THE NEW LEARNING ECONOMY

Thriving Beyond Higher Education

MARTIN BETTS AND
MICHAEL ROSEMANN

"We heartily commend the book by Betts and Rosemann to anyone who wants to understand and improve the new learning economy. In conducting this detailed analysis, Betts and Rosemann generate a framework that can guide the future strategies of global universities. This book is a forceful, bold and pragmatic contribution that will prove invaluable for leaders of universities as well as leaders of corporations and investors who are contemplating entering the higher education sector".

Professor Michael Crow, *President and Research Professor*
William Dabars, Arizona State University, USA

"As we head into a period of unprecedented disruption in higher education, the need for new ways of thinking has become increasingly urgent. Drawing insights from contemporary tech giants, Betts and Rosemann articulate a framework for a new order learning economy and provide a methodology to achieve this. An important, insightful and practical read for leaders interested in the future of higher education".

Sue Kokonis, *Academic Director, Online Education Services, Australia*

"Betts and Rosemann provide us with the single best map for navigating the terrain of the global learning economy, driven by the values of 'educational well-being'. Everyone from university presidents and vice chancellors, to EdTech entrepreneurs, policymakers, and scholars of higher education will be required to consider *The New Learning Economy* in order to understand the changes and opportunities that are arriving".

Associate Professor David J. Staley, *author of* Alternative
Universities: Speculative Design for Innovation in Higher Education

"A 'university of enterprise' leadership team visibly and actively seeks to incorporate the views of its customers in plans for the future – and is not afraid of the word 'customer'. In this book, Betts and Rosemann apply new ideas of enterprising universities seeking to differentiate through technology. The need for universities to explore business models and global opportunities is universal. This book provides an agenda for that to happen".

Professor David Lloyd, *Vice Chancellor and President,*
University of South Australia, Australia

"Betts and Roseman argue new online education technologies enable qualified students, regardless of their life situation, to acquire the necessary knowledge, experience, and consciousness to be lifelong learners and thrive. Driven by attention to the educational well-being of students, they provide practical strategies to inform education leaders to

reimagine higher education. This book is provocative, providing a hopeful, human-centred vision for the future of higher education".

Professor Lynn Bosetti, *Professor of Educational Leadership, University of British Columbia, Canada*

"Betts and Rosemann's analysis focuses on key drivers and opportunities that academics, administrators, and business leaders must understand when addressing contemporary learner evolution. Illustrating key tenets through a range of contemporary disruptors and iconoclastic game changers, they present strategies and potential directions that anyone involved in education would be wise to review. The interrogative questions they pose are thought-provoking and timely".

Dr Kevin Bell, *AWS Head of Higher Education and Research, Australia*

"An inspirational and timely read for all those in higher education wishing to move from survive to thrive, disruption to creation, disorder to impactful transformation. This book provides a guide to the underpinning trends and drivers in education, revisited for the new uncertainties in the learning economy. Of interest to leaders, future runners, and strategic influencers willing to create rather than stand by as new futures unfold".

Professor Gilly Salmon, *CEO at Education Alchemists Ltd., UK*

"The pandemic causes us to revisit how we deliver a multidimensional student experience. Our students are wanting more personalised learning and consistency of experience. How universities respond to these expectations and opportunities is the agenda in evolving beyond higher education. Betts and Rosemann crystallise the issues, draw inspiring lessons from other sectors, and offer practical steps for how we can all embrace these opportunities. The authors provide a significant addition to our understanding of how to focus on what matters in the great readjustment ahead".

Professor Anthony Forster, *Vice Chancellor of University of Essex, UK*

"This an extremely timely book given the massive disruptions occurring in education as a result of the fourth industrial revolution, and then accelerated due to the pandemic. The concepts of a learning economy and educational well-being are important new tools to help not only manage these disruptions but leverage them to drive true innovation in order to reach a new paradigm for education".

Phil Ventimiglia, *Chief Innovation Officer, Georgia State University, USA*

"Higher education needs to change. But resistance – active and passive – within universities can make adaptation difficult. This book should be a wake-up call for leaders across higher education to learn from the disruption in many sectors of the economy and society. With practical frameworks and recommendations, this book will also empower leaders to take action and respond to the changes around them".

Dr Ant Bagshaw, *Senior Advisor, Global Education Practice,*
LEK Consulting, Australia

"Martin Betts and Michael Rosemann bring 30 years of experience inside the academy to bear on their critique of the state of higher education. Using a range of readily identifiable personas and examples from the commercial world, they make a compelling case that it's past time for universities to reengineer their own offerings or face the painful consequences of competition from surprising quarters".

Jack Goodman, *Founder and Executive Chair at Studiosity, Australia*

"With sensitivity, diligence, and acumen, this book triages enduring higher education dysfunctions and weaves together eclectic ideas in cogent ways which will ricochet for decades to come. People who think and care about higher education will enjoy this book's depth, clarity, and foresight.

Professor Hamish Coates, *Director of Higher Education*
Research Division, Institute of Education, Tsinghua University, China

The New Learning Economy

With a focus on action, this book offers inspiration and pragmatic guidelines to higher education leaders and organisations that want to meet the demands of the changing landscape of knowledge, experience, and learning.

Offering a practical toolkit and methodology, this book describes the fast-changing higher education sector as a new learning economy. It explains how this new economy evolved and three major problems that make the current higher education model unfit for purpose. Through six case studies from other contexts, the book presents key lessons for the higher education sector and six strategic principles for growth in this changing environment. The book includes a strategic planning methodology which guides the reader on how to make an assessment of their own institution and identify a strategy for how adaptation and change can realistically be achieved.

This book is a must-read for all higher education professionals looking to drive their institution towards an innovative and sustainable future.

Martin Betts is Emeritus Professor at Griffith University having served as Deputy Vice Chancellor of Engagement until 2020. He leads the higher education sector with experience from seven universities in three continents. He is co-founder of HEDx, impacting higher education through a podcast, advisory services, and live events.

Michael Rosemann is Professor for Information Systems and Director of the Centre for Future Enterprise at Queensland University of Technology (QUT). His areas of research are the management of innovation, business process, and trust. He published more than 350 referred papers and nine books available in five languages.

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Martin Betts and Michael Rosemann

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Foreword

The worldwide expansion of higher education during the past half-century has fostered systemic reform efforts in many nations intended to expand access to greater proportions of respective populations. The private and social benefits of higher education are well documented, as attested in the work of such economists as Raj Chetty, Claudia Goldin, Lawrence Katz, Walter W. McMahon, and Emmanuel Saez. Because knowledge is both a public good and a private benefit, developing human capital is an essential determinant of socio-economic success for individuals and economic growth for the collective. Accordingly, the need for advanced training and education has never been greater. As described by sociologist Martin Trow in the 1970s, economically developed countries have entered the universal phase of higher education, in which more than 50% of populations participate. As higher education policy scholar Simon Marginson explains, such participation has become "mandatory for full and effective social engagement".[1]

But inherent limitations in the design of colleges and universities or systems of higher education never intended to achieve broad accessibility have increasingly shifted responsibility for educational attainment to potential learners and their families. In the case of the United States, admissions protocols enforced by leading colleges and universities, both public and private, increasingly favour students from the upper quintiles of family income, which precludes the participation of countless academically qualified applicants from the other quintiles. Within the next several years, moreover, what are now termed non-traditional learners will comprise the vast majority of individuals seeking education, skills-building, and training opportunities. To remedy dysfunctional exclusionary practices, alternative models are being explored.

