



laetus in praesens

Alternative view of segmented documents via Kairos

8th October 2011 | Draft

Systemic Biomimicry of Dinosaurs by Multinational Corporations

Clearing the Ground for Future Psychosocial Evolution

-- / --

Introduction

[General systems research and the VSM](#)

[Comparison of dinosaurs and multinational corporations](#)

[Simulation and representation](#)

[Identification of systemic correspondences](#)

[Registry of "corporate dinosaurs"](#)

[References](#)

Introduction

Comparisons have long been made between the pattern of behaviour of multinational corporations and that of dinosaurs. At the time of writing over 400,000 such references were indicated by Google. Typically the comparison is merely for rhetorical purposes, avoiding the possibility that more might be derived from this widespread "pattern recognition".

The question explored here is whether new interest in the economic implications of [biomimicry](#) could usefully be reviewed with respect to the relationship between dinosaurs and multinational corporations. Biomimicry, or biomimetics, is the examination of nature, its models, systems, processes, and elements to emulate or take inspiration from in order to solve human problems, as originally framed by [Janine Benyus](#) (*Biomimicry: innovation inspired by nature*, 1997). One report estimated that biomimicry would have a \$300 billion annual impact on the US economy, plus add an additional \$50 billion in environmental remediation (*Biomimicry: An Economic Game Changer*, 2007).

From this perspective, to what extent has the development of multinational corporations been effectively inspired (if unconsciously) by the highly successful emergence of the dinosaurs -- millions of years ago? Given this possibility, to what extent is the evolutionary pathway "beyond the dinosaur" clearly indicated by nature? Under such circumstances, to what extent are management and business schools, with their research programmes as currently conceived, to be understood as engaged in "pattern replication" and pattern conservation, in working at the frontier of research to adapt "dinosaurs" to changing environmental circumstances? Making "better" dinosaurs?

These questions are brought into sharp focus at the time of writing by the unprecedented [street protests in Wall Street](#), subsequent to the widespread revolutionary protests of the so-called [Arab Spring](#) (Sarah Jaffe, *This Is Only Getting Bigger: 20,000 Rally in New York to Support Occupy Wall Street*, *AlterNet*, 5 October 2011). The central organizational and strategic question is how viable new patterns of self-organization can evolve out of such collective action (*Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations*, 2007; *Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society*, 2004).

The question is all the more pertinent given the sophisticated information technology enabling those protests and the challenges nevertheless experienced in applying collective intelligence to recent emergencies (*Enabling Collective Intelligence in Response to Emergencies*, 2010). What is the next phase in collective psychosocial evolution?

General systems research and the VSM

The recent literature on biomimicry is indicative of many fruitful possibilities for innovation now considered worthy of exploration -- previously considered improbable or far-fetched. The argument here takes its point of departure from the systemic organization of animals -- especially in information and energy terms -- and not from the more evident external forms which more readily inspire mimicry research.

One point of inspiration is the research on "general systems", originated by [Ludwig von Bertalanffy](#) (*General System Theory: foundations, development, applications*, 1976). General systems theory is an interdisciplinary practice that describes systems with

interacting components, applicable to biology, cybernetics, and other fields. Originally given focus by the [Society for General Systems Research](#), the latter has been absorbed into the [International Society for the Systems Sciences](#).

Of relevance to this argument is the subsequent work of management cybernetician [Stafford Beer](#) (*The Heart of Enterprise*, 1988; *Brain of the Firm*, 1981). His work resulted in the ongoing development of the [Viable System Model](#) (VSM) as a model of the organizational structure of any viable or [autonomous system](#). Of particular relevance to the evolutionary question raised in this argument is that a viable system is any system organised in such a way as to meet the demands of surviving in the changing environment. One of the prime features of systems that survive is that they are adaptable. The VSM is an abstracted cybernetic description that is applicable to any organization that is a viable system and capable of autonomy.

The issue here is then the interplay, from the underlying systemic perspective, between the model of a "multinational corporation" and that of a "dinosaur" -- as suggested by the superficial behavioural clues and reinforced by the insights of biomimicry.

As an energy system, both the "multinational corporation" and the "dinosaur" lend themselves to the kind of analysis conducted with respect to the Roman Empire in its final phases by [Thomas Homer-Dixon](#) (*The Upside of Down: catastrophe, creativity, and the renewal of civilization*, 2006). The argument here would extend this analysis, from a cybernetic perspective, into the capacity of the current "knowledge-based" global civilization to elicit and process the information necessary to its survival -- rather than Homer-Dixon's analogous "energy" focus. As separately argued, there is indeed the possibility of a memetic singularity (*Emerging Memetic Singularity in the Global Knowledge Society*, 2009).

