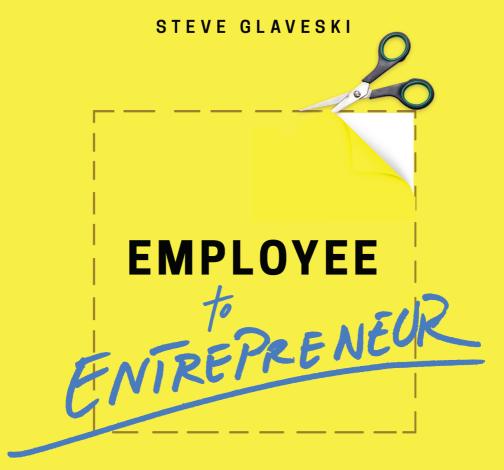
'If you've thought about making the leap to become an entrepreneur, this is a manual for making it happen.'

ADAM GRANT, New York Times bestselling author of Originals, Give and Take, and Option B with Sheryl Sandberg



HOW TO

EARN YOUR FREEDOM

AND DO WORK THAT MATTERS



Lots of people dream of walking the path from employed to entrepreneur, but Steve Glaveski's actually done it. Best of all, he took notes on what works and what doesn't and now he decided to show you how.

— David Burkus, author of FRIEND OF A FRIEND

At its core, this book is about transformation. Beyond a conversation about how you work and make money, it is a guide to reimagining a life that you fully own.

—Sherry Walling, Ph.D., host of ZenFounder podcast, co-author of The Entrepreneur's Guide to Keeping Your Sh*t Together

Glaveski makes the case for entrepreneurship as the bastion that safeguards employment and meaningful contribution from the rapid encroachment of technologies that are distrupting every realm of traditional human work. He builds on that foundation with a framework to inspire aspiring innovators to make the leap—to evolve from employees/pawns of stagnant and dying corporations suffering 'paralysis by analysis', to successful entrepreneurs who can embrace the right risks, walk the edge of uncertainty with confidence and good judgement, avoid (most) beginner mistakes and turn the inevitable failures into future triumphs. An optimistic book, well-articulated and worthwhile; an antidote to doomsday prophecies about the future of work.

—Whitney Johnson, Thinkers 50 Leading Management Thinkers, author of the bestselling *Build an A Team*, and critically-acclaimed *Disrupt Yourself*

Steve takes his personal learnings from years of doing the work and packages them up into one concise book—making his hard-won insights available to all of us.

—Pascal Finette, co-founder, radical Ventures, Chair for Entrepreneurship & Open Innovation,
 Singularity University

A must-read for anyone looking to make the transition from what Steve calls 'miserably comfortable' at a large organisation to the freedom and fulfilment that comes with entrepreneurship.

—Cy Wakeman, author of No Ego: How Leaders Can Cut the Cost of Workplace Drama, End Entitlement and Drive Big Results

EMPLOYEE

EMPLOYEE

NIREPRENEUR

HOW TO EARN YOUR FREEDOM AND DO WORK THAT MATTERS

STEVE GLAVESKI

WILEY

First published in 2019 by John Wiley & Sons Australia, Ltd 42 McDougall St, Milton Qld 4064

Office also in Melbourne

Typeset in 11.5/13.5 pt ITC Berkeley Oldstyle Std Medium

© John Wiley & Sons Australia, Ltd 2019

The moral rights of the author have been asserted



A catalogue record for this book is available from the National Library of Australia

All rights reserved. Except as permitted under the *Australian Copyright Act 1968* (for example, a fair dealing for the purposes of study, research, criticism or review), no part of this book may be reproduced, stored in a retrieval system, communicated or transmitted in any form or by any means without prior written permission. All inquiries should be made to the publisher at the address above.

