibles*) launched a few years later by Bertrand de Jouvenel falls more under the heading of speculative anticipation. In fact, Jouvenel never used the word *prospective* in his 1964 book *L'Art de la conjecture*. At the end of the 1970s, I asked him why he had not used Gaston Berger's concept of *la prospective*. He had quoted Berger only once regarding his role in favor of the social sciences. The response: "Why bother since it's the same thing!" History retained, however, the concept of *la prospective* and not conjecture. Nonetheless, we must be prudent as conjecture regarding possible futures (*futuribles*) is not without its risks. Too often conjecture leads to creating too many scenarios while forgetting to have projects.

[3] A high-quality journal presented as the *International Journal of Strategic Management* while remaining closely linked to the Strategic Planning Society of the United Kingdom.

approach began to spread. It seems to me that the crushing defeat in Vietnam, despite operational research methods and systems analysis may continue to have an impact on rational approaches given that Russia (past), the West (now) may well be powerful but remains unable to solve the problems of Afghanistan. The US and its allies do not know how to get out of the hornet's nest that is Iraq or how to stop Iran from having atomic weapons. Regardless, corporations have continued with the scenario approach, seemingly obliged to compensate for the State's lack of ability in planning for the future. During the 1960s, firms remained pleased with long-range planning. They then turned to strategic planning to deal with the fact that they had to integrate uncertainty within the general business environment in any of their development projects. Strategic management followed strategic planning at the end of the 1980s to insist the difference of being able to manage well. A glance at the titles of Igor Ansoff's books illustrates the trend perfectly[4] [11]. Throughout the period from 1980 to 2010, the flames of debate flickered again over technological long cycles which had a peak 10 years ago with the new economy. All this may still be debated, but we must realize that the great and rather positive changes of the past thirty years (green revolution, longer life expectancy) were foreseen by just a few optimistic futurists such as Herman Kahn but rarely by planners and insurance companies. The unprecedented growth in human history that took place between 1995 and 2007 in China was announced for many years and happened in a centralized market economy. As I recall, the financial crash of 2008 was also announced for a long time and not at all avoided. This begs the question: What is the use of a forecast if it does not change policies?

2. No right answers to wrong questions

Over the last few decades, I have seen the race from fad to fashion, the pursuit of mirages and the exchange of conventional wisdom or clichés. What is worse is that all of the above was presented as if it were reflection. Ironically in reflection exercises, when everybody agrees, we should be suspicious and look more closely. The light shed by current events throws shadows on the basic questions that societies generally refuse to face. Facts are stubborn and reality necessarily brings us back in line. Only now with some distance can we see analyses that bucked the trend and turned out to be correct. All this shows that when a consensus is too strong among experts, suspicion is needed. Unfortunately this does not explain how to recognize from among the various minority points of view which is the correct one!

Ask the right questions and quash conventional thinking

"The answer is yes, but what was the question?" Woody Allen.
This famous line is all too often what happens when we forget to consider the validity of a question and rush like lemmings to find the illusory answers to false questions. Since there can be no right answer to a wrong question, how can we ensure that we are indeed asking the right questions?

There can be no right answer to the wrong question. Asking the right questions means being on guard against consensus and received wisdom. It was not easy to diagnose the "Japansclerosis" nor some false beliefs about Japanese management in the 1980s [12]. At the beginning of the new millennium, as the new economy and markets faltered, a grain of common sense and bit of memory would have been enough to see that the new growth was old hat [13].

One example is the role of energy prices on proven reserves. We believed for forty years in the plethora of expensive energy sources. The only thing that had really changed, however, was that the price per barrel rose from $12 to $45 and the proven reserves went from 30 to 47 years! In June of 2008, when oil reached $150 a barrel, we had likely more than a century, even two, of proven reserves. Yet no figures circulated about this last point because they would have reduced the alarmism and interest in alternative energies including bio-energy. We really start to see how the unplanned development of biocarburants (biofuels) led to an indexing of all the prices of basic agricultural crops to energy (oil). As a result, food products saw their prices soar and the ghost of famine and shortages resurrected. We would have to allot 29% of growable, or arable, crop land to produce the equivalent of 10% of fossil fuels consumed in biomass. Higher prices at the pump and energy-saving regulations in housing and transportation are thus certainly better paths to take.

The new economy is no longer current given that it was replaced by the financial crisis and the issue of sustainable development which, according to the famous definition from the Bruntland report, in 1987, goes "that of the present which is not to the detriment of future generations." [14]. Humans remain at the heart of the issue of sustainable development yet certain ecologists tend to forget that! Anticipation to act in a responsible manner for future generations is also the ambition of strategic foresight. We can easily see that these two concepts are cousins: no sustainable development without strategic foresight and vice-versa.

