

**Future You Future Me 2050**

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As humanity moves forward in this accelerated time of innovation and discovery a consistent question poking its head out of our collective consciousness is what is going to happen to us in the future? Will our species move beyond its virulent nihilistic tendencies, and if we do survive, what will our world look like? Generational divides are becoming increasingly wider as each new generation comes to fruition. We are evolving at a rate that we have not experienced before, a sort of conscious evolution that is bringing people together in unexpected ways. This process of transition is not an easy one, many fear what will happen next. As with any transformation and the metamorphosis of a caterpillar to a chrysalis and into a butterfly, it's the part in between that is a formidable struggle. The most obvious of today's concerns revolve around security and identity. People have an almost innate need to know that they belong to something, someone, or some place. They need to be assured that the next time they wake up the world will make sense to them and things will not have changed too much. Topics like nuclear threats, cyber war, and loss of culture through globalization are becoming major concerns for people around the world. As new technologies continue to emerge, their associated capabilities compound in power and magnitude on an exponential scale. Many are beginning to realize that the system is bigger than any one of us can control, and that these questions deserve credence. One thing is for sure, there is a technological momentum at work here, the digital rhythm of our time and it will not falter for anything or anyone, as long as man is there to feed, it will keep growing. The following will explore the world in the year 2050 within the context of globalization, technology, security, culture, and politics.

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Ben Goetzel, considered to be one of the foremost futurists of our time describes the future of 50 years in this way.

*“A number of really big technologies are brewing. Virtual reality, which lets us create synthetic worlds equal in richness to the physical worlds, thus making the Buddhist maxim “reality is illusion” a palpable technical fact. Biotechnology, allowing us to modify our bodies in various ways, customizing our genes and jacking our brains, organs and sense organs into computers and other devices. Nanotechnology, allowing us to manipulate molecules directly, creating biological, computational, micromechanical, and other kinds of systems that can barely be imagined today. Artificial intelligence, enabling mind, intelligence and reason to emerge out of computer systems – thinking machines built by humans. And advances in unified field theory in physics will in all likelihood join the party, clarifying the physical foundation of life and mind, and giving the nanotechnologists new tricks no one has speculated about yet (Goertzel, 2001, p.1).”*

For centuries technology has been a catalyst for change in human society. The word technology comes from the Greek language (*technología*) and can be broken down into two component parts, *téchnē* which means art, skill, or craft, and *-logía* which means the study of (“Wikipedia,” 2011). Technology is commonly interpreted in many different ways, its definition being determined by the context in which it is presented. Stefan Fritsch (2011) in *Technology and Global Affairs*, quotes Brooks, that defines “technology as accumulation of knowledge and artifacts for the realization of human purposes in a specifiable and reproducible way (p.28).” When the word technology arises in conversation today most people generally see images of a machine or some digital counterpart of sorts. But the idea of technology has been with man since he/she began conceptualizing processes and new ways of doing things. Although we may not realize it, this concept is deeply imbedded within our psyches. Because this concept has been woven into the fabric of our existence for such a long time, it is now actualizing all around us in amazing ways. Technology being such a fundamental component of our society should be utilized in conversations concerning global affairs. One thing to keep in mind is that technology

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is a source of power, it has the ability to revolutionize, but the outcome may not always be good. Technology itself has no will, only the will of man behind it to direct its influence. It has helped feed millions with the creation of bioengineered rice, and has also been the cause of mass destruction in terms of nuclear holocausts'. Fritsch argues that technology has reciprocal relationships with politics, economics, and culture and that its influence should not be ignored when discussing 'systemic transformation'. He presents two perspectives; technological determinism and technological constructivism as a means to understanding the impact of technology on society in order to better 'govern technological evolution'. Technological determinists, like Marx, see technology as something separate from man, a force that has its own agenda acting autonomously. A consistent manifestation of this ideology is that of fear, which has been a catalyst for many of the science fiction movies as of late that highlight this concept, like The Matrix. By creating a separation between technology and man, man is no longer able to control its outcome and thus fears his creation. It can be seen that certain technologies have become so big that they have taken on a life of their own, but this ideology also contains a gap in that the autonomic driving force behind the machine cannot be defined. Technological constructivists on the other hand see technology as something more practical; it is a part of the fabric of social reality and is only actuated when meaning is provided by people. A social constructivist sees no separation between man and technology; they are a manifestation of the cultural, political, economic, and social structures and power. "Technology is the result of explicit and implicit choices by actors (scientists, engineers, managers, bureaucrats, politicians, and consumers) among a given number of technological alternatives, based on ideological, normative, economic, and political considerations (Fritsch, p.32, 2011)."