Cover design: Wiley

Cover image: © art-4-art / iStockphoto

Opener graphics: \mathbb{O} Sonic_S/Shutterstock

Printed in Singapore by C.O.S. Printers Pte Ltd

10987654321

Disclaimer

The material in this publication is of the nature of general comment only, and does not represent professional advice. It is not intended to provide specific guidance for particular circumstances and it should not be relied on as the basis for any decision to take action or not take action on any matter which it covers. Readers should obtain professional advice where appropriate, before making any such decision. To the maximum extent permitted by law, the author and publisher disclaim all responsibility and liability to any person, arising directly or indirectly from any person taking or not taking action based on the information in this publication.

I dedicate this book to:

My brother Sašo who had so much potential and would often gaze at the night sky, dreaming of 'doing something that's never been done before', only to be taken away from us before he had the opportunity to make his dreams come true.

My father whose own struggles with and triumphs over adversity gave me the opportunity to write this book.

My mother whose resilience has been a lifelong inspiration.

CONTENTS

| Abo | out the author | xi |
|------------------|----------------------------|------|
| Acknowledgements | | xiii |
| Pref | face | xvii |
| 1 | The future is here | 1 |
| 2 | Collecting the dots | 19 |
| 3 | Finding your why | 43 |
| 4 | Embracing your what | 59 |
| 5 | An entrepreneurial mindset | 101 |
| 6 | Taking action | 129 |
| 7 | Knowing your how | 139 |
| 8 | Testing your ideas | 169 |
| 9 | Strengths and weaknesses | 213 |
| 10 | 10× your output | 219 |
| 11 | Power up! | 251 |
| Fine | al thoughts | 263 |
| Inde | ex | 267 |

100

ABOUT THE AUTHOR

Steve Glaveski is on a mission to unlock the latent potential of organisations so they can create more impact for humanity and empower their people to lead more fulfilling lives.

Steve is the CEO of Collective Campus, a corporate innovation and startup accelerator originally established in Melbourne, Australia, that now works with large organisations from London to New York to help them find and adopt the mindsets, methods and tools they need to successfully navigate uncertainty in an era of rapid change.

Steve and his team have worked with the likes of Telstra, National Australia Bank, Clifford Chance, King & Wood Mallesons, BNP Paribas, Microsoft, Fox Sports, Village Digital, Charter Hall, Maddocks, Mills Oakley, Australian Unity, Ascendas-Singbridge, Singapore Pools and MetLife Insurance, among others.

Collective Campus has incubated and been home to more than 100 startups, which have raised more than US\$25 million between them.

Aside from working with startups and large industry incumbents, Steve founded Lemonade Stand, a program that teaches children the fundamentals of entrepreneurial thinking. This program has been rolled out across Australia and in Singapore to more than a thousand children and at the time of writing was being developed into an online platform for the global English-speaking market.

Steve also wrote *The Innovation Manager's Handbook*, which was an Amazon bestseller across a number of its categories, including startups, management and technology. When he's not writing content, he's recording it. He hosts the *Future Squared* podcast, an iTunes Business chart mainstay that won an inaugural Australian

Podcasting Awards People's Choice award in 2017. Steve often shares his message with the world through keynote talks, having presented in locations as disparate as Perth, Singapore and Lincoln, Nebraska.

Steve previously founded the office-sharing platform Hotdesk and has worked for the likes of Westpac, Dun & Bradstreet, the Victorian Auditor-General's Office, EY (formerly Ernst & Young), KPMG and Macquarie Bank.

When he's not trying to help people unleash their potential, he can be found at the squat rack, skateboarding by the beach, cruising on his motorcycle, hiking (probably while listening to a podcast), catching a live gig or with his head buried in a book.



100

ACKNOWLEDGEMENTS

A number of times over the past few years I've found myself at the intersection of preparation and opportunity (some call this intersection 'luck').

Transitioning from roles in big corporate with the likes of EY and Macquarie Bank, in 2013 I found myself at the helm of a modestly funded tech startup, which gave me the opportunity to spend two years immersing myself in anything and everything relating to innovation and entrepreneurship. A subsequent stroke of serendipity led me to found Collective Campus, which has blessed me with the opportunity not only to do the kind of work I most enjoy, but to work with companies, individuals and kids—yes, kids, as part of our Lemonade Stand program—to unlock their potential to create more impact in the world and lead more fulfilling lives.

