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Recent Developments in Thinking about the Future: An Overview for Policymakers

Lecture by Riel Miller

*Summary by Anuradha Shroff**

Dr Riel Miller is currently with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in Paris. He is the former Head of Foresight at UNESCO. His career spans 13 years at the Organisation for Economic Co-operation and Development (OECD), in the Directorates of Economics; Science and Technology; Education; Territorial Development; and International Futures Programme; almost a decade in the senior management with a range of ministries in the Government of Ontario; and 7 years running an independent consultancy, Xperidox Futures Consulting. His primary expertise is the design and implementation of processes that use the future to understand the present.

*** This article was revised by Dr Miller to include a number of talks and workshops he conducted from 2010 to 2014 for policymakers in different parts of the world.[1] One of these was his lecture at the Civil Service College on 17 March 2010, mentioned above.**

> "Rationality works best, that is, we generally get the kind of results that we want, in a world where the choices are very limited. Now, the reason for that is very simple. When you structure the environment by rules, laws, and tools and techniques, the players are constrained in certain directions. It is the constraints on the actors that help the decision-maker. The more unconstrained the environment, through lack of an effective artificial structure, the more difficult it is for people to make choices or to implement their choices in effective ways."
>
> *- Douglass North,*
> *"Dealing with a Non-Ergodic World:*
> *Institutional Economics, Property Rights,*
> *and the Global Environment",*
> *Duke Environmental and Law Policy Forum,*
> *Vol. X, No. 1, Fall 1999*

My aim in this lecture is to provide a snapshot of some the recent thinking about why and how we can use the future for decision-making, inside and outside of government. I want to start with an overview of some of the reasons why we invest in thinking about the future and then go on to discuss in greater detail the recent developments in the theory and practice of using the future for decision-making.

Reasons for Investing in Thinking about the Future

Why do the governments of certain countries decide to think about the future of their society in more explicit and self-searching ways? In my experience there are a number of factors. One is size: smaller countries have a heighted awareness of inter-dependency and hence the need to think out loud about strategic choices. Another is historical experience: countries that have undergone periods of rapid catch-up

like Korea, Ireland and Finland are not only sensitive to the potential for significant change but also to what comes next. What happens once a country catches up with leading edge social, economic and technological conditions? What happens when imitation and the best practices of other countries no longer offer sufficient inspiration or guidance? Finally, there are some governments which realise they are not alone in pursing the current policy consensus; every jurisdiction in the world might be chasing similar goals, using similar policies, hoping for better and faster innovation, coming up with productive research and development, investing more in education, cutting-edge information technology, etc. And so they ask: will everyone win the race? And even if they succeed, will there be more jobs or less? All these questions can motivate governments to engage in more in-depth explorations of the future.

Events can also encourage a wide range of social actors to invest in thinking about the future. For instance, the 2008–2009 financial crisis sparked such efforts from a pre-emptive or preventative perspective. Often when things break down there is a tendency to revisit the past, to wonder where mistakes were made. If something had been done differently, could the crisis have been avoided? Why did the economists not see the crisis coming? Are there ways to avoid a similar crisis or breakdown in the future? What then needs to be done to ensure that the experts and visionary leaders are sufficiently prescient to navigate a safe passage through crises? All these questions generate many opportunities to conduct new research and consultations about the future. Yet, as many practicing members of the futures community can attest, things go back to "normal" after a while and the interest in thinking about the future tapers off.

Today there are additional reasons to invest in thinking about the future: a growing appreciation and understanding of the complex emergent nature of reality and our growing desire and capacity to embrace freedom. For decision-making systems, the critical

difference is the extent to which the openness or non-deterministic character of complexity and freedom is taken into account. For a long time, decision-making systems and processes were designed to work with systems assumed to have a high degree of closure. A chess game is a good example of the systemic assumptions underpinning these approaches: it is complicated but highly bounded and is a closed system of given resources, rules and goals. Assuming that reality is currently a closed system and will remain closed in the future, makes decision-making easier. In this context computers and statistical data systems can be very helpful, though this approach can run into trouble if the theory underlying the model or the quality of the data is poor. Yet the premise for this kind of decision-making is that we treat reality as if it was a closed system. However, reality is not a closed system — it is open and creative!

Because of this, we need a better understanding of the differences and implications of integrating complexity into decision-making systems. How does one take into account "unknowable unknowns"[2] or "new" aspects of the present that were previously impossible to include or address from within existing closed frameworks? In short, it is important to take complexity into account today, not only because we know that the future is not necessarily determined by the past[3], but, more crucially, because we want to embrace freedom in all its indeterminacy and diversity. Happily, these values seem to correspond to the basic characteristics of our emergent and anticipatory universe, and constitute a major reason for developing humanity's capacity to understand and use anticipatory systems — in other words, the future.