Not all colleges and universities are alike, however, and not all degrees carry equal value. In two co-authored books we have argued that "mere access to standardized forms of instruction decoupled from discovery and knowledge production narrowly will not deliver desired societal outcomes".[2] And as we added elsewhere, "Nor is focused vocational or technical education sufficient to prepare graduates for the challenges and complexities of the decades ahead".[3] Consequently, we argue that undergraduate education must integrate comprehensive liberal arts curricula along with cutting-edge knowledge to enable graduates to succeed in the workforce of the global knowledge economy. But millions of individuals who would benefit from advanced education and training are not allowed to participate because they do not conform to the traditional demographic focused on 18- to 24-year-old degree seekers.

New and evolving platforms for advanced education must accommodate diverse student-centric approaches that are broadly accessible to learners of all ages and from all socio-economic levels throughout their lives. As we contend in a forthcoming book, a subset of public research universities must assume a broader remit by redefining themselves as platforms for universal learning. This would "enable qualified students within their communities, regardless of socioeconomic status or life situation, to acquire the knowledge and skills needed to achieve their goals by empowering them to freely shape their intellectual development and self-determined creative and professional pursuits".[4]

The advent of scalable online educational technologies that support personalised learning empowers learners of all ages. In a hyperkinetic knowledge economy in which technological innovation catalyses opportunities, only those who possess relevant knowledge and skills will be able to compete. As a consequence, higher education has become a significant growth sector. To meet the challenge, HolonIQ predicts that the global education market will increase to $10 trillion by 2030, making up 6% of gross world product. The economic momentum is attracting tech-savvy EdTechs and BigTechs to a domain that until recently was heavily regulated and slow to innovate. Colleges and universities as traditional providers in this environment are being disrupted and must navigate through mutating strategic minefields.

By analysing the business processes of higher education, Martin Betts and Michael Rosemann highlight the threats and even more the opportunities confronting the new learning economy, which they persuasively argue improves educational well-being by expanding lifelong learning. The authors provide a contemporary global analysis of this emerging sector based on more than the standard demographic and economic development data. Inspired by Maslow's hierarchy of needs, Betts and Rosemann define educational well-being as based on competence, which consists of knowledge, experience, and consciousness. However, what they term learning disorders – the knowledge disorder, experience disorder, and consciousness disorder – amplified by unpredictable, high-impact changes, that is, black swans ("immediate, high-impact amplifiers") like sophisticated digitisation ("the ubiquitous, exponential amplifier"), an ageing population of learners ("the extending amplifier"), and, more recently, the COVID-19 pandemic, have compromised educational well-being. In addition, a variety of economic disorders including disproportionate costs and pricing, misguided customer relationship management practices, and inefficient cross-subsidisation plague the current learning economy.

We acknowledge the cross-cutting challenges posed by the current learning economy to improving the competence – knowledge, experience, and consciousness – essential to educational well-being. By building on the extraordinary knowledge produced by research

universities, the New American University model operationalised at Arizona State University (ASU) dynamically balances the imperatives of education, knowledge, and social progress by leveraging an entrepreneurial approach that resonates with the business process analysis proposed by Betts and Rosemann in their eye-opening analysis.

Despite the design limitations and sometimes less-than-optimal performance of the higher education sector, Betts and Rosemann identify a set of interrelated growth opportunities, beginning with expanding user and content bases. Projected population growth and increasing demand for lifelong learning ensure growth in the user base. Content-based growth will massively scale up available content from libraries and through new platforms operated by "content aggregators". Furthermore, value-based growth will "extend the pure act of comprehending content" through such services as "gameful learning" and augmented learning environments; time-based growth refers to opportunities for continuous learning over a lifetime in contrast to the conventional "stage-gate approach"; and location-based growth acknowledges the acceleration of "globally available digital means of delivery and support".

Betts and Rosemann discern a "fertile ground for change in the new learning economy", which is caused by the "disruptive potential of new business models, a globalising society, and dissolving industry boundaries". Colleges and universities that are sticking exclusively with traditional modes of instruction face a threat posed by the online digital delivery of instruction. Furthermore, the sense of urgency is amplified by the need for growth because traditional sources of revenue are threatened. For example, in the United States, disinvestment in higher education by legislatures at the state level, tuition increases, and spiralling student debt are rearranging the new learning economy. In contrast to mere operational efficiency, the authors recommend revenue resilience, which they define as the "ability to withstand threats to an organization's revenue". A sense of ambition tackles "bold challenges and becomes idiosyncratic and powerful when it goes beyond industry standards". As opposed to granting a "one-off qualification at the end of formal schooling", ambition may compel a university to perceive "lifelong educational well-being" as a more appropriate commitment to graduates, which might thus take the form of a "living degree".

Students are third-party beneficiaries of synergies produced by well-functioning knowledge enterprises interacting seamlessly with robust learning enterprises that produce economic capital by providing companies with productive employees who can communicate well and think critically. This virtuous cycle accelerates democratic social mobility by encouraging disadvantaged and marginalised students to participate in the new learning economy. These dynamic interactions resonate with the insightful argument at the heart of the book. Betts and Rosemann postulate three dimensions of the learning economy that leaders must

consider if they want to overcome design faults that inhibit the emergence a robust learning economy: centricity, connectivity, and certainty.

According to them, six strategic principles for the new learning economy are structured along the three dimensions of centricity, connectivity, and certainty. They illustrate the strategic principles by referring to contemporary examples of global corporate innovation by Netflix, Spotify, Tesla, YouTube, Google, and Amazon. These companies generate principles of scalability, personalisation, continuity, community, innovation, and trust to inspire those who seek to thrive in the new learning economy. The authors contend that the future of higher education will be characterised by the speed with which these six principles are leveraged by respective stakeholders.

Betts and Rosemann anchor the poles of each dimension with contemporary BigTech companies that they admire for the principles that they are known for: scalability, represented by Netflix, and personalisation, represented by Spotify, anchor the poles of centricity; continuity, represented by Tesla, and community, represented by YouTube, anchor the poles of connectivity; and innovation, represented by Google, and trust, represented by Amazon, anchor the poles of certainty. To consider but one aspect, Netflix achieved scalability by "decoupling delivery" from geographical constraints in the same manner as the University of Maryland Global Campus decoupled courses from classrooms by offering 120 online programmes to 90,000 students worldwide.

Whereas Betts and Rosemann propose to reform the disordered learning economy through a top-down approach that emulates the strategic pathways pioneered by BigTech companies, the academic community at ASU by contrast has adopted a bottom-up approach that empowers producers of knowledge, education, and social progress. Over time, the new learning economy benefits from the interaction of social and technical innovations produced by competition among ideas generated by economic and educational actors that are assessed by being put into action and observing the results. These dynamics fuel a competitive society and economy that allow BigTech companies as well as universities to emerge within the local contexts from which they compete on national and international scales.

After delineating opportunities of the new learning economy, Betts and Rosemann detail a strategic planning process based on four generic leadership strategies: "safe pair of hands"; which provides continuity with current business and operating models; "specialist", which exploits the potential of one of the six variants; "hybrid", which "addresses two principles that are oppositional on the surface", and the "pantomath" strategy (meaning "having learnt all"), referring to simultaneous participation in all six strategic principles. The practical deployment of these six principles is consolidated in a methodology based

on a strategic dashboard that guides leaders through an orderly set of questions and self-assessments that helps them consider whether to embark on a strategic pathway and, if so, helps them devise, pursue, and implement plans. Leaders may apply none of the principles, any one of them in isolation, pairs of principles that have synergies between them, or all six principles. These are presented as four new generic strategies for the future for higher education. Their practical advice extends to generating an implementation plan.

The charter created by the academic community at ASU grounds its strategic plan by measuring the performance of the organisation by inclusion, not by the exclusionary standards of the oligopolist bucket of highly ranked but selective universities that conduct status warfare by neglecting the needs of the excluded. The university extends the environmental, social, and economic well-being of its community by joining with other major public research universities in leagues such as the University Innovation Alliance, a coalition established in September 2014 to promote educational attainment, and especially to advance rates of graduation among the historically underrepresented and socio-economically disadvantaged.

