



**Leapfrogging China/Awakening from the 5G Trance
A Winning Strategy and Action Plan for the Next U.S. President
by Julian Gresser**

EXECUTIVE SUMMARY

This memorandum is written for the next president of the United States or any current or future presidential candidate, or any state or local politician who is concerned, or wishes to be better informed about 5G, or the fifth generation of network protocols for cellular networks. (1) As we live in an overly busy and distracted world, it is quite possible, indeed highly likely, that none of these high placed persons will take the time to read or ponder this briefing paper. So I am also writing to inform and to engage millions of citizens around the world who are increasingly concerned about the 5G, as well as many others who are unconcerned or on the fence about these issues; and also those in the wireless industry who may be willing to discuss and to debate these issues with an open mind and heart.

It is foolhardy for the U.S. government to promote an industrial strategy that mimics China's, which is unsafe, insecure, environmentally destructive, violative of personal privacy, and at least as being applied in the U.S., unconstitutional; and this policy is especially reckless when an opposite course addressing all these defects is readily available. Indeed, it is one that American taxpayers and ratepayers have already paid for in hundreds of billions of dollars over the past twenty years: a fiber-optic based infrastructure that will bring clean, safe, renewable energy and power, internet access, and faster communications directly into the home. To focus national attention on this already tested opportunity to catalyze technological innovation on a national scale, we propose joint hearings in the Congress and similar deliberation in state legislatures on a National Resilient Industrial Infrastructure and Innovation Act of 2020. (outline of provisions in Attachment "A").

Yet, the real innovation we are proposing lies beyond science and technology. It offers a new way to reason and to act together that is open, inquiring, tolerant, collaborative, and compassionate. To this end we acknowledge that today there exist wildly divergent perspectives and assessments on the central “facts” and issues surrounding 5G; and for this reason, we present the main case from our perspective, the counter argument(s), and a plausible response. We hope this shift in the character of discourse will influence society’s decisions concerning one of several great challenges facing species in the 21st century.

A DEAFENING SILENCE

How is it that none of the 2020 presidential candidates has spoken out about the accelerating deployment of 5G? Not a peep. Can they really be unaware of the dangers—the foreseeable and preventable harms to public health, the environment, and privacy from corporate and government surveillance? And what of over one trillion dollars in misdirected taxpayer funds and ratepayer overcharges during the past twenty years, as alleged in *Irregulators v. FCC*? Why are they so blasé or ill-informed about the mountains of scientific evidence and reliable data showing harms from exposure to Radio Frequency Microwave Radiation (RFR) by a growing number of people? Why are we, the public, standing by helpless when we are being asked to shoulder hundreds of billions of dollars in taxes and fees under a startling “public pays principle” (as contrasted with the 1972 standard OECD polluter pays principle) to subsidize the shareholders of a few wireless companies? Are we collectively in a Consensus Trance?

One argument of the Trump Administration, the FCC, and the wireless industry is that U.S. preeminence in 5G is critical to meeting the industrial challenge from China. But what if China’s initiative is deeply flawed -- based on the ambitions of a government that cares little about the health, wellbeing, and certainly the privacy of its people? Today 5G in China is being deployed in rural villages that lack basic necessities of life -- sanitation, running toilets, healthy soil, and safe drinking water. And AI is being used to [surveil](#), manipulate, control, and support cultural genocide against the Uyghur population. ([See here for a counter argument.](#)) Why are we so eager to ape the Chinese model?

When we consider 5G/AI/IoT from the perspective of competitive national industrial infrastructure, it suddenly appears as an undiscovered game changer in the 2020 race for the presidency. Indeed, there is not a single major concern of the electorate that cannot be advanced by redirecting the 5G toward an enlightened industrial policy -- that is safer, more secure, industrially more competitive, job-creating rather than job destroying, environmentally protective, and compassionate.

The purpose of this essay is to stimulate an open-hearted dialogue on a set of issues, being ignored by our political leadership, that are in their own way as critical to the future of the U.S. and other nations as climate change, but more even more immediately dangerous. We set out our position; then provide counter arguments and to these, a response. As Albert Einstein observed, “We cannot solve problems by using the same kind of thinking we used when we created them.” By shifting the process of inquiry toward respect of difference and curiosity, it is likely we will accelerate breakthroughs we scarcely imagine today are possible.

