

THE INTERPLAY OF TECHNOLOGY, CONSCIOUSNESS AND CULTURE: IMPLICATIONS FOR FUTURE-ORIENTED TECHNOLOGY ANALYSES

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1. Summary:

This is a programmatic paper which argues for the conscious integration of the best that we are coming to know about the evolution and interplay of human culture, consciousness and technology into the practice of future-oriented, technology analyses (FTA). Such a program of work will increase FTA's power and relevance.

The following case is outlined: (1) FTA was developed and has largely been practised within the Newtonian assumptions of Modern Industrial Western Culture. This is wholly understandable since FTA was developed in the middle of the 20th Century – a time when most people did not even know they had underlying cultural assumptions, let alone what they were. (2) However, by the end of the 20th Century a new post-Newtonian, constructivist understanding of reality, science and human knowing, consciousness and culture was becoming established in many intellectual circles. (3) This development is a historic watershed that will irrevocably alter the human future. The new project facing humanity in the 21st Century is that of consciously influencing the evolution of new cultures – integral ways of seeing, thinking and living – that embody and reinforce such post-Newtonian insights. (4) For this to happen a new science is required – a science that develops an integral and reflexive understanding of the emergence, evolution and transformation of human consciousness and whole cultures. (5) The future of FTA lies as a contributor to and beneficiary of the new science we now require. It is time, consciously, to set our work in this new context. A path forward is suggested.

2. Introductory Comments

First, both Industrial and post-Newtonian science and culture are set out here as “ideal types.” Life as lived is necessarily less tidy. Second, nevertheless, it is useful to tell the story of FTA and think about its future in terms that are stark enough that the cultural transformation in the midst of which we are living can be clearly seen and its implications for FTA understood. Third, I recognize that I am pushing against a door that is already opening. Both the fact and focus of this seminar are evidence that those who practise FTA are conscious that FTA needs to evolve; that its future does not lie with an improved version of “Industrial” FTA. Fourth, any discussion of these matters presupposes some understanding of the nature of long-term cultural change, evolution and transformation. Unfortunately, as yet, there is no widely-shared understanding or model of these matters; worse, efforts to develop such models are relatively small and isolated. It follows that the development of powerful models and understandings of cultural change and transformation must be central to our ongoing program of work.¹ It also follows that those of us engaged in this exploration must bring to the table a generous heart and a deep commitment to the human future, as well as a critical, inquiring and wide-ranging mind.

3. The Essential Character of 20th Century FTA

Northrop Frye, one of the world's great 20th Century literary critics and a man who invested his life in identifying and exploring the slowly changing structures of human consciousness, once said in an interview, "It matters when a country is launched into history."² He was pointing to the fact that every human culture is both captive to and an expression of the founding metaphors by which the inhabitants of that culture grasp reality, make meaning and organize human energy. In another place, Frye expressed the essential integrity of every viable culture:

*In what a culture produces, whether it is art, philosophy, military strategy or political and economic development, there are no accidents. Everything a culture produces is equally a symbol of that culture.*³

We could add "scientific disciplines and practices" to Frye's list of cultural symbols. They too, carry the unseen foundational assumptions of the age into which they are born; they too, reflect and reinforce an underlying sense of reality and human purpose. For example, it is widely acknowledged that emergence of empirical science as the conscious work of organized communities of scholars is one of the most significant contributors to and expressions of Western Industrial Culture. It is less well understood, but nonetheless true, that the emergence of a post-Newtonian science is both a contributor to and expression of a new imagination that will be the basis of the world's next major civilization. In short, if it is true that "our perspective on the world determines how we behave in the world"⁴ then it follows that fundamentally new and different perspectives on the world open up whole new realms of behaviour.

We will pick up this latter point below. Our immediate task is to explore the ways in which FTA reflects and reinforces the unconscious cultural assumptions of Modern Industrial Western Culture. That this is the case is not in the least surprising, since FTA is a child of the mid 20th Century.

3.1 The Assumptions and Character of Modern Industrial Western Culture

There is not space to do more than specify my root understanding of the largely unconscious assumptions of our culture⁵ at the mid-point of the 20th Century.⁶

Feature/Characteristic	Short Explanation of the Feature/Characteristic
Root Ontological Assumptions (the nature of reality)	<ul style="list-style-type: none"> • Reality is static. While appearances may change, the underlying reality is timeless and unchanging. All things are, and always have been, what they are. Change implies degradation. This assumption of Modern Western Culture is in continuity with the ontological assumptions that dominated pre-Industrial Western cultures, including ancient Egypt, Greece and Rome. • Reality may appear to be whole, but it is made up of individual bits. Think of a jigsaw puzzle.
Root Epistemological Assumption (the nature of human knowing) Root Epistemological Assumption (continued)	<ul style="list-style-type: none"> • The individual bits of reality, including human persons, can be known by themselves, quite apart from their particular history, context or relationships. This legitimization of individual things and of personal individuation is new in history; it breaks with the foundational assumption of pre-Industrial Western cultures that life can only be known as a whole; that individual things must always be seen and known in context. The abstract statement is that