This experience has also enabled me to spend time on creative pursuits, such as hosting the podcast *Future Squared* since early 2016. I've now published more than 250 episodes and have had the pleasure of speaking with the likes of Adam Grant, Steve Blank, Tim Harford, David Allen, Grant Cardone, Brad Feld, Gretchen Rubin, Tyler Cowen, Rand Fishkin, Alec Ross, Jenny Blake, Karen Dillon and countless other thought leaders across a variety of disciplines. I've captured a number of my learnings from these conversations in this book.

I self-published my first two books online and struck a deal with Wiley for this book, my third in as many years. While it hasn't been easy to build a business from the ground up while also scratching various creative itches such as podcasting, blogging and book writing, it has been incredibly rewarding. I am eternally grateful and indebted to everyone who made it possible.

I'd like to take this opportunity to thank specifically:

My parents who left their own parents, siblings and extended family behind when they moved to distant Australia from what was then Yugoslavia in the early 1970s. They left home with very limited means, a modest education and zero command of the English language, but with a determination to give their children a better life, which they paid for with back-breaking factory work.

My sister Lidia, brother-in-law Peter and gorgeous nephews and niece, Nicholas, Thomas and Sasha, in whose presence the rest of the world just slips away.

My co-founder Sean Qian and the team at Collective Campus, Shay Namdarian, Charity De La Cruz, Bin Teo, Alec Sloman, Paulina Pinos and Frances Goh, all of whom have shared in what has been an incredible journey and promises to be even more exciting going forward. Thanks also to former CCer John van Noorden for helping to make this book happen.

You are the sum of the people you spend the most time with and I wouldn't be who I am today without the influence of different people at different stages of my life such as Daniel Nikolin, Nick Ivkovic, Carolyn Ng (thanks for the Starward and for reviewing the website!), Marjan Mladenovski, Steve Petkovski, James Nguyen, Bos and Cvet Corevska, Trinh Pham, Ivan Bozinovski, Lisa Du, Spiro Vladimiroski and last but not least, Onur Demir. If I missed your name, I am sorry—you know I love you.

My many awesome podcast guests, who represent a motley crew of authors, entrepreneurs, teachers, technologists, philosophers, economists, neuroscientists, psychologists, athletes, comedians, journalists, political commentators, investors and changemakers, for investing their valuable time to take part in the show and for teaching me a hell of a lot of new things. This list includes Adam Grant, Steve Blank, Kevin Kelly, Peter Diamandis, David Burkus, Tim O'Reilly, Adam Alter, Massimo Pigliucci, Whitney Johnson, Jeremy Bailenson, Alex Hutchinson, Bryan Caplan, Nicole Forsgren, Annie Duke, Arj Barker, Jeremy Heimans, Ben Yoskovitz, Rand Fishkin, Brad Feld, Scott Galloway, Perry Marshall, Lawrence Levy, Tyler Cowen, Jordan Harbinger, Sean Ellis, Andy Molinsky, Sam Walker, Andreas Antonopoulos, Brad Stulberg, Gretchen Rubin, Jason Calacanis, Neil

Patel, Karen Dillon, Brian Christian, Angela Maiers, Matthew E. May, Robert Kegan, Chris Kutarna, Leslie Barry, Dick Schmalensee, Pascal Finette, Ash Maurya, Parag Khanna, Ted Rubin, Oren Klaff, Ben Greenfield, Jeffrey Gitomer, Steve Hughes, Dan Toma, Larry Keeley, Peter Bregman, Chip Conley, Ajit Nawalkha, Richard de Crespigny, Bruce Tulgan, Ryan Blair, Marc Levinson, Susan David, Kevin Mulcahy, Paul Smith, Jamie Wheal, Alec Ross, Omar Zenhom, Jon Acuff, Carrie Green, Jacob Morgan, Mike Michalowicz, Emilie Wapnick, Jeb Blount, Cy Wakeman, Liz Wiseman, David Mead, Jennifer Kahnweiler, Primavera De Filippi, Erik Wahl, Eric Almquist, Jenny Blake, Rene Boer, Paul R. Williams, Gary Bolles, Evangelos Simoudis, Niel Robertson, Summer Howarth, Justin Lokitz and David Binetti.