Over the years, I have watched ecology become one of the great recurring problems and the report *Global 2000* began with this terrible prediction: "*if current trends continue, the world by the year 2000 will be more polluted, more crowded*" [15]. In 1982, during an

[4] See Alain Charles Martinet's contribution in this issue: *The Seminal Work of H. Igor Ansoff.*

interview, Gerald Barney, the author of the report revealed that first sentence had been reworked, in other words, censured. The new version was as follows: "*if the current policies continue*..." Not the same thing at all. The diagnosis would be much less fatalistic but also more accusing for those who govern us. The breaks and mutations related to globalization are the same for everyone but their regional consequences depend largely on endogenous/local factors.

Sustainable development is an extraordinary opportunity for companies. Any restriction is, in effect, an opportunity. All the challenges of recycling, reprocessing and energy saving may yield innovative and profitable solutions. Yet, perhaps in this field, as consumers, we can really see how the principle of precaution, if applied to the maximum, could prove dangerous, even stifling innovation. If we have to prove that there is no risk before doing something, be it launching a product or starting an investigation or experiment, we effectively paralyze action.

In the food sector, as in production ethics, trackability or accountability will become standard and will strengthen the proximity and shorten the production chains 'from stable to table'. In sum, sustainable development follows local production. Why produce elsewhere and incur transportation costs plus deepen your carbon footprint? Sustainable development is also a non-tariff barrier to low-cost imports from faraway countries.

Strategy is also affected by conformism and conventional thinking. How many investment and site selection choices have been justified with the mantra 'our company needs economies of scale to compete internationally'? In reality, there are always smaller, more profitable companies even within the same sector. Why then does a company not opt to find ways to be more profitable without expanding? The correct question would be 'how can we be more profitable at our current size?'. The answer to this question may mean temporary lack of growth, like trees which are pruned only to grow back all the more beautifully. Profitability is really the best condition for healthy growth.

Yes, it finally dawned on futurists that they should beware of collective mirages about globalization, the end of work, work-sharing, the new economy, productivity and new technology and now sustainable development. In other words, they need to go back to the long term preached by Fernand Braudel and the historians.

3. Back to long-term

Fernand Braudel [16] clearly showed the need for the long-term (several decades even centuries) to understand the rate of development of societies, economies or eco-systems. History may not repeat itself but human beings tend to repeat the same behavior which leads them to react in the same way when faced with an almost identical situation. In other words, they are predictable. Retrospective analysis always provides a wealth of lessons when reflecting on the future.

Anyone who ignores his past cannot foresee his possible futures. The choices from the past shape the future. In fact, most events that are to occur already have their root in the distant past. Future projects are not born by chance of some imagination but from desires blunted by a cultural and family heritage which is specific yet always different. This infinite variety of possible combinations makes beings and contexts always different even when similar. As Fernand Braudel put it "there is no social time that flows simply once but rather a social time at thousands of speeds" [16].

What concerns me here is the issue of history's meaning and weight. What lessons can we learn from past developments? Were they inevitable? How much does the future depend on the past? In *prospective*, the future is open and there is not predetermination possible in the development of human societies which always seem to advance without our being able to confirm that the progress of technology and the economy will lead to a more human or more uncivilized world. It is impossible for us to confirm that progress will continue and that there will not be any backsliding in the accumulated knowledge and in the ability of Men to use and transmit that knowledge. Pierre Chaunu estimates that the population of the Roman Empire who knew how to read was 20%; the equivalent literate population of seventh- and eighth-century Gaul, 1%. He also suggests a decrease of 50% in the population of the Roman Empire between the second and fourth centuries (from 60 to 30 million inhabitants) and in Gaul, a similar drop from 10 to 12 million to 3 million. It may, therefore, be that the dominant powers of today will last less time than the empires of yesteryear and will be replaced by others [17].

Pierre Chaunu goes further to highlight the unforeseeable nature of history: "the past has never been the cemetery of futures that never were" [18]. He reminds us that World War I is the most improbable scenario, along with the absurd journey of the self-taught, ill-informed visionary Christopher Columbus. The logical, desirable, profitable version would have been the route following the African coast and the encounter with Arab navigation in the Indian Ocean, thus an exchange between two wealthy, developed human groups with long memories reinforced by written documents.

4. The future to be built

Futurology claims to be a science of the future in the same way as history is a science of the past. But if the past is indeed behind us, the future is an almost blank page that remains to be written, and any kind of prediction is an imposture. Do we want the world to change with us, without us, or against us? To ask this question is already to indicate the answer: it is up to each one of us to take our future in hand. ("Make Dreams Real," as the Rotary International slogan has it.)