This rationale for investing in thinking about the future can be illustrated easily if we think about economic transformations and financial crises in complex, open and emergent, eco-system terms. From this perspective, banks can be thought of as sharks — destructive but also creative in the sense of setting up constraints

that generate and shape the failure or success of emergent "unknowable unknowns", at both micro and macro levels. Even the excesses, the over- and under-shooting of speculation and prudence, can be seen as sources of serendipity and creativity — opening up new, sometimes wild opportunities. By taking an open eco-systems perspective, we transform both the incapacity to predict and the inability to avoid failure, death and destruction, into a way of embracing complex emergence. Not only can we adopt a more "realistic" perspective by acknowledging that excess and failure are "normal", we can also embrace the positive side of uncertainty as a source of both freedom and diversification, the latter being the "gold standard" risk reduction strategy.

How does one reconcile the roles played by novelty and "creative destruction" when it comes to decision-making? Are we not obliged to eventually close the systems we are analysing by adopting simplifying assumptions and then, ultimately, making an irrevocable bet? The answer is obviously "yes" and many methods that address this challenge exist, as discussed extensively by many researchers.[4] Much progress is being made; however, one potentially promising contribution to the integration of openness into the decision-making process arises from a better understanding of how to use the future. The main take-away is that a better understanding of anticipatory systems and the many different ways of "using-the-future" enable decision-makers to significantly improve their capacity to take into account the incredible richness of a creative universe.

As the opening quote from the Nobel Prize winning economist Douglass North makes clear, so-called rational decision-making works best when our choices are very limited. These are circumstances when we assume that we can structure our understanding of the decision-making context using a known and given set of rules, laws, tools and techniques. Under such circumstances the players are constrained in ways that facilitate a certain type of decision-making. In more

unconstrained environments, such an approach can ignore critical factors and miss both opportunities and threats that are outside or marginal in the context of the assumed framework. In today's world, such approaches not only ignore the scientific consensus about complex emergent reality but also fail to integrate our desire to develop our capacity to be free.

> "Today there are additional reasons to invest in thinking about the future: a growing appreciation and understanding of the complex emergent nature of reality and our growing desire and capacity to embrace freedom."

Advancing the Integration of Complexity into Decision-making

Enhancing the integration of complexity into the decision-making process remains a significant challenge to existing approaches. Moving forward calls for the recognition of the following four key points.

(1) It is essential to distinguish search from choice. The processes for creating a menu are not the same as that of selecting an item on the menu. Obviously there are many points of interaction between the articulation and comprehension of choices and the selection of a particular option. However, when a choice is made in the hope that it realises or avoids a particular future scenario, it is by necessity founded on a prior explicit or implicit decision to adopt a set of anticipatory assumptions that closes the system. This is because the future is not knowable; it does not exist and can only be imagined by that set of anticipatory assumptions describing the conditions that might apply at a later point in time. This is why processes that engage people in articulating their ideas about the future quickly force into the open the anticipatory assumptions that determine the contours of such imaginary futures.

(2) The Discipline of Anticipation (DoA), which I will further elaborate upon later, offers an anticipatory systems perspective on using the future. It distinguishes between three different kinds of future from the point of view of decision-making or conscious anticipation.[5] The first two types of anticipation — preparation and planning — work within closed system assumptions, for example, preparing for a contingent event like a disaster, or planning a birthday party or the construction of a bridge. The last type of anticipation involves the invention of "open tomorrows", otherwise known as "creative" futures that incorporate novelty, without necessarily applying such futures to the tasks of preparation or prediction. Distinguishing between these three different uses of the future provides important analytical and practical clarity for the design and implementation of efforts to think about the future.

(3) New tools are being created and tested that make it easier to detect, invent and make sense of the richness of specific, ephemeral, novel reality. Unlike statistical or scale oriented systems and processes, these methods are not seeking absolute descriptions of reality that remain constant over time. Rather the aims and techniques of these "collective intelligence knowledge laboratories" facilitate the development of time-place specific frameworks, models, variables, metrics and vocabularies. These processes are about appreciating context and making sense of the differences and repetitions that characterise the present. Critically, this requires a partial suspension of what is known of existing closed systems and previous anticipatory assumptions. Hence the importance, as an avenue to both sense-making and

"making sense" of novelty, of being able to first recognise the anticipatory assumptions at the origin of the imaginary futures we use to perceive reality and then to enhance our capacity to invent new futures.

