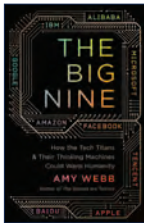


The Big Nine: How the Tech Titans and Their Thinking Machines Could Warp Humanity

Amy Webb

Hachette Australia, 2019

Reviewed by Mark McCallum



Building an understanding of the possible applications of artificial intelligence and what their impact may be is a challenging task. One that Amy Webb, quantitative futurist and professor of strategic foresight at NYU Stern School of Business, approaches by asking: 'What happens when we transfer power to a small group of people who are designing and building these systems?' This is the basis of her book, *The Big Nine: How the Tech Titans and Their Thinking Machines Could Warp Humanity*. The 'small group of people' she is referring to are the nine corporations that currently hold the majority share of the market in global data trade: the US-based tech giants Microsoft, IBM

and Apple and the e-corporations Amazon, Google, Facebook, and their China-based analogues, Tencent, Baidu and Alibaba. Given that the value of the global trade in data recently surpassed that of oil,¹ her question is an important one. However, her US-centric approach and somewhat less than rigorous treatment of the subject matter detracts from what is offered. Having said that, for a critical reader this approach could provide insight into how a general audience may consider these issues.

The book has three parts that consider in the simplest terms: the past, potential futures, and solutions. 'Part I: Ghosts in the Machine' presents a short history of philosophical discussion around AI and the philosophy of thinking machines, the culture of the Big Nine and then highlights some contemporary undesirable consequences of the technology. This provides the reader with a foundation for the rest of the book. In 'Part II: Our Futures', three future scenarios are presented, which form the basis of Webb's recommendations in 'Part III: Solving the Problems'.

From the introduction the reader is presented with a bi-polar world of competition between the US and China. The narrative is familiar and echoes recent US criticism of China's approach to economic advancement. China's strategy for economic growth, including the One Belt and Road initiative, is portrayed as a strategy to '...increases

1 <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>

the CCP's influence around the world in opposition to our (US) current liberal democratic order', where the AI race is a proxy for other strategic competition. Given this premise, Webb is critical of the lack of a US national AI strategy, declaring that the US government has divested its responsibility to six companies. Given that this approach, as enabled by the 1980 Bayh-Dole Act, has led to the US being the foremost technologically innovative nation in the world, this is a somewhat ironic criticism. The rise of China and decline of the US is a theme that Webb returns to throughout the book, as if the fate of humanity will be determined by the success or otherwise of the United States' competition with China in the area of AI development. Although this may have been used as a motivational hook for US readers it distracts from the central question the book purportedly seeks to answer. Additionally, there are significant steps being taken in other parts of the world on this very issue, such as the European Union's General Data Protection Regulation; and the consequences of the application of these technologies may be more significant, both positively and negatively, in other parts of the world.

The first section of the book, *Ghosts in the machine*, consists of three chapters. Chapter 1 'Mind and Machine: A Very Brief History of AI' opens by presenting a history of philosophical debates on the nature of intelligence and the mind—and therefore the ability

of a machine to replicate human intelligence—and current developments in AI technologies. Much of the history presented is extraneous to the motivating question; although for a reader new to these ideas it may be a useful introduction. However, I would argue the content was overly selective to ensure that the assumptions relied upon later in the book were not challenged or undermined. Alternative views, such as the acknowledgement by AI pioneers of how challenging creating a machine intelligence actually is, or those who would counter the possibility of ever realising artificial general intelligence or artificial superintelligences (both of which appear prominently in the scenarios in Part II), would have made this section more complete. Instead, the reader is left to accept this technological outcome as a given.

Chapter 2, 'The Insular World of AI's Tribes', presents a general critique of the corporate culture of the Big Nine corporations. The picture we are painted, however, is of a culture no different from most corporations in that they suffer from a lack of diversity in gender, race and education, and therefore perspectives. Although these issues require attention, the link to the undesirable scenarios presented is not well formed. Webb should have made more of how corporate profit motive, entrepreneurial hubris, and social and psychological factors that have allowed possibly unscrupulous and unethical business models to flourish.

Part I concludes in Chapter 3, 'A Thousand Paper Cuts: AI's Unintended Consequences', with insights into how AI can get it wrong, from the inconsistent sentencing of criminals to the misidentification of genders. Unfortunately, at the conclusion of this part the reader is no wiser as to what AI actually is. Throughout the rest of the book this shortcoming is further amplified as the machine is regularly anthropomorphised, implying capabilities such as awareness or conscience. These instances only shroud rather than reveal the true nature of AI.