One of the great contributions of this book is that from a global perspective, Betts and Rosemann have pioneered the concept of a learning economy as the future for higher education. This extends the focus for the academy beyond conserving heavily regulated institutions mired in long-trodden patterns of semesters and degrees to encompass a fast-paced, dynamic sector that understands and follows current economic principles, and, by doing so, generates new models of engagement, delivery, services, and ultimately educational well-being.

The book is a forceful, bold, and pragmatic contribution that will prove invaluable for leaders of universities as well as leaders of corporations and investors who are contemplating entering the higher education sector. The book provides evidence-based and logically reasoned advice that promotes innovation, experimentation, and new strategies. We are excited and intrigued with how the ideas of Betts and Rosemann will facilitate innovation by promoting further waves of universities as well as by encouraging corporate partners to contribute to the new learning economy.

We heartily commend this book by Betts and Rosemann to anyone who wants to understand and improve the new learning economy. In conducting this detailed analysis, Betts and Rosemann generate a framework that can guide the future strategies of global universities seeking to innovate beyond the Fifth Wave, and for others that may want to contribute to its future growth, Betts and Rosemann are worthy guides to remodelling the learning economy of higher education based on the strategic pathways pioneered by BigTech companies.

Foreword

Michael M. Crow is president of Arizona State University, Arizona State University Foundation Leadership Chair, and Professor of Science and Technology Policy. William B. Dabars is Senior Director of Research for the New American University in the Office of the President, a research professor in the School for the Future of Innovation in Society, and Senior Global Futures Scholar in the Julie Ann Wrigley Global Futures Laboratory, Arizona State University. They are the authors of Designing the New American University *(Johns Hopkins University Press, 2015) and* The Fifth Wave: The Evolution of American Higher Education *(Johns Hopkins University Press, 2020).*

Notes

1   S. Marginson: *The Dream Is Over: The Crisis of Clark Kerr's California Idea of Higher Education.* University of California Press, 2016.
2   M. Crow and W. Dabars: *Designing the New American University.* Johns Hopkins University Press, 2015; Crow and Dabars: *The Fifth Wave: The Evolution of American Higher Education.* Baltimore: Johns Hopkins University Press, 2020.
3   M. Crow and W. Dabars: "The Emergence of the Fifth Wave in American Higher Education," *Issues in Science and Technology* 36, no. 3 (Spring 2020), pp. 71–74.
4   M. Crow, W. Dabars, and D.M. Anderson: *Universal Learning: Democratizing American Higher Education.* Johns Hopkins University Press, forthcoming 2023.

Acknowledgements

Prologue: A Day in the Lives of Adam, Julianne, Saki, Dann, and Gabriella

Adam was destined to study the intersection of commerce and information technology. His mother was a professional administrator and accountant who had shared with him a passion for making things work better. Her career ended as computers emerged: a great leap forward in technology that possibly threatened her lifetime's knowledge and experience remaining relevant. She saw potential for her profession starting to change in the early 1990s but could only imagine what new life opportunities her son might get with the right start. She strongly encouraged Adam to learn about conventional commerce and accounting practices, and newly emerging technologies of enterprise systems and databases. He did so at a world-renowned European technical university. He used his top-class degree to gain a graduate entry position in a global provider of enterprise systems, and worked in automotive, finance, and services sectors around the world. Adam rose to vice president in his 40s. His mother was so proud, and happy for him. She felt sure he was set up for life, that his university education would only add to the worthwhile experience it would lead to, and his career path was clear. Or was it?

In 2015, Julianne was reaching the peak of her profession when her Pulitzer Prize enabled her to move from The New York Times' *arts correspondent's team to that job at CNN.* The New York Times *role she started after graduating was the plum graduate job for her large group of Columbia classmates. Journalism was the peak profession for arts graduates like her. She foresaw a career and lifetime of influence, prestige, and of making a difference in the world by doing work that was important, widely read, and respected. Julianne developed a strong sense of self-confidence, supported by her teachers and mentors saying there would always be a need for a professional journalist's skills. She felt so assured that the combination of a great college education, and pioneering experience from working with the best, would be all she needed to stay at the peak of a profession for her entire career. Surely this would not change, would it?*

Like many of her peers, Saki followed her parents into a career as a committed and loyal servant to a Japanese global giant like Toyota. She was lucky to do so in a field and career that would never change: making cars that were treasured around the world. As an automotive engineer, she used her Mathematics degree from the University of Tokyo to gain a graduate entry position in the world's largest, most successful car maker. She was on a

five-year rotation programme and gaining experience that meant, after 30 years in the company, she knew almost all there was to know about combustion engines. She felt sure it would be all she would need to know for some time. Her culture always placed much store in knowledge and in valuing experience, and Saki was committed to following that cultural compass. She placed her faith in the timeless value of both. This would never change, would it?

Dann was so proud of becoming a professor. He was the first in his family of hard-working tradespeople who benefited from an education system that allowed his flair and passion for history to flourish. Dann qualified for the grammar school in his town through hard work during his primary school years when it was so easy to be distracted. His parents' generation, and the whole community they were part of, seemed so focused on the most likely step beyond formal education being local manual work in the city's renowned heavy industries. When Dann gained a scholarship to study industrial sociology and history at his local university, he was inspired by his encounters with brilliant tutors and academics. The prospect loomed of an honours year and a doctorate, and he was sure of his path into becoming an academic. When his first fixed-term contract lecturing job became a tenured position, it seemed he had finally found his feet and had a career for life. After all, he was a university professor now. There would always be a need for traditionally trained professors to teach students in the local university. Timeless principles of knowledge and experience would always serve young people's unchanging needs to have an education that set them up for life. Universities would be the last of our great institutions to change, wouldn't they?

Gabriella was a proud graduate of the University of Barcelona. She was always intrigued by how to manage and care for staff since her childhood working with her parents in their catering business, serving various outlets in her tourist city. She grew up observing how both food and beverage, and tourism-related industries, had uncertain staffing. Thus, from an early age she was keen to learn about modern human resources practices. She felt palpable relief on gaining entry to the university. Graduating with a Bachelor of Business, and a major in Human Resources Management, was a passport to her first jobs in HR departments of one Catalonia's biggest insurance companies. She was grateful to add her experience, growing daily, to the traditional education that prepared her so well with knowledge. This combination was all she needed to progress in a long career, to ultimately become Chief People Officer, wasn't it?

Preface

The five characters we use in introducing our book are not unusual as examples of mature professionals, people working around the globe, reaching leadership positions in fields like business systems, engineering, journalism, HR, and academia. There are many professionals like these around the world. Maybe your career has exposed you to stories which have some parallels with theirs.

We will return to, and continue, these five learning stories as we progress through this book. We will uncover how current learners are finding new ways to serve their learning needs. This book was written to understand the implications of changes in professional life for the evolution of higher education, and the nature and future of learning. It aims to help those looking for new opportunities to lead, contribute to, and change ways of learning in our future economies and societies. As many have documented, working life has changed from when these five characters, and many readers, were well advanced in their careers. It has changed from when they undertook most of their education and learning.

However, what is little changed is the organisation and institutionalisation of learning supply and demand. The system and stakeholders constituting this form the *learning economy*. The good that is traded is of highest societal and individual importance, and consequently comes with a significant social justice purpose and mission. We strongly support the mission and goals of social inclusion to ensure every individual has the chance to benefit from being well educated. However, despite the importance of social inclusion, this book comes with compromises regarding what cannot be covered. It concentrates on the economic viewpoint of learning.

Discussion on the future of work is ubiquitous as a focus of public debate, but the *future of learning* is discussed, and understood, less frequently. We know that the future of work requires new forms of, and attitudes towards, learning. Without learning there will be no future work for many. By the same token, the future of learning creates new, and different, work and opportunities for many.