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A counter argument to the constructivist approach here could be the idea of man's subconscious manifestation through technology, as man is driving the machine, is he/she really aware of where it's going? Both perspectives are important in their own ways. The determinist perspective concerns long term impacts, but underestimates human influence in the beginning stages of innovation. On the other hand a constructivist embraces the human interaction component, but tends not to think about the long term impacts of these technologies. A more appropriate approach would seem to be to consolidate these two concepts into one (Fritsch, 2011).

All technological systems have life cycles that go through three processes; invention, innovation, and diffusion. Fritsch highlights the mutual dependency between agent and structure. There is a close relationship between system units, agent, and structure. "Although technological evolution often begins within a national context, new technologies quickly diffuse throughout the system and begin to change the system as well as the units (Fritsch, pg. 34, 2011)." Technology is a means for economic power. Technological evolution is driven by states competition for power, in terms of material resources and perceived needs ensuring survival and prosperity. The idea of the political system itself is a form of technology, and as such should be a prominent variable in discussions concerning global affairs. Fritsch points out three main reasons that technology should have an integral role in global politics; first as each technological evolution brings forth challenges, those challenges will only be able to be met with new technological innovations emphasizing the need to better understand the feedback loop of effects between technology and sociopolitical movements, second professionals from all disciplines tend to focus on their minimal view of the world thus not able to converge on

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many levels of understanding as their languages differ, and third as technology consistently bombards man with new challenges the solutions often need to come from the realm of global politics (Fritsch, 2011).

As man begins to understand the depth of his/her relationship with technology over time the pace of manifesting this tool will become more rapid. As with everything practice improves speed and effectiveness over time. By the year 2050 systems will exist to create new systems based off human ideas. There will no longer be long and arduous processes of experimentation, instead man will be able to insert an idea into a production machine, and some type of artificial intelligence will take care of the rest for you, with the end result of a fully functioning and well tested product. The future of computing capabilities will also be able to run complex predictive modeling computations that will ensure that we are making the best possible choices to ensure human survival and future colonization of other worlds and dimensions. But in order for the world to reach this level of integration we must get over the cyber security bump first. People need to trust the system that they are allowing to tap into every aspect of their life and eventually even their bodies. The achievement of high levels of trust in the computing industry, and especially beginning with the internet, will be a determining factor in the time it will take for man to transition into a fully digitized world.

Cyber security first became an issue in the early 90's after the cold war, right at the same time that the internet was first being established. This was a topic that was really only talked about by computer scientists, as they were the ones with the technological know how to be able to imagine what could happen if there were to be an attack on a network. Phrases like 'electronic Pearl Harbors' and 'weapons of mass disruption' began to arise. The real concern

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here was the long term societal impacts of attacks on these systems. The attacks on September 11<sup>th</sup> spurred more discussion on digital infrastructure protection, electronic surveillance, and terrorist hacking. China, a current real world example of a state attempting to regulate online activities very closely monitors their internet in order to prevent threats from penetrating through their digital lines of defense. Hansen discusses the Copenhagen School's theory of securitization as a foundation for cyber security. "The Copenhagen School has won wide acclaim as the most thorough and continuous exploration and among the most prominent and influential approaches to the widening agenda in Security (Hansen, 2009, p. 1156)." This theory is very broad with its focus on any 'object' that might threaten the 'physical or ideational survival' of a nation or state. At one point the pentagon ruled out hacking of critical infrastructures as a worthy object in context of the Copenhagen School and thus cyber attacks were not being viewed at the same level of other threats. Luckily this view quickly changed when Bill Clinton created the Commission on Critical Infrastructure Protection. Now cyber security is being dealt with within the Department of Homeland Security. The following president George Bush established The National Strategy to Secure Cyberspace, and in 2008 NATO created a cyber defense center as well. So it seems that the world overall has begun to understand the possible far reaching implications of an intelligently constructed cyber attack on many levels including militaristic, political, environmental, societal, economic, and religious. When dealing with issues on digital transactions, privacy protection, governmental surveillance, and data mining one can see there are a number of complex objects involved in the cyber security debate. These are all issues that have been previously associated with political, economic, criminal, or technical areas; Hansen argues that although these objects affect all of