BRIEFING PAPER—ESSENTIAL POINTS FOR THE WINNING PRESIDENTIAL CANDIDATE

1. SKYROCKETING HEALTHCARE COSTS

There is strong clinical evidence, backed by thousands of scientific studies, that Radio Frequency Microwave Radiation (RFR), which is present in lower frequencies but will be intensified with 5G, causes [oxidative stress](#), DNA and mitochondrial damage, which is closely linked with major serious medical conditions, including cancer, most if not all chronic illnesses, diabetes, cardiac illnesses and depression. Children, the elderly, people with special disabilities, including RFR sensitivities, caregivers, and minority populations are especially vulnerable. There is further evidence, based on [reports](#) of the IEEE, that 5G deployment is designed to support the next 6G technology which will be the basis for long-distance [wireless power transmission](#). (2) This will expose billions of people to magnetic field radiation, a well-recognized carcinogen. How prepared is this country for an increase of 30%-50% in healthcare costs over the coming decades as a result of RFR-related illnesses? Who will address this issue?

Counter Arguments

- The FCC, the FDA, and the wireless industry consistently confirm that [5G is safe](#), and decline to publish health safety standards. The wireless industry and the public should trust that their government [and the industry will not knowingly harm them](#).
- The FCC has already addressed the issue of public safety and has promulgated standards based on thermal effects.
- There is an insufficient number of independent peer-reviewed articles in leading journals on the health effects of RFRs, and the samples of some of the main studies are too small to reach definitive conclusions. More research is necessary.
- Most mainstream peer reviewed large sample studies suggest RFR is acceptably safe for consumers.

Response

- Scientific uncertainty has historically been used as a cudgel against the weak and defenseless.
- The government and wireless industry have actively suppressed government funded research on the health effects of RFR.
- The existing evidence is so powerful it at the very least necessitates the application of a [Precautionary Principle of Heightened Vigilance](#), thereby shifting the burden of proof to the federal government and wireless industry to prove the safety of these products.
- Evidence now assembled by physicians well trained in the new field of Clinical Electromagnetics well documents the harms of RFR at an immediate clinical level with patients. (See this [link](#) for a Summary of Major Clinical Studies of RFR exposure in patients by Professor Sharon Goldberg, MD and this [link](#) for her CV).

2. LOSS OF JOBS TO AUTOMATION -- “IT’S THE ECONOMY, STUPID.”

The Trump Administration’s 5G/AI/IoT policy will decimate jobs through automation. Apparently, a major purpose of Elon Musk’s company SpaceX Starlink is to automate the trucking industry. The FCC’s reckless policy to promote 5G will work directly at cross purposes with its efforts to incentivize manufacturers to build job-creating factories in rural America. Conversely, the alternative, an industrial infrastructure based on fiber-wired to the premises (FTTP) and driven by collaborative innovation around strategic sectors, will catalyze sustainable economic growth, generate millions of new jobs, and sustain competitive trade advantage. (See Julian Gresser, [Partners in Prosperity-Strategic Industries for the U.S. and Japan](#), 1985)

Counter Argument

The 5G roll out will [create 3 million new jobs and add \\$ 500 million to GDP](#).

Response

It is possible that the 5G protocol roll out will create new jobs but how many jobs will it destroy and most importantly, what government or wireless industry programs are in place to assist workers who will lose their jobs? Why should this cost be borne by these workers and their communities? Why is the wireless and information industry being deemed more important than these other industries, who should decide, and most importantly, what are the criteria of success? (See: [The Trigger Method](#))

3. A LOST MANUFACTURING OPPORTUNITY IN THE U.S.

Why is the Trump Administration promoting an industrial policy where there is little or no manufacturing capability in the U.S. (excepting the U.S. military and a few

companies) and the intellectual property in 5G is dominated by a Chinese company, Huawei, and Scandinavian companies, Ericsson and Nokia? Is it not far better effective to establish competitive trade advantage by cultivating a domestic manufacturing capability favoring fiber-wired technologies into the home and rural areas? This strategic industrial initiative could be strongly supported by [collaborative \(mega-patents\)](#), [patent pools](#), and government sponsored collaborative open source programs promoting breakaway technologies that are safe, secure, environmentally protective, domestic job producing, and leapfrog China's 5G/6G trajectory?

