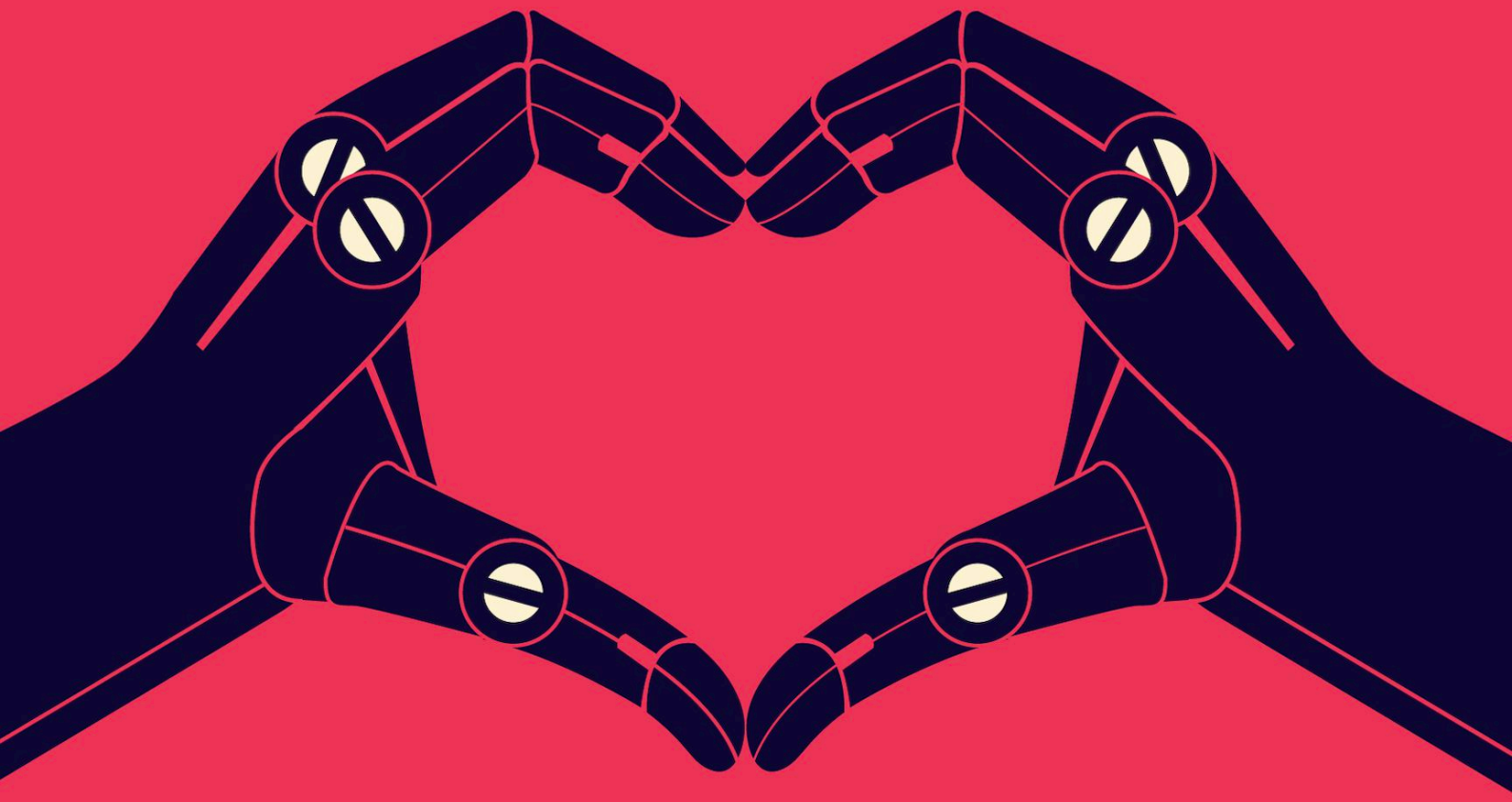
The Futures Agency

Free Chapter 9

« Taking the Happenstance out of Happiness »

TECHNOLOGY vs. HUMANITY



The coming clash between man and machine

Gerd Leonhard

Introduction

How can humanness prevail in the face of exponential and all-encompassing technological change?

Our world is entering a period of truly transformative change where many of us will be surprised by the scale and pace of developments we simply hadn't anticipated. These exponential technological advances offer tremendous potential, and with these opportunities come tremendous new responsibilities.

Humanity's biggest challenge

I believe the scale of change caused by recent, unforeseen events such as Brexit (the UK's June 2016 referendum decision to leave the European Union) will be miniscule compared to the impact of an avalanche of technological change that could reshape the very essence of humanity and every aspect of life on our planet.

In the past, each radical shift in human society has been driven primarily by one key enabling shift factor—from wood, stone, bronze, and iron, to steam, electricity, factory automation, and the Internet. Today, however, I see a set of science and technology enabled Megashifts coming together that will redraw not only commerce, culture, and society, but also our biology and our ethics.

A manifesto for furthering human flourishing

Let me be clear: Technology vs. Humanity is neither a celebration of the rapidly onrushing technology revolution nor a lament on the fall of civilization. If, like me, you're a film buff, then you've probably

already had more than enough of Hollywood's utopian visions and dystopian warnings. The future cannot be created based on blind optimism or paralyzing fear!

My goal with this book is to amplify and accelerate the debate about how to ensure that we guide, harness, and control science and technology developments so that they fulfill their primary purpose, which should be serving humanity and furthering human flourishing.