A very special mention must go out to Tim Harford, who has not only supported my work but has also pointed me in the direction of invaluable resources to help secure a book deal.

I wouldn't be writing this book about entrepreneurship if it wasn't for my valued clients, many of whom took a leap of faith on us during our early days, while others have gone on to become great friends. Thank you for your vote of confidence: Aidan Coleman, Jon Satterley, Sean Hanrahan, Steve Brophy, John Kelly, Tobias Partridge, Balendran Thavarajah, Mac Korasani, Levent Shevki, John Nerurker, Michelle Mahoney, Shweta Babbar, Ramona Saligari, Jennifer Bednar, Matt Saraceni, Maria Crocker and last, but most definitely not least, Simon Quirk. These clients have all enabled my journey, as have the likes of Bill Petreski, Mick Williams, and Graham and Linda Huddy, whose contributions helped me keep the lights on and gave me the runway I needed to find my entrepreneurial mojo.

A big thanks to the startup and innovation ecosystems around the world, including Chris Joannou of Startup Grind, the teams at Startup Victoria and LaunchVic, Brian Ardinger and the team from Inside/Outside, Hans Balmaekers from Innov8rs, John Lee Dumas and Nathan Chan from Foundr.

Thanks also to the many thinkers who at the time of writing I had not yet had the pleasure of meeting but whose ideas have nonetheless helped to dramatically shape the way I think and show up every day. This list includes the likes of Tim Ferriss, Stephen Covey, Georges St Pierre, Joe Rogan, Sam Harris, Jocko Willink, Ryan Holiday, Jordan Peterson,

Employee to Entrepreneur

Seth Godin, Carol Dweck, Ray Dalio, Eric Ries, Clayton Christensen, Tim Urban, Yuval Noah Harari, Peter Thiel, Lewis Howes, Eckhart Tolle, Don Miguel Ruiz and those who are no longer with us such as Lucius Annaeus Seneca, Marcus Aurelius, Dale Carnegie and Zig Ziglar.

And of course, a huge thank you must go out to you, the reader and supporter of my work. That you're holding this book in your hands is testament to the fact that in business, as in life, every no gets you closer to a yes.

Thank you for choosing to give me your attention in such a crowded marketplace. At a time when on any given day hundreds of messages, through multiple different channels, vie for your attention, thank you for noticing and valuing mine.

I hope this book will give you both motivation and an actionable roadmap to help you realise your own potential in whatever area you choose.

Steve Glaveski

PREFACE

I was summoned to Human Resources on the 15th floor of a central Sydney office tower in the city's iconic Martin Place precinct, home to Macquarie Bank, the country's largest investment bank. Earlier that day I was featured in a one-page article in *The Australian* newspaper, in which I was referred to as an employee of the bank. Only it wasn't for anything I'd done for the bank. HR wanted to know how this media attention had come about. What a loaded question! My mind shifted back almost 12 months.

At the time I was working 800 kilometres away at EY in Melbourne. As a consultant for the big four accounting and professional services firms, I saw acres of vacant office space at almost every client site I visited, which prompted me to turn over the idea of an 'Airbnb for office space', connecting vacant office space with flexible workers, freelancers and business vagabonds. And the idea of Hotdesk was born.

I took the gig with Macquarie in April 2013, which meant moving to Sydney, but I kept working on Hotdesk, reading and learning everything I could about building a startup. I quickly realised how right Socrates was when he observed almost 2500 years ago that the more you know, the more you know you don't know.