This approach will encourage the existing initiatives in states like California to establish [local public broadband utilities](#) integrating power, renewable energy, and communications. These [local municipality owned and operated utilities](#) will recognize the legal and political power to local communities to deliver clean, more efficient power and internet services to local users. The foundation for how local owned and operated utilities can support an alternative national strategic industrial policy is explained in detail in Tim Schoechle's [Reinventing Wires—The Future of Landlines and Networks](#). This strategy will create positive resilience multiplier effects by combining renewable energy and distributed power with innovations such as [Coherent Water](#) that will protect and rejuvenate soil and food supplies that become contaminated by RFR.

Counter Argument

It will politically never happen.

Response

It was happening until the Information Super-Highway was interrupted. Who says [innovation cannot be restored in the U.S.?](#)

4. ENVIRONMENTAL COSTS, INCLUDING IMPACTS ON ACCELERATING CLIMATE CHANGE

The implementation of 5G, including the deployment of over 50,000 low orbit satellites over the next decade, will bring equal, if not greater devastation to the environment and biodiversity. There is strong evidence linking RFR exposure and [bacterial resistance to antibiotics](#). The environmental impacts of 50,000+ satellites (including effects on weather patterns and forecasting) are unassessed, because the FCC has taken the position that it is exempt from the National Environment Policy Act (NEPA), a position that has already been overturned by the [DC Circuit Court of Appeals](#). Why is it that none of the national environmental organizations are challenging this planetary threat?

Counter Argument

The alleged environmental harms are not well calculated, are based mainly on anecdotal evidence, contain a lot of hyperbole and presumptions of worst case scenarios, feed conspiracy theorists, and most importantly, have generally not been recognized in peer reviewed journals.

Response

- There is mounting almost daily, palpable, and measurable evidence of environmental harms, which historically are poignant harbingers of tragic environmental catastrophes.
- Again, the existing evidence is so powerful it creates a rebuttable presumption of foreseeable harm which the permitting governments and the wireless industry must have the burden to disprove.
- The installation of 50,000+ low orbit satellites that will expose the entire planet to high levels of RFR at the very least requires deep government and public examination of the environmental impacts before this program is permitted to continue.

5. HEALTH AND ENVIRONMENTAL JUSTICE AND CIVIL LIBERTIES

The harms of 5G will fall most cruelly on economically disadvantaged and minority communities, and other vulnerable populations that lack the financial means to protect themselves from harm. This is a profound health justice and civil rights issue. But the civil rights groups are silent. Why is that? Imposing 5G on defenseless Native American First Nation communities is poignantly ironic after a history of injustice and genocide, on top of the recent scandals with the Indian Health Services and its longstanding record of neglect, incompetence, and abuse of these communities.

Counter Argument

Poor, minority, and vulnerable communities always suffer more than the affluent population. But this is a larger problem of distributive social justice and is not specific to 5G. It should be handled separately and more generically.

Response

No, 5G presents an immediate, increasing, palpable danger to these most vulnerable communities, especially because they are being warned and lack any financial or other means of escape.

6. INCREASED ADDICTION, THE OPIATE CRISIS, AND URBAN CRIME

Do we care at all about the opioid crisis in our communities? Massive consumption of 5G will tip many who are on the verge of opioid addiction, and aggravate the mental and physical conditions of existing addicts. The 5G business model induces addiction by

driving users [into continuous overdrive of the sympathetic nervous system](#) through constant usage and need for faster speed. An addicted population is one that can be easily manipulated by advertising. The result is already evident in increasing national rates of depression and suicide, and related incidence of crime. 5G addiction will have the further effect of causing more and more users, especially children and millennials, to turn to drugs and alcohol or to intensify their present usage. Homelessness and urban decay, which closely correlate with drug and substance abuse, can be expected to increase. 5G and its successors (6G, etc.) are the new opiate of the masses.

Counter Argument

There are [few peer reviewed studies](#) definitively confirming that RFR exposure will [tip or aggravate](#) these effects. In fact, at least [one study](#) found no effects in healthy individuals.

