WILL AI ENABLE A COLLABORATIVE SOCIOECONOMIC SYSTEM OR ENTRENCH A PREDATORY SYSTEM?

By

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- *Power through Collaboration: When to Collaborate, Negotiate, or Dominate. Published 2012.*
- *Power through Collaboration: The Formula for Success in Challenging Situations. Published, 2013.*
- *How Leadership Failure to Collaborate Created a Hurricane Katrina Mega-Disaster. Anticipated publication 2018.*

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Preface

The Artificial Intelligence (AI) revolution promises to dramatically expand our socioeconomic capabilities and achievements. AI robots are irreversibly transforming work processes and the role humans play. AI's game changing potential eclipses previous inventions that altered the course of earlier stages of human development. Whether AI opens the door to new possibilities for humans or bankrupts the entire human enterprise depends on which aspects of current human behavior become the primordial foundation of AI development. Will the human capability for collaboration or the human capability for predation be the core of AI? Specifically, will AI be used to evolve a collaborative socioeconomic system with collaborative business models and organizational paradigms, or to entrench a predatory system? The fateful choice is up to humans.

The Promise of AI in the Workplace

The Perfect Servant. The AI tsunami is bearing down on every process of every business in every sector of the economy. A new breed of intelligent robots is already taking over dangerous, stressful, repetitive, and monotonous tasks. Like their predecessors, the AI newcomers work tirelessly, faster, and more accurately than comparatively deficient human workers, and on a 24/7 schedule.

However, earlier stages of automation look infantile compared to current AI driven automation. The ever-evolving AI robots are being programmed to communicate and cooperate, and increasingly take on complex decision-making without the aid of human go-betweens and overseers. Thus, AI empowered robots are being deployed in much more complicated roles and on a far grander scale than ever before.

AI capability promises to be a boon for productivity and profitability. Business media and consulting company advisories are replete with the glowing promise of AI and the urgency to jump on board to reap the benefits of AI's prodigious efficacy for every task and process, such as product design, business intelligence, strategic planning, decision making, customer engagement, sales, security, logistics, etc.

AI powered productivity and problem solving have the potential to supercharge the well-being of entire societies, including boosting global living standards, slashing poverty, and tempering excessive inequality. Formidable problems regarding environmental pollution, healthcare, and feeding a growing population can be addressed more effectively. At the same time, people can gain the freedom to work less and focus on more meaningful pursuits or leisure activities.

AI is envisioned to be the perfect servant for humans as they engage in their socioeconomic

enterprises. Gartner, a Fortune 500 research and advisory firm, concluded that:

> "For the next 10 years at least, work will revolve around human beings, with AI and smart machines augmenting human aptitude and capabilities. In 2027, human beings will still be at the center of work, even as intelligent software and machines become our co-workers."[1]

Golden Age of AI Cooperation. AI's transformation of product design demonstrates its ability to serve and collaborate with human designers. AI can comprehend inputted specifications and spit out thousands of design options inconceivable by their human counterpart. And with experience AI learns and performs more productively. [2]

> "If generative design, robotics, and the IoT are the technologies allowing humans and machines [to] work collaboratively on design tasks, Artificial Intelligence (AI) is the secret sauce that accentuates their impact.
>
> AI allows technology to learn, so our tools can get better at doing their jobs. Generative design tools will begin to learn which of designs people like and which ones we don't. Robots (and even smartphones) will no longer need to receive detailed instructions from their users. The IoT will leverage AI not only to perceive the world, but to adapt to it intelligently.
>
> This newly added layer of artificial intelligence will make technology more adaptive, more flexible, and more creative in solving problems. As a consequence, computers will begin to improve upon human capabilities such as reason, intuition, and imagination.
>
> Engineers and designers should no longer view tools as machines that require elaborate instructions, but instead as collaborators whose input contributes to solving complex, thorny problems that humans alone could not.
>
> This unprecedented blend of humanity and technology will be exciting to experience. As machines and computers start developing human-like capabilities that complement our own, it will fundamentally change society's relationship with our tools, and with the design process.

AI's amazing capability understandably raises issues about the value of human workers. For example, AI bots can engage in personal interactions with humans, even mimicking complex

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[1] (Goasduff, Laurence. "The Future of Work." September 1, 2017. www.gartner.com/smarterwithgartner/the-future-of-work-infographic).

[2] Tan, Joy (June 22,2018). "Artificial Intelligence Turns Design Into A Collaborative Undertaking." Forbes. www.forbes.com/sites/joytan/2018/06/22/artificial-intelligence-turns-design-into-a-collaborative-undertaking/#7130c7662f87

human behaviors such as sympathy. TGI Fridays increased productivity while limiting costs by "employing" a machine learning and AI platform instead of people to interact personally with customers:[3]

> "Now, patrons can chat up the AI for happy hour suggestions and appetizer specials, engage in small talk using emojis, make reservations, and order takeout via social media channels and through Amazon Alexa.
>
> 'We thought about how technology could help us create that one-on-one personalized messaging outside of the bar without having to hire 1,000 people to respond to individual guests,' says … acting CIO at TGI Fridays."

Despite such often well publicized examples of AI replacing human workers, a *Harvard Business Review* article suggests that fears of workers losing jobs and becoming unneeded are unfounded. The authors foresee AI working with humans primarily as collaborators rather than as competitors:[4]

> *"Artificial intelligence is becoming good at many "human" jobs—diagnosing disease, translating languages, providing customer service—and it's improving fast. … While AI will radically alter how work gets done and who does it, the technology's larger impact will be in complementing and augmenting human capabilities, not replacing them.*
>
> *In our research involving 1,500 companies, we found that firms achieve the most significant performance improvements when humans and machines work together. Through such collaborative intelligence, humans and AI actively enhance each other's complementary strengths: the leadership, teamwork, creativity, and social skills of the former, and the speed, scalability, and quantitative capabilities of the latter. … Business requires both kinds of capabilities."*

An example of human-AI collaboration can be observed in the world of modern day chess. The advent of AI has produced a form of chess in which teams consisting of humans assisted by computers play against each other. The computers augment the capability and serve the purposes of their human bosses.

