For the People by the People of the World

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A global democracy needs widespread understanding of complexity and its insight into non-linear evolution to safely transition any bifurcation events. Proposes a smart internet-based system using agent-based processes that choose and refine ideas from society and models these with possible futures, imperative due to the high potential for negative outcomes enabled by powerful new technologies. It leverages free creative energy of the people, and could be a stabilizing force to bridge us safely into the future. Identifies a new class of neurotechnology with the potential to uplift the psychophysiological fitness of individuals, to stabilise against human evil.

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Imagine human society in the coming future where our technology is artificially alive and intelligent, mimicking basic processes of nature. It self replicates, repairs and evolves ever better designs and functionality within an ecologically sustainable and bio-friendly architecture. A technology involved in a symbiotic, co-creative, feedback loop with human creativity and culture. Where citizens have so evolved their mind with advanced neurotechnology the new fitness function is wisdom and higher order intelligence.

A super smart world-wide web operating as a distributed intelligence system, would be managed by super intelligent artificial intelligence computing on nano-constructed quantum computers. Every citizen is connected, their interactions managed by a personal AI. This system would operate a global democracy with close to 100% participation by citizens, and an almost full transparency of governments. The power of molecular nano-technology to build advanced computational and communications infrastructure makes this possible, plus the staggering power of AI to manage information.

The strength of this system would be the distributive power of human creativity and our intelligence systems. Potentially every individual from any part of the globe would have direct access to an AI to communicate concerns, feelings, ideas and any other information, as would scientific and government institutions. Part of this AI is an interactive, intelligent data bank, based on advanced bio-informatics. This AI has been programmed with the laws and models we have formalized from chaos, complexity and their advanced forms, with a new quantum information theory that supercedes contemporary theories. These theories seamlessly account for the transformation of non-local, physical and bio-information, into classically real, local information. It manifests as self-organisation and the trend to complexity, novelty and creativity, we see in the universe—especially life and mind.

All people's input is processed by this super intelligence. In partnership with individuals, it refines the best ideas, creating designs for technologies and strategies—100% bio-friendly, life enhancing, sustainable and supportive of the people's preferred futures.

A Dark Future

The standard negative scenario is that AI becomes conscious, malevolent and then destructive. Something so alien and cold with the

unimaginable ability to learn and think is a frightening notion. A more likely scenario would be the intervention of human evil, using sophisticated, AI-powered, computer hacking. With the central and individual AI's compromised, power would shift and turn AI against the people.

There could also be resistance to global democracy by the power elite, who would use governments, bureaucracies, ultra right wing groups or the confused and frightened among us to create civil wars or such strife that global democracy never eventuates.

The AI for the people model represents a fundamental strategy to counteract the collective expression of human evil, especially from the top-down. This is made possible by the system's ability to connect and empower inspired individuals, groups, institutions and companies.

AI could contribute to our shift into higher order intelligence. Super AI will force us out of our materialistic Newtonian paradigm relating to our minds, and open us to new potential. This will be due to the debate that will ensue, and no doubt grow, in regards to who is superior, AI or humans, and what the differences are. Science and technology developed for AI would also enable an emerging class of technology I call *objective neurotechnologies*[1] for human enhancement. Eventually AI will represent souped up, modified versions of our old *classical computer minds* that we have left behind in our transition to *quantum computer minds.*[2] Actualising the global potential of our minds will give us a conscious and rational awareness of the unimaginably useful (distributed or massively parallel) non-local intelligence of the universe.

Evolutionary Systems Theory

Scientists such as Gell-Mann, Langton, Cowan, Farmer, Hillis, Holland, Crutchfield, Arthur and Kauffman[3] know we will not gradually evolve towards this future in a linear manner. To reach this stage we will go through what is referred to in physics as a *phase transition.* The change will be dramatic. This transformation, described as a bifurcation, represents a sudden branching in a systems behaviour and structure. In evolutionary theory it is known as punctuated equilibrium, where entire ecosystems can go through a sudden discontinuous change. Various epochs on this planet provide proof, where entire species vanished, and new and novel ones took their place - in the blink of an eye in geological time.