I first tested customer appetite for the concept by posting a free advertisement for a non-executive director on the Australian Institute of Company Directors' website. At the time, I was interested in obtaining some guidance by bringing on a non-executive director; but what I ended up doing instead was learning what a number of people with business acumen thought about my idea.

Placing this free ad scored me about 25 meetings with both corporate executives from the commercial real estate industry and successful startup founders. They all asked me many questions that hadn't crossed my mind, all of which I used to go back to the drawing board and update my business model. The overwhelming consensus, however, was that I was 'onto something'.

Based on this early positive feedback, I decided that I'd build what Eric Ries, author of *The Lean Startup*, refers to as a 'minimum viable product', or MVP. This is, effectively, the simplest version of a product that creates sufficient value for customers that they are willing to pay for it. I hacked together a prototype, using a \$500 online script that mimicked Airbnb's two-sided marketplace platform and an India-based web developer I'd found on the gig economy platform Freelancer.com. This bare-bones version of what I envisaged putting to market cost me a little under \$2500 and took a couple of months to develop.

With prototype in hand, and with more than a hint of healthy naivety, I decided to Google 'how to write a press release' and try my hand at writing one. After working through a number of drafts, I mustered up the courage to send my final attempt to almost every email address I could find (or guess) belonging to technology, startup and commercial real estate journalists. Often I would glean these addresses from their Twitter profile. (Of course, today there are a number of online tools you can use to find email addresses, and we'll get to those later!)

The days went by and I heard... nothing. The proverbial crickets, if you will.

Just when I had given up all hope and resigned myself to a career in banking, *one* journalist (out of almost one hundred I had emailed) got back to me. It happened to be a cadet journalist at *The Australian* by the name of Gina Rushton. The email went something like this: 'Hi Steve, thanks for this. Sounds interesting. Do you have a moment to chat?'

The next morning, after excusing myself from the office for a 'business meeting', I was interviewed over coffee, which for a wantrapreneur like me was quite the thrill. I thought I'd already made it! As I would later discover, this kind of foolish confidence makes and breaks

many an entrepreneur. Gina contacted me again later that afternoon. 'We're going to run the story... but we need a photo. Are you free tomorrow at noon?'

What followed was a pretty elaborate photoshoot (for me anyway!) in the middle of Sydney's Martin Place, around the corner from Macquarie Bank's corporate HQ. Inevitably, given that the photoshoot took place at noon, I was spotted by a number of perplexed colleagues on their way to their respective lunch spots.

The article dropped the following day. Not only was it circulated nationwide to the paper's 300 000 readers, but it was also distributed through the 'Macquarie News', a daily compendium of press clippings mentioning the bank that was emailed to every one of the bank's 14 000 employees. So I wasn't surprised when my manager at the time asked for a word. I assured him this was just 'a little side project' that was not infringing on my work at the bank—which it wasn't. I found I could easily meet and even exceed daily expectations with two to three hours of solid effort a day (excluding meetings, of course, which were usually meetings to prepare for meetings, to revisit what was discussed during a previous meeting or to get out of actually doing work).

That's when I got the call from HR summoning me to the 15th floor.

I quickly dismissed the mention by the journalist that I was a Macquarie Bank employee as an irresponsible oversight on my part and swore it wouldn't happen again. They seemed satisfied. Less than three months later, thanks to the interest generated by this article, I had raised seed funding to the tune of US\$120 000 and my 'little side project' was fast becoming a full-time pursuit.

Fast forward five years and Hotdesk has effectively evolved into Collective Campus, a team of entrepreneurs, designers, builders, thinkers, rebels, writers, teachers and modern-day philosophers working to unlock the latent potential of large organisations and startups alike. The venture has blossomed into a fast-growing, seven-figure business that works with brands such as Microsoft, Clifford Chance, Fox Sports, Village Roadshow, BNP Paribas, MetLife Insurance, Telstra, National Australia Bank, Charter Hall, King & Wood Mallesons, Maddocks, Mills Oakley, Asahi Beverages and Australian Unity.

