Introduction

The drama of the financial crisis and "credit crunch" -- sufficient cause for grave concern -- is presented here as exemplifying underlying cognitive patterns that should be cause for even greater concern. A case is presented here for looking at environmental overshoot "through" the cognitive framework of the financial system -- the systemic role of its actors, instruments, concepts and dynamics, as well as how long and short-term risk is managed in a context of both fear and hope-mongering, as engendered by fact and rumour, and variously exploited. The approach is to suggest use of cognitive tools of finance, and its crisis, as a source of metaphor through which to reframe understanding of other imminent crises -- for which there is a similar lack of preparedness.

As what history may see as a foretaste, the financial crisis is therefore to be understood as a magnificent, only too realistic, metaphor of institutionalized approaches to international risk management at this time, notably as articulated just before the full crisis in The Economist (Confessions of a Risk Manager, 9 August 2008).

The remedies to emergent crises, as failures of risk management, may therefore be seen as metaphors of strategic
propensities.

In the case of the financial crisis the emphasis has been placed on "injection" of liquidity from a source that in some ill-defined way is "meta" to the system in crisis -- a curious term in a society with a pervasive drug problem in which "injection" may indeed be framed as a remedy. More curious is the widespread belief that humanity can be "bailed out" by extra-systemic processes, whether by "God" (framed by some as the "opium of the people") or by "human ingenuity" (of the quality that gave rise to the crisis in the derivatives market). These issues are epitomized by the fact that there is indeed a risk that the next president of the country exemplifying these propensities will be someone who welcomes the possibility of complete civilizations collapse as a means of evoking a divine "bailout".

People are challenged to work out what credibility is to be given to warnings. This challenge is exemplified in the current promotion of terrorism as a threat -- supposedly exceeding in significance many other situations faced by humanity and the planet (Promoting a Singular Global Threat -- Terrorism: strategy of choice for world governance, 2002).

The argument here is a development of these points, as explored in a previous exercise on a complementary challenge, namely how to determine the credibility of those who engage in hope-mongering (Credibility Crunch engendered by Hope-mongering: "credit crunch" focus as symptom of a dangerous mindset, 2008). Where arguments there are appropriate to their development here, they have been included -- especially points made in the introduction and conclusion.

Systemic crises

Such crises emerge as a consequence of some form of neglect, of inadequate attention -- a failure to keep the "eye on the ball" -- as with the health of the body

The crises are therefore effectively "evoked" as systemic "focusing devices" through which inattention is highlighted, effectively as collective learning devices, focusing the mind on essentials -- as with the prospect of death of old behaviour patterns.

The specific remedies to the crises in themselves are not however the remedies to that underlying pattern of systemic inattentiveness which are at a more generic level. Experience of a specific systemic crisis engenders insights articulated in language and metaphor that is also highly relevant to understanding of more generic challenges

The financial system may be seen as the most responsive "purest" system, with least lags -- time is recognized as a cost. Potentially therefore, the financial crisis offers very clear insights into risk management in relation to:

- the benefits hoped for in the face of uncertainty
- the manner in which information (including rumour) is used to enhance confidence and credibility by appropriately presented packaging and instrumentalization to disguise unacceptable degrees of "toxicity"
- the expectations of whoever can be thereby persuaded to invest therein
- the ownership and possession of property
- the manner in which knowledge and learning is acquired through experience of these processes

The information management and decision-making tools of the financial system can be fruitfully compared with those of policy-making and governance with respect to:

- use of an array of screens and indicators to facilitate risk management and investment
- use of situation rooms by government agencies, notably in crisis management
- global communications
- rapidity of (re)investment response
- automation of certain categories of investment/disinvestment

Dangerous neglect of underlying patterns

The indications in the previous study point to the merit of considering how the current focus on the "credit crunch" and the major dramatic challenges to the financial system effectively obscure underlying patterns of systemic neglect -- of which the "credit crunch" is merely a symptom. Such underlying patterns are necessarily even more disruptive of cognitive equanimity and "business as usual".

Frame control: The crisis with regard to the financial system, and identification of who is responsible, is especially interesting as an illustration of contrasting responses to frame control:

- **exceptionalism:** as dramatically illustrated by the widespread incidence of sexual abuse by clergy over decades (if not centuries), this was most successfully framed in terms of exceptionalism and isolated "bad apples". Any implication of systemic problems, calling into question the authority of the church and its hierarchy, was successfully quashed in official inquiries and their recommendations -- whatever the conclusions drawn by the faithful and the wider population. It was the "bad apples" who were to be blamed in a process reminiscent of scapegoating.

- **systemic dysfunctionality:** any discussion to date regarding who or what is responsible for the financial crisis and the credit crunch has carefully focused on its systemic nature -- as emphasized, for example, by Jean-Claude Trichet, president of the European Central Bank. Some blame has been temporarily attached to traders who have engaged in short selling as a form of speculation that allows a trader to take a "negative position" in a company, although this process has been framed as necessary to ensure a healthy market. Ironically (by comparison with abuse by the clergy) the genuinely problematic transactions are termed "naked short selling" and those engaged in this process are to be held responsible (by implication only) for significant
destabilization of the financial system, hopefully to be otherwise presented as healthy (whatever token regulatory measures are deemed appropriate). The process of providing disproportionately high rewards and bonuses to those responsible for the operation of the financial system, or complicit in its operation, is embarrassing (in dialogue with the uninitiated) but not considered indicative of culpability by those associated with the system. Although, as indicated by Nicolas Sarkozy, president of France, the very fact that certain individuals were so rewarded would seem to indicate very clear recognition of who was responsible for excesses in the system (from which many profited) and the disastrous consequences for others.

Here it is evident how responsibility is avoided by two seemingly distinct processes, one in which individuals are blamed and the other in which the system as a whole is to blame. There is no question in the first case of considering the degree to which the system is to blame and none in the second of considering the degree to which individuals are to be held to account retroactively for what some might term "financial crimes against humanity" -- although some may be isolated as scapegoats (even as "Nasty financial war criminals", who will receive a slap on the wrist and a golden handshake).

Despite the dimensions of the financial disaster, there is even a sense in which anything problematic in the organization of the system can be reframed in terms of system dynamics. Interesting in this respect is use of the judgement-free metaphor of "turbulence" in the market to describe the crisis (such as by Alistair Darling, UK Chancellor of the Exchequer). Such a metaphor frames the crisis as an act of nature, if not an Act of God, clearly beyond human responsibility, whether individual or collective -- possibly to be understood as a 50 or 100-year cyclic problem, like exceptional flooding or hurricanes. There were some 10,000 web references to "financial hurricane", 8,000 to "financial maehstrom", 90 to "financial cyclone", some 40,000 to "financial tsunami" in October 2008 (Larry Elliot, Surviving the hurricane, The Guardian, 10 October 2008; Carter Dougherty, Global plot sought to quell maehstrom, International Herald Tribune, 11 October 2008).

As with one view of global warming (increasingly deprecated), the financial crisis is then in no way to be considered a consequence of human activity. Again, as with natural disasters, the concern is to minimize irrational panic in response to such crises (Need for action on the banking panic, Financial Times, 25 September 2008; This panic is not irrational, it's quite rational, The Guardian, 11 October 2008).

In its own effort to relativize the dimensions of the crisis, The Economist (27 September 2008) compares the cost of bailouts from various recent financial crises as a percentage of GDP: USA (1988, 3.7%), Finland (1991 (12.8%), Sweden (1991, 3.6%), Mexico (1994, 19.3%), Japan (1997, 24.0%), S Korea (1997, 31.2%) -- the current crisis then being relatively trivial at an estimated 5.8%. Curiously the absolute amounts are not cited in that comparison.

Dysfunctional pattern of thinking: However, as indicated above, the real challenge is not the particular crisis of the financial system. Many have commented on its problems, and their implications, over past decades -- and been completely ignored by those complicit in its processes or responsible for them. The real challenge lies in the pattern of thinking which sustained that particular system and denied its problematic nature -- in a massive act of hope-mongering. The question is whether that pattern of thinking is actively denying the existence of other systemic challenges and repressing consideration of their potential implications -- namely sustaining a pattern of hope-mongering in other areas.

In this sense, is the subprime crisis, and its consequences for the financial system as a whole, to be considered an indicator of a dysfunctional mode of thought in which humanity collectively engages at this time? Alternatively, should that crisis of confidence, framed as a "credit crunch", be seen as a metaphor for what might be better understood as a "credibility crunch" -- credibility being intimately related to creditworthiness?

It is appropriate to note the repeated references to "confidence" and "building confidence" in relation to the financial crisis. The financial system, as with the monetary system, is indeed based entirely on the confidence through which credit is accepted and "liquidity" ensured in an otherwise "frozen" system. Their analogues, with respect to the other crises held to be imminent, may prove especially significant for the future. As a simple example, consider the "confidence" invested in the assumption that bees will continue to respond to their "task" of pollinating crops -- when their increasing failure to do so is now seen as critical in some situations (Alison Benjamin and Brian McCallum, A World Without Bees, 2008). To what extent might ecosystemic relationships lose "liquidity" to become "frozen" in this way -- with some species ceasing to interact with others? A major danger is the current assumption that the only "confidence" that needs to be (re)built is well-defined by monetary tokens.