	<p>within Industrial consciousness “X can be understood without Y”, e.g. the earth without god, science without history, learning without character, men without women, profit without the environment, the economy without society, meaning without myth and public life without private selves.</p>
Bias to the Superficial	<ul style="list-style-type: none"> • It follows from the above that as Industrial culture developed, physical things – things that are so obvious all can see them – would come to have greater importance and legitimacy than subtle realities – those things that require learning and training to see. Hence, the well-known bias within Industrial cultures to quantification and a materialistic life-style. When up against insight, numbers win.
Truth	<ul style="list-style-type: none"> • As with reality, truth about reality is also timeless. Once something is truly known, the truth about it does not change. Therefore, truth does not need to be re-checked in different times or contexts. This view holds in every field from science to religion. • That which is true must also, as Descartes said, be “clear and distinct.” Ambiguity, when found, is an enemy of truth that must be overcome and eradicated, rather than embraced.
Knowledge	<ul style="list-style-type: none"> • True knowledge is marked by certainty. Conversely, wherever there is doubt there is not knowledge; whatever we are less than certain about is not knowledge. • Knowing is essentially impersonal, i.e. things are what they are for all humankind at all times, and knowing them makes no difference to what they are. The aim of true knowing is to remove the personal from the process. Ideal knowledge is wholly objective. • The fragmentation of knowing that marks Industrial cultures shows up in the fragmentation of the sciences and the privatization of ultimate meaning. Public knowing become wholly functional.
Science	<ul style="list-style-type: none"> • Science is empirical, not descriptive as it was in pre-Industrial cultures. The point is to poke about and manipulate things until the bit of reality on which one is focussing is fully understood. • Since it is legitimate to use one’s knowledge to change the world to better suit one’s purposes, technology is closely aligned with science. Both play a central role. This assumption is a significant break with pre-Industrial times when the point was to know the truth and then conform to it. To change the world God had made is an un-godly act in pre-Industrial cultures.
Authority	<ul style="list-style-type: none"> • Authority is necessarily hierarchical. It follows from the static nature of reality and truth that there must be only one source of

	<p>authority and someone who has special access to it – a person or office to whom a final appeal can be made. Both the infallibility of the Pope and the unquestioned power of those in authority flows naturally, e.g. Bishops and “the boss.”</p>
Society	<ul style="list-style-type: none"> • Societies are given, much like rain or gravity. Therefore, human persons have no role in their creation. However, things can be broken and mistakes made. In such cases, action may be needed to fix the error. This propensity to fix what has gone wrong is a deep inclination of Industrial consciousness and cultures. This is why Industrial social policy is a collection of essentially separate actions, each one directed to correcting some error, e.g. a program for deaf children, a program for unwed mothers, a program for orphans, a program for the poor, a program for immigrants to learn a new language. No agency wants all of any person; many agencies want a piece of most persons.
The Form of Organizations	<ul style="list-style-type: none"> • Organizations in all sectors of society are typically hierarchical bureaucracies. Hierarchy is rooted in the nature of authority and truth. Bureaucracy follows from the legitimate fragmentation of reality into its constituent pieces. It is accepted that there is “a place for everything” and that “everything has its place.” • It is no accident that sovereign states were invented by Industrial consciousness. They, too, reflect the fragmentation of reality into wholly separate bits. Within each state the development of separate sectors – private, public and voluntary – reflects the same assumption. Since the private sector creates wealth and the public sector exercises power and authority, they are each more important than the voluntary sector which only deals with the private lives of individuals.
Persons	<ul style="list-style-type: none"> • Persons are primarily individuals. Ideally for public purposes each one is treated equally and impersonally. • Persons are subject to the authority of the way things really are. They are not agents, participants or co-creators. • For public purposes, the inner life of persons is ignored and human consciousness, if dealt with at all, is treated as an <i>épée</i> phenomenon. • In public spaces individuals are judged primarily by their skills, achievements and what they have accumulated. Only in private does their character matter.
Human Motivation	<ul style="list-style-type: none"> • Motivation is external. Threats of physical punishment and hopes