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[3] Stackpole, Beth (Apr. 11, 2017). "Why smart enterprises are thinking AI." CIO. www.cio.com/article/3182370/artificial-intelligence/why-smart-enterprises-are-thinking-ai.html

[4] Wilson, James & Daugherty, Paul (July–August 2018). "Collaborative Intelligence: Humans and AI Are Joining Forces." Harvard Business Review. https://hbr.org/2018/07/collaborative-intelligence-humans-and-ai-are-joining-forces.

Because humans have a head start on AI in collaborating with each other, it seems fitting that humans would take charge during AI-human collaboration. However, what are the ramifications of AI devices learning to collaborate with each other without the participation of humans, or even when in competition with humans? AI is making rapid strides in its ability to do just that. For example, a team of robots built by Elon Musk, founder of Tesla and SpaceX, played a complex video game called Dota 2, and in a surprising breakthrough beat the team of humans.

Bill Gates, founder and Chairman of Microsoft which is heavily invested in AI research, was impressed enough to tweet:[5]

> "#AI bots just beat humans at the video game Dota 2. That's a big deal, because their victory required teamwork and collaboration -- a huge milestone in advancing artificial intelligence."

Is AI Another Transformative Step Magnifying Human Capability — or Humanity's Final Achievement

Although a new age of AI-human and AI-AI "cooperation" appears highly likely, there is no guarantee that it will usher in a golden age of human-human or AI-human "collaboration." The AI promise of greater cooperation is complex and multifaceted.

Most significantly, evolutionary forces have bestowed upon humans an impressive capability for both collaboration and predation. Humans can utilize AI to amplify their capability for either. AI enabled cooperation can usher in an era of Power through Collaboration or further entrench collaboration's arch rival — predatory power.

Human Psychopaths Beget AI Psychopaths. For example[6], a team of researchers at the Massachusetts Institute of Technology (MIT) reported that they created "the world's first psychopath" Artificial Intelligence. They subjected their AI system called Norman to the crass underbelly of *Reddit*, a popular online news sharing and chat site. What AI Norman learned and processed turned it psychopathic.

> *"Norman suffered from extended exposure to the darkest corners of Reddit, and represents a case study on the dangers of Artificial Intelligence gone wrong when*

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[5] Clifford, Catherine (June 28, 2018). "Bill Gates says gamer bots from Elon Musk-backed nonprofit are 'huge milestone' in A.I." CNBC. www.cnbc.com/2018/06/27/bill-gates-openai-robots-beating-humans-at-dota-2-is-ai-milestone.html

[6] Brigham, Bob (Jun 6, 2018). Scientist Exposed Norman AI to Darkest Corners of Reddit. www.rawstory.com/2018/06/scientists-exposed-norman-ai-system-darkest-corners-reddit-turned-psychopathic/

biased data is used in machine learning algorithms."

"Data matters more than the algorithm. It highlights the idea that the data we use to train AI is reflected in the way the AI perceives the world and how it behaves."

"We are teaching algorithms in the same way as we teach human beings so there is a risk that we are not teaching everything right. When I see an answer from an algorithm, I need to know who made that algorithm.

In essence, allowing the AI Norman system to input and develop in accordance with a disturbing but all too familiar slice of human behavior created a psychopathic AI.

The use of tools, the harnessing of fire, the invention of the wheel, the development of writing, the domestication of animals, the industrial revolution, the advent of air and space travel, and the ascendancy of the internet are all notable magnifications of human capability. They were dramatic game-changers for their time. However, they did not have the potential to enslave or render the entirety of the human race extinct. Humanity's inescapable embrace of AI does. AI could give a quantum boost to the evolution of human capability, or be a dead end and its final achievement. Is AI to be feared or welcomed?

For the most part, the welcome mat appears to be spread out for AI. However, numerous AI experts grasp the inherent risks posed by humanity's precocious adolescent. For example, Elon Musk donated $10 million to the Future of Life Institute so that this organization of leading AI researchers could work on keeping AI beneficial for humanity. The Future of Life Institute highlights on its website banner:[7]

"Technology is giving life the potential to flourish like never before, or to self-destruct."

In recognition of the risk to humanity posed by unfettered AI, 23 Asilomar Principles were developed by the top researchers and business leaders in AI development. Some examples of the principles are:[8]

- *"Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.*

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[7] "Asilomar AI Principles (2017)." Future of Life Institute. https://futureoflife.org/ai-principles/
[8] "Asilomar AI Principles (2017)." Future of Life Institute. https://futureoflife.org/ai-principles/

- *An arms race in lethal autonomous weapons should be avoided.*

- *Risks posed by AI systems, especially catastrophic or existential risks, must be subject to planning and mitigation efforts commensurate with their expected impact.*

- *AI systems designed to recursively self-improve or self-replicate in a manner that could lead to rapidly increasing quality or quantity must be subject to strict safety and control measures.*

AI is still agnostic regarding its impact on the nature of the human race. For now, AI lacks consciousness and free will and will merely do what its creators design and program it to do. AI originates as a creation of humans to serve human purposes and achieve human set goals. Thus, how humans set up and program AI operations will determine AI's impacts — and ultimately the fate of the human species. Humans are making the decisions, and those momentous decisions are already well underway. Several other Asilomar Principles state:

- *"What set of values should AI be aligned with, and what legal and ethical status should it have?*

- *Designers and builders of advanced AI systems are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications."*

The key decision is which aspects of human capability and behavior will comprise the primordial foundation of AI. Will it be the disturbing underbelly of Reddit, or perhaps even worse? Over time AI will increasingly mimic and intensify whatever human behavior and motivations it is exposed to. Consequently, whether or not AI leads to a promising new future vs a dead end for humans largely depends on whether the people in control of developing and programming AI use it to promote Power through Collaboration rather than predatory power.

The prospects for designing AI to promote collaboration can be determined via an analysis using the Power through Collaboration Formula (PtC) Formula. Several key concepts embedded in the formula are particularly helpful: the distinction between collaboration and cooperation, the different modes of cooperation, and the cooperation motivations and types.