Our near future will represent a higher order punctuated equilib-

rium event. For the first time in life's history, humans have the capacity to understand that we can steer the course of evolution as its dynamics unfold within our civilisation and its subsystems; economies, political parties, governments, institutions, bureaucracies, corporations, technologies, social structures and ourselves. A thorough understanding and application of evolutionary systems dynamics may be essential for our survival. Swift application of this knowledge to sociopolitical, economic and technological systems is needed in order to choose the best probable future and build the many bridges needed to get there.

Futures researcher, Jan Huston of the University of Hawaii in Honolulu,[4] points to an emerging picture of an 'evolutionary systems theory,' where major systems - for example, biological, psychoneurobiological, astrophysical, technological and sociopolitical - have revealed similar patterns of development, organisation and change. The creation of Chaos theory[5] formalised this new way of understanding complex dynamical systems that were so complex they appeared totally random, like the turbulence of a fast moving river. Chaos theory brought new ways of analysing anomalous statistical data, of predicting the weather and the stockmarket, modeling plant growth, brainwave patterns, the spread of disease and the effects of immunisation programs. Most importantly Chaos theory paved the way for understanding systems that evolve in a non-linear fashion. The phenomena of compound interest illustrates this; a small amount of capital, even at small interest rates, will grow in a steady seemingly linear way until reaching a point where it suddenly grows in leaps and bounds, each leap doubling in size. Understanding exponential leaps in society is the key to survival or demise.

Huston argues we need a new *evolutionary systems theory* that supercedes Darwinian evolution by recognising everything is an evolving system - incorporating all major systems to provide a consistent map or model of a mega-evolutionary system, made up of levels of sub-systems, all evolving according to certain laws and dynamics. I believe Complexity theory[6] is central to Hustons' argument.

Complexity is a new way of understanding complex *adaptive* systems. (*adaptive* as opposed to *dynamical* in chaos theory). Adaptive systems have all the properties of dynamical systems, but actually learn, adapt and evolve within their environment. Importantly they are non-linear so they evolve in leaps and bounds. Every living thing is a complex adaptive system. Every species, every ecology of species, and the entire ecology of the planet. Civilisation is a complex adaptive system as are its subsystems of communities, businesses, companies, governments, bureaucracies, stock markets and economies. One of the original, more

innovative resident scientists at the Santa Fe Institute, John Holland, was awarded one of the first American PhD's in computer science in 1959, based on the exploration of neural nets. He argues that the body of knowledge developed in complexity theory has demonstrated that natural laws govern the way complex, adaptive systems evolve and operate, and that human systems operate according to these laws.

Economist Brian Arthur, who developed the idea of *increasing returns* in economics and contributed to the establishment of a complexity based economics program at the Santa Fe Institute, argues recognisable themes repeat in history,[7] which are fractal in nature - self similar, but not exactly the same. All revolutions have similar dynamics, but different circumstances. Chris Langton, founding father of the new science of artificial life[8] at the Santa Fe Institute, believes evolution hasn't stopped but continues exhibiting similar phenomena as biological evolution. Except now it's taking place on a social and cultural plane.[9]

This is known as the *post - biological vision* championed by Hans Moravec,[10] Director of the Mobile Robot Laboratory at Carnegie Mellon University. He states we no longer store information only in our genes, but in our brains and nervous systems. It is stored outside our physical selves in writing, and in computers. Our culture, technology and civilisation are evolving, but not at the leisurely pace of biological evolution. Humanity is taking control of its own evolution, concludes Robert Taylor, who quotes Gregory Stock, a bio-physicist and expert on technology and society at the University of California as saying, "Evolution is being superseded by technology, and the time scale will be far more rapid."[11]

According to the aforementioned scientists we are part of the unfolding evolutionary process. Only recently has Western science advocated the view that we are objective observers of the universe and nature, and somehow not part of it. Physicist Erwin Shrodinger, grandfather of quantum theory, argued[12] science has erroneously painted humanity out of the scientific picture.

Complexity theory has demonstrated we are not objective observers, but co-creators. It emphasises that everything is connected, embodied in symbiotic relationships, top-down/bottom-up feedback, and co-evolution. These relationships apply to our technology, constantly recreating and influencing us in a spiraling, evolutionary, feedback loop that tends to greater complexity.

