

# Alternative Futures for KWaves

Jim DATOR

*Hawaii Research Center for Futures Studies*

*Department of Political Science*

*University of Hawaii at Manoa, Honolulu, Hawaii*

**Abstract.** Technological change may underlie significant social and environmental change. It also appears to drive the KWave phenomenon. The "most likely" future of society, and of KWave analysis, is that new technologies will continue to drive new KWaves that will have in the future the form and duration they had in the past. But there are alternative futures, and the "most likely" future may be only one among many possibilities, some of which are considered here.

## 1. Assumptions about the Future and about KWaves

I believe it is useful to assume that "the future" will derive from three components. One will be the continuation of things found in the present, and also found in the past. The second component will be things that existed in the past, but not in the present, that will appear again in the future--and their opposite: things that did not exist in the past but are very much a part of the present but that will not exist (or be as important) in the future. These things often appear as cycles or "spirals". The third component will be novelties--things that do not exist now and never existed before, but will in the future. I believe the major--if not sole--cause of novelties to be new technologies that permit novel behavior and modify or restrain earlier behavior.<sup>1</sup>

A popular kind of cyclical analysis focuses on Kondratieff Long Waves. Even though they are among the more seriously-studied cyclical perspectives, there is considerable uncertainty about all phases of the phenomenon--including whether KWaves actually exist, and, if so, their cause(s), duration, and (even if they are understood correctly historically) whether or not they have any predictive power or even future utility.

Since I have become convinced that technological change is the main agent underlying social and environmental change<sup>2</sup>, I assume there must be technological factors underlying all aspects of KWaves as well. So do some others. Changes of energy sources that led to new forms of transportation which progressively (but cyclically) transformed time and space are emphasized by some scholars. Others now

---

1

2

say that communications technologies are further transforming time and space and are or will be the major drivers of the rise of future waves.<sup>3</sup>

The peaking and decline of waves also has a technological basis, many feel, as the market for the once-innovative technology becomes saturated, demand drops, profits fall, unemployment rises, and the End of the World appears to be nigh--until a new technological base shakily emerges and eventually does its transformational magic, over and over, world, in fact, without end.

## 2. The Official and "Most Likely" Future: KWaves forever

New technology not only drives the cycles but also produces the novelties that will be found in the future. And since we live in a world where imagining, creating, advertising, disseminating, and/or consuming new technologies is the major occupation of most people in more and more parts of the world, we live in a world of ever-increasing novelty and ever-decreasing continuity, as we cycle--or spiral--through time endlessly.

The endless continuation of new KWaves into the future as the world advances forward technologically and socially seems unquestionably to be "the most likely future" to most analysts. Thus most KWave specialists assume that KWave analysis will continue to be useful in the immediate future as it has been in the immediate past--perhaps even more so if more conferences are held and more scholars find out more about the causes and consequences of KWaves in their various phases. Age-cohort analysis may be fully integrated into KWave analysis,<sup>4</sup> and scholars will finally decide when the 5<sup>th</sup> wave started (at least by the time it has fully emerged), and arguments can then begin about when and why it will end, and what the "cause" of the 6<sup>th</sup> will be. Or is it the 7<sup>th</sup>?

In an essay in *Futures*, December 1984, that I mentioned in my 1999 evaluation of KWaves in futures studies, Immanuel Wallerstein noted that "A long-standing witticism has it that the credibility of the existence of long economic cycles is a function of whether or not the discussion on this topic takes place during the A-phase of expansion or the B-phase of economic stagnation." He also observed that there are "two camps" of KWave analysts. "One group approaches the issues as a technical economic problem." Their "hidden agenda" is "the search for a set of economic measures (primarily by governments) that will either speed up the recovery or allow given states to emerge from the B-phase in a good relative position." The second camp views long waves "as a central expression of the political economy of capitalism...in the B-phase." Its "hidden agenda" is "the improvement of the political tactics of the world class struggle." [15]

Neither camp seems to make much of debt--and especially consumer-debt creation--that I believe to be a major factor in distorting and prolonging recent waves. Without massive and increasing consumer debt creation, especially credit-cards, since the 1970s, on the one hand, and massive and increasing military-welfare, pseudo-

---

3

4

Keynsian, governmental deficit-spending (since World War II, but especially since 1980 with Reagan and under Bush the Second now), on the other in the US, there seems little doubt that a true global depression would have occurred by now, and the 4th/5th Wave finally have come more obviously crashing down. More on this point later.