The *prospective* attitude does not wait for change and then react; instead it aims to master expected change (preactivity[5]) and to induce a desired change (poactivity). It is a desire, a force for producing the future. Preactivity is what guides all approaches

[5] I owe this translation of *prospective* as an attitude that is both pre- and pro- active to Hasan Ozbekhan. He wrote to me on September 28, 1989, further to a discussion at a lunch in Madrid the previous June : 'Preactive' is an invention of R.L Ackoff and 'proactive' was suggested by professor Eric Trist, as being better Latin than "interactive" which Ackoff originally wanted.

to future studies, forecasting, scenario planning and foresight. Proactivity is more voluntarist, and aims to bring about the desired changes by means of strategic planning (for example, innovation as a way of winning market share.) '*la prospective*' or 'strategic foresight' designates a discipline which seeks enlightened anticipation by clarifying actions made in the present through the thoughtful examination of both possible and desirable futures. This vision is often viewed with suspicion by champions of the market economy who remember the mistakes made by public interventionism. However, issues of sustainable development, responsibility for the future of the planet and improving governance of financial systems are again strengthening the case for this voluntarist, proactive approach to the future. Approaches to anticipating the future vary.

When we look for more rigorous approaches for exploration and evaluation of the future, we still refer to methods developed by the influential American think-tank, the RAND Corporation (in the post-war period referred to as, the so-called glorious age of pre-oil-shock growth, and of the conquest of outer space). Many of the researchers had emigrated to the United States from Europe; for example, the German mathematician, Olaf Helmer, who developed the Delphi method, a form of forecasting by groups of experts, and the Swiss astrophysicist, Fritz Zwicky, who formulated scenario building and morphological analysis, a method of problem solving. Among the new generations of futurists and consultants, I have to report an absence of collective memory and, above all, a weakening of rationality. Anticipation is reduced to exercises in participative scenario building or 'scenario entertainment' in which the excitement of collective communication predominates, to the detriment of incisive debate and deeper enquiry.

In any event, scenario building is an excellent instrument of participatory management, capable of involving the full range of human resources. While it is not possible to include people in reflecting on strategic choices concerning their company, since these remain confidential, it is possible to have them reflect on the environmental aspects of these choices. Today, collective learning is an integral part of knowledge management. As an American saying has it, 'the reward is the journey'. The path is the goal, the goal being a pretext for the collective journey, for shared experience and the resulting bonding between participants.

Managers know that the best ideas are not the ideas one already has, but the ideas one elicits. Anticipation cannot be transformed into action without appropriation by the actors involved. One common distortion when building development projects is to make systematic and excessive use of *prospective* scenarios instead of learning the lessons of the past. Scenarios are constructed around the future context, and start with question, "What can happen?" This question generally leads people to start reinventing the wheel, and consequently, they forget the essential question for all projects, the one implicit in one's nature. In other words, they forget the axiomatic "know thyself" of the ancient Greeks. What can happen?' must be preceded by two other questions: 1) who am I? and 2) what is my project? We all need to bear in mind that factors for development come primarily from within.

5. Evolving and contingent concepts

The concept of foresight that led to this special issue of TFSC remained unknown until the beginning of the 1980s. Those using the term today used to speak of futurology and future studies or forecasting or the most widely used, technological forecasting. In the corporate milieu, planning also evolved from long range to strategic. Even though each new concept more or less includes the previous one, it does not fully replace it or make it disappear completely. There is overlap in the semantic fields. Strategic foresight (vision or shared ambition of a desirable and realistic project given the foreseeable scenarios in the general and competitive environment) went through strategic management (involvement of men through their motivation in the projects) which must pass through the strategic planning phase (concrete translation of those projects associated with the vision) to be both functional and efficient.

Since the 1970s, the English translation of the concept of *la prospective* has been a headache. Besides the fact the word is only an adjective with a limited semantic field in English, hence the use of italics in this issue, the concepts themselves vary from one culture to another and reveal a worldview which may be clear to some but incomprehensible to others. There are concepts considered almost untranslatable, e.g., *prospective territoriale* in French [19], which cannot be ignored as it represents approximately half the activities of the Foresight Consultancy. Strangely enough, the English equivalent remains elusive. We make do with regional foresight, as the Commission in Brussels did when asking for comparative studies for different European countries [20]. Yet often this concept would be better translated as urban planning. Translation difficulties intensify when these popular concepts change over time and at different times in various countries. Although the meaning of prediction (tell of an event prior) and prophecy (divine prediction) is clear, that of futurology, future studies and forecasting do not share the same semantic field from one country to another.