Systemic parallels: The justification for exploring such systemic parallels is indicated by comparison with issues relating to climate change as notably reported by Tony Macalister (Crisis must be turned to green benefit, The Guardian, 23 September 2008):

There were marked similarities between the lack of transparency and action on complex lending risks that had wreaked havoc in the banking community and the kinds of dangers being stored up by corporate and political inaction over global warming... governments and business leaders have massively underestimated the risks posed by rising sea levels and changing weather patterns -- any costs associated with moving to a low-carbon economy were... "negligible" compared with the costs of doing nothing. The banking crisis meant the rules of engagement by governments had changed completely... The same system of "force majeure" was needed to tackle climate change through new eco-taxes, and help to supplement carbon trading

On the other hand Jim Kunstler (World Made By Hand, 2008) writes:

What the mainstream is truly missing here en masse is that another tsunami is building right behind the finance fiasco, and that it will render moot the whole recking cargo of schemes and wishes that comprises the Great Bail-out. I am speaking of the global oil problem. In fact, the problems in banking and money currently roaring in the center ring of the world circus, can be described categorically as a product of the oil problem -- since oil is the primary resource of industrial economies and therefore the motive
force behind our ability to generate "wealth." Without reliable and ever-growing supplies of oil, there is no industrial growth, and without industrial growth things like capital investment instruments lose their legitimacy. That is why the Frankenstein family of Ponzi securities was invented in the first place -- to compensate for the demise of industrial growth by creating wealth out of... nothing!

But, if the sophisticated economic and financial models, developed with no concern for cost by banking and investment institutions (including the IMF and the World Bank), were unable to predict the liquidity crisis and provide adequate warnings, how credible are the arguments of economists and others regarding other potential crises -- notably those relating to non-renewable resources and population overshoot? Beyond the failure to model a possible crisis, how irresponsible should these authorities be considered in failing to model possible remedial actions in the event of such emergencies? Why are "solutions" only being dreamt up after the crisis has struck -- as with Hurricane Katrina? What does this imply for other crises whose possibility is authoritatively denied?

Whereas Kunstler, like others, sees the "tsunami" as a product of the oil problem, is it not the population explosion that it is increasing demand for oil, as previously discussed (Institutionalized Shunning of Overpopulation Challenge: incommunicability of fundamentally inconvenient truth, 2008)?

<table>
<thead>
<tr>
<th>&quot;Un tram peut en cacher un autre&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>This French warning to those crossing tram lines is widely used as a metaphor in the recognition of challenges. It might be loosely translated here as: One systemic crisis may conceal another. It may even herald its arrival.</td>
</tr>
</tbody>
</table>

Metaphorical descriptions of systems

The dynamics, challenges and operations of many systemic domains of human preoccupation are explained, to some degree, by rhetorical borrowings from other domains. As metaphors such borrowing (itself a metaphor) is clarified through two terms:

- tenor (or ground): the systemic domain to which attributes are ascribed
- vehicle (or figure): the systemic domain from which the attributes are borrowed.

With respect to the current systemic crisis in the financial domain, use is for example made of the expression world "economic climate". Here "finance" (the tenor) is subsumed within economics in general, and "climate" (the vehicle) is borrowed from the domain of climatology to give a sense of the financial system in climatic terms. As noted above, the climate metaphor has been used to imply absence of human responsibility in a context beyond human control.

It is most curious, at a time when concerns are being expressed regarding global warming, that the crisis of the financial system is framed in terms of "frozen" money markets and a need to "thaw" them to recover essential "liquidity". Even more curious is the framing of the possibility of the total collapse of the banking system in terms of a "meltdown" -- and the inconsistent use of "bailout", possibly implying a danger of "flooding".

Considerable use is made of metaphor by those within the financial system, as is the case by those with other systemic preoccupations. For example, business makes extensive use of sporting and military metaphors, just as military metaphors may be used in sporting situations. Military metaphors may be employed as a way of framing development strategies and responses to other social problems (Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors, 1998; Review of the Range of Virtual Wars: as a strategic comparison with the global war against terrorism, 2005).

The need to use metaphor in this way suggests that there is a recognition of the inadequacy in the language in any one domain to comprehend, explain, and communicate its systemic complexities by (and for) those who operate in those systems -- as well as in their communication with those in other connecting systems.

It is appropriate to note that from a systemic perspective, as was the original focus of general systems research, there is a recognized degree of isomorphism between the systems between which such borrowings take place. In other words, there is a degree of commonality to the cybernetic understanding of the control mechanisms in such domains -- whether or not the metaphorical borrowing are significantly lacking in precision or are misleading in some respects. On the latter issue see Sheldon Ungar (Misplaced metaphor: a critical analysis of the "knowledge society", Canadian Review of Sociology and Anthropology, 2003).

Interplay of metaphors in strategic discourse

To the extent that the "world system" is indeed to be understood as composed of a number of interacting (sub)systems, as was the original assumption in global modelling, the question is whether the potential for metaphorical borrowings can be indicated more systematically than is usually the case to enable greater understanding (In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics, 2007). This may notably be relevant where the systems between which borrowings take place in practice are not necessarily those which are typically considered together in global modelling with a narrower objective.

As an indication of the possibility of this approach, consider the table (Integrative Matrix of Human Preoccupations, 1982) developed as a comprehensive classification of international organizations, the problems with which they are concerned and the strategies they envisage (Functional Classification in an Integrative Matrix of Human Preoccupations, 1982) -- notably as an entry point to relevant online databases (and specifically those of the Encyclopedia of World Problems and Human Potential). The systemic considerations, as noted in that commentary, benefitted from the work of Erich Jantsch (The Self-Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution, 1980) and the organization of the periodic table. It is appropriate to ask the question whether there is any reason why periodic systems of knowledge classification should be any less complex than that considered appropriate for the
periodic system of chemical elements

For the purposes of this purely indicative exploration of the systems potentially associated with the columns and rows, such a table might be considerably simplified (and significantly distorted) to a form such as in the following table. Such an approach is consistent with that taken for axiological systems (Francisco Parra-Luna, *Axiological Systems Theory: a general model of society*, 2008) and knowledge cybernetics (Maurice Yolles, *Knowledge Cybernetics: a new metaphor for social collectives*, 2006), recognizing that there is as yet no consensus on how many systems it is appropriate to consider in any global systems approach, however these are reflected in the set of government ministries.

As in the above-mentioned matrix, there is a case for ordering the rows from concrete to abstract with the implication that this implies a sequence of emergence of system significance (if only from an educational perspective), as with Abraham Maslow’s hierarchy of needs. On the other hand, for a relatively mature knowledge system, the sub-systems are usefully considered as co-emergent and necessarily complementary.

The cells of the table below then constitute "containers" for the metaphorical borrowings, by the systems identified in the columns, from the cognitive frameworks of the systems indicated in the rows. It is clear that the table is incomplete, but production of such a table -- appropriately "populating" its cognitive "niches" -- could prove "fruitful". A resource to this end is the compilation of Jean-Pierre Van Noppen (*Metaphor*, 1985, 1990).

<table>
<thead>
<tr>
<th>Systems requiring metaphors in order better to be comprehended</th>
<th>(work in progress; note subsequent table in <em>Climate Change as a Metaphor of Social Change: systemic implications of emissions, ozone, sunlight, greenhouse and overheating</em>, 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems from which metaphors are borrowed (as vehicle or figure)</td>
<td>Resources (agrueulture, fisheries, energy)</td>
</tr>
<tr>
<td>Knowledge (research, religion, belief)</td>
<td>&quot;belief&quot;</td>
</tr>
<tr>
<td>Law (regulation, management, governance)</td>
<td></td>
</tr>
<tr>
<td>Finance (wealth, economics, commerce)</td>
<td></td>
</tr>
<tr>
<td>Recreation (aesthetics, fashion, sport, gaming)</td>
<td>&quot;game&quot;</td>
</tr>
<tr>
<td>Security (defence, secrecy)</td>
<td>&quot;protection&quot;</td>
</tr>
<tr>
<td>Communication (education, learning, image)</td>
<td>&quot;unhealthy&quot;</td>
</tr>
<tr>
<td>Health (well-being)</td>
<td>&quot;protection&quot;</td>
</tr>
<tr>
<td>People (voters, consumers, investors)</td>
<td>&quot;protection&quot;</td>
</tr>
<tr>
<td>Environment (climate)</td>
<td>&quot;protection&quot;</td>
</tr>
<tr>
<td>Resources (energy)</td>
<td>&quot;energy&quot;</td>
</tr>
</tbody>
</table>
Financial metaphors, as used in practice, merit very careful attention, to be mined in relation to learnings of other crises and their survival. They offer a detailed articulation of system dynamics as embodied in practice rather than in thinking or theoretically. The arguments of Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999) are especially relevant.