### 3. Some Alternative Futures

But, even with its cycles of booms and busts, is continued technological and economic progress like that of the immediate past the only possible--or at least "most likely"--future? For most of human history, most of the future was, or appeared to be, a flat, linear continuation of the past and present. Change was rare, and fundamental change rarer still. Since the "industrial" age, technologically-induced change has increased, perhaps exponentially. KWave analysis is a product of the industrial era. If the rate of technological, and hence social and environmental, change is increasing (or should it substantially decrease), will classical KWave analysis still be valid? Perhaps it will. But I am not so sure.

At the very least we should consider the possibilities of some alternative futures. One of Dator's "Laws of the Futures" says that what is often considered to be "the most likely future" usually turns out to have been highly unlikely indeed. I believe we should view the continuation of KWaves among the alternatives, but no more or less likely than some others.

#### 3.1. *Brain waves may push faster KWaves.*

For example, in *Brain Wave*, Zack Lynch suggests that a 6th KWave, the "neurotechnology wave", is emerging that will be driven by biotechnology and nanotechnology, and will feature brain chips, brain imaging, neuroceuticals, and bio-education:

"The nascent neurotechnology wave (2010-2060) is being accelerated by the development of biochips and brain imaging technologies that make biological analysis inexpensive and pervasive. Biochips that can perform the basic bio-analysis functions (genomic, proteomic, biosimulation, and microfluidics) at a low cost will transform biological analysis and production in a very similar fashion as the microprocessor did for data. Nano-imaging techniques will also play a vital role in making the analysis of neuro-molecular level events possible. When data from advanced biochips and brain imaging are combined they will accelerate the development of neurotechnology, the set of tools that can influence the human central nervous system, especially the brain. Neurotechnology will be used for therapeutic ends and to enhance human emotional, cognitive and sensory system performance" [16].

Some of the more extravagant claims of nanotechnology, both pro and con, suggest that a true nanotech world will not be business as usual in any way.<sup>5</sup> If, so, then KWave analysis may be superfluous as the waves morph too rapidly to be understood quickly enough. On the other hand, things are being called "nanotech" now that are clearly important, but seem to be marginal improvements and not revolutionary technologies in any significant way [19].

### 3. 2. *"A Dream Society of Icons and Aesthetic Experience"*

In what might be a version of the "neurotechnology KWave" future, but which focuses on advances in media, and especially interactive game, technologies, a colleague of mine at the University of Hawaii, Yongseok Seo, and I have recently adopted the notion put forward by Sternberg [20], Jansen [21] and others that "the information society" is already nearing an end, and that a new "society" that we call "a Dream Society of icons and aesthetic experience" may be emerging. It is seen most clearly in South Korea because it has been accepted as a basis for national economic policy [22].

As Rolf Jensen puts it, "The sun is setting on the Information Society--even before we have fully adjusted to its demands as individuals and as companies. We have lived as hunters and as farmers, we have worked in factories, and now we live in an information-based society whose icon is the computer: We stand facing the fifth type of society: the Dream Society" [21, p. vii]. "Today, knowledge is stored as letters; we learn through the alphabet--this is the medium of the Information Society. Most likely, the medium of the Dream Society will be the picture" [21, p. 40]. Jensen concludes that while Henry Ford was the icon of the Industrial Age and Bill Gates is the icon of the Information Age, "the icon of the Dream Society has probably been born, but she or he is most likely still at school and is probably not the best pupil in the class. Today, the best pupil is the one who makes a first-rate symbolic analyst. In the future, it may be the student who gives the teacher a hard time--an imaginative pupil who is always staging new games that put things into new perspectives." "He or she will be the great storyteller of the twenty-first century" [21, p.121].