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these areas they ultimately fall into the overarching category of security. The concept of national security in itself is an interesting concept in that it not only applies to the state but also to each individual within that state. “The individual and the state are united in that the principle of state sovereignty implies that the individual allocates authority and power to the state in exchange for the state’s protection of her/his security (Hansen, 2009, p.1160).” One confusion surrounding cyber security arises as a result of the relationship of security in terms of the state and the individual, how is cyber security interpreted in terms of a nation’s security and also on the individual level, where it is the responsibility of the nation to protect each and every individuals (cyber) security, and are these two forms of cyber security to be lumped into the same category? One thing to keep in mind is that technological security threats do not necessarily arise from intended assaults, but also from ‘systemic’ threats. These systemic threats occur because of mistakes made in the design, and the unpredictable behavior of the system itself. Because we are existing within a world that is increasingly becoming networked in every category of production and exchange it is imperative that we begin to explore the ramifications of cyber security threats. Today computer systems now control electrical transformers, trains, pipelines, chemical vats, and radars. Not to mention that communication technologies all rely on networked systems from satellites, to IPS’s and telephones. The interruption of communication technologies would in one fell swoop disrupt an entire country. Attacks that we have already seen include, “electronic looting of European and American banks by (unspecified) Russians, software computer viruses causing financial havoc and plane and train crashes, power grid fall-outs at airbases, malfunctioning of ATM’s and news broadcasts, and stock market manipulation (Hansen, 2009, p.1161).” Hansen explores the three modalities

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of cyber security; hypersecuritization, everyday security practices, and technification.

Hypersecuritization deals with the idea that people exaggerate possible threats and in doing so present excessive countermeasures. This way of managing security presents a limitation on progress in terms of resources and time, and can also take away from society's ability to counteract more normalized threats which deserve more attention. Security practices are more practical in application where they recognize the concept of excessive threats but they are able to mold these ideas into a workable format and apply them to everyday experiences thus creating viable solutions and preventative measures. Technification deals with the idea that there are only a select few of people on the planet that have the technical knowhow to be able to determine what constitutes a threat. One thing society must keep in mind when dealing with legitimate authorities on cyber security issues is that all opinions are subjective and many competing, so it is important to have more than one opinion when making big decisions on an international level in cyber security. Cyber security is an issue in its infancy that needs to be further developed in the future in order to maintain world order. It is a field that cannot be dealt with primarily by political leaders as a political background does not entail the required technical expertise needed to make informed decisions. Instead what must occur is a synthesis between the political and technological elite so that our networked way of life can exist securely (Hansen, 2009).

Today nations are connected digitally creating a sort of seamless world without borders. Because of this digital unity world leaders also must begin to think about cyber security as a world issue and not a domestic one. In order for a system to be secure it must not have any holes within its code available to manipulate, and in order for that to happen the computer

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engineers of the world must come to democratic agreement on the rules and regulations required to create a solid international form for cyber security. This is the way of future, as states become more and more dependent on each other for the exchange of resources, goods, and services secure access to a global digital marketplace will be imperative for the system to work. Security for every state and individual on this planet is the most important political issue. You need security first, and then after that everything else will fall into place. Because security is the end all be all for humanity as a whole, we will find a way to ensure security for all states. As other states around the world progressively integrate themselves into the system, we will eventually become a single world state. The UN and NATO will progressively begin to become more active in global affairs, and will grow significantly in numbers. Although by 2050 the world may not admit that we live in the era of singular unified world government we will be operating as such. This is a necessary step for human civilization when considering the environmental implications that are arising along with our technological evolution. The ideology sitting behind the concept of the 'network' is pure connection. The power in connection as we have seen so far is completely revolutionizing every aspect of human life. This ideology will ultimately pour into the technology of our infrastructure and social systems and at that point will be apparent that 'connection' is the way. By the year 2050 man will have the ability to run complex predictive models that will guide us on all major and even minor decisions, there will no longer be any deliberation about the outcome of a particular action, we will understand the end result before the action is taken, thus preventing man from making catastrophic mistakes. The synthesis of security and technology is the first step to creating this future.