Unlike the title of historian, futurist is not always positive professionally speaking. Simply put, the future does not appear in a crystal ball and the very notion of Future Studies seems like a fraud mainly because the future remains to be created. As a result, it is useless, even fraudulent, to write it ahead of time. The parallel with history merits clarification because the past is just as multiple and uncertain as the future and historians have essentially the same profession as futurists. The only difference is that the past is gone and only partly known. Historians are constantly renewing the mosaic which always is missing some pieces. They reread the past according to the needs of the present. This corresponds to what Paul Veyne once said: History is a real-life novel. It is thus possible that Napoleon will appear one day revised in French history for what he was; i.e., a hawkish dictator who ruined Europe, brought on the decline of France and sold off Louisiana instead of developing the colony. The key is to understand that the past and future exist only through our representations of them.

Let us continue with this idea that history is a myth. The past and future existed only as contingent representations, subjective in terms of the needs of the present. Following the logic of Saint Augustine, we consider it incorrect to say there are three periods,

past, present and future. It would be more correct to say there are three times:1) the present of the past; 2) the present of the present; 3) the present of the future. There are three temporal forms in the soul but found nowhere else, the present of the past is memory; the present of the present is intuition; the present of the future is expectation.

As with *prospective*, foresight puts an emphasis on group processes and participatory debate; however, foresight lacks pro-activity, an integral aspect of *prospective*. Pro-activity, as we intend it here, is the deliberate construction of a project or projects which compel(s) an organization to take action leading to a desirable future. That is why we have chosen to specify *strategic* foresight. This more closely approximates the meaning of the French word *prospective*, an intellectual approach which seeks to clarify present actions with the aid of a collective vision which an organization creates for itself. This vision is based upon the organization's perception, right or wrong, of the past as well as possible and desirable futures.

If this voluntarist vision speaks to companies keen on strategic planning, it does not appeal to proponents of the liberal market economy who remain leery of the partisans of socio-economic planning and trust the market and its mechanisms. The issues of sustainable development, debates about our responsibility for the planet and future generations or issues of regulation and improved governance of the financial systems stem from this attitude which is proactive towards the future.

6. The dream of the nail and danger of the hammer

Although foresight requires a rigorous approach to address complex problems, the tools must also be simple enough to be easily used. Since the mid-1980s, the approach in *Strategic Prospective Workshop*s has proven its effectiveness in meeting, as far as possible, these criteria (appropriable; i.e., may be appropriated by the users, simple, and rigorous).

Several tools have come to the aid of strategic foresight[6]. They include structural analysis for identifying the key questions concerning the future; games analysis to identify the influence of various stakeholders, establish the relationships amongst them, as well as the stakes involved; morphological analysis to consider the entire field of possibilities and construct scenarios; expert analysis (e.g., Delphi, Reigner's abacus or Cross-impact) to assign probabilities and reduce uncertainty; and multi-criteria analysis to identify and evaluate strategic options. Morphological analysis, rediscovered in the late 1980s, has become among the most popular tools. Curiously, it had long been used in technological forecasting, but seldom for economic or market foresight. Nevertheless, it lends itself perfectly to the construction of scenarios. Using morphological analysis, a global system can be decomposed into dimensions (key questions concerning the future). These dimensions are demographic, economic, technological, and social/organizational. Each of these dimensions has a certain number of likely hypotheses.

Yet, it is important to not lose sight of the limits of formalizing because people are also guided by their intuition and passion. Models are mental inventions that represent a world which cannot be imprisoned in equations. Those working in foresight need to remember that freewill fed by desire leads to hope. In other words, use all the possibilities that logic provides while remaining aware of the limits and virtues of reason. The relationship between logic and intuition should be one of complementarity not opposition.

The tools of strategic *prospective* certainly are useful in stimulating the imagination, reducing inconsistencies, creating a common language, structuring collective reflection, allowing appropriation. However, tools are not thoughts and should not reign in freedom of choice. We must crusade against two symmetrical errors: ignore that the hammer exists when there is a nail to bang in (dream of the nail) or act as if all problems where nails and hammer down on them the same way (danger of the hammer). It is a professional paradox: distribute tools and then dissuade newcomers from using them incorrectly.

Of course these tools do not claim to be like the scientific calculations found in the physical sciences, e.g., formulae to calculate mechanical resistance. Rather they are means to appreciate realities with multiple unknowns objectively. Also, the correct use of these tools is often hindered by time constraints inherent in the manager's workaday world and in the context of any corporate collective thinking exercises. The tools are inspired by intellectual rigor in that they encourage people to ask the right questions (relevance, again) and to reduce incoherencies in thinking. Although the use of these tools does stimulate the imagination, it does not ensure creativity. There is no guarantee. In the end, the consultant still requires some talent and intuition plus common sense because the main objective is to help actors build concrete, participatory projects that involve individuals as groups.