	for physical rewards dominate.
Technology	<ul style="list-style-type: none"> • Technology is overwhelmingly seen as beneficial. It provides the tools to change the world. • However, technology is “just a tool.” It has no inherent relationship to any particular culture, context or time. Technologies can be used in any culture without in any way affecting the culture in question, i.e. technology is seen to be culture independent. • The existence and the use of any given technology are wholly separate matters. Those who create technologies have no obligations regarding its use.
Level of Common Consciousness	<ul style="list-style-type: none"> • Overwhelmingly, human consciousness within Industrial Culture is a first order consciousness. People come to know their world and how it works; they may even change the players. However, it is essentially unthinkable that they could or would challenge or change the underlying meta-games of the culture. So, for example, revolutions do not change the nature or use of power, only those who wield it. The absence of second order thinking is in continuity with life in pre-Industrial cultures.
The Role of Critical Self-Awareness	<ul style="list-style-type: none"> • There is little focus on or encouragement of a reflexive, self-critical, self-awareness – the form of consciousness that is required to identify and consciously work with the foundational assumptions and meta-games of a culture.
Core Metaphors of the Culture	<ul style="list-style-type: none"> • Life is essentially seen, thought of and treated as a production-consumption function, i.e. life is best fulfilled by producing and consuming. Life is best understood as a noun – something that can be bought, possessed, sold and consumed. • The quality of life is measured almost wholly by the standard of living.

⁷⁸**re Characteristics of Industrial Cultures**
Chart 1

3.2 FTA’s Essentially Industrial Character

Given the above, we would expect that the actual characteristics of an FTA that arose in the mid 20th Century would be of a late Modern, Western Industrial consciousness and culture. As we shall see, such is the case.

In saying this, I acknowledge many who practise FTA have been more aware of and open to the emergence of a post-Newtonian science and view of reality than would be suspected by reviewing the mainline practice of FTA. Such a gap between the best that we know and our actual practice is common in our society.

One reason is the normal difficulty we all have when faced with the task of figuring out and applying the significant implications of a new set of powerful insights, especially in the early years of the insights. As I shall point out below, no culture has effectively absorbed into its daily life the transforming implications of either of these insights: “Social realities are social constructs.” and “Our future hangs on a *culture of use* – our routine ability to access high-quality human knowledge and utilize it strategically.” In the case of FTA, an even more important reason is likely found in the fact that this discipline was developed and paid for as an applied art. From the beginning, FTA was handmaid to persons in large Industrial institutions who were facing urgent and practical problems. Typically, such persons wanted to get things done and had little patience for insights that challenged their unconscious world-views, much less their conscious motivations. The fact that FTA was largely on the payroll of powerful Industrial institutions, both public and private, reinforced the inherent biases of Industrial culture, which in turn shaped the character of FTA.

The following generalizations capture the practice of FTA over the last 50 years:

- The bias of FTA has been to bring an instrumental and fragmentary focus to isolated projects, rather than a profound and inclusive concern for the human future. The focus has been on hard technologies and their immediate impacts, rather than on the softer and more ambiguous dimensions of culture, let alone human consciousness. Typically, those impacts of a technology that are not obvious or quantifiable have been discounted. The significance of the images, metaphors and logics of the arts and of change in the philosophy of science has been downplayed, if not wholly ignored.
- The bias has been to get on with the immediate task at hand. The core question is the appropriateness of the chosen technology for accomplishing it. Typically, questions have not been raised about the appropriateness of the project under consideration, much less of the human intentions driving it. Most often the cultural context of the technology in question – either the culture in which it was developed or the culture in which it would be used – was largely ignored.
- The bias has been to seek objective knowledge, i.e. impersonal, a-historical, and valid-in-every-cultural-context knowledge.
- The bias has been to see technology as “just a tool” – as an independent instrument that stands apart from every culture. This view has led to the careless introduction of technologies into human cultures as if the technologies are simply a neutral means for getting something done. It did not occur to us to identify, evaluate and mitigate the consciousness carried by the technologies in question. The “technology is a neutral tool” view also leads to the denial that there are any moral questions inherent in a technology *per se*; to the separation of the fact of a

technology from issues of its use. While it was acknowledged that the use of technologies does involve moral and social issues, such issues have not been seen to be the responsibility of science and technology *per se*.

- The bias has been that professional experts have better and more reliable judgement than lay persons. The latter have been largely long excluded.
- The bias has been to trust forecasting; to assume that, in principle, if we only had the right tools and techniques, the future was forecastable. Foresight was turned to somewhat reluctantly; its use was seen as a signal of our inability to forecast.
- When systems thinking was utilized, the bias has been to its mechanistic, not biological, form. Operations research dominated – seeing and dealing with those surface interconnections that are obvious. But the world was not treated as a living system with forms of consciousness and culture that have great depth under the surface of that which is obvious.
- The bias has been to downplay, certainly not to develop, the role of human consciousness. The inconvenient power of reflexive, self-critical self-consciousness has been largely ignored.
- The bias has been to serve those who have a vested interest in the continuation of Industrial consciousness and culture; to downplay, if not marginalize, those who pointed to the need for a more inclusive perspective and a more profound concern for the future of humanity.
- In Jungian terms, the bias has been to privilege masculine energy over feminine energy.
- In Ken Wilber's terms the bias has been to restrict FTA to a single quadrant⁹ – the lower right quadrant of those obvious things that are both shared and external. The other three quadrants – those that include culture, consciousness and our biological states – have been largely ignored.
- As a result, new practices that focussed on what FTA was neglecting were developed as largely separate from FTA, e.g. the practices of public participation, community development and environmental assessment. Each developed their own national and international associations. The fact that this isolation is now ending is to be welcomed. It is also a sign that underlying assumptions on which FTA was first founded are no longer credible, even to us.