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The new frontier in security is that of the untapped outer regions of the world, outer space. In 2006 President Bush instituted a National Space Policy that “called up on the Secretary of Defense to ‘maintain the capabilities to execute the space support, force enhancement, space control and force application missions’ and to ‘develop capabilities, plans, and options to ensure freedom of action in space, and, if directed, deny such freedom of action to adversaries (Duvall, 2008, p.755).” This policy is seen as extremely arrogant in that it is basically saying America is claiming the right to dominate orbital space in a militaristic fashion, and that if any other nations attempt to counter this domination they will be stopped. How will this monopoly affect US ties with other states? The real issue here is sovereignty; the domination of military defense systems from one state would literally strip all power away from all other states. There are currently three different types of space programs being pursued by the US, space-based missile defense, space control, and force application from orbital space. If these systems were instituted the US would have imperial power. A space-based missile system would strip the sovereignty away from states because they would no longer be able to protect themselves from US based attacks in the form of missiles. Space control is a form of economic and militaristic control that would enhance US commercial and strategic interests. Force application the most deadly of the 3 would enable the US to “project lethal force to any target, at any location on Earth, on very short notice (Duvall, 2008, p.757).”

There are many who resist the instantiation of such technologies and for good reason. It is likely that these systems will be put into place in one way or another. But the question that remains is how much control will the US end up having over these technologies, and will there be a necessary bargain down the road that will allow for the institution of these technologies?

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It is likely that a bargain will have to be made in order to appease the masses, and it is also likely that the UN will be an integral component in this solution. The UN holds a level of legitimacy that no other state has the ability to have. This is because they are an international organization created to represent all nations, and are intended to reflect that diversity in their decisions. Because most nations have a stake in these decision making processes the most obvious governing body to trust with something of this magnitude would be the UN. In the year 2050 the UN will be regulating the actions taken by the international space system. At that point in time this space system will not only be functioning as a militaristic operation but will also be a primary focal point for much of the economic world. NATO, will be the muscle that will enable the actions that the UN sees fit, and enforce them when necessary. The US will still be a prominent member of the UN, and many of the elite employees of the UN council will probably have originated from American politics at some point in time. US interests will still have a strong hold on the decisions that the UN will make, but because the UN will be a more democratic institution, where all nations have some representation the US will be prevented from making some of the risky and selfish decisions that the US has become so well known for historically. Once the UN has taken on the responsibilities of a more parliamentary international governing body the world of economics and distribution of goods and services will begin to level out. But for the individual two things will happen with security, on the good side people will feel more confident about their digital transactions as everything will have moved into a digital world, on the other side a full functioning militaristic space system from outer space will enable the elite to erase anyone anywhere and at anytime. Although People like Osama Bin Laden will no longer be able to hide, the fear here would be that the government

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gains too much control and the possibility of another Hitler to take a position of controlling those systems. So man will have to trade security in order to gain security. One thing to keep in mind is that in this future our computer systems will be capable of computing the most optimal processes for human interaction on all levels, political, economic, and social, thus providing us with the answers that we are looking for; we will only have to decide what to do with them.

One of the major security concerns today is that of the possible effects of the dispersion of nuclear chemicals, as it releases radioactive material resulting in radioactive contamination. Not only are nuclear weapons a threat to mans survival, but so are the chemicals contained in nuclear power plants. We are feeling the devastating effects of what can happen in a nuclear crises today with the recent earthquakes and tidal waves that hit Japan. The US and other industrialized countries have a history with assisting less developed countries develop nuclear power plants to assist in the states energy inadequacies. Fuhmann argues that this assistance although emanating from a humanitarian perspective is dangerous and runs the risk for proliferation, often resulting in the spread of nuclear weapons. "Civilian cooperation provides technology and materials necessary for a nuclear weapons program and helps to establish expertise in matters relevant to building the bomb (Fuhmann, 2009, p.8)." He develops four hypothesis for his theory; when a state receives nuclear assistance the cost of producing nuclear weapons decreases and the confidence that leaders have in the success of such a campaign increases, as security becomes an issue for a state their likelihood of creating a nuclear weapons program increases, peaceful aid is also an indicator that a state will build a nuclear weapons program, this more likely in the event of a deteriorating security state.

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Furhmann produced a data set that included all of the Nuclear Cooperation Agreements that were signed from 1945 to 2000. What he found was that the likelihood of a state acquiring a bomb increased by 360% when they received nuclear assistance, and that it increased by 750% when the state was experiencing military disputes. Between the years 1953 and 2000 there was not a single state that acquired weapons that did not receive aid (Furhmann, 2009).