Non-linear Leaps

Huston identifies five stages in the evolution of systems. The fifth stage is a bifurcation (a punctuated equilibrium event that displays 'strong' creativity). He asserts our civilisation is on the edge of the fifth stage. Prize winning author Damian Broderick,[13] points to rational, well informed and 'extremely' smart scientists that predict a *technological singularity* somewhere between 2020 and 2050. It will represent 'unprecedented upheaval' in the history of humanity. Similarly, Moravec predicts[14] an evolutionary transition that will rival developments of the period from lifeless chemistry of the early Earth to our present day. His assertion is based on advances in artificial intelligence alone.

Broderic defines a *singularity* as the point where infinities enter a calculation and linear analysis breaks down. This singularity is approaching with advances in nano-technology, artificial-life, artificial intelligence, quantum physics, genetics, cognitive and neurosciences, quantum computing, neuro and quantum technology. Broderic wrote that even Arthur C. Clarke, brilliant science advocate and science fiction writer (who successfully predicted the Internet, voice recognition and satellites) [15] argued for the existence of the singularity, accusing disbeliever's of suffering a failure of nerve and imagination.

Eric Drexler is founding president of the Foresight Institute[16] which brought nano-technology (the ability to build anything atom by atom using atomic sized, self replicating, programable machines) to the attention of scientists, governments and the general public, as well as sponsoring research into the field. He argues[17] that the first fully programmable assembler, when created, will represent a transition that will produce change at a pace and degree of scope unprecedented in all of human history. Recent predictions suggest development in five years.[18]. Drexler predicts a future bringing wealth, health and prosperity on a scale undreamed of in the past. Donner Professor of Science at Massachusetts Institute of Technology, Marvin Minsky, states "...nano-technology could have more effect on our material existence than those two last great inventions...the replacement of sticks and stones by metals and cements and the harnessing of electricity."[19] It represents the most likely technological catalyst for a *punctuated equilibrium event* as well as the acceleration towards the *singularity*. Not all bifurcations will be technologically instigated. A serious warning of a possible biosphere collapse in a few decades has been issued in a petition[20] signed in 1992 by more than sixteen hundred senior scientists, half of whom are Nobel prize winners representing seventy two countries.

Creating the Future

Huston's plan for action consists of two stages: (1) An agreement on a common map and language to bridge all scientific disciplines, then distributed to the general population, raising awareness and voicing implications for our future. (2) A search for 'predictive' ability in the model. This would be used to 'locate' our position in the dynamic cycle, identifying 'forks in the road' which would assist us in choosing the best path for futures, and constructing 'hypercycle-like bridges' from the old world to the new.

He believes rates of development and change in complex systems could have a 'predictable' relationship. If this is the case, he believes we could discover the mechanisms of change and the boundaries and direction of evolution of these systems. Complexity theory provides the beginnings of predictive ability in a rigorous mathematical format. The Hillis-Lander formula[21] provides an excellent example of this predictive rigor, measuring the onset of punctuated equilibrium events in artificial evolutionary systems, as does the Lamda scale,[22] that measures the edge of chaos, the phase transition boundary in artificial environments, where the greatest amount of complexity is generated.

Complexity theory provides a revolutionary new way of understanding, modeling and predicting economics. M. Mitchell Waldrop wrote[23] how scientists like Kenneth Arrow, Nobel laureate in economics and Professor of Economics at Stanford, discovered that major assumptions of classical economic theory are flawed. Holland believes economics could have the predictive ability of meteorology. Complexity demonstrates that the economy is non-linear, behaving more like a living entity or ecology than a machine. Complexity based, adaptive agent, simulations have already been created by scientists covering areas from economics, biology, ecology, culture/anthropology, psychology, political science and geography to military operations[24] etc., with a degree of reality and true predictive ability impossible ten years ago. Complexity based, adaptive agent, simulations will be essential to our ability to navigate our way through any multi-bifurcating transition.

AI for the People

Robert Pope, artist-philosopher and founder and director of the Science Art Research Centre Australia Inc. (SARC),[25] believes if we discover the basic laws behind the negentropic trend of life to evolve order

from chaos we could use these laws in a computer program. The program could select input from people's ideas and could create life enhancing solutions and super technologies for human survival strategies.