References

[1] M. Blondel, L'Action. Essai d'une critique de la vie et d'une science de la pratique, Presses universitaires de France, Quadridge, Paris, 1993.
[2] G. Berger, Sciences humaines et prévision, La Revue des Deux Mondes 3 (1957);
Trad, Social Science and Forecasting, in: André Cournand, Maurice Lévy (Eds.), Shaping the Future. Gaston Berger and the Concept of Prospective, Gordon and Breach, New York, 1972.
[3] L'historien entre l'ethnologue et le futurologue, École Pratique des hautes études, Mouton éditeur, Paris, La Haye, 1972.
[4] J.F. Coates, Foresight in Federal Government Policymaking, Futures Res. Q. 2 (1985) 29–53.
[5] B. Martin, Foresight in Science and Technology, Technol. Anal. Strategic Manage. 7 (2) (1995) 139–168.
[6] D. Bell, The coming of post-industrial society: a venture in social forecasting, Basic Books, New York, 1976.
[7] E. Jantsch, Technological Forecasting in Perspective, A framework for technological forecasting, its techniques and organization, OECD, Paris, 1967.
[8] D. Meadows, The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind, 1972.

[6] These tools are used principally for scenario planning. Since the 1980s, the methods and tools of the French school of strategic Foresight have been diffused around the world. In the last few years, we have been able to develop a suite of software which corresponds to each of the Foresight processes. This set of software was developed at the laboratory LIPSOR in partnership with several corporations associated with the Circle for Entrepreneurs of the Future. [ndlt LIEN ELECTRONIQUE??]It brings a rigorous and participatory approach to identifying key variables, creating the most probable scenarios, and then evaluating strategic options. Among the modules included in the software suite are; Micmac, Mactor, Morphol, Smic-Prob-Expert and Multipol. Each software is free for download in three languages; French, English, and Spanish at http://www.laprospective.fr/.

[9] E. Leroy Ladurie, Times of feast, times of famine: a history of climate since the year 1000, Doubleday, New York, 1971.
[10] OECD, Interfutures: Facing the Future, Mastering the Probable and Managing the Unpredictable, 1979 Paris.
[11] I. Ansoff, Corporate Strategy, McGraw-Hill, New York, 1965;
Igor Ansoff, From Strategic Planning to Strategic Management, John Wiley, New York, 1976.
[12] M. Godet, Ten unfashionable and controversial findings on Japan, Futures 19 (4) (1987) 371–384.
[13] M. Godet, Bottom line in the new economy, Foresight 2 (6) (2000).
[14] M. Godet, Sustainable development : with or without mankind ? Futures 30 (6) (1998) August.
[15] Global 2000 Study, The global 2000 report to the President—entering the twenty-first century: A report, University of Michigan Library, 1980.
[16] F. Braudel, On History, University of Chicago Press, 1982.
[17] P. Chaunu, Un futur sans avenir, Histoire et population, Calmann-Lévy, Paris, 1979.
[18] P. Chaunu, L'expansion européenne du XIII^{e} au XV^{e} siècle, Presses Universitaires Françaises, Paris, 1969 3ème édition, 1995.
[19] M. Godet, Foresight and territorial dynamics, Foresight 4 (5) (2002);
M. Godet, Regions facing their futures, Foresight 7 (2) (2005) 21–27.
[20] Foresight for Regional Development (FOREN, A Practical Guide to Regional Foresight, JRC, IPTS, 2001.

Michel Godet holds the chair of Strategic Prospective at the Conservatoire National des Arts et Metiers in Paris.[7] He is also a member of the Council of Economic Analysis attached to the French Prime Minister's office, and the author of several widely translated books. Michel Godet has worked with some fifty companies to make freely available on the internet (http://www.laprospective.fr) the methods he has developed for rigorous scenario building as an approach that enables us to imagine possible futures and how they can be influenced and managed. He argues that without a project for our own future, scenario building remains sheer entertainment. Godet's last book in English, Creating Futures, Scenario Building as a Strategic Management Tool (Economica 2006) was prefaced by Joe Coates.[8]

[7] Created during the French Revolution to provide higher and continuing education to professionals through evening courses. Jean Baptiste Say was the first holder of a chair of Economics at the Conservatoire.

[8] Now available online at http://www.cnam.fr/lipsor/eng/data/creatingfutures2006.pdf.