My ambition is to take the discussion beyond the realms of the exuberant technologists, serious academics, and thoughtful analysts to express a set of concerns that are nowhere near to being addressed or even recognized by the population at large. As a futurist—and increasingly more of a nowist—I am also hoping to give real presence and current urgency to a future that seems beyond comprehension and unworthy of attention for many.

As such, this book is deliberately designed to be a passionate discussion starter for what I consider to be the world's most important conversation. I believe my role here is to open up and catalyze the debate; hence, I have set out to craft a spirited manifesto rather than a blueprint or "how to" guidebook. To help stimulate and further that debate, I will expand on the themes outlined in the book through my future talks, online contributions, and films.

Just because we can, it doesn't mean we should

I believe we need to step back from an expert-led debate about what's possible and how to achieve it. Instead, I think we must start with a more fundamental exploration of what role we want these transformative technologies to play in serving humanity: Just because we can, it doesn't mean we should.

To help guide this exploration, I have set out what I believe to be the driving forces of change, and presented an assessment of their potential impacts and implications. I have highlighted many fundamental questions raised by the accelerated—and in many cases exponential—pace of development across multiple fields of science and technology.

I argue that we must place human happiness and well-being at

the heart of the decision making and governance processes that will shape future investments in scientific and technological research, development, and commercialization because, in the end, technology is not what we seek, but how we seek.

I go on to present a range of different scenarios on how things might play out depending on the development path we take to the future. I conclude with a starter set of straw man ideas to kick-start discussions on how to choose the best path for humanity, and how to make good decisions along the way.

To open up this ambitious conversation and help guide the discussion, I have structured my thoughts into twelve key chapters:

Chapter 1: A Prologue to the Future – Halfway through the century's second decade we are at a critical pivot point in technology evolution, a hinge moment when change will not only become combinatory and exponential but inevitable and irreversible. Here I argue that now is our last chance to question the nature of these coming challenges, from artificial intelligence to human genome editing. Striking a balance will be the key.

Chapter 2: Tech vs. Us – In this chapter, I explain why technology may increasingly simulate and replace—but can never become or be us. Technology has no ethics, and therefore its imminent entry into our most private lives and biological processes must be negotiated as a top civic and corporate priority. I examine the nature of ethics as a human signifier and differentiator, transcending differences of religion and culture.

Chapter 3: The Megashifts – Digital transformation is being touted as the paradigm shift *du jour* across enterprises and the public sector—when in fact it is just one of ten Megashifts that will interact and alter the face of human life forever. I explore these Megashifts—from mobilization and automation to robotization. These are not slow evolutionary processes which we will have time to integrate and adapt to. Rather, they will trigger a tsunami of disruption and

change, potentially equating to a mass extinction event for much of the existing global commerce infrastructure.

Chapter 4: Automating Society – This chapter challenges the pervasive and seriously misleading myth that automation will only disrupt blue-collar—or even white-collar—labor. The coming wave of automation will move way beyond the factory or public infrastructure and into our very biological processes such as aging and even giving birth. Used as we are to the gradual societal shifts brought about by previous change waves, often allowing decades to adjust and respond, I ask if we as a tribe are ready to abdicate our human sovereignty to the faceless forces of technology? Are you ready for the biggest loss of free will and individual human control in history?

Chapter 5: The Internet of Inhuman Things – This chapter explores the potential challenges posed by the Internet of Things—the current dominant narrative within digital transformation, with thousands of corporate strategies riding on its tailwinds. Have we paused to ask ourselves the difference between algorithms and what makes us essentially human—what I call the androrithms? Will the Internet of Inhuman Things gradually and then suddenly require us to forgo our humanity and become ever more mechanistic just to remain relevant? As computing becomes mobile, then wearable, and soon ingestible or implantable, will our distinct planetary advantage as a species be sacrificed for a spurious digital hit?

Chapter 6: Magic to Manic to Toxic – Here I examine how our love affair with tech often follows a predictable curve from magic to manic to—ultimately—toxic. As we allow ourselves to experience life as an ever more mediated and processed sequence of encounters, we may think we are enjoying ourselves, but in reality we are simply being hot-wired by our hormones—hormones increasingly targeted by the gentle purveyors of "big tech." As we rave through the all-night honeymoon party that is technological progress, it's salutary to think about the hangover—the price to be paid tomorrow, and forever.

Chapter 7: Digital Obesity: Our Latest Pandemic – This chapter discusses how digital obesity may not be as currently familiar as the physical kind, but is rapidly developing into a pandemic of unprecedented proportions. As we wallow and pig out on a glut of news, updates, and algorithmically engineered information, we also entertain ourselves in a burgeoning tech-bubble of questionable entertainment. Taking into account the coming tidal wave of new technologies and digital engagement platforms, it's high time to think about digital nutrition just as we already do about bodily nurture.

Chapter 8: Precaution vs. Proaction – This chapter sets out the argument that the safest—and still most promising—future is one where we do not postpone innovation, but neither do we dismiss the exponential risks it now involves and hand it off as "somebody else's problem." The bill passed on to the next generation for today's new technology gambles cannot be postponed—any downside will be immediate and unprecedented in scale. I argue that precaution and proaction, the two principles often deployed to date, are both insufficient to deal with a combinatory, exponential scenario where waiting will be as dangerous as firing ahead. Transhumanism—with its lemming-like rush to the edge of the unknown—represents the scariest of all present options.

Chapter 9: Taking the Happenstance out of Happiness – Money talks, but happiness remains the bigger story. Happiness is not only considered the ultimate goal of human existence across philosophies and cultures, it also remains an elusive factor resistant to exact measurement or technological replication. As big tech simulates the quick hits of hedonistic pleasure, how can we protect the deeper forms of happiness that involve empathy, compassion, and consciousness? Happiness is also related to luck, to happenstance—but how will we use technology to limit the risks of human life and still preserve its mystery and spontaneity?