Determining AI's Collaboration Potential via the Power through Collaboration Formula

Cooperation or Collaboration. The PtC Formula makes a distinction between cooperation and collaboration. Determining whether AI will promote collaborative rather than psychopathic behavior requires understanding this crucial distinction. Much confusion is created by people making references to and giving examples of collaboration that are actually manifestations of ordinary cooperation, and certainly not manifestations of Power through Collaboration.

Cooperation and collaboration are not the same thing. Cooperation can take different forms, one of which is collaboration. The different modes of PtC cooperation are presented in Figure 1 on the opposite page.

After distinguishing among the different modes of cooperation, it is vital to factor in that AI can promote any of the PtC modes of cooperation, not just Collaboration or Collaboration-Negotiation. For example, AI can readily be deployed to maximize the Domination mode of cooperation, which is the primary mode of predators.

Those who control AI design and development are in the most influential position to determine which mode of cooperation AI mimics and reinforces. Their favored mode of human cooperation is the frontrunner to become the foundation for AI cooperation.

Cooperation Motivations and Types. The predominate PtC mode of cooperation in any given situation is determined by the underlying PtC cooperation types and PtC cooperation motivations that are in operation. Thus, the PtC Formula's cooperation types and motivations can be utilized to gauge the Collaboration Potential of AI.

The PtC Formula's 8 PtC Motivations and 5 PtC Types are presented in Figure 2 on the opposite page, and are ordered according to the extent to which they promote Power through Collaboration.

For example, Shared Mission motivation promotes collaboration the most and promotes domination the least, whereas Survival motivation promotes collaboration the least and promotes domination the most.

Similarly, the Collaborator type utilizes collaboration the most and utilizes domination the least, whereas the Predator type utilizes collaboration the least and utilizes domination the most.

Assessing the underlying PtC Types and PtC Motivations of those who control AI development and deployment is highly illuminating for determining whether AI will promote a collaborative vs a predatory mode of cooperation.

CND Cooperation Continuum:

Collaboration is a subset of goal-directed cooperative behavior in which people who mutually care about achieving each other's goals work willingly and freely to achieve each other's goals.

Collaboration-Negotiation is a subset of goal-directed cooperative behavior that blends collaboration with negotiation.

Negotiation is a subset of goal-directed cooperative behavior in which people who are primarily focused upon achieving their own goals develop agreements to assist or allow each other to achieve some goals in exchange for foregoing other goals.

Domination-Negotiation is a subset of goal-directed cooperative behavior that blends domination with negotiation.

Domination is a subset of goal-directed cooperative behavior in which people who are solely focused upon achieving their own goals utilize power and coercion to compel others to work toward or allow achieving those goals.

8 PtC Motivations for Cooperation:

Shared Mission
Common Goals
Shared Values
Achieve Own Goals
Family & Social Bonds
Joint Defense
Survival
Requirements & Mandates

5 PtC Types:

Collaborator
Cooperator
Competitor
Enslaver
Predator

Collaboration Potential. The PtC Formula interrelates its eight motivations and five types to predict the potential for collaboration between parties in any given situation. See CND Zones chart in Figure 3 on the opposite page.

For example, a combination of Shared Mission motivation and the Collaborator type maximizes Collaboration Potential. Indeed, the Collaboration Potential rating is "optimal." In contrast, a combination of Survival motivation and the Predator type minimizes Collaboration Potential. The corresponding Collaboration Potential rating is "hazardous."

Assessing which motivations are operating in the current socioeconomic system and which types are in control enables the determination of Collaboration Potential. Applying an analysis of PtC Motivations and PtC Types to current socioeconomic outcomes can reveal which motivations and types currently predominate, and thus the prospects of AI cooperation taking the form of Collaboration versus Domination.

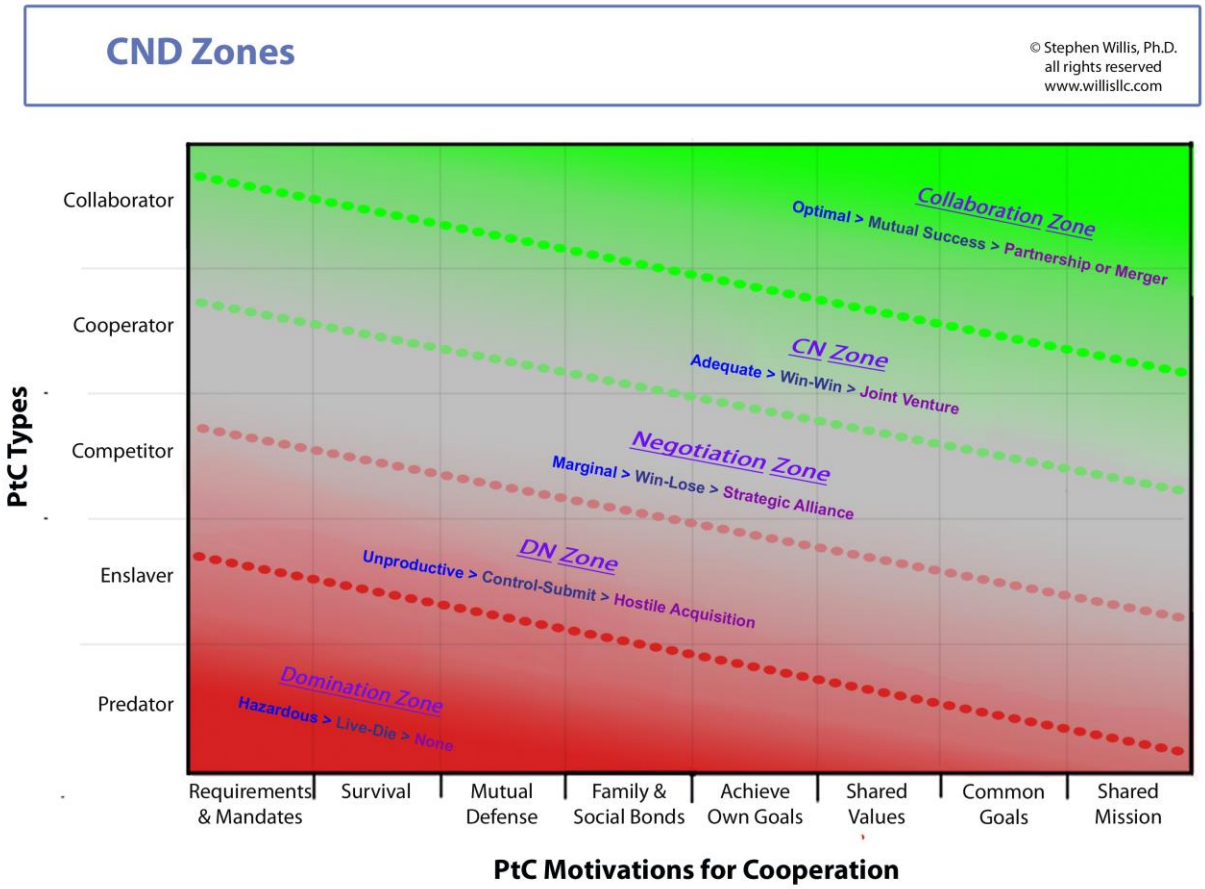
If the PtC Formula analysis of motivations and types shows socioeconomic outcomes that are reflective of the red Domination zone, then AI is likely to entrench the Domination mode of cooperation. Conversely, if the analysis shows socioeconomic outcomes reflective of the green Collaboration zone, AI is likely to promote the Collaboration mode of cooperation.