Using the above table as a framework, a single system, the financial system, may be "mined" in the light of a range of concepts through which its operations are commonly articulated, namely its cognitive language. This includes the systemic role of its actors, instruments, concepts and dynamics, as well as how long and short-term risk is managed in a context of both fear and hope-mongering, as engendered by fact and rumour, and variously exploited. The approach is to suggest use of cognitive tools of finance, and its crisis, as a source of metaphor through which to reframe understanding of other imminent crises -- for which there is a similar lack of preparedness.

Arguably this offers the greatest insight at this time because of the fact that dependence on these concepts by many in practice, and despite their degree of articulation, in some way failed to highlight the disaster implicit in their use. Now that their systemic weaknesses are coming into focus, after the fact, this therefore suggests that, as metaphors, these concepts may help to highlight analogous systemic challenges in other systems -- challenges which, for analogous reasons, have gone undetected, or failed to engender adequate warning signals.

| Systems open to better understanding through the language of the financial system -- interpreted metaphorically | Resources | Environment | People | Health | Communication | Security | Recreation | Finance | Law | Knowledge |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Concepts from financial system offering insights as metaphors** | assets | liability | credit-worthiness | collateral | guarantee | liquidity | solvency | game | security | confidence | risk | leverage | speculation | portfolio | shares | investment |
| **Resources** | agriculture, fisheries, energy | (climate / weather) | (voters, consumers, investors, contacts) | (well-being) | (education, learning) | (defence, secrecy) | (aesthetics, fashion, sport, gaming) | (wealth, economics, commerce) | (regulation, management, governance, politics) | (research, religion, belief) |
| **Liability** | debt | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Credit-worthiness** | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Collateral** | guarentee | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Liquidity** | guarantee | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Solvency** | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Game** | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| **Security** | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection | protection |

This suggests a systematic approach to how "finance" is understood, given the elaborated approach in practice, as compared with the articulation in other systemic contexts regarding:

- how "resources" are understood
- how each such "resource" is generated and/or sustained
- how the "environment" and/or "climate" is understood
- how this enables insights to be elicited into problematic extremes (as in the case of gypsies, indigenous peoples, marginalized and alienated youth)
- metaphors of risk management (notably borrowings from sport and military contexts)

Of interest in this respect is the argument of Judy Steininger (*The bond market as metaphor for American society, The Business Journal of Milwaukee*, 25 July 1997). Sources of stock exchange terms (typical of most exchanges) include:

- London Stock Exchange Glossary
- NASDAQ Stock Market Glossary
- Canadian Stock Exchange: Glossary of Terms
- Reuters Financial Glossary
- Schuler Stock Exchange Glossary
**Systemic challenge: opportunities (hopes) vs threats (fears)**

This approach is not about "finance" and "profit" as conventionally understood but:

- how best to understand the elusive nature of "confidence" and "benefits" in relation to social organization and development -- in a turbulent environment in which there are indicators of various possible imminent crises
- recognizing that overdefinition of confidence and benefits and their reification and materialization (as through monetary and other tokens) distorts and oversimplifies their real significance -- for sustainable confidence, benefit and development
- where distortion and oversimplification of confidence and benefits are inappropriate to the fundamental processes with which they are associated -- and consequently engender new systemic crises

The question, in the face of uncertainty and the need to manage risk, is use of:

- hope in framing the fruitful outcome of any initiative
- cultivating credibility and building confidence
- information in articulating possibilities, challenges and potential threats
- openness and confidentiality (Orrin E Klapp, *Opening and Closing: strategies of information adaptation in society*, 1978)
- recognizing and constraining excesses which engender other challenges

These considerations apply with respect to a range of potential system crises and the hopes that people engage with them. Of special relevance at this time is the framing of any alternative to discredited approaches -- given the tendency towards binary logic and triumphalism, and despite the argument of Madeleine Bunting (*Faith, Belief, Trust: this economic orthodoxy was built on superstition*, The Guardian, 6 October 2008):

> We are now witnessing the collapse of this absurd economic orthodoxy that has dominated politics for nearly 30 years. Its triumphalist arrogance, its insistence on orthodoxy, has been comparable to Soviet communism in its scale. For two decades, we've been told "Tina" -- "There is no alternative".

Economists talk of trust, belief, faith; we now understand that all along neoliberal capitalism was a form of mythology. That's why the triumphalism was necessary -- you could not afford to have anyone challenge the system or we might all realise we were gawping at the emperor's nakedness. Rowan Williams was right to quote Marx, that "unbridled capitalism becomes a kind of mythology, ascribing reality, power and agency to things that have no life in themselves". Richard Dawkins should be critiquing this superstitious belief system.

Whilst "TINA" may have been discredited, there is huge potential for a backlash of "TINATTA": **There Is No Alternative To The Alternative.** It is the need for a binary, triumphalist pattern of arrogance that requires attention.

**Self-reflexivity in systems representation**

**Linearity vs Complexity:** The assumption may be too readily made that remedies for the ills of complex dynamic systems can be adequately handled through conventional "linear" approaches. Peter M. Allen, *et. al.* (*Emergence, Complexity and Organization*, 2008), make the point:

> Organizations of all kinds struggle to understand, adapt, respond and manipulate changing conditions in their internal and external environments. Approaches based on the causal, linear logic of mechanistic sciences and engineering continue to play an important role, given people's ability to create order. But such approaches are valid only within carefully circumscribed boundaries. They become counterproductive when the same organizations display the highly reflexive, context-dependent, dynamic nature of systems in which agents learn and adapt and new patterns emerge. The rapidly expanding discussion about complex systems offers important contributions to the integration of diverse perspectives and ultimately new insights into organizational effectiveness.

In relation to systemic crises, such an argument may be succinctly expressed in a commonly used notion: **If the only remedial tool available is a "hammer", then in strategic terms every new crisis looks like a nail, which hopefully one can hit appropriately.** The question is of course whether other tools might be more appropriate.

As noted in the editors' introduction:

> In the real world then, any nice comfortable routines will need updating and reinventing every so often, as both we and the world change. In this respect as there is no unique, scientific and correct way of modifying our views in the light of some unexpected event, we are assured of multiple, diverse and heterogeneous interpretations to emerge over time, which may be homogenized as a result of success, mass media or the desire to conform to our community view. Our desire for identity and the structure of communications shape our understanding of the world in some complex, path dependent way that embodies our culture and history as well as our individual experiences. But it is better to recognize the reality of our understanding as being under permanent construction and re-construction than to pretend that the fixed model that we are familiar with will remain true.
Beyond planar forms of representation: Complexity approaches however tend not to place emphasis on their application to complexity science itself. An interesting exception in the above volume being the contribution by Robin Nunn (Complexity Theory Applied to Itself, 2008). One approach to this challenge is to question the appropriateness of the so-convenient representation of systemic preoccupations and possibilities in matrix form, as in the tables above -- which may constitute a cognitive trap.

Perhaps the clearest articulation of the problematic consequences is that of Michael Schiltz (Form and Medium: a mathematical reconstruction, Image & Narrative, 6, 2003) in relation to the calculus of indications of George Spencer-Brown (Laws of Form, 1969/1994). Schiltz notes that form/medium is "the image for systemic connectivity and concatenation", as described by Humberto Maturana and Francesco Varela. Schiltz notes, that the notion of 'space' is the key to reflexivity appropriate to any discussion of form and medium, citing Spencer-Brown as follows:

In all mathematics it becomes apparent, at some stage, that we have for some time been following a rule without being aware of it. This might be described as the use of a covert convention. [...] Its use can be considered as the presence of an arrangement in the absence of an agreement. For example, in the statement and theorem... it is arranged (although not agreed) that we shall write on a plane surface. If we write on the surface of a torus the theorem is not true [...] The fact that men have for centuries used a plane surface for writing means that, at this point in the text, both author and reader are ready to be conned into the assumption of a plane writing surface without question. But, like any other assumption, it is not unquestionable, and the fact that we can question it here means that we can question it elsewhere [...] Schiltz then comments (in language that calls for a longer quotation to convey the richness of the subtle argument -- emphasis added):

It was our choice to write in a plane surface that has made that distinctions indeed do cut off an inside from an outside, that 'differences do make a difference' (Gregory Bateson). Covert conventions at a level deeper than the level of form, preceding the level of form, have determined what the form would do. There lies a chance for developing a medium theory here. In this concrete case: the medium of the plane surface makes the difference. And in general: the topology of the medium makes the difference between distinctions making a difference and distinctions not making a difference. 'It is now evident that if a different surface is used, what is written on it, although identical in marking may not be identical in meaning'... Spencer-Brown has shown us that the 'medium is the message' (Marshall MacLuhan)....

Spencer-Brown's solution to the problem of many-valued functions is well-known. He constructs a tunnel 'subverting' the plane, and connects the distinguished sides. As hinted to above, the topological qualities of space are thus altered. We are now writing in a space that grants a form the possibility of access to itself, yet denies the possibility of identity with or presence to itself (Michael Schiltz and Gert Verschraegen, Spencer-Brown, Luhmann, and Autology: Cybernetics and Human Knowing 9, 2002, 3-4). Hence, we are writing in a space that connects the level of first-order (operand) and second-order (operator) observations. That space is a torus. If considered operationally, distinctions written on a torus can subvert their boundaries and re-enter the space they distinguish, turning up in their own form. The marked state cannot be clearly distinguished from the unmarked state anymore, leading to the 'indeterminacy' of the form. As the calculus explains, the state envisaged as such is a state not hitherto envisaged in the form. It is neither marked nor unmarked. It is an imaginary value, flipping between marked and unmarked, thanks to the employment of time. The form of the re-entry, as described here, has been the source of many commentaries....