Thriving in the new learning economy will no longer focus entirely on those who primarily have to learn before commencing their working lives – students from primary to tertiary education. It will also no longer assume a simple model in which a professional career follows early years of foundational learning. Instead, it will serve learners who are working, and workers who are learning, many eager and not forced to learn. They will have intrinsic motivation to ensure continued well-being through education throughout their lives. They

will seek skills and knowledge more than degrees and credentials. Some, like bestselling *Wall Street Journal* author Scott Young, even predict the emergence of *ultralearners*. An ultralearner is a self-directed learner acquiring new skills in a short time frame through adopting an aggressive and strategic learning approach.[1] To make this acceleration and growing economic and social importance of learning possible, the economy serving learning needs and demands will evolve beyond current higher education approaches.

This includes learners needing to master how to navigate and benefit from a more diverse, global, and digital learning economy. Equally, learning providers must identify their position and branding in an economy of far more diverse roles across the entire value chain of learning – production, orchestration, consumption, and assessment.

There are also new opportunities for employers to participate in the new learning economy. Organisations will have new learning architectures, new forms of learning governance, and new learning partners. These organisations will use improved workforce educational well-being to ensure purposeful contributions through their corporate missions.

This book is not an alarm, a threat, or a portent of doom. Far from it. We know the world of learning and the world of work are changing, and will continue to change. They do so in ways that, as we will show through learning and economic disorders, make our underpinning models of education supply outdated or redundant. The models are at best limiting, at worst dangerous, to our preparedness for the future. But in this we see rich new opportunities.

There will be opportunities for all current universities to develop and grow, beyond their research ambitions. This book restricts its commentary to the learning economy and its participants. It does not focus on where research will fit for universities engaged in the learning economy of the future, beyond references to where research might support learning economy opportunities. But new demands for real-time, personalised learning create new types of learning services beyond those provided by universities now. This requires new mindsets, skillsets, toolsets, and datasets. It requires curiosity to deal with new digital technologies, have the capability to conduct business model innovation, and balance existing risk appetites with newly articulated opportunity appetites. In consequence, all learning providers will reimagine strategies and operating models, explore new markets across geographies and generations, and engage in new partnerships with providers beyond traditional boundaries of the existing learning economy.

This opportunity richness, combined with predictions that the learning economy will grow, will attract entrepreneurial energy from a fast-emerging EdTech sector. It will encourage

BigTechs to enter the learning economy as a sector they have yet to touch. It will attract investors seeking returns from a re-energised sector.

A well-connected society, with a high level of digital literacy, will find new ways to explore forms of self-orchestrated and self-paced learning. Digital communities will emerge that facilitate democratised peer-to-peer teaching and learning. There will be platforms providing global reach and richness of content where providers and consumers come together. This will see us following the logic of marketplaces familiar in so many facets of life.

Learning experience design (LX) will be an entirely new profession as learners request levels of intuition, sophistication, and ubiquity they know from other sectors and forms of service.

For these and many other reasons, the future learning economy will be opportunity-rich. In contrast to the sector's obvious problems and challenges, these opportunities are more difficult to identify. In this book we assume a responsibility to identify, analyse, and outline the full landscape of emerging opportunities. We seek to illuminate possibilities in the new learning economy, so as to accelerate their exploration and uptake. This is much needed as we all must advance educational well-being to better deal with future challenges. We all share a need to democratise access to education that changes lives.

We have written this book as advocates for, and reflective practitioners of, the world of learning and its relationship with work and professional lives. Like everyone working at the interface of educational institutions and workplaces, we have experienced, felt, and responded to some of these changes.

The book is structured in three sections. Part A is about *Why and how is the learning economy changing?* It introduces three learning disorders in the current education system through the five learners' stories that started this book. This system has remained untouched in its founding principles for too long, despite rapid environmental changes. In addition, we identify economic disorders, showcasing that the learning economy underutilises economic principles common in most sectors. Together, these learning and economic disorders create urgency for change. However, the new learning economy does not require attention only because of current flaws. It deserves exploration with a healthy sense of ambition. The new notion of educational well-being creates a purpose that introduces numerous new design options.

Part B uncovers these by exploring *What is the new learning economy becoming like?* What principles will guide our new learning economy design? It presents six principles, grounded in contemporary business and technology developments in other sectors, which far exceed

the dominant principles of effectiveness and efficiency, compliance and reliability. Visionary for the learning economy, but already reality in other sectors, these principles provide guidance on how the learning economy will change. We call them scalability, personalisation, continuity, community, innovation, and trust. All have potential to catalyse new models and services in learning. For each principle, the book starts by presenting a globally known organisation as a reference point. It discusses the learning economy's current status regarding this point of reference, and reasons why we are "only" where we are. A number of recommendations regarding these new principles provide a call to action for learning economy participants.

Part C discusses *Who will lead and how will they thrive in the new learning economy that is emerging?* Who might be new participants in our future learning economy that proceeds using the proposed principles? How can new and existing learning economy participants position themselves for evolution in higher education and learning economy growth? Which global technology companies will enter the lucrative education market? Who will be the participants in a new entrepreneurial EdTech ecosystem? How will they apply principles from other sectors in the learning economy? A three-staged methodology is presented in Part C, prompting ambitious leaders to conduct a realistic self-assessment by asking themselves five key questions. Their answers enable participants to choose from four generic strategies for successful participation in new learning economy's growth.

The book aims to offer inspiration and pragmatic guidelines to leaders, and organisations providing new services, in the search for improved levels of educational well-being. The learning economy is changing beyond recognition, evolving beyond higher education, and becoming accessible by and to all. The book also seeks to make these changes in the economic context of learning, more visible and understandable to scholars, professionals, and organisations working in the learning economy, and those who have studied, are studying, or will study in it, and are interested in how it is changing. This applies particularly to those working in other sectors that have an increasing focus on the educational well-being of their workforces. They will seek closer relationships with well-informed colleagues and employers to explore how the new learning economy can serve their purposes within other economic sectors.

Finally, there is opportunity for economies, nations, and society at large to realise benefits from a learning economy centred on new purposes, ambitions, capabilities, engagement models, and quality outcomes. Realising benefits will encompass educational well-being in our overall well-being. A nation's educational well-being might become a leading indicator for future national prosperity. Governments may change policies and regulation to support educational well-being much as they currently support their citizens' physical and financial

well-being. All this requires a sound understanding of new learning economy design options that can enable educational well-being.

Only through quests for ubiquitous, contemporary, conscious competence of educational well-being can we capitalise on the opportunity-rich environment emerging right now. This book shows us the why, how, what, and who of the new learning economy.

Note

1   S. Young: *Ultralearning. Master Hard Skills, Outsmart the Competition, and Accelerate Your Career*. Harper Business, 2019.

Part A

The Emergence of a New Learning Economy

1 The Current Learning Economy

1.1 The Origins of Learning

Our current learning economy has evolved over time but now faces radical change. It has a historical context and retains its original purpose of a need to provide initial education for learners. We position this need for education among other forms of well-being and outline how to provide lifelong educational well-being. We define this as knowledge and experience leading to competence which we are increasingly conscious of.