Chapter 10: Digital Ethics – In this chapter, I argue that, as technology permeates every aspect of human life and activity, digital ethics will evolve into a burning, un-ignorable issue for every individual and organization. At present we do not even have a common global language to discuss the issue, let alone agreement on accepted rights and responsibilities. Environmental sustainability is often brushed aside by the developing economies as a first world problem and is always sidetracked during economic recessions. In contrast, digital ethics will force its way to a permanent position at the front and center of our political and economic lives. It's time to have the ethical conversation about digital technology—a potentially greater threat to continued human flourishing than nuclear proliferation.

Chapter 11: Earth 2030: Heaven or Hell? – As we move imaginatively into the near and medium future, we can easily visualize some of the gigantic changes altering work and life out of all recognition—these are explored here. Many of these seismic changes are to be welcomed per se—like working for a passion rather than for a living. However, many of the most basic privileges we once took for granted, like freedom of choice in consumption and independent free will in lifestyle, could become vestigial echoes or the preserves of ultra high-net-worth individuals. Heaven or hell? Make your choice, but do it now.

Chapter 12: Decision Time – In this closing chapter I argue that it's crunch time for tech adoption—not the application of technology itself, but the deeper integration and delineation of technology in human life. Numerous ethical, economic, social, and biological issues will simply not wait for another forum or the next generation. It's time to regulate mass technology application just as we would any other transformational force such as nuclear power. This is not the conclusion of a rich dialogue, but the beginning of a conversation that needs to become mainstream in our media, our schools, our government, and—most immediately—our boardrooms. The time for technologists and technocrats to simply hand the ethical buck

over to someone else has passed.
I hope that this book inspires you to think deeply about the challenges we face, and I invite you to contribute to this conversation by becoming a member of the techvshuman/TVH community at www.techvshuman.com.

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Zurich, Switzerland
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Chapter 9
Taking the Happenstance out of Happiness

As big tech simulates quick hits of hedonistic pleasure, how can we protect the deeper forms of happiness that involve empathy, compassion, and consciousness?

Happiness: Good fortune or luck in life or in a particular affair; success, prosperity
Happenstance: A chance event; a coincidence
—*The Oxford English Dictionary*

Just what is happiness?

Throughout this book I argue that pursuit of maximum human happiness should be a primary purpose of technological progress. Striving for happiness is an essential component of being human—uniting us all. Just as we all have ethics (though not necessarily religion), the pursuit of happiness is a universal imperative shared by all humans, regardless of culture or belief system.

We are all engaged in the constant pursuit of happiness throughout our lives. Our daily decisions are driven by this impulse to create enjoyable or fulfilling experiences, whether indulging in momentary pleasure, delaying gratification in the service of a longer-term benefit, or pursuing higher fulfillment beyond the basic needs of food and shelter.

As we face the coming convergence of man and machine, I think

it's essential that we don't confuse luck with happiness. Luck is more accidental, while happiness is a question of designing the right framework.

I strongly believe we must put the pursuit of happiness and human flourishing at the center of this man-machine debate. What purpose would technology serve if it does not further human flourishing? And yes, I think it is possible for us to design our future in such a way that we don't just depend on luck, but rather create the best possible circumstances for happiness (more on that later).

Trying to define happiness can be a murky proposition, as it's an abstract and subjective concept. Wikipedia defines it as follows:

> Happiness, gladness, or joy is a mental or emotional state of well-being defined by positive or pleasant emotions ranging from contentment to intense joy.[162]

When I started researching what happiness actually is, I repeatedly ran across a distinction between two different types of happiness. The first, hedonic happiness, is a positive mental high point, usually temporary, and often described as pleasure. It may be fleeting, it may be momentary, and it often leads us into habits. For example, some of our hedonic pleasures can lead to addictions such as food, alcohol, and smoking. Social networks such as Facebook have often been described as a "pleasure trap," a mechanism for hedonistic self-presentation and pleasure facilitation.

The second type of happiness is known as eudaimonic happiness, a kind of deeper happiness and contentment. Wikipedia explains *eudaimonia* (or the Anglicized version, eudaemonia, which I will use in this book) as follows: "*Eudaimonia* is a Greek word commonly translated as happiness or welfare."[163] "Human flourishing" is another popular meaning of eudaemonia and may serve as a more accurate terminology for the purpose of this book.

When I was a student of Lutheran theology in Bonn in the early 1980s (surprised?), I was deeply immersed in the teachings of the

ancient Greek philosopher Aristotle. He was referring to eudaemonia when he wrote some 2,300 years ago that, "happiness is the meaning and the purpose of life, the whole aim and end of human existence." Eudaemonia is, of course, a central concept within Aristotelian philosophy, along with the terms *aretē* (virtue or excellence) and *phronesis* (practical or ethical wisdom).

Eudaemonia, *aretē*, and *phronesis*—if you'll pardon my Greek—have since become constant objectives in my work, and I think they are the key to understanding which path humanity should take as it is being steamrolled—or should we say "steam-punked"—by exponential technological change. In other words, we are already lost in a place humanity has never been before. However, there are ancient threads of wisdom (as above) that may yet serve us to escape this technology-centric maze in which we increasingly find ourselves.

What makes us happy?

If human flourishing simply meant a more pleasurable life, better and more efficient business, more profit, and steady growth fueled by technology, then, by all means, let's agree to use machines and algorithms to achieve that. And for a while—as we spiral towards inevitable hyper-efficiency and what will likely be capitalism-crushing abundance—that may work just fine.