(4) Fourth, the role of developing Futures Literacy, as a set of capabilities, may be seen as changing the conditions of change that underpin decision-making, expanding the idea of a human agency beyond a deterministic framework. Part of what it means to change people's capacity to use the future is difficult to grasp from within the dominant frameworks, both for decision-making purposes and from the points of view of agencies. The trouble is the underlying assumption that the utility of the future for decision-making is fundamentally probabilistic and hence thinking about the future is about calculating the likelihood of a plan or preparatory measures being successful. Certainly there is considerable scope for enhancing the way the future is used from a closed systems perspective. For instance, being able to enlarge the menu of choices can be seen as a strong rationale for bringing a variety of creative techniques to discover, inspire and create options within a probabilistic closed system for imagining the future. However there is another approach to the rationale for "good" decision-making that offers a more balanced take on planning versus improvisation or degrees of closure considered necessary for "sound" decision-making.

I call the previous efforts to simultaneously operationalise respect for two distinct and often contradictory paradigms "walking on two legs". One leg is the familiar use of the future for planning and preparation, the second is about non-planning or "not-doing". The latter is an alternative perceptual and strategic framework which does not seek the rationale for current action on the grounds of a causal connection to what might happen in the future. It instead departs from the dominant belief that a better future requires pre-emption

or planning; the anticipatory system it is built on enables a different appreciation of specificity, including a greater openness to novelty ("unknown unknowns").

The second leg also plays a critical role in facilitating spontaneity and improvisation and potential sources of diversification, to counterbalance the colonising and path-dependent approaches to a "better" tomorrow. Broadening our approach to anticipation, the creativity of the universe — marked by the occurrence of uncertainties ("unknown unknowns") that can disrupt plans, preparations and expectations — turns uncertainty into an asset.

Futures Literacy and the Discipline of Anticipation

The Discipline of Anticipation (DoA) describes a set of competencies that enables Future Literacy (FL). It rests on a clear set of premises that maps out the nature of the future in abstract and applied categories. This gives us the means to organise the theory and practice of using the imaginary future (i.e., conscious anticipation). It also offers a framework for the systematic and cumulative acquisition of knowledge that is characteristic of a specialised discipline.

The DoA consists of three main propositions:

(1) We live in an anticipatory universe that gives rise to many different forms of anticipation, including anticipatory systems embedded in non-conscious entities as well as the more familiar human, decision-oriented systems for preparation, planning and improvisation. The DoA builds on the fundamental recognition that the universe is anticipatory because of time and motion. This fact allows anticipation to be incorporated or expressed in many forms, processes and systems. One obvious example is a tree that loses its leaves, another is the human immune system that anticipates a virus — both are non-conscious forms of

anticipation. There is also a whole range of different types of anticipatory systems that humans use consciously.

(2) At a practical level there are three broad categories of conscious anticipation — contingent ("planning"), optimisation ("preparation") and novelty ("invention"). Understanding the differences and similarities between these three categories is crucial for the design of effective anticipatory systems and processes. Simply put, efforts that aim to achieve the outcomes required for closed systems thinking and as a form of deterministic planning, need to be carefully distinguished from efforts meant to sustain openness, inspire novelty and nourish improvisation. This does not mean that there cannot be creative planning and inventive adaption within the confines of closed, probabilistic planning, but that the methods and expectations of such anticipatory systems may miss or obscure differences, such as unnamed or still unnameable novel phenomena. In particular, the novelty that constantly emerges from a vast range of natural, serendipitous, unintended and intended experimentation (at the level of time-place specific context) is often invisible or obscured by probabilistic anticipatory systems and processes that are rooted in the past.

(3) New tools (otherwise known as "collective intelligence knowledge laboratories") for appreciating the specificity of the world around us, including repetition and difference, are emerging. In the same way that rigorous statistical data collection depends on careful theory and practice (i.e., the specification of models, variables and data collection methods), so too are the efforts to grasp emergent reality as it happens, by using methods that can detect, invent and make sense of novelty at all levels, including very limited or local phenomena that characterises the richness of a specific context.

Applying the capacities of FL to the understanding of the DoA makes thinking about the future more efficient and effective, as it provides a clear set of guidelines for (1) specifying the nature of the task being undertaken and (2) identifying the right tools for the task. But the broader impact of FL is its inherent power of using the future to understand the present, the choices we see and the decisions we make. The future can be used like a dye dropped onto a microscope slide — it provides contrast, reveals system boundaries, intra- and inter-relationships, and elements that are new, in ascendance or in decline. Without suggesting that systemic boundaries are fixed, Table 1 represents the ways in which the future can help to identify different systems and system boundaries as well as help to clarify the strategic stance being adopted by decision-makers. For examples, are they working on reform, confined to a closed system, inside-in endogenous change? Are they trying to understand how internal or external novelty and systemic change may alter the nature, perceptions or actionable options of an existing and bounded system? Or are they contemplating orthogonal emergence, the paradigmatically distinct and at times novel systems, that might open up ideas of entirely new strategic options?

