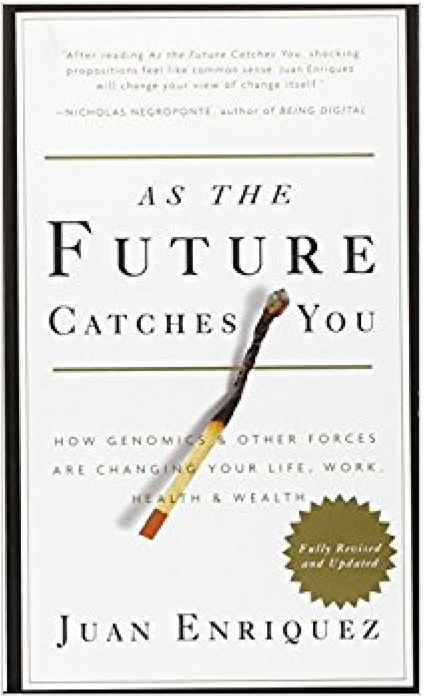
As The Future Catches You: How Genomics & Other Forces Are Changing Your Life, Work, Health & Wealth



Synopsis

If you think the world has changed dramatically in the last five years, you havenÃ¢â ¬â„¢t seen anything yet.You will never look at the world in the same way after reading As the Future Catches You. Juan Enriquez puts you face to face with unprecedented political, ethical, economic, and financial issues, dramatically demonstrating the cascading impact of the genetic, digital, and knowledge revolutions on all our lives. Genetics will be the dominant language of this century. Those who can Ã¢â ¬Å“speak itÃ¢â ¬Â• will acquire direct and deliberate control over all forms of life. But most countries and individuals remain illiterate in what is rapidly becoming the greatest single driver of the global economy. The choice is simple: Either learn to surf new and powerful waves of changeÃ¢â ¬â •or get crushed trying to stop them. The future is catching us all. Let it catch you with your eyes wide open.

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Customer Reviews

In As the Future Catches You, Juan Enriquez of the Harvard Business School attempts to capture the trajectory of technological progress and understand the forces shaping our social and economic futures. Enriquez argues that February 2, 2001--the date that anyone with Internet access could contemplate the entire human genome--is akin to 1492 and Columbus's discovery of America. Instead of a new continent however, Enriquez sees the alphabet of DNA (A, adenine; T, thymine; C, cytosine; and G, guanine) and predicts that it will be the "dominant language and economic driver of this century." While none of the ideas presented here are entirely new, As the Future Catches You stands out because of Enriquez's ability to view and connect trends--genomics in particular--in a way that just about anyone can understand. Eye-popping typography and graphics coupled with a compact and almost poetic writing style make this thought-provoking book one to savor. Highly recommended. --Harry C. Edwards --This text refers to an out of print or unavailable edition of this title.

Harvard Business School research fellow Juan Enriquez has great enthusiasm for his subject and his audience in As the Future Catches You: How Genomics & Other Forces Are Changing Your Life, Work, Health & Wealth. "I would like you and I to have a conversation," he writes. "There is space on each page for your own notes, thoughts," etc. Space indeed, and more: this consideration of scientific advancement, technological and economic trends and their effects offers graphically arresting pages complete with pictures, highlighted words, graphs, and large blank margins. Enriquez's hyperventilating presentation (how many ellipses can one author use?) might get in the way of the facts at times, but the facts about the ability of genetically modified bananas to vaccinate those who consume them against particular diseases, for example can be very interesting indeed.Copyright 2001 Cahners Business Information, Inc. --This text refers to an out of print or unavailable edition of this title.