GDP, GNH, or GPI: honest criteria of happiness?

If we define *flourish* too narrowly, mostly in economic or financial terms, we will end up with outdated definitions such as Gross Domestic Product (GDP) and Gross National Product (GNP) rather than a more inclusive measure such as Gross National Happiness (GNH).

GNH is a term originally coined in the 1970s in Bhutan (a country which I had a chance to visit right before the completion of this book). It means applying a much wider, more holistic, ecosystemic approach when measuring the state of a nation. Sometimes put in the context of political happiness, GNH is based on traditional Buddhist values rather than the traditional Western values that GDP or GNP usually

reference—indicators such as economic growth, investment output, return on investment, and employment. The four pillars of GNH philosophy reflect this dramatically different underlying philosophy: sustainable development, preservation and promotion of cultural values, conservation of the natural environment, and establishment of good governance.[164]

Similarly, when it comes to making future decisions about the relationship between technology and humanity, I find GNH to be a very interesting, parallel approach because it puts happiness squarely in the center of measuring progress and value. Economic factors should not overshadow happiness-related issues—an obvious criterion—and efficiency should never become more important than humanity—which is one of my ten key rules at the end of this book.

Another way to measure the success of nations is the Genuine Progress Indicator (GPI), which assesses 26 variables related to economic, social, and environmental progress.[165] GPI is valuable because it takes externalities into full account. The consequences are part of the equation, which is very much what I would propose when addressing the unintended consequences of technology. GPI's economic indicators include inequality and the cost of unemployment; environmental indicators include the cost of pollution, climate change, and nonrenewable energy resources; while social indicators include the value of housework, higher education, and volunteer work.

What would happen if we applied a combination of GPI and GNH to achieve a more human-centric measurement of progress? This question will be important because if we continue to measure the wrong things, then we will most likely also continue to *do* the wrong thing. That would be a cardinal mistake in this age of exponential technological progress. First, the resulting errors would have infinitely larger unintended consequences, and second, doing so would once again give way too much power to technology and way too little to humans.

If all we measure is the hard data any given action produces, such as how many sales a certain employee has made, then our conclusions would be seriously biased as well. In practice, none of the uniquely

human factors are that simple to measure—such as how many relationships with key clients that person may have, and whether he feels compassion with their issues and challenges. The more we pretend our data (and the artificial intelligence (AI) that learns from it) is 100% complete in a truly human way, the more misguided the system's conclusions. We tend to ignore androrithms in favor of algorithms because we like shortcuts and simplifications.

Measuring how much more efficient a business or a country could be because of digitization and automation might paint a very promising economic picture. However, measuring how happy its employees or citizens would be after everything is automated and robotized might present a very different social perspective.

Back in 1968, US Senator Robert Kennedy was already flagging GDP as an ill-guided metric which "measures everything except that which makes life worthwhile."[166] For me, this highlights a critical point: Algorithms can measure or even simulate everything except for what really matters to humans. Having said that, I don't mean to belittle what algorithms and technology in general can do for us. I just think it's important to put technology in its place, i.e. to engage where it's appropriate and to disengage where it's detrimental.

Misdefining what human flourishing means will only empower machines

My concern is that we will only realize belatedly that we have misdefined flourishing for too long. We have accepted hedonic pleasures as good enough because they can often be manufactured, organized, or provided by technology. Social networks offer a great example: We can indeed experience the pleasure of being liked by others—which is, let's face it, a kind of hedonism. . . a digital pleasure trap. But we are not likely to experience the happiness of a meaningful and personal human contact (in Martin Seligman's PERMA kind of way, a key term that I will outline below).[167]

Maybe we will only truly understand the difference at that final point when every single feature that makes us human has either been replaced or made near impossible by hyper-efficient and

compliance-enforcing technology, when we've forgotten or lost the skills to make anything work on our own. I certainly hope not, but faced with these exponential technological changes, it is clear that we need to start defining "flourishing" as growing in a healthy way. This means developing a more holistic view of our future, one that looks beyond the merely mechanistic, reductionist, and often hedonistic happiness approaches favored by so many technologists.

The psychologist Martin Seligman states that true happiness isn't solely derived from external, momentary pleasures. He uses the PERMA framework to summarize the key findings from his research on positive psychology.[168] In particular, humans seem happiest when they have:

- Pleasure (tasty food, warm baths)
- Engagement (or flow, the absorption within an enjoyed yet challenging activity)
- Relationships (social ties have turned out to be an extremely reliable indicator of happiness)
- Meaning (a perceived quest or belonging to something bigger)
- Accomplishments (having realized tangible goals).

Technology may indeed offer significant value in enabling Pleasure and Accomplishments and possibly contributing to Engagement. In contrast, I don't believe technology will be of material help in furthering real Relationships, or in establishing sense, purpose, or Meaning. In fact, quite the opposite may be true, as technology can often be quite corrosive to relationships, as when we obsess with our mobile devices at a family dinner.

Technology can muddle meaning and purpose (caused by data overload and careless automation), lead to more extreme filter bubbles (feeding us only that content we seemingly like), and facilitate further media manipulation. Sure, technology—as a tool not as a purpose—is and will be helpful across the board—but once we go further up the exponential scale, the overuse of and dependency upon it might well be equally detrimental.

I often wonder what will happen once exponential technologies

really kick in. Will our lives become more hedonistic or more eudaemonic—more hit-driven or more deeply meaningful? Will we fall prey to even shallower pleasures where machines govern and mediate our experience, or will we strive for happiness that is uniquely human?