Nuclear waste is major concern for mankind, and will become more prevalent in the coming years as most states today are in the process of building networks of nuclear power plants as means for energy production. This trend will continue for a while until our computing technologies reach levels that allow for the most revolutionary in energy innovation. There will come a point in time when these technologies emerge and overtake the current forms of energy production, when this will happens we will see these new innovations make their way into the last remaining developing countries in the world as their main means of energy production. In some cases states whose progress has lagged behind will skip the nuclear phase all together emerging into a new world of clean energy. At this point states being led by the decisions of the UN will form an organization responsible for the dismantling of current nuclear facilities, and then build a permanent storage solution for the waste produced. This will be kept stored until technology catches up to allow man to convert the waste that he/she has created into something livable. At this time there will also be a need for recovering all nuclear weapons and retiring them in the same manner, this process will not be as simple as the latter, as states will be more hesitant to give up their 'sense' of security. But with advanced computer targeting systems, and a fully fledged military defense system in outer space it will be impossible for countries to hide their weapons and will be forced to release them.

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Another prominent consideration for a future world outside of the realm of security but related is the idea of culture. Culture is a dynamic word that most times is utilized in manner that skews its meaning, especially when defined in context of a particular discipline. Although most people cannot truly define culture they generally can recognize it when they see it. It is a sort of innate understanding of a concept that is clouded in smoke. Clifford Geertz defines culture as, "an historically transmitted pattern of meanings embodied in symbolic forms by means of which men [sic] communicate, perpetuate, and develop their knowledge about and attitudes toward life (1973, 89)." The world is becoming networked, and people from different regions are being connected through the internet and the telecommunications industry. It is apparent that the connections occurring in this magnitude are beginning to result in the cross pollination of particular cultural characteristics. Many fear that people are becoming too westernized, and that our future world will consist of large populations for Ken and Barbie dolls bumbling around concerned with material ideals. Holton presents three theses for future potential cultural manifestations. He first introduces the idea of homogenization which is the idea that culture globally will replicate that of the Westernized American ideal. Second he refers to polarization the grouping of opinions around two extremes. Third he speaks of hybridization which seems to be most accurate in that, "cultures borrow and incorporate elements from each other, creating hybrid, or syncretic forms (Holton, 2000, p.570)." The hybridization thesis seems to have the most weight as culture isn't stagnant. The idea of a culture being authentic cannot be an accurate description when considering the culture itself is alive and changing. Culture is composed of the people that make it up, people are alive and changing every day, if the whole is composed of parts that are unable to be defined as static

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then one must posit that the whole itself is also continuously changing as well. The only way that one can pinpoint a culture would be to take a snapshot of that culture out of time and space, where it will remain itself for that moment and no more. The idea that globalization is a threat to culture is a fallacy as it is the amalgamation of new ideas and experiences that fuels the constant creation of culture.

Culture existing in 2050 will be an intricate cacophony of all of the world's ideas and exotic manifestations of life being integrated into a fully digitized world. The whole will never be the same, people will always be changing, and trends will occur in different parts of the system at different times affecting each other in cascading fashion representative of the butterfly effect. But one thing is for sure, the evolution of culture in the future will be occurring at an accelerated rate not experienced by man up to this point in time. The rapid diffusion of ideas will become so fluid in the realm of the digital that to a passerby they may seem more like fluid brush strokes on a painting; this is one future that we should all be excited to be a part of. Transparency and connection seem to be concurrent trends of the future as these principles underlie the fabric of our current technological revolution. With the emergence of things like the open source revolution man is beginning to see that by allowing people from all walks of life to participate in the evolution of the system, results become more effective and efficient thus catalyzing the acceleration of progression. Social media is making it possible for individuals to make a difference or at least influence political decisions and popular opinion. As organizations like the UN gain more power and support, decisions that impact the lives of people across borders will begin to be made in support of the good of the majority of people and not the wealthy. Economically there will be an influx of funds into more impoverished

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states and an efflux from the wealthy. There will be balancing effect, and although things will never be completely equal as that is not the way of the natural world, they will become more balanced and man will elevate into a new wave of consciousness immersed in technologies that we cannot yet imagine.

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