Employee to Entrepreneur

During this time, I started my podcast, *Future Squared*, and found the time, inspiration, knowledge and desire to self-publish two books. Our team also spun off the children's entrepreneurship program Lemonade Stand to inspire a new generation of kids to leverage the power of the internet, not only as mindless consumers but as empowered producers.

I've lost count of the times I've been approached by corporate executives who have 'an idea', want to create meaningful change in their own lives and want to know how I did it. So I decided to distil the insights I've gathered over the past seven years in this book to help you unlock your potential to create more impact and lead a more fulfilling life. I hope you enjoy it.



Chapter 1 THE FUTURE IS HERE

'The only thing that is constant is change.'

Heraclitus

This isn't a book about building the next billion-dollar unicorn. I'm a first-generation Australian, the son of working-class Eastern European factory workers. I grew up in a socioeconomically challenged suburb in Melbourne's west, and went to public schools where illegal playground transactions were common. Several of my fellow alumni would be glorified on TV shows about Melbourne's underworld such as Nine Network's *Underbelly* series. I earned my bachelor's and master's degrees at universities that don't feature in the world's top 500. Despite this inauspicious start, I managed to hustle my way into gigs with powerhouses such as EY, KPMG and Macquarie Bank before starting and building my own business, hosting an award-winning podcast and writing books like this one.

In other words, if I can do it, anyone can.

This book is about earning your freedom, progressing from being miserably comfortable in a cushy corporate gig where the only thing getting you out of bed each morning is your salary, to running your own seven-figure business, all while doing something you love and find meaning in.

Let's go on a journey.

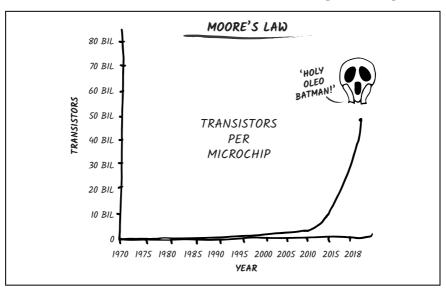
Exponential change

If you took a one-metre step today and doubled the distance every day for 30 days, how many metres do you think you might have walked by the end of the thirtieth day?

I've posed this question, inspired by XPRIZE founder Peter Diamandis, to corporate executives and entrepreneurs at some of my keynotes. Responses range from a self-censoring silence to guesstimates of 'thousands', '100000', 'one million' or simply a playful 'lots'. I use this idea to illustrate Moore's law, which observes that computing power has been doubling every 18 to 24 months since the 1960s. In 1971, Intel released the world's first microprocessor, the 4004. The chip measured 12 square millimetres and contained just 2300 transistors. Today AMD's Epyc contains 19.2 billion transistors. Before you reach for your calculator, that's 8.3 million times more transistors than the 4004.

In the 18 months to December 2017, computer processor companies added about 10 billion transistors to a microchip. That's 10 times more in the past 18 months than we managed in *the entire decade of the noughties*, a time that also gave us the iPhone, *Borat* and Limp Bizkit's *Chocolate Starfish and the Hotdog Flavored Water* (human beings are fallible, after all).

This, then, is the difference between linear and exponential growth.



We've reached a major inflection point in human history—not so much in the quality of Top 40 music, as in the acceleration in technological development and the implications of this on society.

It's easy to write off Moore's law as just another buzzword, like *innovation*, *agile* and *disruption*. People overuse such terms because they conveniently encapsulate a phenomenon we simply can't ignore. It doesn't make them any less relevant or important. So, to put Moore's law into perspective, I ask the 30-steps question.

The answer?

One billion and seventy-three million metres. That's 1073000 kilometres, or about 666000 miles...sorry, I hope that number doesn't summon the beast! It's also the equivalent of walking around the world's circumference 26 times!