Sternberg, Jensen, Postel [23], Pine and Gilmer [24], and Pink [25] write about the Dream Society (as Lynch [16] does about the "neurotechnology wave") as though it were simply a new phase of capitalist development fully compatible with KWave analysis. I am not so sure. The Dream Society I anticipate is a development that finally throws humanity into the long-anticipated era of sustainable abundance in which the economy is driven and the environment managed by autonomous intelligences and artificial life, leaving humans free to do what they do best--dream and play.<sup>6</sup>

---

5

6

On the other hand, the ability of capitalists to keep their exploitative system going however much new technologies render it unnecessary and undesirable continues to amaze me and to confound such hopes and possibilities.

### *3.3. Clash of Fundamentalists*

But what chance does a society of dreams and icons have in a world rent asunder by a battle between two fundamentalist camps?<sup>7</sup> In such a world of mutual terror, only dead people can safely dream. The technologies of both the Information and the Dream societies are too powerful to allow individuals to control and use them freely, both camps agree. Dreams, most of all, must be monitored in the interests of homeland security and scriptural conformity. If technology is the root of social change, and if essential moral values are being destroyed by the new behaviors that new technologies allow, then the process that produces new technologies and destroys essential values must be cut off at the root. Indeed, both camps understand that the real enemies to be overcome are new technologies and the science that produces them, so governmental funding for science and for technology research and development is drying up. Everything important to know has already been revealed in the Scriptures and its authorized interpreters. No new knowledge is possible or needed, and none should be sought. With no new technologies to drive them, KWaves, if they will exist at all, will come to move at a much more leisurely pace than they have for a very long time.

### *3.4 Permanent War Economies and KWaves*

In contrast to the orthodox interpretation based largely on free-market forces, some observers see an historic connection between the weight and debt of war and KWave phases. Even without accepting a fundamentalist future, given the dominance of permanently militarized economies and societies in the world today and apparently tomorrow, is the connection between war and Kwaves going to become more pronounced? The role of the military, and "security" broadly speaking, is so dominant that no major country today has an economy even faintly "free-market", and some, such as the US since the Second World War and profoundly so since 2000 (if not 1980), can better be understood as a "command economy" [48-50]. This fact, and the growing role of national, corporate, and private debt in economic life [51-54], if not in formal accounting, may make classical interpretations of KWaves problematic. If serious efforts are made to militarize space--and though the US is leading the way in space militarization, the US must no longer be viewed as the only important actor in space, considering the rise of China, India, Japan, and the European Space Agency--then the war basis of KWaves may become even stronger [55, 56].

### *3. 5.The Environment Strikes Back*

In stark contrast to all of the above (though a direct consequence of it), even though increasing the production and consumption of goods and services via resource-

intensive industrial processes has been the focus of life for most people for the past several hundred years, there is increasing evidence that warding off or perhaps surviving a wide variety of environmental backlashes may become the main preoccupation of all people worldwide by the midpoint of the 21<sup>st</sup> Century, if not sooner. What KWaves will be like, or whether they will be relevant at all, in such a very different world is unclear.<sup>8</sup>

#### 4. Concluding Remark

So there are many possible futures for KWaves and their analysis, and "the most likely future" of continued cyclical technological and economic growth is by no means inevitable. I hope that if there are other conferences on KWaves such as this one that the organizers will bring in people from different cultures holding many different views of the futures to enrich our understanding, our work, and our contribution towards creating a better tomorrow.