Compassion—a unique trait connected to happiness

An important human factor to consider in this context is compassion. In his 2015 book, *An Appeal by the Dalai Lama to the World: Ethics Are More Important than Religion,* the Dalai Lama speaks about the relationship between happiness and compassion:

> If we want to be happy ourselves, we should practice compassion, and if we want other people to be happy, we should likewise practice compassion.[169]

Compassion—simply put as "the sympathetic concern for the sufferings or misfortunes of others"—is one of the hardest things to grasp, and certainly one of the hardest to practice. Compassion is much harder than cleverness and intellectual prowess.

Can you imagine a computer, an app, a robot, or a software product that has compassion? A machine that feels what you feel, that resonates with your emotions, and that suffers when you suffer? Sure, we can foresee machines that can understand emotions or even read compassion in human faces and body language. We can also imagine machines that would be capable of simulating human emotions, simply by copying or learning from what we do and therefore appearing to be actually feeling things.

However, the key difference is that machines will never have a sense of being. They cannot be compassionate, they can only ever hope to simulate it well. This is surely a critical distinction we should reflect on in greater detail when we consider the technological tsunamis rushing to swallow us. If we further confused a well-executed simulation with actual being, mistaking an algorithmic version of sentience with actual consciousness, we would be in deep trouble.

That confusion is also the central flaw of transhumanism.

In my view, machines will become extremely good, fast, and cheap at simulating or duplicating human traits, but they will never actually be human. The real challenge for us, will be to resist the temptation to accept these simulations as "good enough" and allow them to replace uniquely human interactions. It would be a foolish and dangerous move to forsake a truly human eudaemonia experience for the ubiquitously available and quick-hit hedonic pleasures provided by machines.

In *Our Final Invention: Artificial Intelligence and the End of the Human Era,* James Barrat writes:

> A powerful AI system tasked with ensuring your safety might imprison you at home. If you asked for happiness, it might hook you up to a life support and ceaselessly stimulate your brain's pleasure centers. If you don't provide the AI with a very big library of preferred behaviors or an ironclad means for it to deduce what behavior you prefer, you'll be stuck with whatever it comes up with. And since it's a highly complex system, you may never understand it well enough to make sure you've got it right.[170]

Happiness vs. money: experiences vs. possessions

People often point out that happiness based on material belongings or financial standing is actually rather limited in importance. Research has shown that in so-called developed countries, overall happiness does increase when people make more money but only to a certain point: Different studies suggest that anything beyond US$50,000–75,000 per year does not really add much extra happiness to people's lives. The correlation between income and well-being slopes off.[171]

Happiness cannot be acquired or purchased, and therefore would be impossible to stuff into an app, a bot, or some other machine. Supporting evidence suggests that experiences have a much longer impact on our overall happiness than possessions.[172] Experiences are personal, contextual, timely, and embodied. Experiences are based

on those unique qualities that make us human—our androrithms.

As noted in the *Huffington Post* blog in April 2015 by Dr. Janxin Leu, director of product innovation at HopeLab:

> Scholars at the University of Virginia, University of British Columbia, and Harvard University released a study in 2011 after examining numerous academic papers in response to an apparent contradiction: When asked to take stock of their lives, people with more money report being a good deal more satisfied. But when asked how happy they are at the moment, people with more money are barely different than those with less.[173]

Human happiness is—or should be—the primary purpose of technology

Technology, derived from the Greek words *techne* (method, tool, skill, or craft) and *logia* (knowledge, from the gods), has always been created by humans to improve their well-being, but now it seems likely that soon technology will be used to improve humans themselves.

We used to create technology to improve our life conditions in a way that made spontaneous happiness more likely and more prevalent. For example, Skype, GoogleTalk, and all kinds of messaging apps allow us to connect to pretty much anyone, anytime, anywhere, and all for free. Now, however, due to exponential and combinatorial technological progress, technology increasingly becomes a purpose in and of itself. We find ourselves trying to get more Facebook "likes", or constantly having to react to notifications and prompts because the system demands attention.

What if the tool becomes the meaning—as has already happened with Facebook? What if they are so irresistible and so convenient that we give them their own purposefulness? When will those smartphones and smart-screens, smartwatches, and virtual reality (VR) glasses become cognitive themselves and go beyond merely being our tools? What if our external brains can connect directly to our own neocortex?

Technology has no ethics—and lives in a cloud of nihilism—a space without beliefs

As much as most of us love technology, we now need to face the fact that it does not have, nor will it ever have, nor should it have, any inherent consideration for our values, beliefs, and ethics. It will only consider our values as data feeds explaining our behavior.

Bots and intelligent digital assistants (IDA) will increasingly vacuum up, read, and analyze tens of millions of data feeds about me, and chew on every digital breadcrumb I drop. However, no matter how much "Gerd data" they gather and analyze, software and machines will never truly comprehend my values or ethics, because they cannot be human in the same way that I am. They will always be approximations, simulations, and simplifications. Useful—yes. Real—no.

Let me give you some examples of the ethical challenges posed by technology advances.

Many nuclear scientists did not envision the creation of the atomic bomb when they first worked on the underlying scientific and mathematical challenges. Einstein considered himself a pacifist but still encouraged the US government to build the bomb before Hitler would. As stated earlier, J. Robert Oppenheimer, widely seen as the father of the atomic bomb, lamented his actions after Hiroshima and Nagasaki.[174] Yet, the ethics of the military and political complex in which they operated effectively made both of them contributors to weapons of mass destruction.

The Internet of Things (IoT) is another great example—it is certain to be of great benefit in collecting, connecting, and combining vast amounts of data from hundreds of billions of web-connected objects. Hence, it could be a potential solution to many global challenges, such as climate change and environmental monitoring.