Response

This is not a numbers game. We have an increasing number of studies as cited above confirming the close nexus of RFR not only with depression, but also with sleep deprivation, anxiety, and intense stress. Do we really want pilots and crew to have brain fog and sleep loss which will happen when 5G capability is installed in cockpits and passenger spaces?

7. INTRUSION ON PERSONAL PRIVACY, CHILLING EFFECT ON FREE EXPRESSION, INCREASED GOVERNMENT SURVEILLANCE

The deployment of 5G wireless will further compromise privacy, increase government surveillance, and increasingly chill free expression. This trend is especially so as 5G and 6G are closely integrated with AI and the Internet of Things. The effect will be to increase massively the amount of data being collected, analyzed, and assessed, and introduce a new actor, the 5G/6G service provider into the chain of surveillance. Every bit of your most private personal information will be commercialized by private companies and surveilled and made available to prying government agencies. Although much of this is already happening today, 5G will enable surveillance and snooping on steroids. Already the manipulation of personal data for commercial purposes is a subject of international concern, and the basis for protective legislation and litigation in Europe and other countries. Why are we so eager to ape China and become a [surveillance state](#)? Both conservatives and progressives share these concerns, and care deeply about freedom of expression and freedom from corporate and government manipulation. It is a trans-partisan issue. Why are the presidential candidates silent?

Counter Argument

Privacy is an issue that relates to the internet itself, not the carriers, but yes if history is any guide because of the endless march of monetizing personal data without overt

permission or compensation that has been going on since the turn of the century, 5G will enable its furtherance. However, there is good evidence that the march towards the surveillance state in the USA is going to be pushed back, because privacy is clearly a clear concern that is in the minds of the older generation but not the millennials unfortunately - they love having internet services knowing what they want –it’s considered a wonderful convenience.

Response

Fortunately, there an increasing number of laws like the [California Consumer Privacy Act](#) being implemented that will strike a balance between unbridled intrusion of privacy for corporate financial gain and the urgency to track terrorists and other malfeasors in an increasingly dangerous world.

8. ILLEGAL ABRIDGEMENT OF CONSTITUTIONALLY PROTECTED SUBSTANTIVE AND PROCEDURAL DUE PROCESS AND INTERNATIONALLY RECOGNIZED HUMAN, ENVIRONMENTAL, AND HEALTH RIGHTS, AND CONSTITUTIONALLY PROTECTED RIGHTS OF HOME RULE BY LOCAL COMMUNITIES

The present FCC policy to promote the wireless industry heedless of the foreseeable and preventable harms it causes may be the most reckless example of an industrial policy wildly off the tracks in U.S. history. It is highly likely that the present FCC policy promoting 5G will be found by a federal court, or the Supreme Court to violate the U.S. Constitution and many state constitutions, abridge 1st and 5th Amendment rights of both substantive and procedural due process, violate internationally accepted human and related rights, and seriously abridge rights of home rule recognized by the Constitution to reside in states and local governments. Contrary to the shibboleth aggressively promoted by the industry and aided and abetted by the FCC, local communities are not legally preempted by federal authority nor are their hands tied, as widely but erroneously assumed. In fact, there are many legal options for local communities to reassert control and honor their Oaths of Office to protect the health, environment, and wellbeing of their communities.

Counter Argument

Just because you make these claims doesn’t make them true. These issues must and will be resolved by the courts.

Response

On this point we may agree. However, there may be ways for local communities and the wireless industry to join and to innovate together that will produce better solutions for all parties and avoid or settle lawsuits on mutually acceptable terms. This is a practical and urgent application of the principles of [Big Heart Intelligence](#) and [Integral Resilience](#).

9. NATIONAL SECURITY

Because wireless 5G technology will increase risks of hacking from foreign intelligence agents, government intelligence and other information closely tied to national security will become increasingly more vulnerable to hacking by those who do not wish us well. This is especially true for U.S. adversaries like Russia and China. The dominance of the Chinese government-controlled company Huawei, a leading patent holder of 5G intellectual property, makes the U.S. government's promotion of 5G, as opposed to more secure platforms even more problematic. (3)

Counter Argument

This is not a new concern. Maintaining cyber security and controlling hacking is an already a well-established national defense priority.