There are disorders in the current integration of learning into our professional lives, which are being amplified. There are also economic disorders in institutions providing learning services, which create a burning platform for change. This culminates in the need for a new learning economy characterised by five forms of growth. Figure A.1 depicts our framework for Part A.
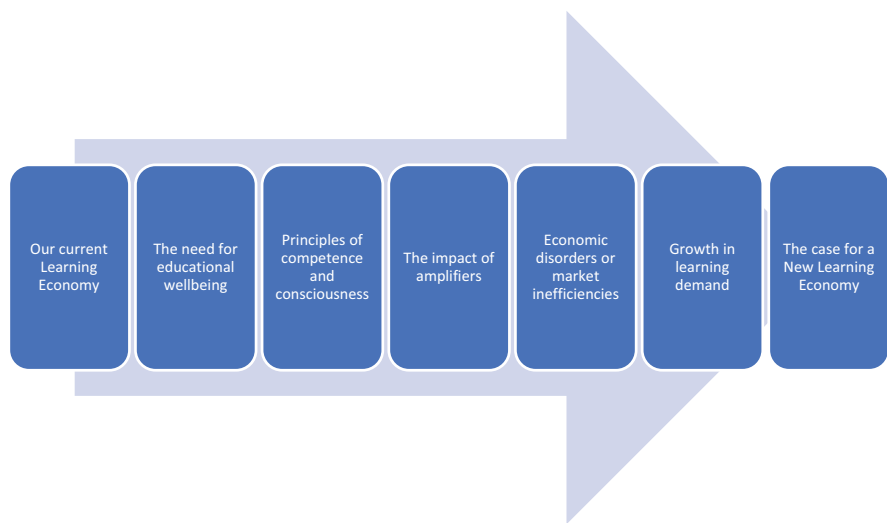
FIGURE. A.1   Stages creating the need for a new learning economy.

The human species is distinct in many ways, including our ability to communicate, innovate, create, and be consciously aware that we can make and benefit from change. We have evolved to learn and adapt rapidly. We have established sharing of our learning as a principle of our approach to community and society, and built foundational educational systems that make extraordinary contributions to our development, specialisation, productivity, and employability. They have supported the growth of culture, literature, science, engineering, humanities, and the arts.

As a society we have extended these areas of knowledge and understanding into professional knowledge bases. We built industrial revolutions and economies on the back of them. We developed a sophisticated and evolved focus on learning, and developing, documenting, and sharing knowledge. We specialised beyond a hunter-gatherer economy to build homes, farm, manufacture, create, learn, and teach. These all led to an accelerating process of knowledge growth, resulting in improved quality of life and wealth, and indeed well-being.

Many global educational models evolved along very similar lines. The timing and initial paths varied, with early Egyptian, Greek, Roman, and Chinese systems making significant and distinctive advances. These helped their citizens become knowledgeable participants in growing societies and economies. While they emerged at different times and started on different paths, the resulting systems are remarkably similar. They have tended to converge with increasing globalisation and will continue to converge more rapidly.

The fundamental importance of education and learning to modern societies is profound. It has taken significant public investment for generations. This continues to grow, although the funding source might change. Education and learning facilitate progress in nations through innovation, economic activity, culture, and our ability to provide, care for, and advance our communities. It is becoming more important to our development and quality of life. From it, springs much hope for advancing ourselves and transforming our lives.

Access to education is seen as a fundamental human right, vigorously pursued and defended. Article 26 of the United Nations Universal Declaration of Human Rights clearly states, "Everyone has the right to education".

The idea is long established that specialist educators provide for learners within a community, from multiple family groups, in dedicated learning facilities, and in specialised learning environments. Initially focused on students learning to read, write, and be numerate, the primary education system evolved into science, languages, humanities, arts, and technology. More advanced specialisms emerged in secondary education.

Many educational systems combined social interaction by learners in groups, practising basic education skills. They drew on standardised documentation of knowledge in various foundational texts, and other learning materials. To this day, most educational systems culminate in assessment and in gaining accredited credentials. These give evidence of education or learning achieved or attained, becoming a measure and currency of a level of learning completed. We assume credentials are cumulative and enduring.

Once secondary education became widespread, our education systems diverged between two dominant streams of selectivity. These streams were based on selections made at an early age, through assessments. We awarded interim credentials to those progressing more quickly in their studies. Selection was either for more technical and advanced education, leading to uncommon experiences of university study and professional careers, or alternatively for vocations in trades, service, and commerce.

Larger cohorts progressing to vocational education often resulted in technical or service employment. Many apprentices pursued trade futures and employment as technicians and skilled practitioners. Vocational education in some countries emphasises integrating hands-on professional experience and knowledge gained through advanced learning. The German apprenticeship model sees trainees split time between attending a vocational institution and hands-on work. Approximately 60% of all young workers follow this so-called dual model. In comparison, countries like the US retired the apprenticeship model decades ago and only around 5% of school leavers still follow it.[1]

1.2 The History of the Learning Economy

Tertiary education systems emerged as the nature of work changed, as did the aspirations of more developed and wealthier nations and their populations. The first universities were founded nearly 1,000 years ago in Bologna (1088), Paris (1150), and Oxford (1167). Then came many new universities throughout Europe as scholarly expertise became widely recognised as important to society's development. Depending on the course of study, different types of awards were offered, ranging from certificates, to diplomas, to bachelor degrees, to doctorates. They became distinguishing signs of credibility and capability.

The pattern of early European university establishment was rich and diverse. At the end of the eighteenth century, there were 143 universities in Europe. The Humboldtian model of higher education emerged. The core idea of a close nexus of research and study has shaped university systems globally ever since. However, the Industrial Revolution's arrival, and its educational requirements, expanded the dominating focus of universities on science.

Stronger inclusion of new disciplines, like engineering and economics, occurred. This was accelerated post–World War II, and tertiary, university-based education became more common and widely available globally. Universities now attracted masses. Completing advanced, research-informed specialised courses was increasingly a prerequisite for membership of professional, technical, administrative, and service workforces.

In the United States,[2] the history of higher education started with the foundation of Harvard College in 1636. Other examples of denominationally affiliated institutions were Yale (1701), Princeton (1746), Columbia (1754), and Penn (1755). These were highly selective residential colleges of liberal arts, and many later became research-intensive universities of global prestige. They formed the core of the Ivy League. The first agricultural college was established in 1855, and today known as Michigan State University, was a model for the Morrill Act. President Abraham Lincoln signed this Act into law in July 1862, during the Civil War, thus creating so-called land-grant colleges dedicated to education in agriculture, applied sciences, engineering, and military tactics. The Act was eventually extended to all states. It transformed colleges, which were focused on classical studies and liberal arts, with entry requirements often including Latin or Greek proficiency. Fifty years later, more than 3,000 engineers graduated from US colleges, providing the much-needed talent base that accelerated US economic development. The University of California, Cornell University, and Massachusetts Institute of Technology (MIT) are universities ceded as land-grant institutions. More recently, dedicated programmes gave birth to sea grant colleges (aquatic research, 1966), space grant colleges (1988), and sun grant colleges (renewable energy, 2003).

While the history of universities can be admired, in principle the construct "university" is largely unchanged. Or, as Michael Crow states, "The organisational frameworks we call universities – this thousand-year-old-institutional form – have not evolved significantly beyond the configurations assumed in the late nineteenth century, nor have differentiated new designs come to the fore".[3]

Undoubtedly, university systems have progressed over more than 900 years. There are new academic specialisms, increasing research emphasis, closer ties between universities and employers, lifelong relationships with alumni, and increased links between universities and their local communities. But underlying principles of institutions pervade: a universe of students of various disciplines learn and are taught together, without undue constraint or influence from funders or government.

Our universities have become players in a broader, more diverse tertiary system. Further education of vocational skills emerged on related paths. Public institutions developed

alongside complementary, regulated private players. For many economies, higher education is now a top-five export industry. A maturing higher education sector is increasingly a sign of maturity in national economic development, much as steel manufacture and car making were in the twentieth century.

Yet, books on the American university model (Crow and Dabars, 2020) and the Australian university (Davis, 2017) conclude that conformity characterises these models, and that most universities follow the same business and operating models. We refrain from a fuller description of the history and development of global universities as this book has a future orientation. These published works deal comprehensively with historical perspectives. We recognise history is important in explaining our current arrangement of providers to the learning economy. Following the Humboldtian model of higher education also explains the significant shared commitment of universities to both learning by students, and research, which combine as critically important joint features of the modern university.