'Part II: Our Futures' employs three scenarios—*Thriving in The Third Age of Computing: The Optimistic Scenario*, *Learning to Live with a Millions of Paper Cuts: The Pragmatic Scenario*, and *The Réngōng Zhinéng Dynasty: The catastrophic scenario*—in order to guide our thinking about AI. In each scenario, we must buy into the premise that artificial general intelligence and artificial superintelligence will be realised and ubiquitous in some of our lifetimes. This premise is still the subject of much debate. If you, like me, believe that either being achieved is highly unlikely, then this section will seem more like a collection of science fiction short stories. For instance, in Chapter 7's catastrophic scenario the CCP as dystopian overlord is ascendant, US liberal democracy is in ruins, and corporate greed and misconduct runs rife as they profit from attending to natural human desires and weaknesses. All of the scenarios are very US-centric, largely ignoring how

these scenarios might play out in other nations with needs and challenges different to those of middle America. When these scenarios are measured against the characteristics of plausibility, utility, probability, and precedence, all but the pragmatic scenario offer little to inform real world choices about the implementation or application of AI technologies.

The final 'Part III: Solving the Problems' is a single chapter, 'Pebbles and boulders: How to fix AI's problems'. Unfortunately, most of what is offered fails to acknowledge the realities of how the world works and is therefore largely aspirational. Fifteen principles are proposed to ensure that AI is developed and implemented in a way that is ethical. These principles are a sound list of behaviours we might desire in those delivering AI technologies. However, how Webb proposes we instil these behaviours is unrealistic and her recommendation that regulation should not be used to control undesirable misuse of personal data is somewhat naïve. If a small percentage of outcomes presented in the scenarios in Part II were to come to pass it would be negligent of any government to not regulate the use of personal data or the application of AI technology. Instead, Webb offers a call to arms for users to modify their behaviour to send a message to the Big Nine that they are not happy with how the Big Nine is using their data. This is an important and desirable behaviour to encourage in those whose data is being acquired. However, consumer ac-

tion does not need to be independent of regulation. In fact, these same users should be calling for stronger regulation to protect their rights as consumers and private citizens. However, given the demonstrated behaviour of the public in their willingness to give up their data for a desirable service, this call to arms will likely be a weak and possibly ineffective signal to the Big Nine.

Webb comes to the subject, with a stated bias and upfront declaration that she believes, 'Fundamentally, AI is a force for good'. Consequently, the arguments and scenarios presented hinge upon the assumption that AI has almost omnipotent and unbounded powers to solve the world's problems. This position is taken without any consideration of the limitations of the technology, or its dependencies on other scientific advances and investment in enabling infrastructure for much of what is proposed to transpire.

This book is not aimed at an informed reader, consequently, I found the level and tone somewhat dissatisfying and felt the content suffered from the choices made in this regard as it reduced the rigour of the argument: details that I would consider important to the point being offered were glossed over. The value of *The Big Nine*, is that it asks the right questions and identifies future challenges. Unfortunately, I came away dissatisfied with the answers and solu-

tions offered. Instead of insights into *How the Tech Titans and Their Thinking Machines Could Warp Humanity*, the reader is offered failings common to almost all corporations and only one useful scenario. That being said, security professionals might gain insights into the macrostructures and motivations of the companies most likely to be providing AI services to their organisations. This insight provides the opportunity to consider how weaknesses resident in the architectures and motivations of the Big Nine might generate weaknesses in capabilities that rely on these systems—or what opportunities exist for potential adversaries to exploit these weaknesses.

I came away from *The Big Nine* without a clear and convincing answer to the question, 'What happens when we transfer power to a small group of people who are designing and building these systems?'. However, sometimes the value of a question is not in its answer but the awareness it builds of the problem, and the emerging public awareness and concern about the use of personal data might make the question mute. Although this is not the book for an informed reader, it could serve as a useful introduction to a reader willing to follow up on the assertions made and the questions asked to seek alternative views and a fuller analysis.²

2 To gain a better understanding of what AI is, the technology behind it and how it can fail, presented in an accessible way, I recommend, *Made by Humans*, by Ellen Broad, Melbourne University Press, 2018, ISBN 13: 9780522873313.