It may appear from this list of characteristic features of FTA that I do not value or appreciate what has been accomplished by its practitioners over the last five decades. Nothing could be further from the truth. However, since both of the following statements are implicit assumptions of this seminar, it is now safe to say:

- For all its strengths, FTA has been far less effective than had been hoped.

- As it now stands, there is growing evidence that FTA will not be able to meet the major challenges of the 21st Century.

Where then, does the future of FTA lie? With these thoughts:

Science is not what it used to be. There has been a revolution in our understanding of both the nature of reality (ontology) and the science by which we probe it (epistemology). The future of science lies with a post-Newtonian, constructivist understanding of human knowing and of the cosmos, the earth and human persons, consciousness, cultures and technology that are known.

The core challenge that emerges from this new science is that of learning to accept our responsibility as co-creators of the human future and exercise it wisely, courageously and strategically. Walt Alderson put it nicely when he said that, for good or ill, we are now governors of evolution.¹⁰

In order to meet this challenge we must develop and then be informed by a new science that understands in a holistic way the emergence, development and transformation of the cosmos, the earth, consciousness and culture.

By recasting FTA in post-Newtonian terms and by setting it as a contributor to and beneficiary of this new science, we will develop forms of FTA that truly fit the emerging conditions of the 21st Century.

The Post-Newtonian Revolution

Summary: The 20th Century saw a revolution in our understanding of the nature of reality, the cosmos, the earth, science, consciousness, persons, culture and the processes by which human beings learn, know and act. While the struggle for the absorption of the new understandings can still be seen in virtually every discipline, intellectually this war is essentially over. Consider that there is no place on the planet where a scientist who is unfamiliar with this revolution, let alone one who rejects it, can be hired as a credible researcher. This means that it is only a matter of time before the new understandings are absorbed into every society as part of its foundational and operational assumptions. This, in turn, means that for the first time in history, every culture faces a fundamentally different future than the one it now assumes and to which it now aspires. This fact alone is reason enough to pay fresh attention to what has been going on in science.

One summary of the revolution has been provided in 1989 by Professor Wan Ho, of Cambridge University. The fact and character of the transformation to which I point is caught in the contrasts she set out. For clarity, I have bolded them:

*Science is currently undergoing possibly one of the most important and wide-ranging upheavals in recent history. A **global phase transition is sweeping across many disciplines** from mathematics to physics to biology to sociology.*

*It may be characterized as an emphasis on **integration over fragmentation**; on **cooperation rather than competition**; on **dynamics and process in place of the static and mechanical**; on **non-linear distributed inter-relationships and emergent properties of collective wholes, instead of linear, unidirectional or hierarchical control of incidental parts**.*

*Most significant of all is the acknowledgement of a reality in which **we, as scientists and human beings, participate**; for this may put an end to centuries of abstractions that have alienated science for humanity and humanity from nature.¹¹*

What can be said about this transformation?

- Ours is one of the few times in history during which the foundational assumptions of a major culture are being transformed, i.e. slowly and largely unconsciously, persons in Industrial societies are actually changing their minds about the nature of reality, of human persons and of what is involved in persons knowing reality. These new insights are dawning on us:
 - Reality itself is best seen, thought about and experienced as dynamic, not static; as an open, not a closed, system; as a multi-layered holarchy in which we actually participate. Since emergence, development, evolution and transformation are all real, time matters.
 - As an open relational system, reality is known and responded to most reliably when things are seen, thought about and experienced in their many dimensions of relatedness – in time/history, biological, ecological, physical, societal, psychological and personal.
 - Social realities are social constructions. They are not “out there” as complete and finished things for each one of us to observe and manipulate in impersonal ways. Rather, because social realities are altered by our knowing them, we are participant-observers whose role in the ongoing evolution of life is that of co-creators.
 - In short, cultures really are the work of our hands and minds. This, we now know, is true regardless of the fact that as yet no culture is organized around this insight and insists that its people come to see, think, know and embrace this role. When a culture blinds its people to the co-creative role played by persons it does not mean that the dynamic is turned off. Rather, the result is that human beings co-create blindly, therefore, ultimately badly. It simply is not possible to become a relevant and effective culture co-creator without knowing that one is a co-creator of one’s self and one’s culture.
 - This means that both our character and the manner of our knowing matters far more than ever we have dreamed. We no longer have the comfort of pre-Industrial societies – who know that reality is what it is, even when we get it wrong; or of Industrial Societies – who know that truth is impersonal and has nothing to do with us *per se*. Happily, our status as culture

creators also implies that the dread of living a wholly functional and impersonal life that is so wide-spread in Industrial culture is ill-founded. Any post-Industrial society will necessarily be more, not less, personal; more, not less, demanding of us as persons in communities.