The education sector has made increasing demands on public investment and funding. It has presented significant co-investment and funding opportunities for industry, philanthropy, and private investment by both providers of, and those demanding, an education. Institutions have advanced their organisation, management, leadership, and governance in the context of ubiquitous global rankings. They have become hypercompetitive environments and under pressure to continually develop.

This growth and development are evident in recent enrolments and forecasts. Outside North America and Europe, before 1970, proportions progressing to post-secondary formal education grew from typically less than 10% of cohorts, five years after the end of secondary schooling. They now commonly reach 50% in our most developed economies, and are fast approaching 40% in many parts of the world (Figure A.2).

1 The Current Learning Economy

Projections of the share of adults educated to degree level, 1970 to 2050
Adults are defined as those aged 15 years and older.
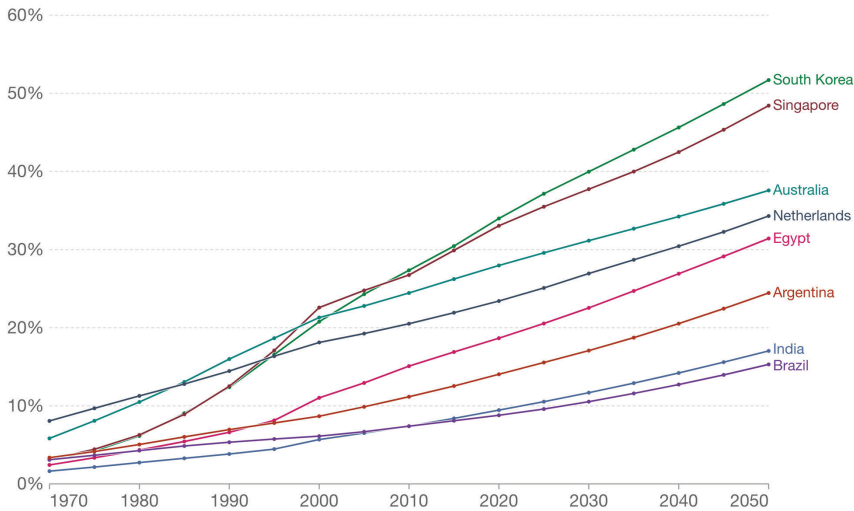
FIGURE A.2   Projections of national population shares tertiary educated from 1970 to 2050.

This data suggests our learning economy's overall size is growing rapidly, with particularly big changes in market opportunity in fast-developing economies (Figure A.3).

● 25-34 year-olds   ◇ 55-64 year-olds
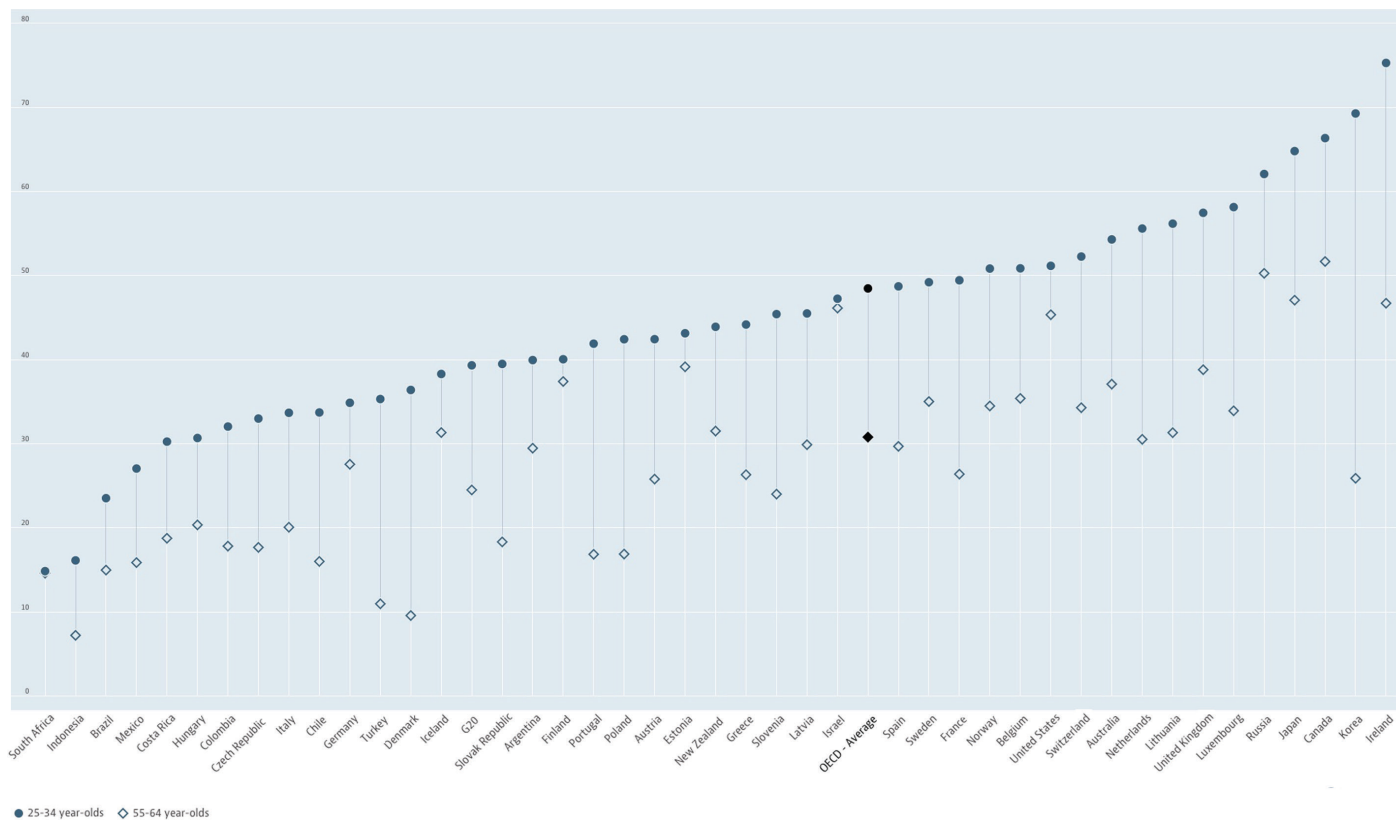
FIGURE A.3   Share of population completing tertiary education at age groups in various countries in 2021.

Source: OECD (2022), Population with tertiary education (indicator). doi: 10.1787/0b8f90e9-en (Accessed: 28 February 2022).

1 The Current Learning Economy

Patterns in individual countries have also shown rapid recent expansion with forecasts of participation in learning continuing to grow (see Figure A.3). There is much data to suggest the learning economy's size has been growing for some time, partially through evidence of its evolving shape and nature. The correlation between population shares completing tertiary education at the younger and older learner groups illustrates different histories of economic development in various countries, with different growth opportunities in lifelong or adult learning.