Such conceptualization diverts sharply from an intuitive understanding of a medium. As seen here, a medium is far from a Euclidean container. Rather is it introverted space, it is identical to the topology of the form, it is the form's 'deep structure'.

Appropriateness of circular, spherical and toroidal forms: There is at least the possibility that shifting out of planar articulation of any systemic crisis (including the financial crisis or the "clash of civilizations" exemplified by the "peace process" in the Middle East) might clarify more coherent options. It is of course the case that financial crises are explored through two-dimensional "spreadsheets" without consideration of other possibilities (Spherical Accounting: using geometry to embody developmental integrity, 2004). Possibilities of transformation of a matrix onto a torus, and the implications for such self-relaxivity, have been considered elsewhere (Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: transforming a matrix classification onto intertwined tori, 2006).

Any commentary on systemic crises (as with this document or any remedial proposal) is then necessarily subject to the same constraining processes with respect to credibility, information, benefits, and potential toxicity:

- credibility to whom
- information communication to whom
- benefits for whom
- conditions of toxicity
- problematic tokenism

An alternative in two dimensions to the matrix representation (characteristic of a western mindset), is offered by a circular array of the hexagrams characteristic of a traditional Chinese conceptual tool of governance, namely the I Ching (or Yi Jing). This has been adapted elsewhere to interrelate 64 strategic decision-making conditions (Transformation Metaphors -- derived experimentally from the Chinese Book of Changes (I Ching) for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle, 1997).

Respecting the need for a dynamic articulation, animated versions have been produced experimentally (Dynamic Exploration of Value Configurations: interrelating traditional cultural symbols through animation, 2008) -- also offering a degree of connection with western symbol systems. Of particular interest in the design of that circular array is the visible articulation of the various types of lines (loops) of
connectivity between the systemic conditions. These might be further explored as indicative of a torus-based representation -- if the circular array were to be appropriately folded -- potentially suggestive of valuable psychosocial implications.

**Interplay of metaphors as an integrative system of correspondences**

**Disciplines as "banks" of knowledge society:** Borrowing metaphorically from the financial crisis -- characterized by a lack of liquidity in which the banks are extremely reluctant to lend to each other -- it might be suggested that an analogue of considerable significance is a situation in which disciplines (as the "banks" of knowledge society) are reluctant to "lend" to each other. The lending in this case might be fruitfully understood in terms of enabling metaphorical borrowings vital to creativity and the much vaunted "human ingenuity" on which many expect to depend to resolve the crises of the future.

In this sense the lines (loops) in that circular array may be understood as lines of "borrowing/lending" fundamental to creativity. It is worth noting the cognitive condition which is highly constrained in its ability to derive meaning from metaphor, namely autism or Asperger's syndrome. There is a sense in which social institutions, and the disciplines on which they depend, may be characterized to some degree by a collective equivalent to such disorders (Fragmentation and erosion of collective memory, 1980).

Questions might be even be fruitfully asked about what might be termed the "valency" of any of the binary coded conditions in the circular array -- possibly understood as the "strength" of the metaphoric "bond" between them. In any discussion of emergent organization in response to strategic crises, namely self-organization (auto-poiesis), it might also be asked to what degree the aesthetics of creativity, powerfully associated with metaphor, are a matter of poiesis (Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast, 1993; Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats, 2006).

Who are the "brokers" and "midwives" of such borrowings? Any loss of poetic "liquidity" would constitute a form of "poetic crisis" that might have been anticipated in Robert Graves speculative exploration of governance by poets (Seven Days in New Crete, 1949) and may well be a challenge for the future (Aesthetics of Governance in the Year 2490, 1990). Worse still, it may be precisely the fact that there is so little confidence in such borrowings between disciplines that has resulted in creativity in response to the global Iproblematique having long been frozen and focused in ways that are as yet denied (Metaphors as Transdisciplinary Vehicles of the Future, 1991).

"Sound" vs "Vision": tuning strategic arrays: As an alternative to borrowing from metaphors of "vision" for strategic purposes, a case may be made for borrowing from "sound", especially given its widespread intuitive appeal through music and harmony (Developing a Metaphorical Language for the Future, 1994). In that sense any matrix representation lends itself to creative exploration as a cognitive fret through which musical intervals are distinguished thereby offering the challenge as to how the pattern of relationships is to be "harmoniously tuned" (Tuning a Periodic Table of Religions, Epistemologies and Spirituality -- including the sciences and other belief systems, 2007).

The justification for switching to a sound-based metaphor is presented elsewhere (In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics, 2007; Polariites as Pluckable Tensed Strings: hypercomprehension through harmonics of value-based choice-making, 2006; A Singable Earth Charter, EU Constitution or Global Ethic? 2006). The need for mnemonic aids has long been highlighted by the association of the complexities of metabolic pathways with songs (Harold Baum, The Biochemists' Song Book, 1982/2003).

Sound is itself not considered a restricted metaphor in the development of marketing strategy -- potentially a source of insight for strategy development in general. Thus Catherine McCormack (Extra Sensory Branding, Voice, October 2008, pp. 55-60) describes sensory branding as a somewhat recent phenomenon in the world of marketing -- transcending traditional models of advertising in order to deliver multi-sensory, multi-dimensional experiences that communicate brand values on an experiential level, namely beyond sight and sound. Understood as a form of "neuromarketing", marketing specialists like Martin Lindstrom (Brand Sense: build powerful brands through touch, taste, smell, sight, and sound, 2005) argue that sensory experiences are real, difficult to fake, and therefore recognized as authentic. Simply defining a brand visually is seen as outdated. Sensory branding is about activating all the senses.

Such a switch in metaphor highlights the possibility that collective strategy development may itself be currently a victim of lack of "liquidity" in that the potential functional interplay between all the senses is effectively "frozen". Such a phenomenon is well-recognized in the psychology of individuation where the challenge is to being all the senses into play in a fluid coordinated way -- without particular functions being permanently dominant.

**Engaging playfulness:** The possibility of "playing" with metaphors indicative of opportunities and eliciting new forms of strategic organization can also be associated with the engagement of many with game-playing, another fruitful source of metaphor through which to explore the interplay of possibilities (Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity, 2005). Just as the financial crisis may be used as a source of metaphor to explore systemic crises and remedies, climate has been proposed as just such a source (Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance, 2005).

Curiously the engagement with the stockmarket is often described in terms of "playing" and game theory (John Von Neumann, The Optimal Strategy for Playing the StockMarket). The stockmarket crash was notably compared to the phrase used by croupiers "Thank you for playing" (Thomas L. Friedman, Keep it in Vegas, International Herald Tribune, 17 September 2008).

The fact that climate metaphors have been used (as noted above) in order to avoid holding any to account offers an example of inappropriate playing with metaphor. Similarly, to the extent that "bailout" implies a response to "flooding", it is curious that it is the very absence of "liquidity" that is making such a bailout urgent -- perhaps obscuring the system that is effectively flooded.
The "bailout" highlighted as so urgent might then be better described as a "bailin". Is it the taxpayer who really needs a "bailout" -- effectively drowning under a flood of "toxic" false hopes channelled by hope-mongers with promises and pledges? Alternatively, if it is the legal sense of "bail" that is used, this would imply that the parties in need of bail -- namely the banks -- were recognized to be in some way worthy of indictment, being released "on bail", in anticipation of judgement on the illegality of their actions.

Correspondences and correlative thinking: This creative interplay can be understood as responding to a systemic jigsaw puzzle in more than two dimensions (possibly a form of Rubik Cube), calling for careful decoding -- as vitally fundamental to systemic crises as the Enigma encryption project of World War II. This is now to be reframed as the archetypal battle between "us" and "them". Here "them" are dissociated from "us" by the manner in which information processing is distorted through the cognitive mirror through which the reflection of "us" is recognized -- as discussed elsewhere (Self-reflective Embodiment of Transdisciplinary Integration (SETI): the universal criterion of species maturity?, 2008). This might be well summarized by the much-cited statement of Pogo: I have seen the enemy, and them is us.

The metaphorical relationships of the (potentially toroidal) table above may also be explored in terms of the "correspondences" of importance both to traditional symbolism and to contemporary sciences (Theories of Correspondences -- and potential equivalences between them in correlative thinking, 2007). In that sense it is worth considering whether the traditionally famed Emerald Tablet (Smaragdine Table, Tabula Smaragdina) offers an imaginative synthesis of that pattern of associations, notably given the importance attached to it by Isaac Newton (see B.J. Dobb, Newton's Commentary on the Emerald Tablet of Hermes Trismegistus, 1988). This would appear to be how it was perceived from a symbolist perspective (Karen-Claire Voss, Imagination in Mysticism and Esotericism: Marsilio Ficino, Ignatius de Loyola, and Alchemy, Studies in Spirituality, 6, 1996, 106-130). A toroidal form to such a holistic table might even offer functional significance to traditional intuitions associated with the spiritual halo!