The idea is that once everything is smart and connected, we can make many processes more efficient, cut costs, and achieve big gains in protecting the environment. While these are clever ideas, the current schemes for realizing the IoT are almost completely void of attention to human considerations, androrithms, and ethical

concerns. It is totally unclear how privacy will be maintained in this global-brain-in-the-cloud, how total surveillance will be prevented, and who will be in charge of all this new data. Right now the focus is very much on the wonders of efficiency and hyperconnectivity, while the unintended consequences and negative externalities don't seem to be anybody's concern.

In healthcare, Silicon Valley exponential abundance expert Peter Diamandis (whose work I generally appreciate a lot) talks in positive terms about Human Longevity, Inc., his new startup created with genetics pioneer Craig Venter, and how it will enable us to live much longer—possibly forever.[175] However, he seems to largely ignore most ethical or moral issues that surround the debate around aging, longevity, and death.

Who will be able to afford these treatments? Will only the rich live to be 100-plus? What would it mean to end death? Is death really a disease, as Diamandis says, or is it an integral and unchangeable part of being human? Questions abound, but, much like the early days of nuclear weapons research, many of Silicon Valley's technologists seem to be proceeding as fast and as far as they can without a modicum of reflection on what issues their innovations may end up causing.

"Death is a great tragedy . . . a profound loss. . . I don't accept it . . . I think people are kidding themselves when they say they are comfortable with death." –Ray Kurzweil[176]

The key message here is that technology, like money, is neither good nor bad. It merely exists as a means. In the 1950s, Octavio Paz, the great Mexican poet, summarized it well:

> The nihilism of technology lies not only in the fact that it is the most perfect expression of the will to power but also in the fact that it lacks meaning. "Why?" and "To what purpose?" are questions that technology does not ask itself.[177]

I wonder if the nihilism of exponential technologies would be

exponential as well? A thousand times as nihilistic, and maybe equally narcissistic? Will we eventually be a species completely devoid of consciousness, mystery, spirituality, and soul, simply because there's no room for these androrithms in this coming machine age?

Two things are critical to consider in this context:

1. Really great technology should always be designed to further human happiness first and foremost, i.e. not simply result in growth and profit because just striving for exponential growth and profit is very likely to turn us into machines before too long. This new paradigm will represent a dramatic shift for every business and organization.
2. Technology with potentially catastrophic consequences—such as geo-engineering or artificial general intelligence—should be guided and supervised by those who have proven to possess practical wisdom—what the ancient Greeks called *phronesis*. Stewardship of these technologies should not be placed in the hands of technology developers, corporations, military bureaucrats, venture capitalists, or the world's largest Internet platforms.

What will all the technological progress amount to if we as a species do not flourish, if we do not achieve something that genuinely lifts all of us onto another plane of happiness?

Consequently, when evaluating new technologies or the latest wave of science, technology, engineering and math (STEM) advances, we should always ask whether or not a particular innovation will actually further the collective well-being of most parties involved in realizing it.

Will cheaper and faster technologies, more convenience, more abundance, easier consumption, superhuman powers, or further economic gains really make us happy? Will better apps, bots, IDAs, powerful augmented reality (AR) and virtual reality (VR), or instant access to a global brain via a new brain-computer-interface (BCI)

really mean that we, as a species and individually, will truly flourish? Or will it be primarily those who create, own, and offer the tools and platforms that will reap the rewards?

Human well-being should be the goal

Particularly when discussing the future of technology, I feel that well-being—the state of being comfortable, healthy, or happy—is becoming the key word. Well-being implies a more holistic approach that goes way beyond measuring our body functions, our mental computing power, or the number of synapses in our brains. It expresses embodiment, context, timeliness, connectedness, emotions, spirituality, and a thousand other things we have yet to explain or even understand. Well-being isn't algorithmic—it is androrithmic, based on complex things such as trust, compassion, emotion, and intuition.

Technology is often very good at creating great so-called well moments such as being able to call a loved one anywhere and anytime I want. However, well-being is something that transcends technological facilitation to a very large degree. Having immersed myself in Internet entrepreneurship and dabbled with digital music startups for almost ten years, it was only after the sudden demise of my dotcom enterprise back in 2002 that I learned how a more holistic well-being really comes from relationships, from meaning, from purpose, and from context. Happiness cannot be automated!

Can technology manufacture happiness?

Exponential technologies such as AI will undoubtedly attempt to create the conditions in which human happiness or even well-being can be furthered. Some will also actively seek to manufacture it for us—or at least, a digital approximation of it. Increasingly, we are seeing arguments that happiness can be programmed or otherwise organized or orchestrated by super-smart technology. The key argument of the techno-progressive thinkers is that being happy is just the result of the right kinds of neurons firing at the right time, in the right order. They reason that it's all just biology, chemistry, and

physics and can thus be understood, learned, and copied completely by computers.

> *"We are looking at a society increasingly dependent on machines, yet decreasingly capable of making or even using them effectively." –Douglas Rushkoff,* Program or Be Programmed: Ten Commands for a Digital Age[178]

Maybe we can create a kind of happiness machine that would manipulate, control, and program us and our environment. Maybe there is an app for that—or at least there should be! Take a look at *www.happify.com* to see how the idea of organizing happiness is already being marketed—a software tool that teaches you happiness! One can only imagine how this could turn out by 2025—an app that connects directly to our brain via a BCI or via tiny implants to make sure we are happy all the time, and—critically—that we consume happiness all the time!