#### Endnotes

1. Two useful introductions to futures studies are [1] and [2].
2. The basic concepts of such a theory are found in the first several pages of [3]. A more detailed version is in preparation.
3. For two earlier summaries of how Kondratieff Wave analysis has been used in the futures literature, see [4, 5].
4. I believe that age-cohort analysis is at least as powerful a tool for anticipating the futures as is KWave analysis. I first explored this relationship in [3]. Since then, William Strauss and Neill Howe have put forward a series of studies of successive waves of American age-cohorts. See: [6, 7, 8]. While they do not link their analysis to KWaves, others have, including [9, 10]. Tesselano Devezas has also discussed generational change in relation to long waves very usefully. Although he did specifically address the perspectives of Berry and Kim, and of Mallman and LeMarchand, he did not consider the age-cohort theory of Strauss and Howe [11, pp. 13f, 35-49] and [12, pp. 828-837]. The relationship has been explored more extensively by [13]. Though Strauss and Howe base their analysis of US data, they claim the underlying theory is universally valid, with due allowances for cultural and other specific differences. Yongseok Seo has used their methods to explain and forecast developments in South Korea [14].
5. Compare [16] with [17].
6. For "strong" claims about the futures of autonomous intelligence, see [26-31]. On the evolution of "artilects", see [32] and a recent discussion in *The Journal of Futures Studies* [33].
7. See my analysis of American visions in this regard [34]. For some of many recent books enthusiastically supporting a heavily-militarized Christian global American Imperium, see [35-38]. For examples of many recent books opposing such a vision, see [39-47].
8. Though America officially refuses to acknowledge it, the reality of serious of anthropogenic global climate change is too overwhelming to deny, I believe. Moreover, I am convinced the matter is well beyond solution by even some of the more aggressive plans for "sustainability." I believe we must accept the challenge laid down some time ago by Walter Truett Anderson that because of its long and growing history of interfering with once "natural" processes, humanity must now learn how "to govern

evolution" [57]. This position is spelled out in some detail in [58]. For a sobering update of one of the earliest major warnings, see [59]. See also [60-62].

## References

- [1] BELL, W. (1997) *Foundations of Futures Studies* (Vol.I). New Brunswick: Transaction Publishers
- [2] DATOR, J. (2002) *Advancing Futures: Futures Studies in Higher Education*. London: Praeger
- [3] DATOR, J. (1983) "Loose Connections," in Masini, E. ed., *Visions of Desirable Societies*. New York: Pergamon Press, Chapter Three
- [4] DATOR, J., (1999) "From tsunamis to long waves and back," *Futures*, Vol. 31, No. 1
- [5] DATOR, J. (1999) "Return to long waves," *Futures* Vol. 31, Nos. 3/4
- [6] STRAUSS, W. and HOWE, N. (1995) *Generations: The History of America's Future, 1584-2069*. New York: William Morrow
- [7] STRAUSS, W. and HOWE, N. (1997) *The Fourth Turning*. New York: Broadway Books, 1997
- [8] HOWE, N and STRAUSS, W. (2000) *Millennials Rising: The Next Great Generation*. New York: Vintage Books
- [9] BERRY, B. and KIM, H. (1994) "Leadership Generations: A Long-Wave Macrohistory," *Technological Forecasting and Social Change*, Vol. 46, No. 1, 1-10
- [10] MALLMAN, C. and LEMARCHAND, G. (1998) "Generational Explanation of Long-Term 'Billow-Like' Dynamics of Societal Processes," *Technological Forecasting and Social Change*, Vol. 59, No. 1, 1-30
- [11] DEVEZAS, T. and CORREDINE, J. (2001) "The Biological Determinants of Long-Wave Behavior in Socioeconomic Growth and Development," *Technological Forecasting & Social Change*, Vol. 68, No. 1, 1-57
- [12] DEVEZAS, T and MODELSKI, G. (2003) "Power Law Behavior and World System Evolution: A Millennial Learning Process," *Technological Forecasting and Social Change*, Vol. 70, No. 9, 819-859
- [13] ALEXANDER, M. A. (2002) *The Kondratie Cycle: A Generational Interpretation*. San Jose, California: WritersClub Press
- [14] SEO, Y. (2002) "From the 38<sup>th</sup> Parallel to a Border: Exploring Alternative Futures of Korea," *Journal of Futures Studies*, Vol. 6 No. 4 pp 1-26
- [15] WALLERSTEIN, I. (1984) "Economic cycles and socialist policies," *Futures*, Vol. 16, No. 6, p. 579
- [16] LYNCH, Z. (2004) "Neurotechnology and Society 2010-2060," NBIC 2003 Conference Proceedings <[www.neurosociety.net](http://www.neurosociety.net)>
- [17] DREXLER, E. (1986) *Engines of Creation*. Garden City, NY: Anchor/Doubleday
- [18] JOY, B. (2000) "Why the future doesn't need us," *Wired*, Vol. 8, No. 4
- [19] SERVICE, R. F. (2004) "Nanotechnology Grows Up," *Science*, Vol. 304, No. 5678, 1732-1734
- [20] STERNBERG, E. (1999) *The Economy of Icons: How Business Manufactures Meaning*. Westport, Conn: Praeger