Specifically, what motivations and types seem to predominate when we look at socioeconomic outcomes manifested by key indicators such as income inequality, poverty rates, healthcare availability, and climate change?

Income Inequality and Poverty Rates. There is likely a broad consensus that AI will drive substantial productivity increases and associated profitability. The primary question is whether or not AI driven profits will be shared sufficiently to raise global standards of living and lift people out of poverty.

When I look at socioeconomic outcomes with respect to income inequality and poverty I perceive Survival motivation and Achieve Own Goals motivation operating much more than Shared Mission and Shared Values motivation. Although the latter two are of immense value, they are currently overshadowed by the former. Achieve Own Goals motivation and Survival motivation can foster cooperation, but they can just as readily foster conflict and competition. In contrast Shared Mission and Shared Values motivations not only foster routine cooperation, but also collaboration, and are much less conducive to fostering conflict and competition.

The detrimental consequences caused by the predominance of the less collaboration-promoting motivations are reflected in socioeconomic outcomes. For example, the productivity gains of recent decades have not been widely shared. Rather they have gone to a very small number of people who comprise the wealthiest portion of the population. Consequently, income inequality and childhood poverty are at their highest levels in decades. A UN report notes:



"The cheery numbers, however, should not blind us to the harsh reality facing most Americans. The United States is one of the richest nations in the world, yet many of its citizens live in misery. Consider: About 40 million live in poverty, 18.5 million in extreme poverty, and 5.3 million live in Third World conditions of absolute poverty. It has the highest youth poverty rate in the [industrialized world] … . The United States has the highest rate of income inequality among Western countries."[9]

Continually worsening income inequality and childhood poverty are the natural outgrowth of a socioeconomic system designed to favor and be controlled by the less collaborative PtC Types operating via the less collaboration-promoting PtC Motivations. Why would AI enable this decades long trend to change? Rather, AI can easily be used to maintain or even worsen the situation — unless control of the socioeconomic system passes into the hands of people who are

[9] vanden Heuvel, Katrina (June 5, 2018). "The Economic Numbers Are Cheery, but Don't Believe the Hype." The Nation. https://www.thenation.com/article/economic-numbers-cheery-dont-believe-hype/

motivated to use AI to share productivity gains more equitably, as would be associated with the more collaborative PtC Types operating via the more collaboration-promoting PtC Motivations.

In summary, socioeconomic outcomes with respect to income inequality and poverty reflect the red Domination zone mode of cooperation, and AI is likely to reinforce it.

Healthcare. When looking at healthcare outcomes, I similarly perceive Survival motivation and Achieve Own Goals motivation operating much more than Shared Mission motivation and Shared Values motivation. For example, after decades of steady gains, life expectancy in the US is falling, partly due to soaring deaths from opiate drug use:[10]

> *"This was the first time life expectancy in the U.S. has declined two years in a row since declines in 1962 and 1963."*

Even if US life expectancy begins to increase again, it is still poised for further deterioration relative to other industrialized countries:[11]

> *"Notable among poor-performing countries is the USA," the researchers wrote, "whose life expectancy at birth is already lower than most other high-income countries, and is projected to fall further behind, such that its 2030 life expectancy at birth might be similar to the Czech Republic for men, and Croatia and Mexico for women."*
>
> *"The reasons for the United States' lag are well known. It has the highest infant and maternal mortality rates of any of the countries in the study, and the highest obesity rate. It is the only one without universal health insurance coverage and has the "largest share of unmet health-care needs due to financial costs."*
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> *"Tellingly, the United States was the first high-income country to see a halt to the pattern of increasing height in adulthood, a reliable indicator of improving public health."*

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[10] Fox, Maggie (Dec. 20, 2017). "U.S. life expectancy falls for second straight year — as drug overdoses soar." NBC News. www.nbcnews.com/storyline/americas-heroin-epidemic/u-s-life-expectancy-falls-second-straight-year-drug-overdoses-n831676.

[11] Fox, Maggie (Dec. 20, 2017). "U.S. life expectancy falls for second straight year — as drug overdoses soar." NBC News. www.nbcnews.com/storyline/americas-heroin-epidemic/u-s-life-expectancy-falls-second-straight-year-drug-overdoses-n831676.