Human uncertainty principle: Given Newton's deprecated interest in "alchemy", it is curious that it resonates with the understanding of a modern genius of financial game-playing, George Soros (The Alchemy of Finance, 1988), who argues:

People's understanding of the world in which they live cannot correspond to the facts and be complete and coherent at the same time. Insofar as people's thinking is confined to the facts, it is not sufficient to reach decisions; and insofar as it serves as the basis of decisions, it cannot be confined to the facts. The human uncertainty principle applies to both thinking and reality. It ensures that our understanding is often incoherent and always incomplete and introduces an element of genuine uncertainty --- as distinct from randomness --- into the course of events.

The human uncertainty principle bears a strong resemblance to Heisenberg's uncertainty principle, which holds that the position and momentum of quantum particles cannot be measured at the same time. But there is an important difference. Heisenberg's uncertainty principle does not influence the behavior of quantum particles one iota; they would behave the same way if the principle had never been discovered. The same is not true of the human uncertainty principle. Theories about human behavior can and do influence human behavior. Marxism had a tremendous impact on history, and market fundamentalism is having a similar influence today.

This points to the danger of linear, "rational" approaches to management of complex systems, especially those lacking any degree of self-reflexivity. The challenge appears first to have been addressed by Garrison Sposito (Does a generalized Heisenberg Principle operate in the social sciences? 1969). Efforts currently proposed to "fix" financial or other systems -- now that there is some understanding of where their problems lie -- may be as inadequate as the application of chess game-playing strategy to conflicts better framed by the game of go, as analyzed by Scott Boorman (The Protracted Game: a wei-ch'i interpretation of Maoist revolutionary strategy, 1969).

Bonfire of the Certainties
(Editorial, The Guardian, 14 October 2008)

Call it the bonfire of the certainties. Not so long ago, Britain's biggest banks were assumed to be robust and well run. And for the past couple of decades, bankers claimed they knew best how to go about their business, and that the safest thing government could do was get out of the way... The economic landscape has shifted; the premium now is for new ideas on how to take advantage of this transformation. The first task for the government is to accept this is a momentous change... There are two sets of issues around this banking crisis: the first is how to regulate finance; the second is how to reform banks.

Cross-system strategic "puzzles": enabling a different form of connectivity

There is great familiarity with challenges like crossword puzzles, scrabble, and Rubik's cube, on the one hand, and with systems diagrams and input-output spreadsheets, on the other. It would seem however that new tools are required in support of new modes of thinking. These might well be an extension or elaboration of these devices. At present these variously combine ludic, patterning, learning and expiatory functions.

It is interesting to speculate on the possibility of a qualitative analogue to the devices named, but having an integrative cognitive function more relevant to the response to intersystemic crises. The interweaving patterns of metaphoric associations described above might for example take the form of a special kind of "crossword" puzzle in which metaphors indicative of figure and ground cross -- with some cells made "black" where such connectivity did not apply.

The comprehension and/or completion of such puzzles could come to be appreciated in the same manner as with the integrative sense associated with crossword puzzles and sudoku. As such it may be appreciated as a challenge to comprehension of intersystemic
feedback loops -- but at a qualitative level enabling the creativity dependent on the borrowings between systemic frameworks.

Such patterns might be reminiscent aesthetically of the many kinds of weavings characteristic of different tartan weaves. The qualitative relationships are of course also reminiscent of the qualitative significance associated with magic squares, notably in their form in Chinese culture and in the symbolist tradition. One approach to these possibilities is through the extensively elaborated patterns of associations in Chinese classic considered essential to governance (9-fold Magic Square Pattern of Tao Te Ching Insights experimentally associated with the 81 insights of the Tai Hsuan Ching, 2006). This is explicitly understood as enabling access to Gregory Bateson's "pattern that connects" (Hyperspace Clues to the Psychology of the Pattern that Connects, 2003) -- recently a focus of a study by Soren Brier (Bateson's concept of information in the light of the theory of autopoiesis, in: Cybersemiotics: why information is not enough! 2008).

| Frozen mindsets exemplified by Frozen money markets
challenge of global meltdown: financial system or knowledge system?

Dire urgency is cited in the face of the possibility of global meltdown of the financial system. In October 2008, the IMF raised its estimates of losses from the global banking system to some $1.4 trillion -- an increase of 45% over the estimate affirmed two months previously. This is deplored as a huge destruction of wealth -- including personal savings and endangering pensions.

Whilst it had been recognized that life on Earth is in the throes of a new wave of mass extinction, unlike anything since the demise of the dinosaurs, coincidentally it has now been announced that this may only be a fraction of the true number of species facing extinction -- with some predicting that one species could be falling extinct every 20 minutes -- or 27,000 a year.

This process of destruction of ecological assets -- the ecosystemic wealth of humanity -- has been significantly enabled over past decades, with sublime confidence, by the policies of the Bretton Woods institutions (including the IMF) in support of "development" and "growth". In reinforcing a single economic model, excluding alternatives, these have exemplified the pattern destructive of the very biodiversity on which planetary ecosystems are dependent.

The focus of the currently urgent efforts to rebuild the financial system, to unfreeze the money markets through instilling new confidence, will be jeopardized by the "frozen" mindset through which it is undertaken -- exemplified by that of Bretton Woods and its betrayal of trust.

It is this mindset that is inhibiting the cognitive "liquidity" vital to creative intersystemic responses by the knowledge system to the wider challenge -- of which the financial system is an only too evident symptom. This is the civilizational challenge analyzed by such as Jared Diamond (1995) and Thomas Homer-Dixon (2006) -- and denied for reasons analyzed by John Ralston Saul (1995).

Credibility

In whom should one have confidence when authorities have abused trust to such a degree -- and with a minimum of humility and self-criticism, then and thereafter? The Financial Times makes the point (Need for action on the banking panic, 25 September 2008):

Banks are not to be trusted. This is not just the view of the public and policymakers, but that of the banks themselves.

As noted that same week by the Financial Times (In praise of free markets: a flawed but precious mechanism, 27th September 2008):

The financial system has reached the point of maximum peril. After years of profligacy, banks have all but stopped lending to each other as the US Congress decides whether to extend support. If the unravelling of the banking system continues, the economic consequences will be dire. Yet there is an even greater risk: that the politicians now contemplating Wall Street's follies draw the wrong conclusions and take the wrong decisions, losing their confidence in markets altogether.... Yet there is plenty of room for policymakers to compound the damage already inflicted by the irresponsible conduct of the financial sector.

The absence of any useful form of mea culpa from the Financial Times in encouraging that irresponsible conduct over the years (amongst its subscribers) highlights the challenge that it is indeed the very people who know what to do who have been totally complicit in the abuse of public trust. Have they in fact learnt anything? Rather than the "policymakers", will it be they who endeavour vigorously to replicate the abuses of the system -- to "compound the damage already inflicted" -- in order to maximize their continuing advantages?

| Enron was the pit canary, but its death went unheeded


Just as Enron had off balance-sheet vehicles -- SIVs -- that allowed it to book earnings and hide debt, Citigroup and other financial institutions had structured investment vehicles that did the same. Indeed, Citigroup had to take almost $50bn of SIVs back on to its balance sheet after they ran into trouble.... Of course, SIVs are only a small manifestation of the deeper problem, which is the evolution of financial engineering into a dark art. Enron now seems like the canary in the coal mine....

Enron was castigated for its abuse of mark-to-market, or fair value, accounting.... Employed correctly, it makes a company's finances more transparent. But we all joked that Enron didn't mark to market -- it marked to myth, to whatever it wanted them to be. In this, the US regulatory agency, the SEC, was complicit, because it signed off on Enron's use of this accounting and never ensured it wasn't abusing the rules.... Most of the believers in the free market only believe in it when it is going their way. When it doesn't, it's someone else's fault.
Modelling credibility crises of the future

The current financial crisis and the associated credit crunch -- as triggered by subprime lending and accumulation of "toxic debts" -- help to make it very clear that humanity has gulled itself into a process of living on borrowed time.

Attitudes to imminent resource-related crises (energy, water, food, etc) engendered by the population explosion have been cultivated in a bubble of confidence continually reinforced by hope-mongering. This has encouraged a frenzy of unregulated speculation in pursuit of personal gain and reproduction -- by some at considerable expense to others. The opportunities to exploit environmental resources have multiplied endlessly, enabled by ever-increasing ingenuity. This is usefully modelled by the development of the tremendous complexities of the derivatives market -- with its minimum transparency and its dissociation from any sustaining reality. These developments have engendered ecological deficits beyond the capacity of most to comprehend -- if any even considered it relevant to do so.

The point is well-made by commemoration of 23 September 2008 as Earth Overshoot Day, namely the day in 2008 when humanity begins living beyond its ecological means. Beyond that day, humanity moves into the ecological equivalent of deficit spending, utilizing resources at a rate faster than what the planet can regenerate in a calendar year. It is of course to be expected that in 2009 it will be earlier in the calendar year.