It sometimes seems to me that the entrepreneurs pursuing these exploits think that human emotions, values, and beliefs should be subject to even more exponential advances in STEM. The rationale seems to be that once we get far enough down this path, all of it will be subject to programming by us, including (you guessed it) ourselves. Then, we can finally rid ourselves of our biological constraints and become truly universal beings—I can't wait!

Mood bots and tech pleasures

Technology is already able to create, program, or manipulate pleasurable moments (i.e. hedonic happiness) for us, and this is a business that will certainly boom in the near future. This already happens on the Facebook newsfeed, which displays only those items that will make you feel good and liked. It's happening in e-commerce with shopping sites that employ hordes of neuroscientists to fine-tune new digital instant-satisfaction mechanisms. It's being done in healthcare with nootropics (so-called smart drugs and cognitive enhancers) that are supposed to give you a kick of super-mental

capabilities.

And soon, it will be done via very skillful manipulation of our senses through the voice- and gesture-controlled (not typed) conversations that we'll have with our omnipresent digital assistants. It will also take place via AR/VR devices such as Facebook's Oculus Rift and new kinds of human-computer interfaces and neural implants. Computers will try to make us feel happy. They will try to be our friends. And they'll want us to love them.

And it will only get worse (or better, depending on your viewpoint).

A September 2015 article by Adam Piore in the *Nautilus* journal highlights how these mood bots might function:

> James J. Hughes, a sociologist, author, and futurist at Hartford's Trinity College, envisions a day not too far from now when we will unravel the genetic determinants of key neurotransmitters like serotonin, dopamine, and oxytocin, and be able to manipulate happiness genes—if not serotonin-related 5-HTTLPR then something like it—with precise nanoscale technologies that marry robotics and traditional pharmacology. These "mood bots," once ingested, will travel directly to specific areas of the brain, flip on genes, and manually turn up or down our happiness set point, coloring the way we experience circumstances around us.
>
> "As nanotechnology becomes more precise, we're going to be able to affect mood in increasingly precise ways in ordinary people," says Hughes, who also serves as executive director of the Institute for Ethics and Emerging Technologies, and authored the 2004 book *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future*.[179]

I would argue that digital technology has already become pretty good at furnishing hedonic pleasures to its users. Just think about apps, personal digital assistants, and social media in general, where the entire purpose of connecting with others is often reduced to getting a quick dopamine boost based on the responses of complete strangers.

In a way, social networks are already pretty amazing "hedonistic happiness generators."

But of course, the key question is what could exponential technological gains possibly do to furnish or even support eudaemonia (happiness as the meaning and the purpose of life, as the aim of human existence), or support our striving towards a noble purpose, or discovering the meaning of life? This strikes me as mission impossible simply because technology does not ask about—or concern itself with—purpose at all. And why should it?

Then, there is the question of whether such eudaemonian happiness can be planned, orchestrated, or pre-arranged at all, digital or not. This is a concept which Viktor Frankl, the Austrian psychologist and founder of logo-therapy, explores in his 1946 book *Man's Search for Meaning:*

> Happiness cannot be pursued; it must ensue, and it only does so as the unintended side effect of one's personal dedication to a cause greater than oneself or as the by-product of one's surrender to a person other than oneself. The more a man tries to demonstrate his sexual potency or a woman her ability to experience orgasm, the less they are able to succeed. Pleasure is, and must remain, a side-effect or by-product, and is destroyed and spoiled to the degree to which it is made a goal in itself.[180]

The idea that hedonic pleasures are a side-product of a larger flourishing (eudaemonia) makes a lot of sense to me. Hence, my argument that we should embrace technology—experience the pleasure of it—but not become technology, as this would make the experience of a real eudaemonia impossible.

Be careful what you wish for

The debate over whether we should extend human longevity dramatically—and pursue the end of dying—is a great example of the difficulty of determining whether a particular technological advance will result in human flourishing. It also points toward one

of the biggest dilemmas we may be facing soon: If something can be done, does it mean it should be done? Should we consider not doing things because they might also have negative side effects on human flourishing?

Breakthrough gene-editing technologies such as CRISPR-Cas9 may eventually help to end cancer or Alzheimer's, and would clearly contribute to our collective well-being. However, another application of this scientific magic may also bring about programmable babies, dramatically increased longevity, or even the end of dying for humanity—but likely only for those few who have the significant resources that would no doubt be required! How will we make sure the advances will be 95% positive for humanity and not cause social disruption, terrorism, or exponential inequality?

In Silicon Valley, the epicenter of human-technology convergence, Peter Diamandis likes to say, "The question is what would people be willing to spend for an extra 20, 30, 40 years of a healthy life—it's a huge opportunity."[181] That comment speaks volumes about the Silicon Valley philosophy: Everything is a business opportunity—even human happiness!

Consider the rise of what science writer Amy Maxman, writing in *Wired* magazine in July 2015, called "The Genesis Engine," i.e. the concept of editing human DNA.[182] The first step will be the analysis of the DNA of billions of people to identify which genes are responsible for different conditions and diseases. Brute computing power and broad public support for the concept will be required. Second, once a gene has been identified as being responsible for something as detrimental as cancer (assuming it will be that straightforward), the next step will be finding ways to remove or suppress that gene so that the disease does not develop. Third would be the idea of essentially programming people like we program software or apps today—removing all the bad bugs and adding in great features.

Does that strike you as a desirable future? Most people would answer with a resounding "Yes!" because it sounds too good to be true. Yet the mind boggles when we think about what realizing such scientific feats could mean in a broader context: Who could afford

such treatments? Who would regulate where they could or could not be applied? Would we open all doors to superhumans, and close the door to plain old humans? Would the possibility of programming our genes mean we would inadvertently be on our way to becoming more like machines?