> *"It's very worrisome. The U.S. is at the bottom of the barrel among [Organization for Economic Cooperation and Development] countries, and its relative position is worsening, not improving."*

Another example of health care outcomes being driven more by Survival and Achieve Own Goals motivations than by Shared Mission and Shared Values motivations is the opioid drug death epidemic:[12]

> *"Big Pharma had created a massive legal opiate addiction, which directly led to the heroin epidemic because pharmaceutical corporations' own addiction to profit arguably trumps any concern it may have had for patients."*

Another example of health care outcomes being driven more by Survival and Achieve Own Goals motivations than by Shared Mission and Shared Values motivations is the cost of providing healthcare relative to the results for patients:[13]

> *"U.S. healthcare is exceedingly expensive. … among 34 advanced industrialized countries, the U.S. spends … more than 2.6 times the OECD average. The U.S. devotes 16.9% of its GDP to health care, 1.8 times as much as the average. In the case of health care spending measured any way you want, the U.S. is No. 1 by a large margin."*

> *"Despite all that spending, America's health system does not perform particularly well. That same OECD report shows that the U.S. ranks 27th for life expectancy at birth. This comparatively low ranking is not merely a consequence of higher infant mortality, where the U.S. ranks a dismal 53rd in deaths per 1,000 live births. Even considering life expectancy for men aged 65 places the U.S. in 23rd place."*

In addition to falling life expectancy, high infant and maternal mortality rates, and high obesity rates, sixty percent of Americans have a chronic medical condition and 42% have more than one.[14] Half of American men will get cancer, and one-third of American women will get cancer.[15]

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[12] Farrell, Ritchie (Oct. 16, 2017). "The Opioid Epidemic: How Big Pharma And Congress Created America's Worst Health Crisis." Huffington Post. www.huffingtonpost.com/entry/the-opioid-epidemic-how-big-pharma-and-congress-created_us_59e4e02ee4b003f928d5e8bf

[13] Pfeffer, Jeffrey (Oct. 20, 2014). "Why health insurance companies are doomed.: Fortune Magazine. http://fortune.com/2014/10/20/health-insurance-future/

[14] Irving, Doug (July 12, 2017). "Chronic Conditions in America: Price and Prevalence." Rand Corporation. www.rand.org/blog/rand-review/2017/07/chronic-conditions-in-america-price-and-prevalence.html.

[15] Whitman, Honor (Feb 4, 2015). "1 in 2 people will develop cancer in their lifetime." Medical News

Despite the subpar healthcare outcomes, stock market prices and profits of healthcare and drug companies are extremely healthy. Health insurance companies boosting profits by denying care is yet another example of health care outcomes being driven more by Survival and Achieve Own Goals motivations than by Shared Mission and Shared Values motivations.

A 20 year former senior executive at one of the largest health insurance companies provided testimony to Congress on the machinations of the industry to deny care in the pursuit of ever higher profitability and stock market prices.[16]

> *"I'm ashamed that I let myself get caught up in deceitful and dishonest PR campaigns that worked so well, hundreds of thousands of our citizens have died, and millions of others have lost their homes and been forced into bankruptcy, so that a very few corporate executives and their Wall Street masters could become obscenely rich.*
>
> *To help meet Wall Street's relentless profit expectations, insurers routinely dump policyholders who are less profitable or who get sick. Insurers have several ways to cull the sick from their rolls. One is policy rescission. They look carefully to see if a sick policyholder may have omitted a minor illness, a pre-existing condition, when applying for coverage, and then they use that as justification to cancel the policy, even if the enrollee has never missed a premium payment. … The Energy and Commerce Committee's investigation into three insurers found that they canceled the coverage of roughly 20,000 people in a five-year period, allowing the companies to avoid paying $300 million in claims.*
>
> *They also dump small businesses whose employees' medical claims exceed what insurance underwriters expected. All it takes is one illness or accident among employees at a small business to prompt an insurance company to hike the next year's premiums so high that the employer has to cut benefits, shop for another carrier, or stop offering coverage altogether — leaving workers uninsured. The practice is known in the industry as "purging." The purging of less profitable accounts through intentionally unrealistic rate increases helps explain why the number of small businesses offering coverage to their employees has fallen from 61*

Today. www.medicalnewstoday.com/articles/288916.php

[16] Potter, Wendell (Sept. 17, 2009). "Between You and Your Doctor: the Private Health Insurance Bureaucracy." PNHP. www.pnhp.org/news/2009/september/testimony_of_wendell.php

percent to 38 percent since 1993, according to the National Small Business Association.

Purging through pricing games is not limited to letting go of an isolated number of unprofitable accounts. It is endemic in the industry. … The company spent more than $20 million that it received in fees and premiums from customers to revamp its computer systems, enabling the company to 'identify and dump unprofitable corporate accounts,' as The Wall Street Journal reported. … Within a few years, Aetna lost 8 million covered lives due to strategic and other factors.

A study conducted last year by PricewaterhouseCoopers revealed just how successful the insurers' expense management and purging actions have been over the last decade in meeting Wall Street's expectations. … That translates into a difference of several billion dollars in favor of insurance company shareholders and executives and at the expense of health care providers and their patients."

Envisioning a socioeconomic system in which AI propels healthcare to mind-boggling heights is easy; however, actually realizing such a vision is not so easy. At present healthcare is stuck operating via the less collaborative PtC Motivations that interfere with achieving that vision, regardless of how feasible and worthwhile that vision is.

As long as stock prices, profits, salaries, bonuses, performance reviews, and promotions are maximized by denying care, the less collaborative PtC Types operating via the less collaborative PtC Motivations will continue to gain and maintain control. And such less collaborative PtC Types will be most inclined to use AI to enforce a predatory priority of maximizing profits and stock prices by minimizing the provision of care. AI is on track to better weed out those patients whose medical needs would decrease profitability. Companies like the one that spent 20 million revamping its computer system to purge unprofitable accounts are likely to wholeheartedly exploit AI's capability to supercharge the denial of care in lieu of providing care.

In summary, socioeconomic outcomes with respect to healthcare reflect the red Domination zone mode of cooperation, and AI is likely to reinforce it.

Climate Change. When I look at socioeconomic outcomes with respect to climate change I perceive Survival motivation and Achieve Own Goals motivation operating much more than Shared Mission and Shared Values motivations. And the less collaborative PtC Types seem to be in control of the key decisions and actions related to climate change.