Within the metaphorical framework proposed, it is worth exploring the confusion and conflation of cognitive frameworks between the "petroleum derivatives" so vital to the use of oil (and dependency on it) and the "toxic products" engendered by them (as with "financial derivatives"). Is the creative ingenuity applied to the development of such derivatives understood as exemplifying "derivative thinking", rather than the original thinking called for at this time -- the so-called "new thinking"? (D. Stewart Armstrong, Innovative versus Derivative Thinking, GoldSeek, 8 December 2005; UNESCO International Round Table, A New Thinking For The New Millennium, 2001; Edward de Bono, New Thinking for the New Millennium, 1999).

As with hidden "toxic loans" and their innocent packaging, is it any surprise that the disposal of toxic wastes benefits from a similar mindset? In the case of carbon emissions, is it any surprise that Nearly half of FTSE-250 companies keep their carbon footprints hidden (The Guardian, 8 October 2008)?

Given how assiduous counter-terrorist agencies are now in tracking questionable financial transactions, it is indeed curious that they were not fully aware of the build-up of hidden toxic debts. Is the financial crisis not of greater dimensions than 9/11 -- and possibly an even more successful al-Qaida plot? Did such agencies have their own reasons for not disclosing this, allowing the issue to develop as a surprise? Or were they not able to track such dangers to the global financial system -- which some consider were enabled by criminals, if not terrorists? This would then raise serious questions about the capacity of such agencies to detect other hidden threats to society. Is societal collapse to be characterized by a succession of such "own goals"?

The dimensions of the sudden financial crisis have seemingly been totally unexpected by the authorities and specialists most implicated in hope-mongering and denial of the possibility of such a crisis. The dimensions of the financial crisis are likely to prove to be relatively minor by comparison with the probable consequences for human society of the imminent crash engendered by population overshoot and imprudent strategies of resource exploitation. It is appropriate to note that, as with the crash of the financial system, this too has been widely predicted -- as discussed elsewhere (Overpopulation shunning mindset: the most dangerous form of hope-mongering? 2008; Institutionalized Shunning of Overpopulation Challenge: incommunicability of fundamentally inconvenient truth, 2008).

The current urgency of the pleas for a "bailout" is stressed (at the time of writing) by those most committed to a mindset of unregulated speculative use of limited resources. The proposed bailout -- and the effort to stampede decision-makers into approving it -- can be seen as presaging the manner in which any "solution" will be proposed to any future environmental crisis, whatever dramatic form it takes. It is therefore indicative of the nature of the response to the underlying emergent challenge, the highly problematic consequences of the simplistic remedies that will be available at the last minute, and the burden it will place on future generations. Those currently responsible for sustaining such unpreparedness will not be called to account. As with the financial crisis, they are likely to be rewarded with honours and golden parachutes.

As an indicative model of a future "credibility crunch", the "credit crunch" draws attention to consequences of a complete erosion of confidence and trust in the institutions and authorities that have been so complicit in the hope-mongering processes by which the crisis has been engendered. In this respect, the fact that both funds and markets have been "frozen" by the crisis is suggestive of how even non-financial and informational transactions would be "frozen" by any future more general crisis of confidence. The loss of "liquidity" now experienced in financial terms may then translate into a more dangerous loss of flexibility in both socio-economic and psycho-social systems -- with unpredictable consequences.

<table>
<thead>
<tr>
<th>Intersystemic application of the framework of the IMF Global Financial Stability Review (Press Conference, October 2008) ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The IMF’s managing director, Dominique Strauss-Kahn, said the report &quot;shows how serious a crisis we currently face&quot;:</td>
</tr>
<tr>
<td>The time for piecemeal solutions is over. I therefore call on policymakers to urgently address the crisis at a national level with comprehensive measures to restore confidence in the financial sector. At the same time, national governments must closely coordinate these efforts to bring about a return to stability in the international financial system.</td>
</tr>
<tr>
<td>Jaime Caruana, head of the IMF’s monetary and capital markets department, which authored the report, welcomed that countries were starting to discuss comprehensive international solutions, but added:</td>
</tr>
</tbody>
</table>
Concrete actions, however, are needed to tackle insufficient capital, falling asset valuations, and a dysfunctional funding market. Such a comprehensive approach, if consistent among countries, should be sufficient to restore confidence and the proper functioning of markets, and avert a more protracted downturn in the global economy.

However, the immediate impact of the financial crisis admirably obscures underlying systemic issues whose urgency can now be conveniently considered negligible -- as with the systemic problem of the financial system over past years. The urgent inter-systemic approach becomes evident if key words in the above statements are replaced, such as follows: financial by commodities (or environment, or energy, or social), economy by ecosystem (or society).

Such an exercise could also be fruitfully applied to the IMF’s recommendations:

- employ measures that are comprehensive, timely, and clearly communicated
- aim for a consistent and coherent set of policies to stabilize the global financial system across countries
- ensure rapid response on the basis of early detection of strains in order to contain systemic repercussions
- assure that emergency government interventions are temporary and taxpayer interests are protected
- avoid losing sight of the objective of a more sound, competitive, and efficient financial system going forward

However the emerging generic difficulty is the lack of confidence in those who might have aspired to undertake such measures -- whether elected (or appointed) authorities or those promoting alternatives. This suggests that democracy will indeed lead to tyranny, as Plato had asserted.

Archetypal hope-mongering

It is with respect to any such systematically-denied underlying challenges that hope-mongering becomes most clearly evident in two distinct forms, whatever population levels are reached:

- creative responsive of human ingenuity: as noted above, the challenge with respect to this form of hope-mongering has been explored by Thomas Homer-Dixon (The Ingenuity Gap: how can we solve the problems of the future? 2000) who subsequently recognized the inevitability of collapse of civilization as it is currently known (The Upside of Down: catastrophe, creativity, and the renewal of civilization, 2006), as with Jared Diamond before him (Collapse: how societies choose to fail or succeed, 2005).

For technocrats, as discussed elsewhere, this is the prime reason for optimism (In Quest of Optimism Beyond the Edge -- through avoidance of the answering process, 2007). Especially interesting in any comparison with the financial markets is the degree of creative ingenuity, of the highest mathematical order, that has been employed in the development of the derivative market -- held specifically to be one of the systemic factors that resulted in the financial crisis.

Curiously such creative ingenuity has not been employed to anticipate future crises by extending the global modelling work of pioneered in 1972 for the Club of Rome. Especially relevant is the manner in which those efforts to analyze the evolution of the world problematique are themselves undermined in an academic context. As shown by Graham Turner (A Comparison of the Limits to Growth with Thirty Years of Reality, CSIRO 2007), the original study provoked many criticisms which falsely stated its conclusions in order to discredit it. Despite the repeated substantiation of its conclusions, including warnings of overshoot and collapse, recommendations of fundamental changes of policy and behaviour for sustainability have not been taken up. One of its principal areas of focus was population.

- hope-mongering and rapture: as noted above, equally significant if not more so, is the degree of influence on faith-based governance of the widespread belief in some form of rapture, or divine "bailout". Is this "bailout by God"? This is notably a factor in the US presidential campaign at the time of writing. It is widely believed that the more fundamental or dramatic the complex of problems faced by humanity, the higher the probability of such intervention. An extreme irony of the times is the call from economists to have "faith", "belief" and "trust" in an economic orthodoxy in a state of free-fall, as noted above by Madeleine Bunting (Faith, Belief, Trust: this economic orthodoxy was built on superstition, 2008).

Responsible, rational strategic responses by faith-based governments may therefore be readily set aside in a celebration of short-termism worthy of the financial markets. But what if it proves to be "bailout by Allah" as the lender of last resort -- with a different conception of "Wall Street" and the system to be saved? The final crisis is then held to be both a matter of prophecy and to be welcomed for the future it will then enable, as discussed elsewhere (Spontaneous Initiation of Armageddon: a heartfelt response to systemic negligence, 2004). Is God indeed appropriately to be instrumentalized as a sophisticated form of luck-cum-bailout device, responsive to praise and appeals?

In comparing these extremes, there is a fairly high degree of historical irony with regard to the "indulgence" exhibited through the current bailouts for those who engendered the crisis. The irony is in the response of Christian church authorities to their own financial challenges centuries ago. As a demonstration of human ingenuity, the population was offered "indulgences" for sins committed to reduce any penalties in an afterlife -- in exchange for a fee effectively "bailing out" the Church in the present. Abuse of that hope-mongering system was a major factor in the Protestant reformation. Curiously the parallel to this ingenious approach has been noted with respect to carbon trading (Global Market in Indulgences: extending the carbon trading model to other value-based challenges, 2007).

Most curious in this comparison is the manner in which "faith", typically disparaged by the hard-headed as an insubstantial irrelevance, is now vigorously encouraged by the most hard-headed at the focus of the financial crisis. It is seen as central to recovery of the health of the financial system and the global economy. Economists, and those with governance responsibility, argue strongly that people should have faith, trust and confidence in the financial system which has abused that confidence -- notably as a means of ensuring that the
Avoidance of responsibility

In the midst of the financial crisis, it would seem that those most aware of the dimensions and implications of the credit crunch are quite defensive regarding their own role in engendering it. An editorial in *The Economist* (20 September 2008) concluded that:

> Those of us who have supported financial capitalism are open to the charge of few spivs to get rich.