Consistent with Homer-Dixon's argument is the challenge of "bigness", first articulated by [Leopold Kohr](#) (*The Breakdown of Nations*, 1957; *Development without Aid*, 1973; *The Overdeveloped Nations*, 1977). As summarized by Paul Kingsnorth (*This Economic Collapse is a 'Crisis of Bigness'*, *The Guardian*, 26 September 2011), Kohr warned that the gigantist global system would grow until it imploded. Recent history with regard to multinational corporations deemed "too big to fail" offers an indication in this respect.

In the case of the dinosaurs, they survived for over 160 million years -- from about 230 million years ago until about 65 million years ago -- until the Cretaceous Paleogene extinction event led to the extinction of most of that species. It has been theorized that such extinctions were caused by one or more catastrophic events, such as massive asteroid impact or increased volcanic activity. It might be argued that the extinction of the species of "multinational corporations" may be triggered by analogous events -- even the systemic consequences of "global warming".

Comparison of dinosaurs and multinational corporations

From a purely systemic perspective, as the cybernetic response to an environment, what is the minimum number of parameters required to describe an animal as a viable system as compared to the number required to describe a corporation?

Any comparison then merits framing in terms of:

- **variety**, understood in terms of the cognitive preferences and constraints in the organization of any information:
 - **dinosaurs**: paleontologists have identified over 500 distinct genera and more than 1,000 different species of non-avian dinosaurs.
 - **multinational corporations**: curiously the literature has not focused on identifying the variety of multinational corporations, and the number of such bodies remains unclear, despite a very early attempt at doing so (*Multinational Business Enterprises: a new category of international organizations*, 1968). Provocatively, in the absence of any systematic distinction by "type", it might be noted that major focus is variously given to the:
 - [Forbes 500](#) annual listing of the top 500 American companies, produced by *Forbes Magazine* but replaced since 2003 by the [Forbes Global 2000](#).
 - [Financial Times Global 500](#) produced by the *Financial Times*
 - [Fortune Global 500](#) is a ranking by *Fortune* magazine of the top 500 corporations worldwide as measured by revenue
 - [Fortune 1000](#) is a reference of the 1000 largest American companies, ranked on revenues alone.

Of potential relevance is the possibility that from a systemic perspective the distinction by type is effectively made in terms of revenue.

- **structure**:
 - **dinosaurs**: the recognition of 500 genera and 1,000 species suggests the variety of structure
 - **multinational corporations**: it is significant that systemic studies of the varieties of structure appear to be lacking, in comparison with species active 160 million years ago. (Perhaps this will be a focus of "organizational paleontology" 160 million years in the future)
- **environmental characteristics** (or niches):
 - **dinosaurs**: the species occupied every possibly environmental niche. Of relevance is their adaptation to different climates
 - **multinational corporations**: the "niche" might be understood in marketing terms as the business sector (indicated in some of the above listings); the "environment" might be understood according to interpretations of "business environment" or "business climate"

- **survival strategies** and predator-prey relationships:
 - *dinosaurs*: this is a matter of continuing study through interpretation of the fossil record
 - *multinational corporations*: this is a matter of many commentaries regarding "business model" and "marketing strategy". Recognition of a "predator-prey" relationship would be considered politically incorrect, although "targetting" and "going in for the kill" are common business metaphors -- emphasized by strategies based on "bullet points", as separately discussed (*Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors*, 1998). The "predator-prey" dynamics would of course be readily recognized by those targetted by such marketing strategies. For public relations and image enhancement purposes, such dynamics would be reframed in terms of maintaining friendly customer relations. Whilst it is unclear from the fossil record what forms of "camouflage" were used by dinosaurs, it is extremely clear in the case of multinational corporations -- now extended to "[bluewashing](#)" through the complicity of the [UN Global Compact](#) and "[greenwashing](#)" in response to environmental sensitivities.
- **attributes enabling survival**:
 - *dinosaurs*: this is a matter of continuing study through interpretation of the fossil record
 - *multinational corporations*: this is a matter of many commentaries regarding "business model" and "marketing strategy"
- **collective behaviour** contributing to survival :
 - *dinosaurs*: this is a matter of continuing study through interpretation of the fossil record, notably leading to insight into mutually supportive relationship between species.
 - *multinational corporations*: this is a matter of many commentaries regarding [cartel-like behaviour](#), [bid rigging](#), [price-fixing](#) rings, [cross-ownership](#) and [interlocking directorates](#). Commentary also focuses on complicity of corporations with [organized crime](#) -- presumably to be understood as another form of "multinational corporation".
- **survival and viability** over time:
 - *dinosaurs*: whilst the survival of dinosaurs in general is framed in terms of 160 million "years" (as noted above), that for any particular genus or species could well be much shorter. More detailed studies offer insights into their viability over time.
 - *multinational corporations*: in systemic terms any comparison should highlight the viability of a corporate species, partially to be understood as a viable business model. Much is made of those individual corporations which have survived many "decades", although the focus tends to be on how they have adapted ("evolved") over that period. In pursuing the comparison with dinosaurs, the question is whether there is an inherent foreshortening of dinosaur "years" and an effective lengthening of corporation "years". This might be explored in terms of reporting cycles, business cycles, management fashions, or some measure of mutation rate. Whilst it could be said that it took dinosaurs 160 million "years" to exhaust their environment and its capacity to support them, the question is how many decades history will consider that it took for multinational corporations to exhaust the planetary environment and its capacity to support them.