The author plays with fonts and text size as he tosses around famous quotes and ideas that are not well-developed to the point of irritation. I had to pause after reading the 3rd chapter and check the reviews to remind myself why I bought this book and that it was actually worth reading. It is.My book copyright says 2001 but some data points referenced are from 2003, 2004 and 2005. I think I received the newer 2006 edition but they failed to update the copyright page.The author tried to predict the future in 2001 based on the recent success of The Human Genome project. He doesn't do so well but who would? He firmly believes that genomics will fundamentally change the world. I wonder if he is less starry-eyed now? The writing style is a bit like Thomas Friedman's books on globalization: big on hype, pro rapid, disruptive change, pro science but weak on examples and naively assuming change will not be challenged, opposed or encounter unexpected stumbling blocks. And like Friedman, drunk on the history of rapid change in computer chip tech as if that same rapid change will occur equally within all other fields. News flash: even if we know an entire genome, the purpose of each gene and protein and how to express each, we still need to test it before injecting DNA modifications into humans and that portion of the learning curve won't go any faster just because Intel releases a faster chip.If you have read other books about recent advancements in biology, then you will welcome the brief history lessons and the names of small biotech businesses actively pursuing genomics and proteomics.However, 11 years later, many cited companies are no longer around. There is the obligatory James Watson and Craig Venter worship. Rather than elaborate on the benefits of 100 patents of animal species and how that differs from current animal husbandry techniques, there is an elaborate essay on the purported value of patenting without acknowledging that many patents are merely monopolistic attempts to protect "discovered" gene sequences without knowing what they do. The absence of any critical thinking such as doesn't that prevent others from use without licensing and won't that prompt retaliation in return that slows down future research after sequencing is complete speaks volumes regarding the author's comprehension of the field and the political realities of the U.S. Patent Office.If you like computers and biology, then you will enjoy the hint at possible future job opportunities but the author merely knows how to type, not how to program so he glosses over whether the positions cited really need a Ph.D. in Computer Science with an emphasis on statistics or merely a Doctorate in one of many microbiology specialists with an ability to do basic programming. Genomics and Proteomics sound like big data problems but he doesn't elaborate on that either.The condescension towards the Europeans unwilling to eat GMO is palpable. I'm all for Dow engineered corn with plastic-like properties because the material made from it can biodegrade unlike real plastic so it makes a sensible replacement for candy wrappers, snack containers and airline forks but none of that is mentioned. On the other hand, when Monsanto hurriedly studies a tomato only long enough to detect the gene that manages ripeness, replaces it by writing it backwards without any understanding of what that instruction now means or what it might do to gene expressions that occur in combination, studies the result only long enough to confirm that the ripeness issue has been addressed and demands the least amount of FDA approval in order to quickly get to market when there is no competition simply because investors got impatient and want to dump their stock, I'm unlikely to buy it or eat it. But according to the author, all science is great!The last two chapters were thrown together to kind of address a need to improve science education in the U.S. so most ideas are not well-formed and lack supporting evidence.The book does not cost very much and is a fine collection of facts from other sources that span a broad range of relatively recent scientific achievements. You can Google most of these for more information about whether they eventually led to something bigger or never actually panned out.Inter-dispersed among the fun science facts are many fun, thought-provoking ideas such as if cloning really works without damage, then why not clone a human? why not clone a dead relative? why not freeze dry your cells so that you can be cloned in the future? will your progeny decide to clone you based in part upon how you live your life? Would the introduction of all these new people impact world resources? But again, none of these ideas are developed.It’s a quick read as the text size makes many pages read like captioned imaged. It’s a great collection of fun facts to introduce as conversation starters in a bar or at a party with friends. It’s a horrible attempt to proselytize the possible benefits of studying DNA in hopes of combating crop loss, developing medicine, fighting disease or delaying old age.Recommended alternative reading1) The Double Helix - James Watson2) The Road to Dolly - Gina Kolata3) Food Politics - Marion Nestle4) Genome - Matt Ridley5) Evolution - Carl Zimmer6) Intervention - Denise Caruso7) The Second Creation - Ian Wilmut8) The Genome War - James Shreeve