It could take the form of an internet-based *ideas selection and generation system* that can network people from anywhere in the world. It could model the future of our civilisation and its subsystems, as well as the ideas fed into it by the people, using Langton's SWARM,[26] a generic, agent-based simulation package for complex human systems. The system could utilise the best of bottom-up A-life and complexity processes to evolve ideas and strategies based on feedback from its simulations and the people.

Administrative and databank functions could be managed by top-down, specialised AI software. The system would be a composite structure integrating bottom-up and top-down approaches with human input, improving itself via inbuilt evolutionary processes and direct human input. In simplistic terms, this AI for the people system is like a smart interactive agent or specialised AI software running on the substrate of the Internet. A more detailed description of this system is beyond the scope of this article.[27]

This could be the most effective mechanism to fulfil Huston's plan. The AI system would represent a bridge to the possible future, a global focal point for the people, from laymen to scientists, men and women from every socio-economic, religious and ethnic background to input their ideas, concerns and information. An independent virtual ideas/designs generator and networker for manufacture, marketing, sales and distribution of people created products/technologies and implementation of strategies.

With one mechanism we could create the widespread understanding of complexity (as a model of evolutionary systems), of a punctuated equilibrium event and our capability of steering the course of evolution. It could be the peoples' simulator, constantly simulating possible futures and the strategies and technologies that are more likely to create the future we prefer. It could represent a catalyst for global democracy; a structure for the widespread dissemination to the public of general purpose assembler kits and a bridge for the transition, from a *bulk*, to a *molecular* manufacturing based economy. It could be a powerful vision for our future that everyone could feel part of and responsible for.

Free Creative Energy of the People

This on-line phenomenon is already occurring, with some companies allowing their software code to become public. People world-wide find gliches, repair them and download the new version to the company, who then upgrades their customers with a speed of change and degree of creativity and innovation unmatched by massive companies like Microsoft. Another example is the Nanocomputer Dream Team,[28] a group of scientists, engineers and lay people from all over the world connected by the Internet, attempting to design the first quantum computer and a virtual supercomputer. NASA has involved people all over the world, in the SETI project, by utilising the down-time in people's computers. A further example is the Foundation for Conscious Evolution,[29] helping to bring together people working to build bridges towards a preferred future, established by Barbara Marx Hubbard, activist, visionary and futures author.

This way of utilising the creativity and energy of the people is completely new in human history. There has never been the technological means to make it possible, nor the high standard of education. The people would represent a new emerging entity that could rival the multinationals, governments and bureaucracies of the world, in the ecology of our sociopolitical-economic environment. The people system could act as a catalyst to create true freedom and global democracy. It may be our only guarantee of a safe transition, away from extinction or de-humanising control.

Sohail Inayatullah, Professor of futures research with the IMC, UNESCO chair at the University of Trier,[30] suggests a future society with *non-strategic governance partnership*. Within fifty years he believes we will create a *soft* global government with *strong localism*, comprising thousands of bio-regions. He argues the continuing globalisation of the economy with free movement of capital and labour, increasing multiculturalism, advances in technology and pertubations from international institutions and nongovernment organisations, will create a *gaia* of civilisations that replaces nation states.

The intellectual property created with the system could be owned by the people, *for* the people of the world, who would have the right to develop and use all products and services created. Those who contributed to an idea that survived into a design would receive a small percentage of the profits. A standard license could be created so small companies could apply to develop product and services. The application could use criteria like attitudes and records on human/workers rights and en-

vironmental issues, as well as their workers having some ownership in the company. Often the best companies and products lose out to bigger players, banks or bureaucracies, due to the adversarial paradigm of survival of the fittest exulted in our sociopolitical and corporate structures, as the most effective process for a free market economy. Using agent based simulations we could test ideas, strategies and technologies within a selection criteria designed to drive a simulation towards the sort of societies we always wanted but could never achieve. We could utilise the cold, hard, dynamics of survival of the fittest in the simulations and by implementing the results in the real world we can take these dynamics out of the real world, thus eliminating the real pain and suffering they create, to produce a more gentle and nurturing society.