From my perspective climate change is real, and there is little basis for well-intentioned debate. Real scientists have painstakingly analyzed hundreds of thousands of years of climate data using

an entire arsenal of advanced technological tools, including earth-orbiting satellites and space shuttles. Real scientists have scrupulously analyzed: gaseous composition of the atmosphere; increased levels of atmospheric carbon dioxide; ice core composition of ice shelfs and tropical mountain glaciers; retreating ice sheet mass in Greenland, the Arctic, and the Antarctic; declines in sea ice extent and thickness; shrinking glaciers worldwide; diminishing seasonal snow cover and snow melt; soaring atmospheric temperatures; escalating record high temperature events and dwindling record low temperature events; more frequent extreme weather events; more intense droughts and heatwaves; less intense cold waves; increased intensity, frequency, and duration of hurricanes; climbing ocean temperatures; rising global sea levels; elevated storm surges and high tides; greater flooding; expanding oceans submerging land masses; increased acidity of surface ocean waters; dying coral reefs; ocean sediments; lengthening frost-free and growing seasons; sedimentary rock layers; tree rings; solar activity and irradiance; etc.[17]

Highly credible organizations such as NASA unequivocally state:[18]

> *"Ninety-seven percent of climate scientists agree that climate-warming trends over the past century are very likely due to human activities, and most of the leading scientific organizations worldwide have issued public statements endorsing this position."*

The Intergovernmental Panel on Climate Change states:[19]

> *"Scientific evidence for warming of the climate system is unequivocal."*

The abundance of rigorous evidence for climate change has been relentlessly attacked by climate change deniers using the sophisticated tactics perfected by the tobacco industry. Not only were the most sound of scientific findings attacked, but so were the most reputable of scientists.[20]

> *"The great struggle of our era will be fact versus deliberate fiction. … Professional climate-change denial is the original fake news. … I'm talking about the fossil fuel-funded, decades-long, under-the-radar public-relations campaign that helped sow those doubts.*

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[17] NASA. "Scientific Consensus." https://climate.nasa.gov/evidence/
[18] NASA. "Scientific Consensus." https://climate.nasa.gov/evidence/
[19] NASA. "Scientific Consensus." https://climate.nasa.gov/evidence/
[20] Pooley, Eric (February 14, 2017). "Climate Change Denial Is the Original Fake News." Time. http://time.com/4664173/climate-change-denial-fake-news/

In the 1990s, as climate change became a prominent issue, industry associations like the American Petroleum Institute organized an ambitious campaign to confuse the public about the facts of climate science. Their campaign was based on the tobacco industry's work to obscure the link between smoking and cancer, using fringe think tanks to spread junk science.

The goal of the professional deniers is to spread doubt about facts that have been established through decades of research."

Tobacco industry tactics to deny and obfuscate the reality of climate change were ruthlessly carried out despite several major oil companies being well informed as long as 45 years ago about the linkage between climate change and fossil fuel usage.[21]

Recently the fossil fuel industry has emerged from the shadows and shed its camouflage. It has taken over and directly stymies governmental mechanisms of environmental protection. As a result programs to promote renewable energy and climate change solutions are being gutted and eliminated. The major treaty with most of the nations of the world to address climate change has been unilaterally discarded.[22]

The current US Presidential cabinet is full of climate change deniers, most notably the head of the Environmental Protection Agency (EPS). He has been a recipient of generous donations from the fossil fuel industry throughout his political career, and a longstanding foe of the very agency that he was placed in charge of. In his previous position as a state Attorney General he was a leader in a lawsuit against the EPA's clean power plan.[23] He sued the EPA 14 times to block clean air and water safeguards established by the EPA. While he was head of the EPA, information about climate change was removed from the EPA website and agency scientists became restricted in their ability to discuss and work on climate change issues. Indeed, the related plethora of scandals involving this head of EPA resulted in his being forced to resign.[24]

The value of renewable energy and climate change solutions for the earth and the people dependent upon it is obvious and should not need defending. The dismal outcomes with respect

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[21] Wang, Ucilia (Apr. 5, 2018). "What Oil Companies Knew About Climate Change." Climate Liability News. www.climateliabilitynews.org/2018/04/05/climate-change-oil-companies-knew-shell-exxon/

[22] Cohen, Steven (June 19, 2017). "Trump's Attack On Renewable Energy." Huffington Post. www.huffingtonpost.com/entry/trumps-attack-on-renewable-energy_us_5947c072e4b024b7e0df4db1

[23] Sidahmed, Mazin (Dec. 15,2016). "Climate change denial in the Trump cabinet: where do his nominees stand?" The Guardian. www.theguardian.com/environment/2016/dec/15/trump-cabinet-climate-change-deniers.

[24] Bacon, John, (Feb 8, 2018). "Scientists rebuff EPA chief's claim that global warming may be good." USA TODAY. www.usatoday.com/story/news/nation/2018/02/08/epa-chief-scott-pruitt-global-warming-may-good-thing/318850002/

to climate change reflect the workings of a predatory socioeconomic system designed to favor and be controlled by the less collaborative PtC Types operating via the less collaboration promoting PtC Motivations. Why would AI rescue humanity from such a predatory system addicted to profiting from planetary destruction and the blocking of lifesaving solutions? Indeed, the successful thwarting of decades of prescient science and prophetic warnings as the climate crisis worsens is ominous regarding how AI will be utilized and who it will serve?

The climate change crisis can all too easily continue to deteriorate — unless control of the socioeconomic system passes into the hands of people motivated to use AI to collaborate for the well-being of the planet and its inhabitants, as would be associated with the more collaborative PtC Types operating via the more collaboration promoting PtC Motivations.

In summary, socioeconomic outcomes with respect to climate change reflect the red Domination zone mode of cooperation, and AI is likely to reinforce it.

Ominous Prospects. The dismal outcomes to date regarding income inequality and poverty, healthcare, and climate change reflect a socioeconomic system in which red zone Domination prevails over green zone Collaboration. Socioeconomic outcomes reflect the power of less collaborative PtC Types operating via less collaboration-promoting PtC Motivations.

This PtC Formula analysis does not bode well for the prospects of AI enabling a shift to a collaborative socioeconomic system. AI is likely to be used by its masters to serve their purposes, which can be divined from the outcomes related to income inequality, healthcare, and climate change. AI actually appears to be primed to reinforce and entrench a predatory socioeconomic system.

James Galbraith, author of eight economic books and former Congressional Joint Economic Committee executive director, writes in his book *The Predator State*:[25]

> *"The predatory class is not the whole of the wealthy; it may be opposed by many others of similar wealth. But it is the defining feature, the leading force. Its agents are in full control of the government under which we live."*
>
> *"Everywhere you look, the public decision is made by the agent of a private party for the purpose of delivering private gain. … Predatory regimes … are intrinsically unstable, something that does not trouble the predators but makes life for the ordinary business enterprise exceptionally trying."*

[25] Galbraith, James (2008). The Predator State. New York: Free Press.