- Consider human knowing. The challenge is not “knowledge management” but reliable knowing. The argument is as follows: reliable human knowing is deeply personal and communal; reliable knowledge is always and only created by persons of integrity within communities with integrity; and the quality of our knowing is affected by the quality of both our person and our community. These insights challenge the very basis of truth and authority of every Industrial and pre-Industrial culture. We need to understand them as if our future hangs on it. It does!

The major conclusion which I draw from the above is that as a species *homo sapiens* are ill equipped to cope with the actual conditions of the 21st Century. At the time we are going global and, henceforth, will live in each other’s lives and faces, all six billion of us live with a first order consciousness within cultures that are essentially provincial and a-historical. No culture has developed and routinized ways of seeing, thinking through and dealing with profound cultural differences that do not reduce such differences to deviance that must be resisted and overcome by force. The proposition that we appear to be on a pathway to disaster is not without a good deal of supporting evidence. Walt Anderson summarizes our situation this way:

"I am not here to argue that the human species ought to take responsibility for evolution on the planet, and begin through public and private institutions to make collective decisions about such matters. If that were the question to be decided I would advocate that we put it off for a few centuries or more – let things run themselves while we get accustomed to the idea of evolutionary governance, develop the appropriate ethics and myths and political structures, and perhaps mature a bit. However, that is not the question before us, since we are already governing evolution. This is the great paradox about the threshold: It is not out there ahead of us somewhere, a line from which we might conceivably draw back. We are well across it. To say that we are not ready for evolutionary governance is equivalent to saying that a teenage child is not ready for puberty; the statement may be true, but it is not much help."

"We have made the transition into acts of evolutionary governance, but we have not yet developed a concept of evolutionary governance. ... This is the project of the coming era: to create a social and political order--a global one--commensurate to human power in nature. The project requires a shift from evolutionary meddling to evolutionary governance, informed by an ethic of responsibility--an evolutionary ethic, not merely an environmental ethic--and it requires appropriate ways of thinking about new issues and making decisions. It involves public policy: matters of survival and extinctions are already being legislated everywhere. ... It involves a general recognition, one that will have to be articulated throughout human society, that the human species has developed a specialized role in the global ecosystem..."¹²

But, there is a path forward. It lies in the conscious development of a new science that focuses in a second order way on the fact and implications of long-term change, evolution and transformation of human consciousness and cultures. It must do for humans and cultural development what geology has

done for our understanding of the development of the earth's crust – tell a single coherent story of the development of the whole earth. It must do for cross-cultural experience what the meridians of longitude and latitude have done for global travel – allow us to always know where we are, how we stand in relationship to everywhere else and in what directions we should be moving, if we are to reach our goal: The Science of Long-term Cultural Change, Evolution and Transformation.

I freely acknowledge that the roots of the science we need already reach back at least two hundred years and that a good deal of good work is going on today that could contribute to its further development. I could not, and of course would not, make an appeal for conscious creation of a new science were this not the case. Our time is ripe with the promise of a new future because there are hundreds of thousands of people in every country – community leaders, academic researchers, executives, bureaucrats and politicians – who will work with us to create the science we need if we will put our hearts, minds and hands to it.

However, the present scale of the conscious efforts to develop a second order understanding of long-term cultural change in a systematic, coherent and integral way is well below what this moment of history requires of us. Consider that:

- Today, there is no place to send a committed and bright student who wants to enrol in a well-articulated and integral program for the development of effective agents of transforming change.
- Even as we talk about the future of FTA, it is still largely assumed that it will continue to be largely in the service of those who want to make the present world work better – institutions that have little, if any, interest in the challenge of co-creating a truly post-Industrial civilization.
- After the 1993 bombing of the World Trade Centre, no group of people wrote a letter to President Bill Clinton that was the analogue of the letter that Dr Robert Oppenheimer wrote to President Roosevelt. No community of scholars could credibly say, “My friends and I understand enough about what has happened, how we will likely interpret it and how it can be re-framed in quite other ways that we can actually help you avoid future disasters if our current research is funded for just a few years.”

What would such a science do for us? It would help us see, think through, understand and act on such insights as these – insights that must come to be at the heart of FTA in the 21st Century:

- Cultures are not fixed and given, but evolving co-creations of real persons in particular times and places. For good and for ill, as persons, families, communities and organizations we must learn to live in ways that consciously influence the shape of the future and hold us accountable for our work. The present challenge is to consciously develop the local, national and global support systems that challenge and enable us to become relevant and effective second order co-creators.