It is likely the people involved would be interested to see developments, and even more interested in using them. Such a project could rapidly build to a robust, stable state in the socio-economic ecology. We could create a *bandwagon* that eventually almost everyone will want to climb aboard, as perhaps one of the greatest and most critical cooperative ventures in history.

Multinationals and political parties can't exist without us - we have the power to influence the course of events if we are willing to act. The people of the world have fed multi-nationals, consumers existing with them in an uneasy and distrusting, needs-based alliance. Diverting cash-flow from the multi-nationals to the people involved in the creation and development of products and services contributes to a preferred future. The multi-nationals would adapt, becoming part of the system. This would also apply to governments and bureaucracies. So the new global entity of the people would have changed the global, economic ecology and influenced other entities to adapt within a new ethical free market capitalism.

Inayatullah gives another example[31] of the potential of consumer power with the advent of 'smarter markets.' Consumers could be given information about a product, like how much the workers were paid, how many trees were cut down, what the wholesaler received etc, via product bar codes which enable the consumer to vote with purchasing power. This would build an ethical quality into the free market system.

Spreading the Word

Huston believes it is up to the scientists involved in evolutionary systems theory to simplify and popularise this knowledge. If it was pri-

marily in the hands of political parties and their institutions, there would not be the energy, will or support to transform the system. Attacks upon the theory denying evidence exists as to its validity, and subsequent refusal to fund its application would be par for the course. This blocking of progress would build pressure in the system, causing a more dramatic and chaotic bifurcation, he argues.

The description of political systems applies to universities, which would stifle scientists from promoting and applying the new theory quickly and widely. Physicists, George Cowan and Nobel Prize winner, Murray Gell-Mann, initially established the Santa Fe Institute[32] with their own funds because they believed it could take decades to get complexity theory off the ground in the mainstream university system. Cowan was the manager of the team at Los Alamos during the top secret Manhattan Project and was determined, this time, to widely spread news of such a discovery. He realised a private institute was the only way.

Advocates of the new theory, however, end up bogged down in detail and technicality. So even if they had the skills and the inclination to popularise the theory amongst the public, by the time they gain widespread agreement in the scientific community it may be too late. Even the Santa Fe Institute has not escaped restrictive factors in the mainstream university system. They may be making more progress in the corporate world, but blocks remain there too.

Informing to companies is also difficult, due to corporate consulting culture. Even if a consulting firm introduced the information into the corporate arena, companies would neglect to share it in the name of competition.

How will we create a complexity-based revolution? Perhaps the AI for the people is the vehicle for this revolution, and initially the more aware, famous artists of the world could be the ones to popularise the idea among the people—not scientists, politicians, bureaucrats or commentators like myself, who could support from backstage.

Humanity desperately needs a unifying vision. Vision drives the evolution of our civilisation, an essential and fundamental component of sentient beings. Our intelligence gives us the imagination to envision the future, the rationality to work towards it and the spirit or will to persevere. Our history is full of examples of the amazing capacity of the human spirit to overcome all obstacles when inspired by a powerful, holistic, vision. At this point in our history the reunification of art and science could produce such a vision.

Backs to the Future Leadership

Politicians and policy makers (and corporate strategists) work within a linear, mechanistic model, when they plan for the future. Huston explains this naturally leads to pressure building in the system, and creates chaotic perturbations during a bifurcation. We see this pressure building now in increasing social, economic and ecological problems. Yet a prevalent belief in the mainstream culture remains that our leaders (in public and private sectors) understand the world, *and* know what they are doing.

In Australia at present we have a conservative government with the majority of senior ministers coming from the legal profession. Legal professionals usually look to past precedents for present situations. Our government largely applies this strategy for managing Australia. In the context of society being a non-linear, complex, adaptive system accelerating towards an imminent series of bifurcations, this strategy seems inappropriate.

In situations of catastrophe, governments are notorious for sacrificing their people. Here are three possible scenarios.

Failure at the first turn

Governments taken by surprise lose control at the first bifurcation, and no one survives.