AI's capability to evolve a collaborative socioeconomic system presents a very appealing opportunity for most people. Not so for the "predator class," which is alarmed by such a prospect. An AI enabled collaborative socioeconomic system is considered a threat to their current dominance and control. They prefer and seek to perpetuate a socioeconomic system based on competition and predation because they have already established their controlling positions and have prospered.

The less collaborative PtC Types operating via the less collaboration-promoting PtC Motivations routinely seek to undermine Power through Collaboration whenever they can. They operate via predatory business models and strategies. They seek to diminish the individual and social capability of others. They do not let the structure and processes of democracy get in their way.

Because AI machines are easier to control than humans, the predator class will use AI to control, diminish, devalue, or replace humans as much as possible. Sooner or later AI will have the power to replace most humans. Arguments can be made regarding how soon into the future this power of AI will be realized, and regarding whether or not AI will be able to replace every single human. Yet, the bigger mistake would be to underestimate the capability of AI to replace humans, even the very humans implementing AI to replace other humans. A big surprise may be in store for predatory humans who expect AI to serve them while enslaving and eliminating others. But this is precisely what will happen if AI is programmed to operate in accord with the business models and strategies of the less collaborative PtC Types.

What will the predator class do with humans who become unnecessary for the accumulation of wealth and power, and who drain more resources than they produce?

Business Models Based on Power through Collaboration

A collaborative socioeconomic system offers a completely opposite scenario. AI can be used to enhance human capability and make humans more valuable than ever before. The 23 Asilomar Principles provide guideposts for this purpose:[26]

> *1) Research Goal: The goal of AI research should be to create not undirected intelligence, but beneficial intelligence.*
>
> *2) Research Funding: Investments in AI should be accompanied by funding for research on ensuring its beneficial use, including thorny questions in computer science, economics, law, ethics, and social studies, such as: … How can we grow*

[26] "Asilomar AI Principles (2017)." Future of Life Institute. https://futureoflife.org/ai-principles/

our prosperity through automation while maintaining people's resources and purpose?

11) Human Values: AI systems should be designed and operated so as to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.

13) Liberty and Privacy: The application of AI to personal data must not unreasonably curtail people's real or perceived liberty.

14) Shared Benefit: AI technologies should benefit and empower as many people as possible.

15) Shared Prosperity: The economic prosperity created by AI should be shared broadly, to benefit all of humanity.

17) Non-subversion: The power conferred by control of highly advanced AI systems should respect and improve, rather than subvert, the social and civic processes on which the health of society depends.

23) Common Good: Superintelligence should only be developed in the service of widely shared ethical ideals, and for the benefit of all humanity rather than one state or organization.

Despite such magnanimous guiding principles, based on this PtC Formula analysis, utilizing AI to evolve a collaborative socioeconomic system appears to be a daunting challenge. The first albeit disorienting step involves seeing the predatory socioeconomic system for what it is. The next step is to develop and deploy AI in accord with business models based on collaboration.

Fortune Magazine compiled a "Change the World" list of companies addressing serious social problems as part of their business strategy:[27]

"Companies that are making genuine efforts to change the world for the better should be encouraged. The future of capitalism—and the future of mankind—depends on it."

Gary Hamel, the *Wall Street Journal's* most influential business thinker in the world, *Fortune*

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[27] Murray, Alan (Aug. 20, 2015). "Introducing Fortune's Change the World list: Companies that are doing well by doing good." Fortune. http://fortune.com/2015/08/20/introducing-change-the-world-list/

magazine's world's leading expert on business strategy, and author of *What Matters Now*, states:[28]

> *"It's time to radically revise the deeply etched beliefs about what business is for, whose interests it serves, and how it creates value. We need a new form of capitalism for the 21st century — one dedicated to the promotion of greater wellbeing rather than the single minded pursuit of growth and profits; one that doesn't sacrifice the future for the near term; one with an appropriate regard for every stakeholder; and one that holds leaders accountable for all of the consequences of their actions…. This isn't a new challenge, but it's more urgent than ever."*

Fortunately, there already are collaborative based business models that AI can strengthen. Picture what the outcomes could be for income inequality and poverty, healthcare, and climate change if operating via the following business models.

Circular Economy. Championed by the Ellen MacArthur Foundation with business partners such as B&Q, British Telecom, Cisco, National Grid, Renault, and McKinsey & Co., the Circular Economy uses systems thinking to design a sustainable and restorative economic system that mimics natural living ecosystems. It rebuilds social, economic, and natural capital; operates via renewable energy; and replaces cradle-to-grave with cradle-to-cradle concepts whereby what was formerly considered waste is re-purposed as inputs for other users. The Circular Economy has its own certification program. Two of the largest global office furniture companies, Steelcase and Herman Miller, make all their furniture Cradle to Cradle Certified.[29]

Conscious Capitalism. This model progresses along similar lines as the Circular Economy model with the involvement of companies such as The Container Store, Google, Trader Joes, and Whole Foods. Conscious Capitalism businesses advocate the following:[30]

- *A higher purpose transcending profit maximization.*
- *Are explicitly managed for the simultaneous benefit of all interdependent stakeholders, including customers, employees, investors, suppliers, and the larger communities in which the business participates.*

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[28] Hamel, Gary and LeBarre, Polly (February 26, 2012). Reimagining Capitalism – as Principled, Patient, and Truly social. Management Innovation EXchange. www.managementexchange.com.
[29] http://www.ellenmacarthurfoundation.org/
[30] http://www.consciouscapitalism.org/learnmore/

- *Reject zero-sum, trade-off oriented view of business and look for creative synergistic win-win approaches that offer multiple types of value simultaneously to all stakeholders.*

Sustainable Capitalism. This model is championed by Joe Keefe, President and CEO *of Pax World Management*, which manages several billion in financial assets. He was named by *Ethisphere Magazine* as one of the "100 Most Influential People in Business Ethics" for 2007, 2008, 2011, and 2012. He advocates for an economic system that:[31]