- The shorthand phrase that “social realities are, and always have been, social constructions” does not mean that any existing human culture has been consciously created. Quite the contrary, virtually all culture creation has been undertaken without any awareness that we are active participants and co-creators. In fact, the thought that as human persons we are co-creators of the social realities of our lives, relationships, societies and our cultures is unthinkable – even blasphemous – to most of the 6.2 billion persons with whom we now share the planet.
- The ultimate test for the adequacy of any culture is the degree to which it keeps the journey of becoming and being human an open journey, i.e. successive generations have the option of co-creating a culture that reflects the very best that is then known about the cosmos, the earth and human cultures, persons, technologies.
- At the heart of every culture is an ongoing interplay among human consciousness, human technologies and culture. On the one hand, human consciousness becomes manifest in both physical technologies and human actions. On the other, the utilization of human technologies influences the shape, logic and evolution of human consciousness and culture. This reciprocal dynamic plays a key role in both the extension and transformation of consciousness and culture. Consider that every child born into a culture picks up the consciousness shared by those with whom he/she lives just by learning to speak the language, wear the clothes, do the chores, use the tools and relate to others. So in Canada in the 1950s, before a big date, he washed the car and she washed her hair. We are now aware that neither of these was an isolated human action and both were unconscious ways of learning a culture’s gender roles. Thus a technology is never “just a tool,” it is also and always a carrier of human consciousness.
- This means that the acts of developing and introducing new technologies is far more important than even we who practise FTA have assumed. They must no longer be seen as simple, culturally-neutral commercial or defensive acts. It follows that attempts to introduce technologies into an existing culture without paying attention to the consciousness carried by the technology run a far higher risk than we have typically understood. On the one hand, a new technology may be unused because the consciousness required to use the technology is untaught. Examples of this error were legion in the 1950s and ‘60s in the field of international development. On the other hand, to the extent that the new consciousness carried by a new technology is at odds with that of the existing culture, the new technology may undercut and erode it. This dynamic sheds light on Osama bin Laden’s experience and his anger. He rightly sees that the 7th Century way of life that he cherishes is being eroded to the point of collapse by modernity – by both modern technologies and the modern consciousness they carry. Our Industrial stance that technology is just a neutral tool blinds us to this dynamic. We deny that we intend any ill or are in any way culpable. Our denial reinforces the suspicion that our actions are deliberate and malicious.
- Deep cultural transformations, while rare, are real. Such transformations can be seen as evolutionary revolutions. On the one hand, they occur at a very slow pace, taking hundreds of

years. On the other, they entail a real deviation from the prior trajectory of history – a truly new form of human consciousness and culture emerges from the process.

- The kind of transformation we are now in is not unique; such turnings have happened before. For example, consciousness and culture were profoundly transformed some 10,000+ years ago when mobile tribes of shepherds first settled and developed towns. Clearly, the emergence in Europe over the last 1,000 years of Industrial consciousness and culture was another such transformation.

- Our present transformation is being driven by the best of Industrial science and society, rather than by its failure¹³. We are being driven off our familiar mental maps and into post-Industrial territory precisely because our best scientists and citizens have had the courage to follow their data wherever it led them. As Dr. Karl Pribram, a world-class Neurophysiologist, said in his address to the world's first conference on cultural paradigm change, "I am not here because I am one of you. I am here because my data drives me here."¹⁴

- However, our time is unique in at least two ways:
 - ▶ It is the first time in history that a significant number of persons are aware of the fact that they live in the midst of such a cultural transformation while it is still going on. Such awareness opens up the possibility of learning to act consciously as agents of transforming change and as mid-wives of a new civilization.

 - ▶ For the first time in history, cultural transformation has become a historical necessity. All cultures are now challenged to change. None can escape this requirement. In contrast, when new paths opened up in the past, the historic conditions were such that those peoples who chose to stick with the old and known path were free to do so. Today, the evidence is mounting that the emerging conditions of the 21st Century will increasingly call into question every existing form of human civilization; that no existing culture is presently able to meet the emerging criteria for sustained success in the 21st Century. This does not mean that the six billion persons who now share the planet have no future. However, it does mean that all six billion of us face a future for which we are almost wholly unprepared.

This brings me back to my overriding concern – that we who practise FTA accept the fact that in all that we do, for good and for ill, we are active participants in the ongoing co-creation of human cultures, both our own and those of others. What is really at stake is not only the future of FTA, or the success of one company or whole country over others or even the successful defence of Western Civilization. Rather, what is at stake is the essential shape and flavour of the 21st Century. In a recent paper on *The Challenge of Long Term Policy Analysis* the Rand Corporation summarized our situation in these words:

Our world confronts rapid and potentially profound transitions...
It is increasingly clear that today's decisions could play a decisive role in determining whether the 21st Century offers peace and prosperity or crisis and collapse.