On the one hand, editing the human genome for the purpose of ending diseases would definitely result in increased well-being and happiness, but the very same capabilities could easily result in civil wars or terrorism. Just imagine if only the super-rich could avoid all life-threatening diseases and live to be 150 years old while everyone else would wither at 90 years old or younger—or not even be able to afford basic healthcare. If there were ever grounds for resorting to civil unrest out of sheer desperation, look no further. How could we even conceive of offering such possibilities without first considering these vexing ethical and societal issues? Why would we spend trillions of euros on STEM, but invest so very little in what I call the CORE humanity issues —creativity and compassion, originality, reciprocity and responsibility, and empathy?

A positive example

We don't have to look to such extreme examples to find a compelling argument for or against a digitally mediated human experience. Consider Wikipedia, a nonprofit global knowledge base: a positive example of a boost to collective well-being delivered through technology. The creation of Wikipedia, to a very large extent, fueled the betterment of society. At a time when knowledge and information were not readily accessible to all, Wikipedia opened up access to everyone, everywhere—without the costs of paying for old-fashioned dictionaries, libraries, or commercial and government databases.

Admittedly, people around the globe are happy about having Wikipedia, and its co-founder, Jimmy Wales, is widely revered as having furthered the collective progress of society with this innovation. In addition, the unintended consequences of Wikipedia, such as the demise of the printed version of *Encyclopaedia Britannica*, could be viewed as somewhat negligible.

Wikipedia, therefore, makes a good case of technology furthering well-being and human flourishing, but it's certainly not flawless. As a case in point, this author's English-language listing was deleted in 2011 for lack of notability.

In contrast, innovations such as Tinder (a popular dating and messaging app—just in case you have not yet had the pleasure), Google Maps, or the Apple Watch, don't really further collective well-being in the same way as Wikipedia did—even though they are all quite possibly useful and even endearing, they are simply commercial expressions of a "yes we can" approach to lifestyle technology. Useful, yes; furthering general well-being—probably not, or at least not to the same degree as Wikipedia.

Trading happiness for tech-powered hedonism?

Imagine if we could easily simulate the feeling of intimacy with a human sexual partner by using a good-looking, sophisticated, AI-powered sex robot (yes, this is a rapidly growing industry, in case you were wondering).[183]

By all means, having sex with robots qualifies as a decidedly hedonistic experience. One wonders: Would we still be as interested in pursuing true happiness and a complete sexual experience in an actual, real-life, human-to-human relationship where we actually need to struggle to make it work? Or would we get used to the ease with which sex robots would be available, and therefore just settle for convenience? How tempting would it be to resort to such a consumerist attitude to sex? And, conversely, who are we to deny people the right to enjoy whatever they want?

Sure, you may argue that we would still know the difference, and we certainly would. But how much would we be altered, in our minds, by making constant use of sex robots? Would it not mess with our brains and distort our perception of reality—our views of what the real world is actually like?

Studies of men who routinely watch pornography have shown that extensive use has significant impact on the stimulation required for arousal and for what's required to reach an orgasm.[184] Just imagine how

Putting technology back in its place

I fundamentally believe that computers, software programs, algorithms, and robots are unlikely to ever develop human-like compassion or empathy. Robots and AI as helpers and servants, yes—but certainly never as masters.

Should we really try and utilize mathematical models or machine intelligence to optimize emotional outcomes? And in the context of machine thinking, should we really attempt to deploy better technology to solve social or political problems—such as using overbearing surveillance techniques to end terrorism?

The complex androrithmic values must remain the domain of human beings, both because we are better at creating nuanced expressions of them and because direct engagement with those problems is key to developing eudaemonia—deeper happiness.

I often wonder whether exponential technological progress will generate exponential human happiness, beyond the 1% of those who will create, own, and profit from such brilliant miracle machines. Is it a virtuous goal to construct a perfect human machine that can be freed of all its flaws and inefficiencies, so that we can finally become god, whatever that might mean?

I don't know about you, but that isn't a world I would strive to build. To propose we pursue this path is like gambling with our future and potentially poisoning the well for our children and the generations to come.

Happiness cannot be programmed into machines, automated, or sold. It cannot be copied, codified, or deep-learned. It needs to emanate from and grow within us, and in between us, and technology is here to help us—as a tool. We are a species that uses technology, not a species that is destined to be(come) technology.

Finally, think about this: The word happiness itself stems from a Viking word for luck, *happ*. This also relates to the concept of happenstance, or chance. The apologists for technology may profess that they are removing the negative elements of chance from human lives—which we all know are legion, from disease and poverty, to death itself. However, in doing so, they may be systematically altering

the ability of human beings to experience deeper levels of happiness that are not dependent on measurable circumstance. Yes, by all means let us use the tools of technology to remove the dangerous risks of being human on Planet Earth. But no, let's not become the tools of our tools and surrender our mercurial consciousness and sovereign free will for a bunch of trinkets and cheap thrills like the innocent natives of some New World.

Resources

You can join the social media discussion on *Technology vs. Humanity* and find further content here:

Facebook	www.facebook.com/techvshuman
LinkedIn	www.linkedin.com/groups/12002283
Twitter	www.twitter.com/techvshuman
Gerd's regular updates	www.techvshuman.com
Team Human	www.onteamhuman.com

Further information on Gerd Leonhard and his work:

Gerd's show reel:	www.gerd.io/2016ShowReel
The Futures Agency:	www.thefuturesagency.com
English Website:	www.futuristgerd.com
German Website:	www.gerdleonhard.de
Newsletter sign-up:	www.gerd.io/getgerdsnews
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TECHNOLOGY vs. HUMANITY

The coming clash between man and machine

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