After reading this book, it could be said with fairness that the author has written it for the reader with voracious curiosity, for the reader who is aware of the dizzying rate of technological change sweeping this century, for the reader who is giddy with delight at the sheer quantity of current scientific advances, or for all three. He wants to convey to the reader the excitement he feels about living in these times, and he succeeds in doing so. The book is sparse, with an abundance of room between the sentences and in the margins. The author has purposely made this space available, for the reader’s notes, questions, or contemplations. There is a lot to fill in these spaces: the following is just a short sample of this reviewer’s fillings: a modest summary of developments that even though valid this week may be obsolete the week after next (or even sooner).The genetic engineering of mosquitoes: The author describes them as being "flying hypodermic needles" and proposes that they be genetically engineered to deliver antibodies instead of harmful pathogens or even to immunize against malaria. His proposals are supported by current research, in that it has been discovered that certain proteins in mosquitoes determine the efficacy of the reproduction of the parasite `falciparum plasmodium’ in the Anopheles mosquito. In order to infect humans, the malaria parasite has to be able to reproduce in the mosquito. There are actually four proteins involved here, called TEP1, LRIM1, CTL4, and CTLMA2. The proteins TEP1 and LRIM1 are part of the immune system of the mosquito, essentially killing the parasite in the mosquito gut. The proteins CTL4 and CTLMA2 however act to protect the parasite as it develops in the mosquito gut. When these proteins are eliminated, the mosquito immune system is able to rid the mosquito of these parasites. Since over two million people die of malaria each year, if mosquitoes can be genetically engineered to be highly resistant to the falciparum plasmodium and then released in the wild to displace existing wildtype mosquitoes, this would be a worthwhile goal.Creatures that can thrive in extreme environments: The author mentions the bacterium `Deinococcus radiodurans’ as being one whose habitat happens to be inside a nuclear reactor. He reports that it can survive 3 Mrads of radiation, which is an incredible amount since this amount would clearly kill a human being. This bacterium was mentioned in the context of finding extraterrestrial life (possibly on Mars). Its genome has been completely sequenced, and a perusal of NCBI reveals that it is composed of two chromosomes, a megaplasmid, and a small plasmid, but it is unclear as to why the bacterium is so resilient to radiation. The genome by itself does not reveal why it is. The author reports research that indicates that it is able to do this by possessing many copies of the same gene and a superb capability for repairing. Readers can read the references given for further contemplation on this fascinating organism. If the genome of this organism can be understood in more detail, it may become possible to tune it via transgenic methods or some other genetic manipulation strategies in order to create organisms that are resilient to even harsher environments.The `Mycoplasma genitalium' parasitic bacterium: The author discusses this organism in the context of the research of Craig Venter and Claire Fraser, which attempted to discover which genes are actually necessary for the organism's survival. Other than viruses, this organism is the simplest living organism known that is able to reproduce itself. The author reports that after eliminating 180 genes, Venter and Fraser refrained from further removal until they consulted ethicists. The specific goal of their research was to find out whether the naturally occurring genes are in fact the true "minimal' genome. Their research indicated that, out of the 480 protein-coding genes of M. genitalium, from 265 to 350 of these genes are essential (at least in the conditions of the laboratory). These experiments are now viewed under the classification of `synthetic biology', a field whose goal is construct organisms using genetic sequences of one's choice. This will entail a thorough understanding of error correction in the assembly of DNA sequences and of the processes used to precisely join these sequences. This research is very exciting, for if DNA can be synthesized cheaply and efficiently and then assembled into complete and stable genomes, this will allow the creation of organisms on-the-fly, according to various specifications. These organisms could be synthesized for explicit human benefits (but there is a danger also of some being synthesized for detrimental purposes).Machine processing power: The author reports that by 2010 a computing machine will have the same processing capacity as the human brain. This prediction is believable if you look at current trends, but it is difficult to understand its relevance. One might argue that such machines will allow researchers to reach the goal of creating machines that have the same type or level of intelligence as humans. But another scenario is possible. There are many machines now that are intelligent and were designed to be so in order to tackle problems that are too computationally complex for ordinary (non-intelligent) machines to solve in an acceptable time frame (due to their speed of computation). The intelligent machines of today are domain-specific and use a number of heuristics in order to avoid the problem of computational complexity. They thus use their limited processing power optimally for solving various problems of interest. But if more processing power is available, as the author believes it will, then this may eliminate the need for intelligence in machines. The machines of 2010 will be able to solve problems by brute-force (non-intelligent) algorithms since they have the computational horsepower to do so.