Response

Even more so, why not align a national industrial strategy for 5G/AI/IoT with this recognized national priority of [network resilience](#), not undermine it? One of the benefits of NRIIA, discussed below, is to foster coordination of these important national policies within the federal government and with the states, as was successfully accomplished during the Carter Administration for the semi-conductor and computer industries.

5G REDIRECT -- A CREATIVE ALTERNATIVE: THE NATIONAL RESILIENT INDUSTRIAL INFRASTRUCTURE AND INNOVATION ACT (NRIIA)

Fortunately, the proposed NIIRA presents a program for a national industrial infrastructure that will avoid the tragic consequences of the present rogue 5G industrial policy promoted by the FCC and offers a viable alternative. The core idea is to strongly encourage an expanded optical fiber-wired and copper infrastructure into homes and businesses across the country, as was originally envisioned by the Information Super-Highway. This program will massively create new jobs as the fiber-wired infrastructure is extended into even the most remote rural areas. It will support strategic manufacturing in these areas, based on local capabilities, needs, and special sensitivities and concerns. It will encourage collaboration between the federal government and the states, rather than pitting one against the other, which is the present FCC policy.

There is growing precedent for this strategic shift in communities like Chattanooga, Tennessee where fiber-wired based energy efficient industries have stimulated economic growth. (See [Re-Inventing Wires](#)) This industrial transformation can be further catalyzed by massive investment in collaborative innovation (in the form of government/academic/industry/public/private partnerships) to accelerate safe, secure, environmentally protective, peaceful alternatives. The reckless low-orbit satellite program will be immediately halted pending full review and assessment under NEPA of

its environmental effects on the planet. The special role of women, as leaders in the anti-5G movement, will be recognized and honored. Women appear especially vulnerable and sensitive to RFR, and there is strong evidence of DNA and mitochondrial damage among pregnant women who are exposed to RFR. Why is not one candidate willing to champion the health rights of women?

The NRIIA will also offer a unique program to address the critical challenges of immigration. It proposes, for example, a Collaborative Innovation Zone along the U.S.-Mexico border, driving economic growth on both sides of the border, based on subsidized power to affordable housing complexes designed with fiber-wired internet supplied by solar power. It will also claw back to the public coffers trillions of dollars the wireless industry has diverted to its private benefit that were derived from taxpayers and rate payers. (See: [Irregulators v. FCC](#))

Most importantly, the NRIIA can be promoted as a transpartisan initiative, recognizing that the greatest pain and yearning of the electorate is to shift the national discourse toward one that is inclusive, tolerant, even embracing of differences, concerned for the interests of all citizens, and restorative of civility, kindness, and compassion. We are proposing joint hearings on the NRIIA involving the U.S. House and Senate during the Spring and Summer of 2020. Collaboration between both legislative bodies on this vital set of issues, as important as Climate Change but far more immediate, will set an important precedent that will signal a shift on how the Congress at last is beginning to listen, address and offer a tangible solution to the deep concerns of the electorate.

CONCLUSION: LEAPFROGGING CHINA

The present Chinese industrial policy to promote 5G is profoundly flawed because it fails to account for the billions of dollars (yuan equivalent) of harms it is inflicting upon China’s hapless people. It is foolhardy for the Trump Administration, or any candidate for the U.S. presidency in 2020 to emulate such a policy, especially when viable alternatives exist. The alternative presented by the NRIIA will protect military and national economic security, sustain economic growth and job creation, and avoid a foreseeable and preventable catastrophe to public health, the environment, and constitutionally protected rights to personal privacy, free expression, and freedom from overreaching government surveillance.

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ATTACHMENT “A”

CORE PROVISIONS OF THE NATIONAL RESILIENCE INDUSTRIAL INFRASTRUCTURE AND INNOVATION ACT (NRIIA) OF 2020

Purposes: a. Inform the public and protect it from 5G/AI/IoT roll out, and Radio Frequency Microwave Radiation (RFR) exposure with respect to four classes of documented harms: community health, the environment, privacy, and financial integrity; b. Extend special protection to vulnerable classes of people, including children, elderly, people with chronic illnesses, disabilities, minorities; c. Recognize special protections for schools, playgrounds, hospitals, airplanes and public transportation facilities; d. Remove the social subsidy and cause the wireless industry to pay its true costs of doing business; e. Redirect the 5G/AI/IoT roll out toward more peaceful compassionate directions in the national interest; f. Foster [collaborative innovative initiatives](#), including frameworks to support collaborative intellectual property that increase global prosperity, drawing upon new methodologies of peace engineering and collaborative innovation.