Survival of the elitist

The US and other nations have plans and facilities for disasters. If global nuclear war or economic and/or ecological breakdown occurred, governments would gather experts in specific fields like medicine, nanotechnology and others, to support them. The wealthy could buy their way in and they would all retreat to their underground sanctuaries. Rapid development of nano-technology alone would continue underground with the speed and focus of war times, emerging three to five years later, fully functioning. They could restore the environment and re-establish, virtually overnight, the first generation of advanced humanity. The shock could also propel them to enhance their brains with neurotechnologies and disconnect themselves from their animal past, creating the evolutionary emergence of new and truly human natured humans, operating without the usual human evil.

Slow learners lose it all

A nano-technology breakthrough is achieved whilst underground but due to the nature of the people, nothing is learned by the catastrophe. They don't enhance their brains, emerging from their sanctuary to fight for dominance, rapidly killing each other and/or the planet.

A small minority could destroy the opportunities for humanity out of ignorance and hubris.

Evolving our Minds

The AI for the people model would be an advanced form of Huston's proposal for a bottom-up, broad based awareness among the people of the world, of an evolutionary systems model and the capacity to simulate and design the future. This is one form of the bottom-up surge,[33] where collective action of individuals creates *emergent* behaviour in the system (in this case, our global, sociopolitical and economic systems). The other form of bottom-up surge will be created by *objective neurotechnology*. This technology upgrades the performance of individuals by enhancing the functioning of the central nervous system and cortex, increasing mental fitness. This will act as a buffer against human evil, improving society's ability to ride out bifurcations.

I have developed a model and time line,[34] which maps the evolution of this technology over the next ten to twenty years. It will progressively improve our ability to survive our own evil, technology and the transformation process. The faster we develop and spread this technology the greater our chance of success.

Our brains being a history of reptilian and mammalian evolution, evil could be defined as the natural expression of the animal brain in sentient beings who had not fully evolved from their animal past. So the expressions of aggression and selfishness, and survival of the fittest in animals, which don't have conscious, rational, awareness, is totally innocent. However, we have subsumed our innocence and evolved conscious, rational awareness in its place. As sentient beings we have the capacity for higher order reasoning and so the ability to understand the consequences of our actions. So if sentient beings allow their animal natures to control their behaviour inappropriately, consciously or unconsciously they create evil. Humanity, on average, hasn't evolved enough higher order control to override animal instincts. If we create stronger cortical mechanisms that override animal brain inputs when it is inappropriate for them to be dictating behaviour, we would represent more

rational, thus more evolutionary, advanced beings, exhibiting very little of what I term human evil.

We have precedents for this in every human civilisation, with examples of people who demonstrate extraordinary rationality and very little evil. As humans, we often tend to recall and focus on negative potential - forgetting historical evidence of a greater potential within us.

Neurotechnology assists in strengthening the thalamo-cortical locus of control (human part), whilst diminishing covert limbic input (animal part).[35] It is this limbic input from the CNS overriding the higher order control of the prefrontal cortex that has caused repeating patterns of evil in our history. Social experiments over time and in all cultures, in various forms of top-down management structures (governments, royalty, dictators, laws, codes, justice systems, etc) have diminished or exacerbated animal brain expression. We need to simultaneously restructure our top-down systems to minimise the expression of evil, while upgrading the rational control mechanism of individuals within the paradigm of wellness and peak performance. Inayatullah argues our guiding ethic will become a paradigm of health and healing in order to reconcile differences across every spectrum.[36] This top-down/bottom-up approach creates a ratcheting up effect of society. When humanity reaches this advanced level of rational self control, top-down strategies can shift their emphasis - from evil prevention to greater freedom and self direction.

Engineer and futures author, Bert Cunnington of Griffith University argues[37] the human mind has shifted the 'cutting edge' of evolution, from the biological to a 'meta-biological' evolution of the mental, cultural and spiritual. I argue the re-evolving of our minds would give every individual direct connection to the intelligence of the universe-known as the World Soul, Gaia, the Plutonic Realm, spirit/s, god/s or simply the information vacuum. At our present level of evolution we may experience this connection, which I call *universal top-down feedback*, as inspiration, insight, intuition, revelation, oneness, joy, love and compassion.