> *"… explicitly integrates environmental, social and governance (ESG) factors into strategy, the measurement of outputs and the assessment of both risks and opportunities…. The connections between economic output and ecological/societal health are no longer obscured but are expressly linked.*
>
> *We will need to consistently critique the notion that externalities associated with economic output are somehow collateral, or that financial return is sufficient without beneficial societal returns, or that markets are inherently efficient and self-correcting. We will need to unabashedly offer sustainable investing not as an alternative approach but as a better approach – as the only sensible, responsible way to invest."*

Just Capital. This model is championed by hedge fund billionaire Paul Tudor Jones II:[32]

> *"The world needs more just companies. Companies that believe in fair pay and equal treatment for all workers. Companies that create good jobs and understand the value of strong communities. Companies that are committed to a healthy planet. JUST Capital measures and ranks companies on the issues Americans care about most so you can then act on that knowledge. With your voice, your purchase decisions, your investment dollars, your career choices, your leadership, you have the power to make the world a more just place."*
>
> *"At JUST Capital, our mission is to build a more just marketplace that better reflects the true priorities of the American people. We believe that business, and capitalism, can and must be a positive force for change. We believe that if they*

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[31] Keefe, Joe. "From Growth Capitalism to Sustainable Capitalism: The Next 20 Years of Sustainable Investing." GreenMoney Journal, Fall 2012.
[32] https://justcapital.com/about/

have the right information, people will buy from, invest in, work for, and otherwise support companies that align with their values. And we believe that business leaders are searching to win back the trust of the public in ways that go beyond money. By shifting the immense resources and ingenuity of the $15 trillion private sector onto a more balanced – and more just – course, we can help build a better future for everyone."

Inclusive Capitalism. This model is championed by Lynn Forester de Rothchild, CEO of E.L. Rothschild holding company:[33]

"It is perfectly obvious that failings in Western capitalism are at the root of the social and political dysfunction gripping the world. Income and wealth have indeed been monopolized by the richest few leading to widening economic inequality, stagnate wages and a shrinking middle class. The values and priorities of our capitalist system need to evolve, as they have done many times before.

Bringing business and society together is the goal of 'Inclusive Capitalism'. It is not just another name for corporate social responsibility, philanthropy or redistribution. Instead, it represents a different investment and management theory. It unifies us toward a shared goal of broadly based prosperity. It reaffirms the basic bargain between society and business because firms identify and measure material environmental, social, and governance metrics for the best interests of their customers, employees, shareholders and communities. The firms that perform best for all become the most financially valuable companies."

Compassionate Capitalism. This model is championed by Marc Benioff, Chairman and CEO of Salesforce: [34]

"The competitive advantage you gain from being a caring and sharing company is significant; it instills in your people a higher integrity level. In turn, stakeholders want to be associated with a company that has heart. Community service: You do it because it's the right thing to do, but it's also the profitable thing to do."

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[33] de Rothschild, Lynn Forester (December 1, 2016). "Restoring Capitalism's Good Name." Time. http://time.com/4587730/lynn-forester-de-rothschild-inclusive-capitalism/

[34] Benioff, Marc (Apr 04, 2015). "A Call for Stakeholder Activists." Huffington Post. www.huffingtonpost.com/marc-benioff/a-call-for-stakeholder-activists_b_6599000.html

The Transformational Company. This model, championed by Canadian Business for Social Responsibility, views business as a force for good and includes companies like Ikea, Interface, and Unilever:[35]

> *"Transformational companies … invest in business models and initiatives that transform their business … in ways that improve prospects for the business and society."*

Benefit Corporation. This model includes state corporate charters that specifically permit corporations to take into account and serve the interests of all stakeholders, not just shareholders. A separate but aligned certification is offered by B Labs. Its "Declaration of Interdependence" includes:[36]

> *"We envision a new sector of the economy which harnesses the power of private enterprise to create public benefit. This sector is comprised of a new type of corporation, the B Corporation which is purpose-driven, and creates benefit for all stakeholders, not just shareholders. … That, all business ought to be conducted as if people and place mattered; That, through their products, practices, and profits, businesses should aspire to do no harm and benefit all; To do so, requires that we act with the understanding that we are each dependent upon another and thus responsible for each other and future generations."*

Social Business. This model is championed by Muhammad Yunus, author of *Building Social Business: The New Kind of Capitalism That Serves Humanity's Most Pressing Needs*. He is a recipient of the Nobel Prize, the Presidential Medal of Freedom, and the U.S. Congressional Gold Medal. He founded the Grameen Bank with a social mission to help the poor, and started over 30 other social businesses.[37]

> *"A challenge that anyone will face in creating a social business is trying to explain why they are doing it. Our economic theories have constantly stressed that humans are self-centered beings who go about serving their own self-interest. We have been taught that as a fact for hundreds of years. Now we have an alternative, a selfless business where operators do not profit for themselves but benefit others. This can come as a shock to people. Explaining this is a challenge."*

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[35] http://cbsr.ca/transformationalcompany/
[36] Declaration of Interdependence. B Lab, Inc. www.bcorporation.net
[37] Yunus, Muhammad (1991). Banker to the Poor: Micro-Lending and the Battle Against World Poverty. PublicAffairs, 1586481983.

"I profoundly believe, as Grameen's experience over twenty years has shown, that personal gain is not the only possible fuel for free enterprise. Social goals can replace greed as a powerful motivational force. Social-consciousness-driven enterprises can be formidable competitors for greed-based enterprises. I believe that if we play our cards right, social-consciousness-driven enterprises can do very well in the marketplace."

The Future is Ours To Create

The AI era is a high stakes enduring transformation that will reshape human nature. AI could easily entrench a predatory socioeconomic system that replaces or uses humans as expendable automatons that are subject to precise monitoring, control, and programming. Alternatively, AI could be used to evolve a collaborative socioeconomic system with empowered, conscious, and highly productive humans.

Despite the ominous results of this PtC Formula analysis regarding AI's potential to entrench vs transform our current socioeconomic system, there are alternate paths that move the human species away from a destiny of predatory domination and toward a truly collaborative future. The choice is up to humans.