Biomimicry as a methodology implies a conscious effort at learning from nature, the case explored here may depend on mimicry inspired by the collective unconscious -- some form of deep biocultural memory ([John Ralston Saul](#), *The Unconscious Civilization*, 1995). It may additionally be engendered by an associated form of conditioning and determinism in response to environmental opportunities understood systemically.

Simulation and representation

Multinational corporations have long been a focus of sophisticated [modelling exercises](#), games, and [simulations](#). These are seen as vital for reporting, strategic planning and training. Such simulations are less frequently used in presentations of the operations of a corporation to a wider audience. They may well be understood as embodying business secrets vital to competitive advantage. Curiously it might be said that the promotional videos of multinational corporations, typically disseminated as TV advertising, could well be understood as exercises in both "simulation" and "dissimulation".

Improbably, the past decade has seen the emergence of very sophisticated simulations of dinosaurs in their natural environments. These are designed for research and educational purposes and some are made widely available via television. They benefit to a very significant degree from the rapid innovation in computer-enhanced media. The simulations are far from trivial and depend increasingly on detailed insight into understanding the movement of muscles and limbs, and their relevance to systems of attack and defence.

Especially instructive with respect to the remarkable BBC Series on dinosaurs (figured below) is the introductory summary of how such simulations were developed.

Deadly Dinosaurs (BBC Series)

Using computer animation technology to simulate dinosaurs and their world ([general fact sheets](#))
 [selection of videos on BBC site -- click on dinosaur name for BBC fact sheet]



Allosaurus (video)



Carcharodontosaurus (video)



Horned dinosaurs (video)



Daspletosaurus (video)



Diplodocus (video)



Epidexipteryx (video)



Gigantoraptor (video)



Iguanodons (video)



Majungasaurus (video)



Microraptor (video)



Protoceratops (video)



Pterosaurs (video)



Sinornithosaurus (video)



Spinosaurus (video)



Stegosaurus (video)



Triceratops (video)



Tyrannosaurus (video)



Tyrannosaurus rex (video)



Velociraptors (video)

Should it be expected that an analogous library of simulations of basic multinational corporation business models would exist? Or would this be understood in terms of simply changing the parameters within a single simulation -- thereby engendering different classes of business model? With those be in the current environment, how many are to be so distinguished?

Identification of systemic correspondences

If developed, as this argument suggests, the comparison between multinational corporations and dinosaurs could lead to suggestive identification of correspondences between particular types of dinosaur and particular types of multinational corporation. The argument of biomimicry would even suggest that some species of dinosaur were able to adapt to, and exploit, particular niches in ways which might offer inspiration to innovative multinational corporations in quest of their own survival. Again it should not be forgotten the frequency and ease with which animal-like attributes are associated with corporate bodies -- "rat", "wolf", "snake", etc. Admiration is attached to "tiger". Why not extend this ease of recognition to include *Tyrannosaurus rex*? Whether through the involvement of some in the arms industry or that of others in the manufacture of products dangerous to health, is it not appropriate to borrow the common description of dinosaurs as the "most efficient killing machines" that nature has developed?

Another approach might be to reverse engineer the organization of a multinational corporation -- as a system -- to determine to what dinosaur species it might best correspond.

The question is how to adapt understanding of multinational corporation structure metaphorically in terms of "limbs" and the capacity to "move". These possibilities have been discussed separately with respect to the intergovernmental institutions of Europe -- in quest of strategic coherence (*Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic*

animal-like structures, 2004). That document offers early examples (and animations) based on the classic organization chart which effectively depicts divisions as distinct "limbs" and may well be understood as such by management (see *Beyond impoverished metaphors*, 2004). Budget lines also offer a lead to the operation of "muscles" (see *Proposal for dynamic representation of institutional budget lines*, 2004). The interactive animations presented were based on *Sodaconstructor* (last modified 2007) used by the web-based *Sodaplay* community.