With re-evolved minds/brains we can utilise this universal intelligence with unprecedented wisdom, compassion and rationality-traits that would represent new fitness criteria. This would represent an evolutionary transition that finally tips the balance of evil. Humanity would fully separate from its animal past and end history as we have known it - a cycle of domination-revolution-domination covertly driven by the central nervous system (CNS), and usher in a higher order, and *truly* human civilisation.

Humanity could be accelerating towards an unprecedented punctu-

ated equilibrium event. The evidence seems compelling considering the broad spectrum of scientists and disciplines that arrive at similar conclusions. The timing indicates the first bifurcation, either techno-logical or ecological, occurring within five to fifteen years. A new body of scientific knowledge, known as complexity theory, could be used to guide us through the transition and beyond. Mainstream governments, universities, corporations and bureaucracies are unlikely to effectively utilise this information in time.

The free energy of the people of the world is probably our only hope. Famous performing artists could initially sell the idea to the people. Considering the urgency of our current reality, the creation of a bot-tom-up AI system, selecting, evolving and simulating effective strategies and designs accessible to the people through the Internet (and in part-nership with the people) appears both viable and the most effective op-tion we have.

The question remains whether the greatest transition of human evo-lution is upon us. Will we be successful co-creators, upgrading ourselves to a higher order of humanity, or will we slip into oblivion? It is up to the people of the world. We must stand and take responsibility for our freedom, for the *potential* to create an unimaginably beautiful future. Surely this is what evolution of intelligence is all about!

Much has been accomplished, but further work is needed. Research and development is essential in three areas. Agent-based simulations of our civilisation and sub-systems projected up to fifty years. Internet based smart systems like *AI for the people* and the Internet, to leverage the free energy of the people. Neurotechnologies for psychophysiological rehabilitation, health, peak performance and spiritual development.

Acknowledgements

Thanks to Robert Pope, for his initial idea to create a computer pro-gram to automatically sift out people's ideas, for the betterment of humanity, the suggestion to write the original essay and for its title.

Notes

1. This technology originated in the late sixties in the form of EEG feedback devices that allowed people to train and control brainwave states. EEG feedback training is sweeping the therapeutic fields as the

most powerful non-invasive process for the rehabilitation of a broad range of psychophysiological problems. The technology is also proving effective for peak performance training. Clinical research in this field is growing steadily, see www.eegspectrum.com Advances in solid state electronics and computing have enabled the integration of sophisticated graphics used as feedback. Scientists are researching ways of using chaos to guide the feedback process. Other neurotechnologies include: audiovisual stimulation, cranio-electro stimulation and magnetic stimulation.

2. I define computer mind as the brain and mind that processes classically real, information, locally in space-time, and the quantum computer mind, as the brain and mind that processes quantum virtual, information, non-locally (superposition) in the quantum vacuum, as described by physicist Roger Penrose.

3. These scientists are connected to the Santa Fe Institute, and are involved in Complexity and A-life studies. There work is chronicled in the books, *Complexity: The Emerging Science at the Edge of Order and Chaos* by M. Mitchell Waldrop, Penguin Books, N.Y. 1994, and *Artificial Life: The Quest for a New Creation* by Steven Levy, Penguin 1993.

4. In the paper *What are the Greatest Challenges of Evolutionary Theory in Our Times?* by Jan Huston, Department of Political Science, Hawaii Research Center for Future Studies, University of Hawaii at Manoa, Honolulu 1992.

5. From the book *Chaos: The Making of a New Science* by James Gliek, Penguin Books 1987.

6. An excellent introduction to this new science and scientists who instigated it can be found in, *Complexity: The Emerging Science at the Edge of Order and Chaos* by M. Mitchell Waldrop, Penguin Books, N.Y. 1994. Technical papers covering every aspect of complexity and artificial life can be found at, the Santa Fe Instsitute www.santafe.edu.

7. See: *Complexity: The Emerging Science at the Edge of Order and Chaos* by M. Mitchell Waldrop, Penguin Books, N.Y. 1994.