In the Introduction to *Probing Human Origins* this point was made:

Paradoxically, because of mankind's genetic evolution, the future of the human species now heavily depends on its further cultural-social evolution rather than on its further biological evolution.

In summary, I have attempted to make two cases:

- First, that the relevance and effectiveness of FTA will be greatly enhanced if we consciously integrate into our work the best that we are coming to know about the evolution and transformation of human cultures – changes that are driven by the on-going interplay of consciousness, technology and culture.
- Second, FTA can make a major contribution to the development of a new science that focuses on and illuminates in an integral way the long-term change, evolution and transformation of consciousness, technology and culture.

I now make a further point:

- The new science envisioned here does not belong to FTA. Success with it depends on the cooperation of professionals in many fields, some of whom have given no thought to FTA. This work will be good for us, but it is not about us. Our style must be that of an initiating servant-leader and a committed participant.

What, then, is to be done?

6. Steps Towards 21st Century Future-oriented Technology Analyses

In order to develop the FTA and the underlying science that we now require much needs to be done by many people. By setting out a specific proposal I am not suggesting that this is all that needs to be done or even that this project is the most important thing to be done. However, I am confident that this is a crucial part of what needs to be done. I am also attracted to and excited by the challenges entailed in this work.

6.1 The Goal -- An Effective Global Meta-Network for Strategic Foresight

Summary: The creation of an effective global meta-network for strategic foresight (GMNSF) would be a significant act in itself and a major step towards the creation of the new science of long-term cultural change, evolution and transformation. Consider that: (1) Many, if not most, of the people and institutions who would also be interested in the GMNSF would be interested in the new science. (2) Such persons would know most of the researchers who are or could be contributors to the new science. (3) The time it will take to design and operationalize the GMNSF can also be used to test and

elaborate the idea of the new science with a growing number of interested people. (4) The creation of a GMNSF is a far more concrete project than the establishment of a new science. (5) It is wise to ensure that we walk well before we try running.

Definition: As we use the term 'strategic foresight' it includes all forms of futures-oriented analyses, i.e. assessment, forecasting and foresight in every area and discipline, i.e. scientific, technological, societal, economic, personal, cultural, etc. We prefer this phrase because of its inclusive character.

We seek to participate with many others in a global network for strategic foresight that is:

- A meta-network – a network of networks
- Truly global – inclusive of all who wish to contribute to it or draw upon its resources
- Effective: Its presence and activity will actually increase:
 - The sense of global community among today's foresight scholars, practitioners and customers
 - The quality of the work and insights that are created
 - The ease of access to the very best work, tools, methods, resources, persons and organizations
 - The range and number of persons and organizations who access such information and resources in every sector of every country
 - The utilization of such insights and resources by those who access them
 - The importance and profile of strategic foresight work in the eyes of opinion leaders in every sector
 - The resources that are available for foresight work
 - The opportunities for training of the next generation of strategic foresight scholars and practitioners
- Inclusive – all scholars, practitioners and organizations with a serious interest in the work of creating and utilizing strategic foresight in order to create a better future will be welcomed, regardless of their size, geographic location, sector or disciplinary background, i.e. it includes, but is in no sense limited to, science and technology assessment, forecasting and foresight
- Cross-Sectoral – it must create space that is open to persons and players from every sector, but does NOT belong to any one sector
- Accessible – its processes and products will be readily available to all interested persons regardless of their size, geographic location, sector or disciplinary background
- Web-enabled – it will use the very best web technologies to support its work
- Open Source – it will operate on an open source, rather than a proprietary basis
- Multi-lingual – it will operate in at least the five official languages of the UN
- Non-intrusive – we do not wish to disrupt any existing organization or network
- Owned by Those Who are both Able and Robust – the meta-network needs the heft of owners who are both among the very best practitioners and robust financially and organizationally
- A Living Laboratory – it is self-consciously committed to being a living laboratory, not only for the immediate work of strategic foresight, but for the work of learning to organize such work in a multi-cultural and globalizing world
- Evolving and adaptive – the launch version will be seen as release 1.0, with further adaptations being akin to release 1.1, 1.2, 1.3, etc

6.2 A Scoping Project

It would be unwise to just start to create the GMNSF. Rather, a project to “scope out” the nature and character of the meta-network is required.