- [21] JENSEN, R. (1999) *The Dream Society: How the Coming Shift From Information To Imagination Will Transform Your Business*. New York: McGraw-Hill
- [22] DATOR, J. and SEO, Y. (2004) "Korea as the Wave of a Future: The Emerging Dream Society of Icons and Aesthetic Experience," *Journal of Futures Studies*, Vol. 9. No. 3, 31-44
- [23] POSTEL, V. (2003) *The Substance of Style: How the Rise of Aesthetic Value is Remaking Commerce, Culture and Consciousness*. New York: HarperCollins Publishers
- [24] PINE, B. J. II and GILMORE, J. H. (1999) *The Experience Economy: Work is Theatre and Every Business a Stage*. Boston: Harvard Business School Press
- [25] PINK, H. Daniel (February 2004) "The MFA is the New MBA," *Harvard Business Review*, p. 21f
- [26] DATOR, J. (1989) "What do 'You' do When Your Robot Bows as Your Clone Enters Holographic MTV?" *Futures*, Vol. 21, pp.361-365
- [27] GERSCHENFELD, N. (1999) *When Things Start to Think*. New York: Henry Holt
- [28] GOONATIKLAKE, S. (1999) *Merged Evolution: Long-Term Implications of Biotechnology & Information Technology*. London: Gordon & Breach
- [29] KURZWEIL, R. (1999) *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. New York: Viking
- [30] BROOKS, R. (2002) *Flesh and Machines: How Robots Will Change Us*. New York: Pantheon Books
- [31] MULHALL, D. (2002) *Our Molecular Future: How Nanotechnology, Robotics, Genetics, and Artificial Intelligence Will Transform the World*. Amherst, New York: Prometheus Books
- [32] McNALLY, P. and INAYATULLAH, S. (1988) "The Rights of Robots: Technology, Law and Culture in the 21st Century," *Futures*, Vol. 20, pp. 119-136
- [33] *The Journal of Futures Studies*, (2001) Vol. 6, pp. 43-108: SUDIA, F. W., "A Jurisprudence of Artefacts: Blueprint for a Synthetic Citizen"; OLIVER, K., "A Review of 'A Jurisprudence of Artefacts: Blueprint for a Synthetic Citizen'"; DATOR, J., "Artefactual Salutations"; INAYATULLAH, S., "The Rights of Robots? Inclusion, Courts and Unexpected Futures"; and DOLAN, T., "Prospective Templates for Post-Homo Sapiens Public Policies"
- [34] DATOR, J. (2004) "Mortgage Banking for the New American Empire, and Other Futures," *Foresight*, Vol. 6 No. 1, 13-18
- [35] FERGUSON, N. (2004) *Colossus: The Price of America's Empire*. New York: Penguin
- [36] HUNTINGTON, S. (2004) *Who Are We? The Challenges to America's National Identity*. New York: Simon & Schuster
- [37] FRUM, D. and PERLE, R. (2003) *An End to Evil: How to Win the War on Terror*. New York: Random House
- [38] BOOT, M. (2002) *The Savage Wars of Peace: Small Wars and the Rise of American Power*. New York: Basic Books
- [39] LIFTON, R. J. (2003) *Superpower Syndrome: America's Apocalyptic Confrontation with the World*. New York: Thunder's Mouth Press
- [40] SARDAR, Z. and DAVIES, M. W. (2004) *The No-Nonsense Guide to Islam*. London: Verso