Remember the famous legend in which the grateful emperor of India asked the inventor of chess to name his reward? The inventor requested one grain of rice for the first square of the chess board and double the number of grains for each succeeding square. The emperor happily agreed to what he thought was a modest reward. It turned out that by the 64th square the inventor had earned nine quintillion grains of rice (that's nine million trillion), equivalent to over six trillion 50-kilo bags of rice, enough to cover all of India with bags of rice.

The power of exponential growth is essentially why ideas like immersive virtual reality environments, artificially intelligent systems, autonomous vehicles and multi-planetary humans are slowly but surely moving from science fiction to science fact. In many areas, these innovations are already being realised. As cyberpunk science fiction writer William Gibson famously noted, 'The future is already here—it's just not evenly distributed'.

What this means

Let's put science fiction aside for a second.

Twenty-five years ago, if someone had told you that you could enter a query into a computer form and generate an archive of

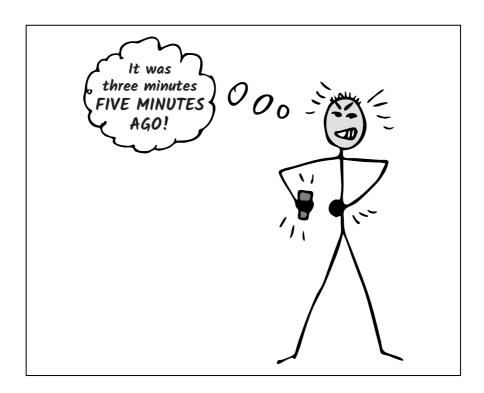
Employee to Entrepreneur

thousands of results within a split second, you probably would have imagined it was some kind of magic box descended from the heavens (or perhaps from the fires of hell, depending on your religious persuasion). The more logical among you might have guessed that the trick involved a 'really big hard drive', rather than a search algorithm that effectively queries every indexed website in the world.

The search algorithm determines relevance before presenting you with the best fit-for-purpose results. If it relied purely on search terms, without filtering, you'd probably end up with what we had in the early days, when an innocent search for cars would generate a list of pornographic websites that featured the word 'cars' a thousand times over in black text on a black background in order to game the system. You probably wouldn't understand (any more than most of us do today) how that same search function handles 40 000 queries a second or 3.5 billion queries every single day. Google's capacity is something we take for granted.

Ten years ago, if someone had told you that you could push a button and within a couple of minutes your own private black car would pull up and take you to your destination, and charge you for it without your having to utter a single word to the driver or hand over any physical payment, you probably would have thought such a thing possible only for card-carrying Freemasons (or, for fans of *The Simpsons*, the Stonecutters). As an aside, I don't advocate not speaking to Uber drivers. I've had many fascinating conversations with them. On one occasion, I learned that my driver had escaped a detention camp in Iraq in a flurry of bullets, made for a camp in Saudi Arabia, and eventually claimed refugee status and safe passage to Australia.

Today we take ride-sharing services like Uber and Lyft or China's Didi Chuxing for granted, so much so that if the estimated wait time is longer than five minutes, we get annoyed. Damned annoyed! Infuriated even, though of course I'm not talking about myself.



For better or worse, Facebook's tentacles reach deep into many aspects of our lives, yet 12 years ago it was nothing more than a rather crude idea emanating from a Harvard college dorm room.

Today these things are a part of life. On average, each day we check our smartphone more than 80 times and spend more than 145 minutes engaged with our phone. We take Facebook, Instagram, Snapchat and other social media for granted, as we do video calls to our friends on the other side of the world.

Moore's law underpins this rapid change. It paved the way for the web, cloud computing, smartphones, connected devices, and game-changing platforms like Amazon and Google. It has changed the way we connect, consume and learn. And settle disagreements: 'Hey, Google...?'