- As practitioners of foresight, we of all people know the dangers of just plunging in and acting on the first idea that comes to mind. Rather, our advice is always, in a transparent way, to lay out, explore and consider the alternatives from many perspectives before a course of action is set
- As practitioners of foresight, we know that many creative ideas that are not seen at first, do emerge for such 2nd order processes
- As fair-minded persons we know that many persons and organizations who should be consulted will not be present at Seville or even known to those who are present at Seville
- As experienced officials we know that in today’s world the time and trouble that is taken to reach a consensus is worth the effort; that in a situation such as this, no organization is strong enough by itself to make good things happen and many persons are strong enough to ensure that nothing happens
- As experienced officials we know that it is ever so much easier to get the design of a new organization essentially right before it is launched, than it is to change the essential design of an organization after it has been launched

The scoping project would be:

- Owned and managed on behalf of all of the community of interest by a few organizations that are:
 - Robust, credible and capable enough to undertake and succeed with the project
 - Trusted by a sizable portion of the community of interest
 - Able, together, to raise the funds required for the project
- Transparent – any reasonable question about its operation should be openly answered
- A well-designed consultative and research process that sets out the initial design of the meta-network to be created, including:
 - The case for the network
 - The vision it will serve
 - Its mission, character/principles and core roles
 - Its core strategies and operating principles
 - Its legal structure
 - Its funding and initial budget
 - Its operating structure
 - A path forward that will lead to a successful launch
- 12 – 24 months – only long enough to enable those organizations that really are serious to participate and to enable a thoughtful design to emerge
- An effort that requires a budget of about 600,000 Euros, exclusive of the costs that will be incurred by particular organizations to fund their participation
- Funded by the organizations that sit on the project steering group by a mutually agreeable formula

7. Conclusion

I have lived my life as one who crosses and straddles boundaries. There is a unique richness that results from living in this way. I have suggested that FTA will itself be enriched and that its contribution to a deeply satisfying future will be substantially increased if we learn to engage our work, our clients and our colleagues in other fields in much more boundary crossing.

¹

Foresight Canada is committed to working with others to undertake and succeed in this work. We are anxious to connect and work with others who share this passion. Contact Ruben Nelson, Executive Director. +1-403-673-3537 or rubennelson@shaw.ca

² Quoted from the film made by the National Film Board of Canada, *Journey Without Arrival*, circa 1970.

³ Northrop Frye. "The Critical Path: An Essay on the Social Context of Literary Criticism", *Daedalus*, (Spring 1970), pp. 268-342.

⁴ *Probing Human Origins*, Morris Goodman & Anne Simon Moffat (Editors). 2002. The American Academy of Arts and Sciences.

⁵ I use the phrase 'our culture' deliberately. It reflects the unconscious ethno-centricity that was taken-for-granted by virtually everyone in Western Industrial Culture in the 1940s and '50s. The fact that we are now aware of the inadequacies of this view is *prima facie* evidence for the development of human consciousness.

⁶ I have long been fascinated by the emergence, development and transformation of whole cultures and the dimensions, drivers, dynamics, depths and drift of cultural evolution. In the mid 1970s, I led a research project that articulated a way of understanding the evolution of fundamentally different cultural paradigms. In the mid 1980s, I directed an exploration into the hypothesis that a truly post-Industrial form of human culture is slowly emerging within and among us.

⁷ I recognize that in many pre-Industrial cultures, a few individuals argued that pieces, not wholes, were the primary stuff of the universe. My point is that this view did not become the dominant and taken-for-granted view of the majority of people in any culture until Western Industrial Culture emerged over the last 1,000 years. For good and ill, individuation in almost all things is *the* mark of modern Western culture.

⁸ If this were deeply understood by our military and political analysts, we could better grasp Osama bin Laden's view of the Modern Industrial West as literally a god-forsaking culture.

⁹ See Chapter 3, *A Theory of Everything: An Integral Vision for Business, Politics, Science and Spirituality*, Ken Wilber. 2000. Shambala Publications, Inc. Boston.

¹⁰ *To Govern Evolution: Further Adventures of the Political Animal*, Walter Truett Anderson, 1990. Harcourt Brace & Co.

¹¹ The quote is from an article in one of the publications of the Institute for Noetic Sciences, about 1993.

¹² Anderson, *op cit*

¹³ I do not deny, as so much analysis of the women's and environmental movements point out, that Western Industrial Culture has fatal weaknesses that are now reaching a point of a *reductio ad absurdum*. My point is that the frame of a "wicked West" that was essentially a "mistake" is both a-historic and wrong-headed. Ironically, the defence of the Industrial West as the end point in history is equally a-historic and wrong-headed. The root issue is not that the West became Industrial, but that we still cling to it with a death-grip when we should be following our

data beyond our Industrial identity. In short, Industrial culture is much like adolescence – it is a necessary step if we are to move beyond dependence. Adolescence is only a problem for those who get stuck there. But the fact is that if one does adolescence at all well, one grows out of it onto a path of ever-deepening adult maturity. We need to learn to trust that the same dynamic holds with authentic Industrial cultures – they grow into post-Industrial cultures and into an ever deepening maturity.

¹⁴ This is a personal recollection. The event was sponsored by the International Association for Transpersonal Psychology and held outside Boston in the fall of 1982.