- **Repeal or Amend Section 704 of the Telecommunications Act of 1996** by explicitly recognizing the importance of health effects of RFR, and reaffirming the sovereign rights of states and local communities to determine their own health destinies.
- **National Health Emergency.** Instruct the CDC, NIH, state, county, and municipal health departments to address the health effects of RFR and take protective measures, especially relating to vulnerable populations and locations (hospitals, schools, airplanes).
- **Research.** Call for a national collaborative research initiative on the biological effects of RFR and development of new medical protocols; give special attention to the adverse effects on physical and mental health, including the addiction of children and other younger people from extended hours of play with video games, which will be greatly aggravated by 5G exposure. Two other critical areas for research are the effects of RFR on bacteria (antibiotic) resistance, and impairment of resilience and recovery of cancer patients.
- **Child Endangerment.** Immediately conduct clinical investigations of the close nexus of RFR on children, and instruct the FDA, FCC, and other concerned agencies to develop regulations protecting schools, parks, and playgrounds.
- **Standard Setting.** Mandate the FCC to obtain the qualified technical, biological and medical resources to develop within 90 days stringent public safety standards, based on leading-edge clinical evidence of thermal and non-thermal biological effects of RFR.

- **NEPA applicability.** Explicitly recognize the applicability of NEPA to FCC actions, including approvals of the satellite program and the possible interference of continuous power transmission on weather assessment programs, human populations, animal/plant species and habitats, and biodiversity, in addition to its effects on human and community health.
- **Compliance with International Human, Environmental Rights and Health Justice Conventions.** Instruct the State Department and other concerned government agencies to certify U.S. compliance with international environmental and human rights laws, recognizing that RFR power transmission on vulnerable populations raises fundamental questions of human health and environmental justice.
- **Special Protections of Minorities.** Recognize that exposure to RFR is a major health justice issue, in that economically disadvantaged, minority, and other vulnerable populations have no escape or recourse, and are ill and dying in disproportionate numbers when compared to the general population.
- **Consumer protection.** Explicitly recognize the applicability of federal and state laws protecting against consumer fraud and data manipulation, as applicable to the present 5G/AI/IoT roll out, especially related to disclosure and transparency.
- **Monitoring, Warnings, and Labeling.** The FDA, FTC, the EPA, and OSHA are mandated to publish rules for federal and state government agencies to commence monitoring RFR exposure of the general population and requiring telecommunications companies and other enterprises exposing communities to RFR to label their products, in same way that tobacco and drug companies today are required to warn the public of the dangers of their products.
- **Shareholder protection.** Similarly recognizing that public companies have comparable duties to disclose contingent liabilities of from RFR exposures as “material facts.”
- **Workers compensation.** Recognize RFR radiation exposure as a major harm in workplaces and make provision for compensation. Pay special attention to high risk environments and public safety, such as airlines, where impaired judgement of pilots is a major risk to the public.
- **National Compensation System.** Follow the precedents of other countries (Sweden, for example) and create a national compensation system to provide compensation for victims of RFR exposure based on: a. the new medical discipline of clinical electromagnetics; and b. a cost assessment of present harms to the country from 3G-5G radiation exposure. Special recognition must be given to the contributions of professional and uncompensated caregivers, who are the foundation of the national healthcare system, and the catastrophe that will result if the health and wellbeing of this essential group is significantly impaired by RFR. As in other countries (Japan, for

example) the establishment of a national compensation system for victims of RFR pollution will point out that present estimates of national healthcare costs must be substantially increased when accounting is made of harms from EMF radiation.