With these shifts has come massive disruption to incumbent organisations across almost every conceivable industry—and, by extension, to employees and their livelihoods. Historically, though, each wave of innovation ultimately created more jobs than it destroyed. The first industrial revolution gave us machines, chemical manufacturing, iron production, steam power and the factory system, giving rise to entirely new industries. The second industrial revolution gave us steel, petroleum, automobiles, mass production and the transition to electric power. Today the third industrial revolution has given us computers and the internet, new sources of energy and vast improvements in productivity, all helping to reduce the cost of producing and distributing goods and services virtually to zero. The total number of 'things' (including physical devices, software and electronic sensors) connected to the internet (IoT) is projected to reach 21 billion by 2020. Increasingly, this is changing the way we interact with our surroundings and even with each other.

Productivity is indeed increasing, However, median household income in the United States has stagnated since the turn of the century and in many regions, such as the Rust Belt (the US manufacturing heartland), median household income is actually decreasing. Mass discontent with this reality had a lot to do with why a certain Donald Trump came out on top in almost all these electorates. In the early 1970s, more than 45 per cent of the Rust Belt's population was employed in the manufacturing sector. As shown in figure 1.1, the decline of US manufacturing jobs over the past half century has left many without a reliable source of income. In Australia, manufacturing jobs dropped 24 per cent in the five years to 2016 alone.

Since 1999, productivity and income have not increased in lockstep, the first time in recorded history this link has been broken. It's happening because technology is becoming more 'intelligent' and is learning to do more of what we once thought only humans could do. After all, if you believe that intelligence is simply about processing information, then arguably a computer that can collect more information and process it faster than a human has the upper hand. As world-renowned economics professor and author Tyler Cowen comments, 'It's becoming increasingly clear that mechanised intelligence can solve a rapidly expanding repertoire of problems'.

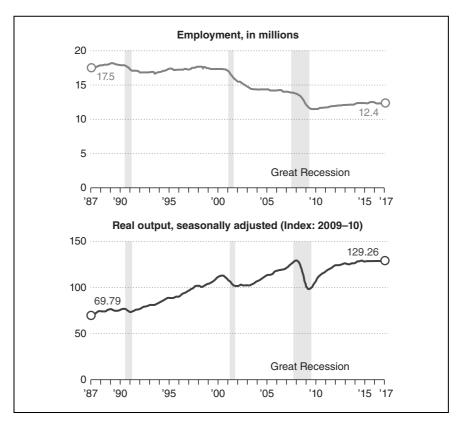


Figure 1.1: US manufacturing jobs have declined while manufacturing output has increased.

Source: Bureau of Labor Statistics

TEN THINGS COMPUTERS COULDN'T DO 10 YEARS AGO (BUT NOW CAN)

- 1. Play chess.
- 2. Write poetry.
- 3. Write and play emotionally engaging music.
- 4. Read human emotions.
- 5. Diagnose diseases.
- 6. Read lips.

(continued)

TEN THINGS COMPUTERS COULDN'T DO 10 YEARS AGO (BUT NOW CAN) (CONT'D)

- 7. Transcribe.
- 8. Read the news.
- 9. Customer service.
- 10. Create brand-new Rembrandts (see, for example, www.nextrembrandt.com).



The threat goes far beyond blue-collar jobs. Expert automation and augmentation software (EAAS) is expected to at first augment and eventually replace much of what today's lawyers, HR managers, marketers, sales clerks, researchers, consultants, accountants and auditors, compliance officers, reporters and editors, investment managers, teaching assistants and even software developers do.

The CEO of online investment platform Wealthfront, Andy Rachleff, writes that 'software is better than people...in just about every industry I know, software-based solutions deliver better functionality, convenience and speed than their human counterparts. There's no way people can keep up'.

At its peak in 2002, Blockbuster Video employed more than 60 000 staff worldwide and had a market capitalisation of US\$5 billion. I remember during my teens gleefully making my way down to my local Blockbuster outlet to hire two overnight and three weekly rentals, immersing myself in cheesy early-1990's comedies like Mike Myers'