This growing learning economy, and the increasing role of education at all levels, has become a state and public-sector responsibility, leading to increasing burdens on public funding. However, the share of the burden between public and private sectors varies significantly by country. Over time, the burden has shifted to private investment as total size of investment has increased within increasingly limited public budgets.
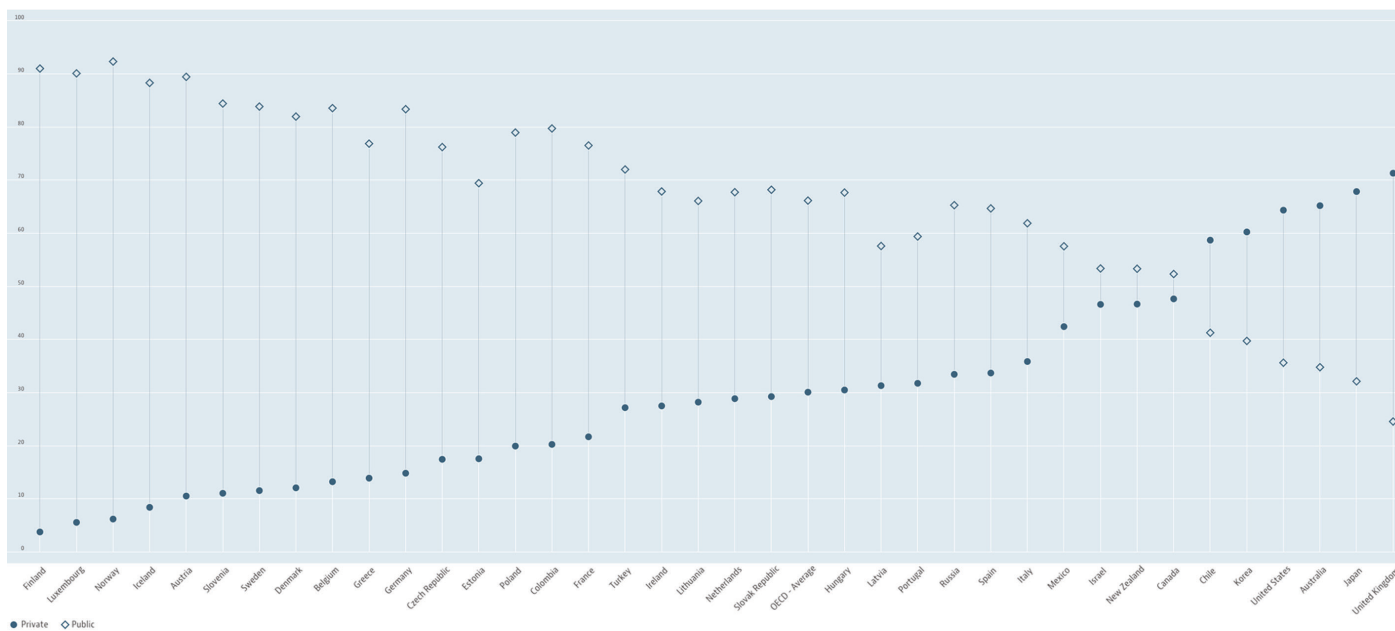
FIGURE A.4   Public and private spending on tertiary education by country in 2018.

Source: OECD (2022), Spending on tertiary education (indicator). doi: 10.1787/a3523185-en (Accessed: 28 February 2022).

1 The Current Learning Economy

The data in Figure A.4 shows an increasing burden for learning investment is falling upon private sources in many countries. However, the data only reports on formal institutionalised learning and many new forms of self-motivated, post-degree learning are not captured. The Organisation for Economic Co-operation and Development (OECD) forecasts that growth in the new learning economy being increasingly focused on stages beyond primary, secondary, and tertiary education into lifelong professional learning, as shown in Figure A.5.
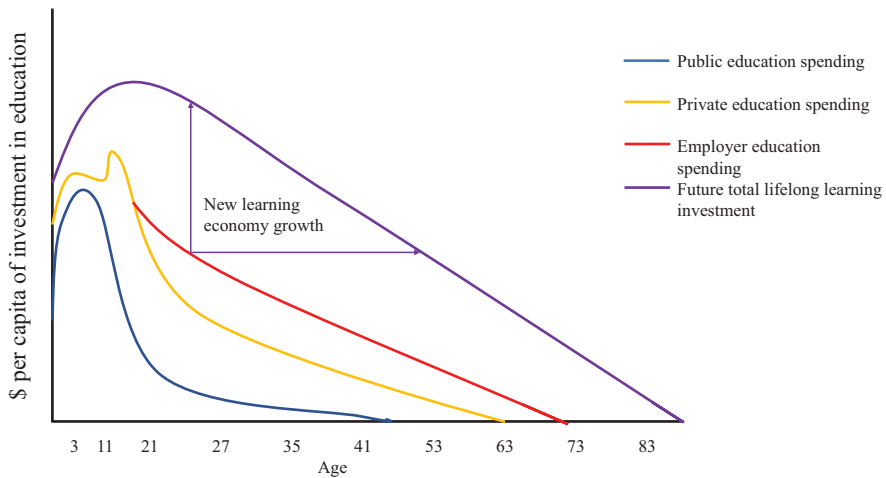
FIGURE A.5   Education and skills training expenditure in 2017 and beyond with future forecasts by Go1.

Note: CEA Addressing America's Reskilling Challenge, Council of Economic Advisers, 2018.

Source: CEA 2018.

This demonstrates a shift from a mandated, provider-centric balance of education services and expenditure to a more optional demand-centric model of learning. It also signifies a shift from learning solely as a public good to learning that increasingly includes private benefit. And it demonstrates a shift from staged to continuous educational demand. Figure A.5 strongly demonstrates the move from the current to a new learning economy, and is sourced from Gordon (2018)[4] with the additional forecast of future growth from Chris Eigeland at Go1.

Funding higher education and lifelong learning will reflect changes in forecasts, the need for learning, and diversifying global demand. Like school vouchers, a "learning wallet" that funds the learner, rather than course funding following the provider, might become common, as Cawood and Vasques observe has already occurred in Singapore.[5] The implication for universities in offering combined teaching and learning, and research, is critical.

The dominant modern university global business model is one of interdependence, with teaching and learning proceeds or profits being a significant research funding source in most global universities.

This lifelong learning dimension of employers and employees committing to post-tertiary updating and training will be the most significant growth area, as the following sections reveal. Many commentators speculate that despite employers looking away from requiring degree-educated workforces, the demand for lifelong learning will increase in all mature economies. This is similar to falling demand for cars being replaced by growing demand for mobility. We may have reached peak formal undergraduate higher education in some economies, but peak educational well-being, and our preparedness to invest in it, is far off. The learning economy is a growth economy in transition.

Coates[6] takes a supply-side view of these transitions in coining the emergence of a new education economy. He provides examples from Singapore's SkillsFuture[7] and Tsinghua's online education ventures in China.[8] Further examples are Stanford University's Open Loop University model,[9] Korea's Academic Credit Bank System,[10] and initiatives described by UNESCO.[11] There is widespread evidence of changes in demand for and supply of education and the economic principles underpinning our needs for learning.

1 The Current Learning Economy

2 Educational Well-Being

As the above arguments show, the highest growth impact, creating most opportunity in the new learning economy, is increased scope for lifelong learning. This is already evident in increases in non-school leaver entrants to tertiary education globally.

The nature of demand for education is changing as the model of upfront career preparation, followed by continuous working experience, declines as a simple and uninterrupted process. Demand for new channels of access to knowledge through online and blended delivery is gaining prevalence with current providers, amplified by COVID-19. But access to blogs, podcasts, managed video resources, and wikis, and to services like coaching, mentoring programmes, and networking groups, from a variety of sources, all show changes in demand finding responses in emerging supply chains of the new learning economy. These changes show a move beyond required education and training to a new aspiration for lifelong educational well-being.

2.1 The Notion of Well-Being

Our description of the historical origins of our educational systems can be considered in the context of the evolution of our sense of well-being. In contrast to other species, we have moved away from concepts of survival and defence to seek increased levels, and ever more sophisticated forms of well-being. But what does well-being mean? A common definition of well-being is the state of being comfortable, healthy, or happy.

Comfort and happiness have been variously interpreted and defined, sometimes with accompanying measurements. Thermal comfort is a measurable concept for which various engineering and design rules have emerged (applied, for example, in building design, clothing, and air conditioning systems). Happiness is a goal some economists use as a focus for explaining human behaviour and choices as part of economic models and financial systems. But both comfort, and happiness more generally, are fairly subjective and elusive concepts regarding many social and cognitive aspects of how we live our lives and seek to look after or improve ourselves.