- **OSHA.** Every enterprise in the country that is installing 5G has a contingent liability for the harms to their workers from 5G. OSHA is instructed to develop comparable RFR protective standards.
- **Personal injury.** Support victim lawsuits under the Principle of Heightened Vigilance (Precautionary Principle); lighten the Daubert federal standard of evidence, and provide explicitly for conditions under which the burden of proof shifts, based on epidemiological, clinical, and experimental evidence; provide for attorney's fees and punitive damages for willingly permitting exposure of populations to irradiation over their objections, when supported by protective medical opinions.
- **Encourage State Attorney Generals** to conduct Forensic Audits of diverted taxpayer and ratepayer funds to the wireless industry, and explicitly provide for *qui tam* actions; support investigations by the FTC in cooperation with state Attorney Generals regarding deceptive advertising and false claims by the wireless providers.
- **National Program of Collaborative Innovation and Peace Engineering.** Create a national program to accelerate innovations for alternatives to 5G/AI/IoT based on fiber-wired and safe mobile alternatives, including national "X" Prizes; provide strong support of federal, state and local collaborative initiatives in order to align these policies, and remove all current FCC policies that pit the federal government against the states and local authorities; support international collaborative public/private partnerships with key strategic allies, including Japan. (Please see [here](#) for a draft legislative proposal for the Colorado Assembly which can be emulated in other state legislative initiatives.)
- **Visionary/Compassionate Leadership.** Encourage and support innovative programs to develop visionary and compassionate leadership, based on next generation science in Big Heart Intelligence, mindfulness, and new frontiers of neuroscience.

NOTES

(1) Attorney W. Scott McCollough offers the following clarification on this complex subject. "5G defines the air interface between network and user equipment (UE), along with the core network functionalities. It includes millimeter frequency ranging from 25GHz to over 100 GHz, but it will also use other frequencies, including those historically employed by the prior generations. 5G, when fully deployed, will allow the fullest utilization of a wide range of spectrum frequencies, including those in the lower bands that have always supported cellular. So it is important to understand that it is not

just about the millimeter waves, although one feature is the ability to seamlessly authenticate on small cell supported nodes, then set up and tear down sessions using MMW frequencies where they are available, and then move the session as the user leaves the coverage area of one small cell transponder and enters another. The other primary network control change from [Long Term Evolution \(LTE\)](#) is that you will not have to maintain a simultaneous control session between core and User Equipment (UE) over the traditional spectrum used by a macro cell.

5G is a set of protocols and is decidedly not solely for MMW. T-Mobile's current "5G" service entirely uses lower bands, between 600 and 800 MHz, with occasional use of bands between 2 and 7 GHz.

It is true, however, that the enhancements allowing use to MMW give rise to particular concerns; and the way 5G interacts with UE tends to cause the UE to emit more radiated power at certain points, and over time than does LTE, even when the device is not consuming much network bandwidth. Further, the UE will have to have more radios, so there is an accumulating effect. However, there are health concerns as to those lower bands as well. Some carry over from prior versions, and some are new.”

(2) W. Scott McCollough continues: “As you note, 6G is now being developed. Its primary change from 5G will be that it will be able to employ even higher (into THz) frequencies and give more efficient reuse and lower latency. But there is not really any agreement that its lead business case will involve distribution of actual "power" (such as is done through wireless battery recharging) although that may be one use. Similarly, since it will focus on even higher bands, it won't necessarily be for "long distance" in the sense of distance between the node and UE. The allowed distance at THz will be only 10 meters, at most. I do expect that by then it will be possible to get better distance allowances in the lower bands using macro-cells, but that would merely be an improvement over what 5G does today. 4G LTE is also becoming more capable in this regard, through newer versions that support beamforming or Massive-MIMO. 5G will mostly be using the same thing as the latest iteration of LTE. 6G will be further enhancements.”

(3) W. Scott McCollough adds this last important qualification. “The standards are in some ways more secure because they employ newer types of encryption and credentialing. The problem here is potential disregard of the standard, or abuse of the kind attributed to Huawei. In that regard, USG's problem is not that Huawei actively works with a government to allow spying. The problem is that Huawei owes its fealty to China, not USG. And then, since there will be massive amounts of personal private information held by the network operators, it will only be a short period until their systems are penetrated by others (including but not limited to USG), and the information will be used for nefarious purposes.”

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