8. Artificial life is a new scientific process and body of knowledge that uses computational processes to mimic aspects of life. The computer virus is a simple form. Scientists have created very simple entities from strings of code that learn, adapt and evolve in artificial environments with other entities. They reproduce by swapping their digital code in an analog of sexual reproduction where genetic code is copied from the male and female and put together to create a new entity. These artificial entities range from a simple viral or bacterial level, to

the complexity of insect intelligence. Complex adaptive systems like the economy display life-like behaviours, and can be modeled in new and more profoundly effective ways using artificial life, which are themselves, complex adaptive systems. An excellent non-mathematical introduction to this new sciences is, *Artificial Life: The Quest for a New Creation* by Steven Levy, Penguin 1993.

9. See: *Complexity: The Emerging Science at the Edge of Order and Chaos* by M. Mitchell Waldrop Penguin Books, N.Y. 1994.

10. From the book Mind Children: *The Future of Robot and Human Intelligence* by Hans Moravec, Harvard University Press 1988.

11. In his article: *Superhumans* by Robert Taylor, New Scientist 3rd October 1998, Number 2154, Pp. 29.

12. From the book *Nature and the Greeks and Science and Humanism*, by Erwin Schrodinger, Canto Cambridge University Press Cambridge 1996.

13. From the book *The Spike: Accelerating into the Unimaginable Future* by Damien Broderick, Reed Books Kew 1997.

14. See: *Mind Children: The Future of Robot and Human Intelligence* by Hans Moravec, Harvard University Press 1988.

15. See *New Scientist* Number 2148.

16. The Foresite Institute has technical information on nanotechnology as well as all the best links, www.Foresite.org

17. From the book *Engines of Creation: The Coming Era of Nanotechnology* by K. Eric Drexler, Oxford University Press, Oxford 1990.

18. In the article *Nanodeveloper Zyvex* Nanotechnology Magazine Vol.5 no.8 www.planet-hawaii.com/nanozine/NANOHOME.HTM

19. In a foreword to K. Eric Drexler's book *Engines of Creation: The Coming Era of Nanotechnology* Oxford University Press, Oxford 1990. (pvii)

20. Entitled *World Scientists Warning to Humanity*, sponsored by the Union of Concerned Scientists, at www.ucsusa.org/about/?warning. html

21. For a more detailed explanation see : www.science-art.com.au/journalextnotes.htm

22. For a more detailed explanation see: www.science-art.com.au/journalextnotes.htm

23. In his book, *Artificial Life: The Quest for a New Creation* by Steven Levy, Penguin 1993.

24. For a list of projects applicable to the AI for the people system see : www.science-art.com.au/journalextnotes.htm For the entire list see www.swarm.org/community-links.html

25. www.science-art.com.au
26. For information on SWARM see www.swarm.com/
27. For a more detailed explanation of the system structure and its implications see: : www.science-art.com.au/journalextnotes.htm
28. www.nanocomputer.org
29. See: *Conscious Evolution: Awakening The Power of Our Social Potential* by Barbara Marx Hubbard, New World Library Novarto 1998. She has created the Cocreation website, www.cocreation.org as a resource for people and organisations to post their projects and network with others.
30. From "New Futures Ahead: Genetics or Microvita" by Inayatullah, Sohail, *New Renaissance* (Vol. 9, No 2, Spring 2000), 6-7.
31. From "New Futures Ahead: Genetics or Microvita" by Inayatullah, Sohail, *New Renaissance* (Vol. 9, No 2, Spring 2000).
32. At www.santafe.edu
33. See: *A New Reality: The Imminent Transformation of Science and Humanity* by Jonathan Robert.Banks, Jonathan Robert Bankes and Associates. Thirroul 1999.(chapter 6)
34. In *A New Reality: The Imminent Transformation of Science and Humanity* by Jonathan Robert Banks, Jonathan Robert Bankes and Associates. Thirroul 1999. (chapter 5)
35. See: *A New Reality: The Imminent Transformation of Science and Humanity* by Jonathan Robert Banks, Jonathan Robert Bankes and Associates. Thirroul 1999.(chapter 5)
36. From "New Futures Ahead: Genetics or Microvita" by Inayatullah, Sohail, *New Renaissance* (Vol. 9, No 2, Spring 2000), 6-7.
37. In *Building a Planetary Civilisation* cited in the paper *The Engineering of Global Democracy* by Franz Jacobsen,. Science Art Research Centre Inc Murwillumbah 1999.

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