Detection of correspondences between particular dinosaur species (or genera) and a multinational corporation (specific or as a type) would then offer the charming possibility of making use of the above-mentioned dinosaur simulation skills -- perhaps embedding the logo of the multinational in question into the skin of the corresponding dinosaur as it roams the environment "preying" on different categories of consumer (perhaps suitably simulated as "browsers").

Registry of "corporate dinosaurs"

Just as there is no formal list of "multinational corporations", there is no list of those which have exhibited problematic behaviour -- now presumably to include the various financial institutions "too big to fail" following their recent financial "misdemeanours". Bodies such as the following would be attentive to the existence of multinational corporations exhibiting such behaviour -- including those which have been the subject of legal processes and indictments:

- [Corporate Accountability International](#)
- [Corporate Europe Observatory / Corp Watch - US / Corporate Watch - UK](#)
- [Crocodyl: collaborative research on corporations](#)
- [Multinational Monitor](#)
- [Transparency International](#)
- [Virtual Truth Commission: Multinational Corporations -- Human Rights Abuses](#)

Ironically it is unlikely that the names of such multinationals would be indicated systematically by them -- for legal reasons -- although the [Virtual Truth Commission](#) offers an exception.

This is somewhat incredible given policies relating to the sensitivity to sexual offenders. In the USA, the UK, and other countries, convicted sex offenders (rapists, stalkers, pedophiles, etc) are often required to register with the respective jurisdiction's [sex offender registry](#). In the USA, registry databases are often open to the public. Sexual offenders are sometimes classified into levels. The highest level offenders generally must register as a sex offender for their entire lives, whereas low-level offenders may only need to register for a limited time. Given that corporations are increasingly recognized as legal "persons", there is a logic to this approach.

Many would have little difficulty in agreeing that they had been "raped" ("screwed"), "harassed" or "targetted" by a multinational corporation or one of its subsidiaries -- as the recent phone-hacking scandal has made apparent. As with the sexual offender registry, such a register would enable people to determine that a predatory corporation was "coming to their neighbourhood" in order that they could protect themselves appropriately -- neighbourhood watch schemes, etc.

Despite the current absence of such lists, it would be relatively easy for the persistent to use Google with the names of corporations (from any of the above lists of multinational corporations) -- together with a set of keywords like "indicted", "illegal", "fraud". Corporations could then be ranked on a "registry" according to the number of hits as a means of identifying those with a high probability of having dinosaur-like business models. Framed in this way, any legal challenges could be circumvented. The approach could be refined to focus on industry sectors using keywords like "banking", "oil", "fruit", "mining", etc.

An **automated search program** could even be designed relatively easily to generate and maintain such an index on a web page. As with the Google [page ranking algorithm](#), this could be suitably "secret". It is quite possible that the process could even be combined with the [Google Trends](#) facility -- to show "predatory trends" (in "your area"). The most challenging aspect would be to handle situations in which it was a subsidiary (of a different name from the listing of the parent corporation) with which illegal activities had been associated. Other data bases could be used for that purpose, as with the original study (*Multinational Business Enterprises: a new category of international organizations*, 1968).

References

Stafford Beer:

- *Cybernetics and Management*. English Universities Press, 1959
- *Decision and Control* Wiley, 1966
- *Designing Freedom*. CBC Learning Systems, 1975.
- *Platform for Change*. Wiley, 1978.
- *The Heart of Enterprise*. Wiley, 1988.
- *Brain of the Firm*. Wiley, 1981

Janine Benyus. *Biomimicry: innovation inspired by nature*. William Morrow / Quill, 1998

Mark Patrick Hederman. *Dancing with Dinosaurs: a spirituality for the 21st Century*. Columba Press, 2011

Chris Hedges. *Dancing with Dinosaurs*. *The New Humanist*, 122, 2, March/April 2007 [[text](#)]

Thomas Homer-Dixon. *The Upside of Down: catastrophe, creativity, and the renewal of civilization*. Island Press, 2006

Leopold Kohr:

- The Breakdown of Nations, 1957
- Development without Aid, 1973
- The Overdeveloped Nations, 1977

John Ralston Saul. The Unconscious Civilization. Simon and Schuster, 1995

Ludwig von Bertalanffy. General System Theory: foundations, development, applications. George Braziller, 1969



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

For further updates on this site, [subscribe here](#)