Table 1. Using the future to think about inter- and intra-systemic change.

Change within the system	Change outside the system
Inside-in	Inside-out
Outside-in	Outside-out

The diagnostic and strategic implications of FL are significant. A better grasp of how to use the future enables decision-makers to choose

methods that are justified on the basis of a theory of what the future is and therefore the techniques to use to understand it. Understanding the DoA makes it practical to move away from a narrow and often erroneous use of the future as a target that can be predicted. Of course, the future can still be instrumentalised as the source of a goal that structures perception and action, but with the DoA the limits and dangers of "walking on one leg" become clear.

Today, for governments and policymakers, it is important to distinguish efforts that explore and leverage novel, emergent complexity from efforts that hope to colonise the world of tomorrow. Being able to make these distinctions and apply the appropriate tools to their strategic and policy formation processes calls for an enhanced capacity to use the future — they must become FL by gaining an understanding of the DoA. How leaders respond will tell a strategic story: are they focused exclusively on inside-in change? Do they grasp novel outside-out systemic changes and the interactions with existing systems? Do they consider extra systemic change as a threat, an opportunity or just irrelevant? Can they lead by using the future differently, for example, by expanding their use of the future to encompass more than the deterministic planning paradigms of the past?

There is no way of knowing how these choices will affect future outcomes. However, it is still the responsibility of those in power to decide. How they decide to use the future is already an important choice. In closing, here are a number of currently unresolved dilemmas that could be recast by developing FL — a change in the conditions of change. How can greater freedom be reconciled with collective choice? Can greater diversity be embraced without fragmentation and chaos? Can greater creativity be fostered without increasing burnout and stress? How does one inspire responsibility? Or manage risks without hierarchy? Or achieve respect for complexity while still gaining a depth of understanding? Perhaps a more theoretically informed and practically refined way of using the future might offer new ways of thinking about these issues.

NOTES

1. A few recent keynote speeches: "Towards a Futures Literate World: UNESCO and the Discipline of Anticipation," Symposium, Science and Technology Policy Institute (STEPI), Seoul, South Korea, 22 April 2014; "Advancing Futures Literacy," Conference: Foresight and the Arab World, Arab League Education, Culture and Scientific Organisation (ALECSO), Tunis, Tunisia, 22 September 2014; "Education versus Learning: Changing Conceptions of Agency by Using the Future Differently," Annual Conference on Excellence and Innovation in Education 2014: The Creativity — Innovation Challenge, The International Centre for Innovation in Education, Paris, France, 9 July 2014; "Dawn of the Second Machine Age: Technological Revolution and its Effects on Human Capital," 25th Anniversary Foresight Series, American Chamber of Commerce Hungary, Budapest, Hungary, 30 June 2014; "Anticipatory Leadership: Using the Future to Transform the Present," Annual Learning Symposium, Association of Professional Executives of the Public Service of Canada (APEX), Ottawa, Canada, 3 June 2014; "Using Futures Literacy Knowledge Laboratories to Detect and Make Sense of Change," All Africa Futures Forum: Transforming African Futures, Wits School of Governance, University of Witswatersrand, Johannesburg, South Africa, 28 May 2014; "Higher School of Economics," Annual Conference on Foresight and STI Policy: Cooperation, Coordination, and Challenges in Foresight, National Research University, Moscow, Russia, 31 October 2013 (video: http://www.2100.org/videos/2355/education-of-the-future/).
2. Ikka Tuomi, "Next Generation Foresight in Anticipatory Organisations," Background Study for the European Forum on Forward Looking Activities, European Commission and Oy Meaning Processing, 28 August 2013.
3. Ilya Prigogine, *The End of Certainty* (New York: Simon and Schuster, 1997).
4. Ralph D Stacey, *Strategic Management and Organisational Dynamics: The Challenge of Complexity* (Harlow, UK: Financial Times/Prentice Hall, 2000); David Snowden and Cynthia F Kurtz, "The New Dynamics of Strategy: Sense-making in a Complex and Complicated World," *IBM Systems Journal,* 42, No. 3, 2003; Nassim N Taleb, *Anti Fragile: Things that Gain from Disorder* (Random House, 2014); Daniel Kahneman, *Thinking, Fast and Slow* (Penguin, 2011).
5. Note these distinctions are also relevant to non-conscious anticipation, but not at the same level of reality. Evolutionary processes generate anticipatory systems that fall into these different categories, but not due to conscious volition.