- [41] BUSS, D. and HERMAN, D. (2003) *Globalizing Family Values: The Christian Right in International Politics*. Minneapolis: University of Minnesota Press
- [42] WALLERSTEIN, I. (2003) *Alternatives: The United States Confronts the World*. Boulder, Colorado: Paradigm Publishers
- [43] SCHEUER, M. (2004) *Imperial Hubris: Why the West is Losing the War on Terror*. Washington: Brassey's Inc.
- [44] JOHNSON C. (2004) *The Sorrows of Empire: Militarism, Secrecy, and the End of the Republic*. New York: Metropolitan Books
- [45] JOHNSON, C. (2004) *Blowback :THE Costs and Consequences of American Empire*. New York: Metropolitan/Owl Book
- [46] BOGGS, C. ed. (2004) *Masters of War: Militarism and Blowback in the Era of American Empire*. New York: Routledge
- [47] SOROS, G. (2004) *The Bubble of American Supremacy: Correcting the Misuse of American Power*. New York: Public Affairs
- [48] MELMAN, S. (1985) *The Permanent War Economy: American Capitalism in Decline*. New York: Simon & Schuster
- [49] PIETERSE, J. N. (2004) *Globalization or Empire?* New York: Routledge
- [50] SINGER, P. W. (2003) *Corporate Warriors: The Rise of the Privatized Military Industry*. Ithaca, New York: Cornell University Press
- [51] ARENDS, B. (November 23, 2004) "Economic 'Armageddon' Predicted," <<http://business.bostonherald.com/businessNews/view.bg?articleid=55356>>
- [52] DOHERTY, P. C. (December 2, 2004) "Quo Vadis: Playing For Keeps" <[http://www.tompaine.com/print/quo\\_vadis\\_playing\\_for\\_keeps.php](http://www.tompaine.com/print/quo_vadis_playing_for_keeps.php)>
- [53] KOTLIKOFF, L. J. and BURNS, S. (2004) *The Coming Generational Storm: What You Need to Know about America's Economic Future*. Cambridge, Massachusetts: The MIT Press
- [54] HELLER, P. S. (2003) *Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges*. Washington: International Monetary Fund
- [55] DATOR, J. (2002) "Some in Power, Some in Pain: A Symphonic Meditation on Humanity and Space," in RYCROFT, M., ed., *Beyond the International Space Station: The Future of Human Spaceflight*. Dordrecht: Kluwer Academic Publishers
- [56] O'HANLON, M. (2004) *Neither Star Wars Nor Sanctuary: Constraining the Military Uses of Space*. Washington: Brookings Institution
- [57] ANDERSON, W. T. (1987) *To Govern Evolution*. New York: Harcourt Brace Jovanovich
- [58] DATOR, J. "Assuming 'responsibility for our rose,'" in PAAVOLA, J. and LOWE, I. eds. (2004) *Environmental Values in a Globalising World: Nature, Justice and Governance*. London: Routledge, Chapter 13
- [59] MEADOWS, D. RANDERS, J, and MEADOWS, D. (2004) *Limits to Growth: The 30-Year Update*. White River Junction, Vermont: Chelsea Green Publishing
- [60] EHRLICH, P. and EHRLICH, A. (2004) *One With Nineveh: Politics, Consumption, and the Human Future*. Washington: Island Press

[61] REES, M. (2003) *Our Final Hour: A Scientist's Warning: How Terror, Error, and Environmental Disaster Threaten Humankind's Future in This Century--on Earth and Beyond*. New York: Basic Books

[62] SPETH, J. (2004) *Red Sky at Morning: America and the Crisis of the Global Environment*. New Haven, Connecticut: Yale University Press