INTRODUCTION BY RAY KURZWEIL

Ray Kurzweil is one of the world's leading inventors, thinkers, and futurists, with a thirty-year track record of accurate predictions. Kurzweil was selected as one of the top entrepreneurs by Inc. magazine, which described him as the "rightful heir to Thomas Edison." He was awarded the National Medal of Technology and Innovation, for pioneering and innovative achievements in computer science such as voice recognition, which have overcome many barriers and enriched the lives of disabled persons and all Americans.

I have a very short list of people whom I will almost always say yes to when asked a request. Tony Robbins and Peter Diamandis are at the top of this list. So, when they asked me to write this foreword, I didn't hesitate. Tony and Peter share my belief that the power of human ideas can change the world, including how long we live. No matter what quandaries we face—business problems, health issues, relationship difficulties, the great social and cultural challenges of our time—there exists an idea that will enable us to prevail. We can and must find that idea. And when we find it, we need to implement it. Life Force will help you find those answers. It covers the most important innovators, inventions, and technologies that are transforming health and medicine today. We are on the cusp of profound medical advancements as Artificial Intelligence begins to unlock the mysteries of our bodies and brains. Yet many conventional healthcare practitioners are still caught up in the old paradigm and don't practice medicine as an information technology. This means that each of us has to take control of our own healthcare. I've had some experience with that. Let me explain.

My father had a heart attack when I was 15 and died of heart disease when I was 22 (he was 58) in 1970. I had confidence in my ability to solve problems that came my way, and I realized that I probably inherited my father's genes for heart disease, so I put this health challenge on my long-term to-do list. In 1983, when I was 35, I was diagnosed with type 2 diabetes. The conventional treatment made it worse (causing me to gain weight, which exacerbated the diabetes), so I decided the time had come to bring these personal health issues to the top of my to-do list. I immersed myself in the health and medical literature, came up with my own approach involving nutrition, lifestyle, and supplements and ultimately eliminated any indication of my diabetes by 1988. I wrote a bestselling health book about the experience, The 10% Solution for a Health Life, and have since written two more award-winning health books, Fantastic Voyage (2004) and TRANSCEND: Nine Steps to Living Well Forever (2009).

As I was going through this personal health revelation, I was also busy working on two inventions: the first music keyboard capable of accurately reproducing the sounds of a grand piano and other orchestral instruments and the first commercially marketed large-vocabulary speech recognition system. Today a descendant of that technology is Apple's voice-recognizing Siri. As an inventor, I realized that the key to success was timing. Most inventions and inventors fail, not because they are unable to get their gadgets to work, but because their timing is wrong. So, in the early 1980s I became an ardent student of technology trends, tracking the capacity and price performance of computing, and discovered that technology was advancing exponentially. This was a radical idea at the time because it turned our intuition—to think linearly—on its head.

It was around 1995 that I began to see that the exponential growth of technology applied to the Genome Project, which had begun in 1990. Seven and a half years into the project, one percent of the Genome had been collected, which caused early critics to say that it was going to take seven hundred years to finish. My response was that the project was right on schedule and that one percent is only seven doublings away from 100 percent. And indeed, the project continued to double each year and was done seven years later. The same rate of exponential progress has continued since the Genome Project ended. Decoding that first genome cost more than \$2.7 billion dollars. Today it costs less than \$600. And every other aspect of what we call biotechnology—understanding the genome, modeling it, simulating it, and, most important, reprograming it, is progressing exponentially.

We now have the ability to prevent, treat, and (soon) cure diseases with biotechnology, guided by artificial intelligence. We are beginning to reprogram our biology in the same way that we reprogram our computers. Take for example the "turbocharged" flu vaccine created by researchers at Flinders University in Australia. They used a biology simulator to create trillions of chemical compounds and then used another simulator to see which compounds would be useful as immune-boosting drugs against the disease. They now have an optimal flu vaccine that is being tested on humans.

The trickle of current clinical biotechnology applications will become a flood by the end of the 2020s. In the past three years we've reached a tipping point in computational power for artificial intelligence to quickly simulate, test, and solve biochemical problems. The amount of computation devoted to training the best computer models since 2012 has doubled every three and a half months. That's a 300,000-fold increase in the last nine years. This has opened the door for AI to find medical solutions in a fraction of the time that it takes humans. Eventually, our trust in these AI driven simulations will grow and we will accept their results as sufficient without spending months on human trials. Soon we will be able to simulate trillions of possible solutions to every health problem and fully test them in hours or days.

This will bring us to the 2030s, when medical nanobots—blood cell-sized computers—will go into our bodies to combat disease from within our nervous system and travel into our brains through the capillaries where they will provide wireless communication between our neocortex and the cloud. Ideas and innovations will no longer be constrained by the size of our skulls. They will be free to grow exponentially in the cloud, expanding our intelligence a billionfold. But I am getting ahead of myself.

My point is that we must do everything we can today to be as healthy as possible, for as long as possible, in order to benefit from the fast-approaching merger of AI and medicine. Now is the time to make maximal use of the latest medical knowledge to help eliminate our chance of disease and to drastically slow down the aging process.

The tools to enhance and extend our lives are already in our hands. We just need the courage to question outdated assumptions that limit our ability to use them. Tony and Peter live by this philosophy and have written this book so that you can too.

Dr. Laurence M. Gould, president of Carleton College in Minnesota, gave an address entitled "Why Men Survive." He pointed out that nineteen out of twenty-one notable civilizations "died from within." Dr. Gould said, "The greatest threat to ours is not atom bombs or guided missiles, but neglect of the spiritual forces that make us wish to be right and noble." He concluded, "If America is to grow great we must stop gagging at the word 'spiritual.' Our task is to rediscover and reassert our faith in the spiritual, nonutilitarian values on which American life has really rested from its beginning."

Dr. Gould echoes some Edgar Cayce readings. I offer the following as an example of these:

"What is your God? Are your ambitions only set in what you shall eat tomorrow, or wherewith you shall be clothed? You of little faith, little hope that allow such to become paramount issues in your own consciousness. Know you not that you are His? For you are of His making! He has not willed that you should perish, but has left it with you as to whether you will ever become aware of your relationship with Him or nod" (281-41)

"Though there may be worlds, many universes, even solar systems greater than our own (the earth is a mere speck when considered even with our own solar system) yet the soul of man, your soul, encompasses all in this solar system or in others. For we are joint heirs with the universal force we call God, if we seek to do His bidding." (5755-2)