Its report the following week (*Lessons from the crisis*, 4 October 2008) did not indicate that its own editorial perspective had acquired any new insight or was capable of offering any insights on what remedial action might be taken -- whilst at the same time reaffirming the validity of its original perspective. There was clearly no reason for any form of apology -- although an analysis was supplied of the futility of apology (*Who's sorry now: who should apologise to whom, for what and how?*, 4 October 2008). As noted below, the *Financial Times* was equally sanguine about its own position -- and presumably its inability to learn from a crisis whose engendering dynamics it had sustained (*In praise of free markets: a flawed but precious mechanism*, 27 September 2008). These might be described as unprofessional failures of institutional learning.

There is a high degree of irony in the use of climatic terms to frame the financial emergency -- but especially the response to it. As noted, the widespread use of climatic terms -- some 100,000 web items on "financial hurricane" and related metaphors -- is an excellent means of framing the crisis as beyond human responsibility (as some argue with regard to global warming itself). If that response was indeed governed by the mindset used in response to disastrous hurricanes (necessarily beyond human responsibility), the response may be fruitfully compared with the quality of coordination and reactive response to Hurricane Katrina -- suggesting an interesting parallel with FEMA (as a "Financial Emergency Management Agency"). This would be consistent with advance recognition of the probability of the disaster, the level of emergency preparedness instituted in advance, and the disastrous consequent impact on homelessness and livelihoods.

If climate is indeed considered an appropriate "model" for such crisis, then it would be expected that resources analogous to those used for climate modelling would have been used with respect to the propensity of the financial system to "hurricanes". That this has clearly not been the case is a major indication of irresponsibility. Why has global modelling of possible crises been discredited -- when resources are so extensively allocated to mathematical modelling of the stockmarket?

The disastrous response to Hurricane Katrina would seem to be the benchmark of those with greatest responsibility. This is presumably the standard by which emergency preparedness is framed for future overshoot problems (water, energy, food, pandemics, etc) -- all to be awaited by policy-makers like rabbits paralyzed on a highway at night. Victim psychology at its best! Will this indeed be true of the next systemic disaster? Why, as with FEMA's response to Hurricane Katrina, had no emergency plans been articulated in advance? Why the last minute panic to deploy "human ingenuity" to identify possible solutions -- with no time to deliberate and test them appropriately -- and after much destruction of assets had already occurred?

Most intriguing, and worthy of modelling in its own right, is the manner in which a system of responsibility avoidance was activated -- ironically with far greater rapidity than that of emergency response. The irony is all the greater in that responsibility avoidance, and the disasters to which it gives rise, may well be fruitfully modelled by the generation of hurricanes -- at least as a first approximation. Hurricanes do indeed feed on heat released when moist air rises, resulting in condensation of water vapour contained in the moist air. The hope-mongering which engenders financial bubbles might well be seen as associated with rising "hot air" to drive a form of financial feeding frenzy typical of stock market processes that may develop into "hurricanes". In such a process, all those complicit in any way dissociate themselves from responsibility for the dynamic their actions reinforce.

To the extent that banks have operated together like gambling cartels, where are the comprehensive analyses of responsibility for the financial crisis? Deborah Hargreaves (*We should take the axe to these architects of downfall*, *The Guardian*, 10 October 2008) concludes:

<table>
<thead>
<tr>
<th>Moral equivalence: Sexual abuse by clergy vs Irresponsible risk-taking by financiers?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The phenomenon of sexual abuse by clergy has been denied and covered up over decades by church authorities -- only recently publicized and leading to condemnation of the offenders and compensation for those affected. There is a distinct equivalence to the attitude to those in authority (having successfully cultivated the belief in their own worthiness of community trust) who engaged in irresponsible financial risk-taking -- using the savings and pensions of others -- richly rewarded by others complicit in the system and in the concealment of its risks. Measures are indeed under consideration to prevent such abuse in future, but no concerted action is taken to address the impoverishment of those already abused in this way. The question of possible criminality is carefully avoided -- although some may be scapegoated as a means of claiming the morality of the system. And yet the UK government has indeed invoked the Anti-Terrorism Crime and Security Act to freeze the assets of some Icelandic banks in which UK bodies had funds. But no question of freezing the assets of those in UK banks who indulged in irresponsible risk-taking -- as a step towards recovering funds? Are the abusers to be considered &quot;terrorists&quot; given the resulting damage? As in the case of the sexual abuse by clergy, who has been complicit in this process and its cover-up? Who continues to benefit from such abuse? To what extent should the abused envisage compensation -- perhaps only to be achieved decades in the future?</td>
</tr>
</tbody>
</table>

---

prudent compensate for the actions of the imprudent from whom no comparable engagement is required.
In response we should start by insisting that these bank bosses pay with their jobs, and forgo the large payouts to which they will say they are entitled. This could be time to test their employment contracts in court. If Gordon Brown means what he says, it is time to hold the bankers to account.

If however the UK can frame the financial activities of Iceland as subject to UK terrorist legislation, one may ask why such legislative provisions cannot be applied to the UK's own "home-grown" financial "terrorists" -- or to other actors in the global financial markets. If presidential executive orders within the USA can be used -- after the fact -- to reframe both how terrorism is defined and the necessary responses to those framed in this way -- in the vital and urgent interests of national security -- how damaging does the consequence of the current financial disaster need to become before those complicit in engendering it can be legitimately indicted?

What of those complicit in engendering other systemic disasters to come?

**Conclusion**

As argued in the previous study (Credibility Crunch engendered by Hope-mongering: "credit crunch" focus as symptom of a dangerous mindset, 2008), the question is how appropriate reliance on hope is to be distinguished from dysfunctional and abusive hope-mongering.

The case presented here raises the possibility of looking at environmental overshoot "through" the cognitive framework of the financial system and its current crisis -- the systemic role of its actors, instruments, concepts and dynamics, as well as how long and short-term risk is managed in a context of both fear and hope-mongering, as engendered by fact and rumour, and variously exploited. The approach is to suggest use of cognitive tools of finance, and its crisis, as a source of metaphor through which to reframe understanding of other imminent crises -- for which there is a similar lack of preparedness and similar excuses for such lack.

**Learnings: recognition of underlying patterns:** Beyond the financial crisis, it is therefore even more vital to identify other -- even more fundamental -- systemic processes that are also effectively based on "confidence". Are they vulnerable to a form of "subprime crisis" as a result of an existing pattern of questionable "lending" -- through hope-mongering? A number of candidates for consideration are identified above. But the prime candidate, worthy of the most careful attention, is overpopulation -- in relation to the capacity of humanity to live within its planetary means, and especially in the light of the many analyses of "overshoot" and the manner in which such warning signals have been authoritatively considered to be of no significance.

To the extent that there are indeed underlying patterns to be recognized, other more self-critical views of the crisis of the financial system do create a framework for looking at what lies beneath it. Thus Larry Elliott (This primal scream of rage is a call for thorough overhaul, The Guardian, 3 October 2008) argues that it is neither possible nor desirable to recreate the global financial system as it existed prior to the crisis. He argues that the real issue to be addressed is the need for new capital to repair balance sheets battered by losses on "dodgy investments". In making a case for another Bretton Woods system of monetary management, Peter Mandelson (In defence of globalisation, The Guardian, 3 October 2008) argues that:

- We need to inject confidence by regulating to control excessive risk-taking and heavy leveraging, and to improve the way ratings agencies work
- Certain financial products have become so complex that they are not understood by the very institutions that buy and trade them.

This is a regulatory and professional failure of the first order.

Generalizing, as argued above, is there a "global" system of trust and confidence beyond (or beneath) that acknowledged by monetary tokens? How to distinguish its various dimensions -- knowledge, information, belief, culture, etc? Specifically what is "global" about it in the "integrative sense" that has been lost in the conventional, blinkered, geopolitical focus? (cf Future Generation through Global Conversation: in quest of collective well-being through conversation in the present moment, 1994). Is it the "dodgy investments" in which elements of that subter system have indulged that need to be addressed?

What agency presumes to be able to "inject" confidence into such a system? What are the "excessive risks" in which it engages -- as with respect to the environment and population overshoot? How indeed could the work of the relevant "ratings agencies" be improved? Finally who is responsible for the "regulatory and professional failure" in failing to understood and render comprehensible the cognitive tools supposedly applicable to navigating the turbulence of the 21st century?

**Insightful metaphors from the financial crisis:** The argument above highlights the potential insights from the metaphors through which the financial crisis has been framed, as a key to understanding the necessary response to those which become only too evident with equal rapidity:

- **crisis concealment through "derivative" repackaging of "toxicity":** the financial crisis has admirably demonstrated the manner in which intellectual skills may be used, with suitably complexity, to reframe and disperse problematic toxic challenges that are resistant to normal systemic processes. It is the very complexity of such derivative thinking, alien to too most, that has enabled such dysfunctional activity -- rather than employing such skills to address such challenges more openly and creatively in full recognition of the needs for communication with the many rather than the few
- **responsibility avoidance through "hurricanes" and "glaciation":** the use of language in reframing the financial crisis into a natural disaster, of which humanity is necessarily a victim, has proven to be an admirable means of avoiding any recognition of responsibility. Ironically, in reverting to the language of climate change, the "heat" has been avoided, despite the role of "hot air" -- in the form of hope-mongering -- in engendering "bubbles and "hurricanes". Indeed in a period of concern regarding melting glaciers, the concern has been displaced into anxiety about "frozen" liquidity, despite the possibility of "meltdown".
- **reliance on undemocratically negotiated "injection" of "liquidity":** the "bold action" by government in "injecting" the necessary "liquidity" draws upon an unfortunate metaphor in a global society significantly undermined by drug taking at all levels
of society. The implication is that the injection is by government when government in fact merely acts as the "needle" for "liquidity" to be drawn from taxpayers over years to come -- without discussion. Taxpayers are expected to have faith in governments that have betrayed their confidence -- offering further unfortunate metaphorlic associations to taxpayers as suppliers of opium to the globe.

The question is whether more vigilant analysis of the financial crisis as it evolves, and the language used in "saving the system" (a special report of The Economist, 11 October 2008), can be used to develop a framework to analyze emergent crises that have been subject to analogous neglect through "derivative thinking". This is the key to a renewed approach to global modelling and a better understanding of why it has been neglected (Simulating a Global Brain: using networks of international organizations, world problems, strategies, and values, 2001; Global modelling perspective: Encyclopedia of World Problems and Human Potential).

Of further interest is how "confidence" is considered synonymous with liquidity in the urgent process of building such confidence. The question is whether the existence of subtler forms of confidence is thereby obscured -- and whether these forms would be vital under other circumstances where the injection of funds might not be considered a measure of such confidence.

Future vigilance: The intellectual brilliance of the best and the brightest, and their supporting institutions, is now completely dissociated from the hopes that might otherwise be appropriately placed in them. It is their very "ingenuity" that engendered the crisis or rendered them complicit in it. It is in this sense that hope-mongers need to be seen as operating like the mortgage brokers that engendered the subprime crisis through "toxic loans". To what extent do "lobbyists" perform a similar function -- as "pushers" of the hope-drug in a drug-dependent culture?

Having borrowed an environmental metaphor to explain the financial crisis, has the whole process usefully highlighted the implications of "toxic" products in the natural environment -- and the probable enormous cost of "bailing out" those who have produced them or gullied others into considering their implications to be negligible? How suddenly will the need for such a bailout become apparent? What are the vital environmental "assets" that have been rendered toxic?

Borrowing a financial metaphor, to the extent that disciplines are indeed taken on "excessive risk" in their negligent consideration of products in the natural environment -- and the probable enormous cost of "bailing out" those who have produced them or gullied others into considering their implications to be negligible? How suddenly will the need for such a bailout become apparent? What are the vital environmental "assets" that have been rendered toxic?

Do such factors offer a useful explanation of why disciplines are so fearful of lending to one another via metaphor, thereby reducing the "liquidity" of a global knowledge system that is so essential to sustaining creativity in resilient response to crises?

Is the fundamental priority to prevent healthy disciplines from becoming in some way "insolvent" because of any temporary lack of such "liquidity"? Thomas Homer-Dixon (The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization, 2006) -- as the author of The Ingenuity Gap (2000) -- makes a strong case for adaptive resilience to navigate the processes of civilization collapse and renewal highlighted by Jared Diamond (Collapse: How Societies Choose to Fail or Succeed, 2005). The case for such resilience has also been strongly made by Carl Folke, et al. (Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations, 2002).

Given the role they are called upon to play, should the UNDP Human Development Report or the Human Development Index also reflect the degree of reliance on hope, the incidence of hope-mongering, and the extent of broken promises and pledges made to populations? A precedent has been set by industry in various countries having an "index of business confidence" or an "index of consumer confidence". Concerns with social capital have resulted in an "index of confidence in institutions" and an "index of confidence in the employment market".

After the bursting of the bubble engendered by the dynamics of an unregulated financial system, what other bubbles may soon burst -- equally unexpectedly and with what implications? Although a specialist in mathematical finance and an early pioneer of complex financial derivatives, the perceptions of Nassim Nicholas Taleb (The Black Swan: the impact of the highly improbable, 2007) are particularly relevant to the bursting of such bubbles.

<table>
<thead>
<tr>
<th>Appropriately Anticipating the Crises to Come</th>
</tr>
</thead>
<tbody>
<tr>
<td>This stock collapse is petty when compared to the nature crunch: the financial crisis at least affords us an opportunity to now rethink our catastrophic ecological trajectory (George Monbiot, The Guardian, 14 October 2008)</td>
</tr>
</tbody>
</table>

This is nothing. Well, nothing by comparison to what's coming. The financial crisis for which we must now pay so heavily prefigures the real collapse, when humanity bumps against its ecological limits. As we goggle at the flattering financial figures, a different set of numbers passes us by. On Friday, Pavan Sukhdev, the Deutsche Bank economist leading a European study on ecosystems, reported that we are losing natural capital worth between $2 trillion and $5 trillion every year as a result of deforestation alone [more]. The losses incurred so far by the financial sector amount to between $1 trillion and $1.5 trillion....

The two crises have the same cause. In both cases, those who exploit the resource have demanded impossible rates of return and invoked debts that can never be repaid. In both cases we denied the likely consequences. I used to believe that collective denial was peculiar to climate change. Now I know that it's the first response to every impending dislocation.

Oversight: Need for a Global Monetary Authority — or a Global Birdwatching
Authority?

In the Financial Times a case has been made for a new financial authority (Jeffrey Garten, *We need a new Global Monetary Authority*, 25 September 2008), capable of overseeing the evolving financial system, its "mind-boggling" complexities, the need to move away from "cowboy capitalism", and with appropriate rules for intervention. "It would monitor global risks and establish an effective early warning system..."

However, as argued above, this might be understood as focusing too narrowly on a readily comprehensible manifestation of a more subtle complex of problems -- the *global problematic*. Rather than where financial institutions may be "hiding their debt" in *structured investment vehicles* (SIVs), the issue may be where knowledge institutions (disciplines and their think tanks) are hiding their negligence of relevant factors -- whether warnings or opportunities. How indeed may their preoccupations be irresponsibly disconnected from reality?

If it is a case of careful observation of certain birds (a "canary in a coal mine" or a "black swan", as noted above), then a more appropriate intersystemic requirement may be for a "Global Birdwatching Authority". Clearly a Global Monetary Authority, equipped with the mindset that engendered the current financial malaise, would not have the observational skills or motivations to detect unfamiliar twitchings in the global system.

However, as a remedy for the systemic unconsciousness documented by John Ralston Saul (The *Unconscious Civilization*, 1995), from a self-reflexive perspective, it is less a matter of observation of the birds than a question of the "birds-eye-of-view" they offer -- or, better still, the "birds-eye-on-you". Beyond satellite surveillance, there is in this sense indeed a recognition that it is birds that are effectively "watching over" countries -- implicit in the symbolism of the official "national birds" of many countries, that so freely travel across the boundaries of the globe.

Examples range from balding eagles to those of Zeus defining the centre of the globe -- the *omphalos* -- and including the mythical Simurgh of Iran, the *Phoenix* of Phoenician and later cultures, the *Fenghuang* of China, as well as bird-like creatures such as the Garuda of Indonesia, or the *Sphinx* (adopted by the US Military Intelligence Corps as its regimental crest). Curiously Israel chose the *Hoopoe* as its national bird in 2008 -- presumably because of its symbolic role as leader of the famed *Conference of the Birds* of Persian Sufi culture. It was the bird-headed deity, *Florus*, that united Egypt and symbolized its power. As symbol of any Global Birdwatching Authority, that name might perhaps stand as an acronym for:

**Holistic Overview Recognizing Underlying Systems**

References

Peter M. Allen, Kurt A. Richardson, Jeffrey A. Goldstein and David Snowden (Eds.). *Emergence, Complexity and Organization (ISCE Publishing)*, Volume 9, 2008 [introduction]


Soren Brier. *Cybersemiotics: why information is not enough!* University of Toronto Press, 2008


Susantha Goonatilake. Toward a Global Science: mining civilizational knowledge. Indiana University Press, 1999

Thomas Homer-Dixon:
- The *Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization*. Knopf, 2006 [summary]
- The *Ingenuity Gap*. Knopf, 2001 [summary]


Anthony Judge:
- World Dynamics and Psychodynamics: a step towards making abstract "world system" dynamic limitations meaningful to the individual, 1971 [text]
- Emergence of a Global Misleadership Council: misleading as vital to governance of the future? 2007 [text]
- From ECHELON to NOLEHCE: enabling a strategic conversion to a faith-based global brain, 2007 [text]


Nassim Nicholas Taleb. The Black Swan: the impact of the highly improbable, 2007 [summary]

Graham Turner. A Comparison of the Limits to Growth with Thirty Years of Reality, CSIRO 2007 [text]


Jean-Pierre van Noppen:


---

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

For further updates on this site, subscribe here.