Health is somewhat different. Health sciences and medicine are among the most studied, measured, and fastest advancing areas of knowledge and understanding. Research brings significant advances in monitoring, intervening in, improving, and prolonging human life. It has generated a fast-growing health economy serving more purposes than keeping us alive.

Julianne received from her doctor, online results from her recent medical check-up. She was pleased to know her blood test had shown continuing improvement in cholesterol and kidney function readings since starting her vegan diet, sticking to five alcohol-free days each week, and taking new nutritional prawn shell and seaweed supplements. She was looking forward to the weekend at the health retreat in the hills she frequently visited. She sipped her kombucha as she came off the walking desk treadmill she now uses two hours each day. She was looking forward to the Pilates class tonight.

Julianne was delighted her digital watch pinged when she reached her daily exercise target, and notified her that her pulse rate was within target range. The extra kilo she put on over the weekend was falling away. Her target BMI was in reach. The precautionary colonoscopy still loomed, but with her diet and regular fibre supplement, she felt sure she would avoid the diverticulitis risk her recent check-up flagged as a 50% possibility in the next five years. Maybe she would manage that first triathlon before she turned 60 after all. Now where was that article she was working on? If only she had more data on what she knew, and what she needed to know, to finish it.

2.2 Types and Mechanisms of Well-Being

We often use and transpose medical or physical health concepts to describe well-being in other spheres, particularly psychological and emotional. Various types of psychological well-being are now broadly understood and documented, appearing to emanate from Maslow's seminal 1943 work outlining a hierarchy of needs. His hierarchy is depicted as a series of vertical steps that are built upon. Two of Maslow's principal arguments are that, as we ascend the hierarchy of these five needs, we reach a new level of satisfaction, lessen our focus on that one, and then increasingly strive for the one above. But Maslow also identifies how major events in our lives such as divorce, or the loss of a job, can cause our point of focus within the hierarchy to move.

Maslow's hierarchy gives a rich understanding of how psychological well-being plays out at different stages of our maturity. It can offer pointers to how other aspects of well-being would play out if the same principles applied. Some other aspects of well-being, becoming more commonly referred to, are neither physical or emotional in nature. They relate more to features of our lives associated with our environment, activities, beliefs, and aspirations.

We summarise these various aspects of our well-being, and our attempts to manage and measure them, below. Considering these forms of well-being allows us to identify various

2 Educational Well-Being

mechanisms, and associated providers, serving each form of well-being. We draw on these in imagining what could apply to educational well-being.

2.2.1 Physical Well-Being

Physical well-being can be defined as a state, and a process. As a state, physical well-being is what a doctor assesses, for example, during a regular health check-up. Following a well-defined process, a check-up could include skin checks (melanoma), dental health checks, and diabetes type 2 or various cancer checks (bowel, breast, prostate). It could cover different levels of sophistication, from simple body-mass assessment (BMI) to advanced lab assessment of blood samples. An all-clear can be a state of physical well-being according to the defined health check for the individual's age group. In this case, it represents the absence of signs of medical issues requiring attention. Beyond "not having any health issues", a person might however seek higher states of physical well-being. Testing ath-leticism will include assessing an athlete's strength, speed, agility, balance, or anaerobic power to ensure they can perform well, under enduring competitive circumstances.

These two sides are the ambidexterity of well-being. On one side, there is well-being as a hygiene factor (not being sick). This is a foundational, often existential, well-being state. A lack of it, for example pain, reduces quality of life. Its presence, however, might not always be noticed. This is so when we take our health for granted. On the other side, there is well-being that exceeds this state, reflecting excellence, extraordinary achievements, the ability to perform well beyond average. Foundational well-being is a required state. Any compromises to it create urgency. The latter is grounded in the individual ambition to commit to a higher well-being state. It requires additional motivation.

Imagine similar mechanisms for educational well-being. Will the new learning economy have competence aids, personal experience coaches, learning facilitators, public and private learning clinics, to attend to these fast-growing well-being needs beyond foundational levels of education? Imagine educational insurance we can invoke when we need learning. Will our governments subsidise regular educational health checks? Will there be apps to build self-awareness of our current state of educational well-being (an education index), to indicate where we are deficient and what we should do about it, where, when, and how?

2.2.2 Psychological and Emotional Well-Being

The higher stages of Maslow's hierarchy equate to advanced levels of psychological or emotional well-being. They often require significant time investment, and focus in relationships. They also reflect how we think and feel about ourselves.

Our ability to manage this form of well-being is increasingly studied, understood, and invested in. Anxiety and depression checklists can now be assessed online. As a self-assessment, they indicate the state of our emotional well-being.

The growth of self-meditation, digital meditation resources, and meditation groups illustrates increasing demand to prevent or address psychological health issues. Increased accessing of counselling, psychological, and psychiatric services, and use of mental health plans, points to increased need for, and focus on, this aspect of well-being.

Given our focus on educational well-being, we might borrow lessons from mental health, or mirror approaches to emotional well-being through learning groups. The learning economy might also benefit from self-assessments or peer-to-peer monitoring of our educational well-being.

We have raised self-awareness several times in this section. We will return to it when considering how self-awareness is assessed, accredited, and given some form of external validation as a credential. Self-awareness can make us sufficiently conscious of being competent to reach a position of educational well-being. Indeed, looking at education as another form of well-being causes us to re-examine many unstated assumptions about what educational systems in future will need to do to maintain our educational well-being.

2.2.3 Social Well-Being

One great leap forward with technology has been the ability to connect at all times from all places, with all people, in multiple ways. Video conversations with four family members, from three generations, across three time zones and four locations, at no marginal cost, was unthinkable a generation ago. We can reconnect with school friends from 40 years ago, and communicate with work colleagues through multiple channels any time of any day. We can even make new social contacts with strangers of similar backgrounds, based on their proximity, shared interests, mutual selections, shared beliefs, and social or political preferences. But social well-being does not arise only from a technical capability to connect. Indeed, given exponential growth in digital social media, loneliness has possibly never been greater. Doom-scrolling has even emerged as a term, referring to how social media is a route to decreased, rather than increased, social and emotional well-being. Proliferating fake news, and social media used to advance extremist views and radicalisation, are ways social technologies can dramatically reduce levels of social (and indeed all forms of) well-being.

The danger to our well-being from an increasing oversupply of data, information, and connections must be considered for various forms of well-being, and might increasingly

apply to educational well-being. In oversupply situations, well-being might be better served by a means to discern or select between oversupplied routes to potential well-being. This would ensure optimised, manageable access. It certainly raises the prospect that well-being is served best by access to the quality of what we seek rather than its quantity, and access to guidelines and insights into what is or is not high quality. This is a dominant characteristic of aggregators and curators which are key services in multiple digital service industries.

2.2.4 Cultural Well-Being

Our commitment to our culture, the practice of it, our exposure to it, and our interest in the culture of others, can all give us a strong sense of well-being.

Saki was taking stock of what was important in her life right now. The disruption in what had been a smooth career progression challenged her, and made her reflect a lot. She took inspiration from visits to her temple, seeking guidance there from the path her grandmother had encouraged her towards since childhood. But she also found inspiration from cultural experiences her community offered, and she was finding more time for them.

It is difficult to fit everything in when working 60–70 hour weeks for a major global company as an engineering executive. Her father hoped she would take over the hospitality business he had built and treasured for more than 50 years. The onsen was reputed throughout the prefecture, and his restaurant known for some of the best ramen for many kilometres around.

Saki had enjoyed seeing her father build this business. She was fiercely proud of cultural values he maintained in serving increasing numbers of tourists who made their way to this countryside near the snowfields. Now he was combining those cultural values with offering Airbnb accommodation, and Saki planned to get more closely involved.

She always enjoyed the pleasure it gave him when her sister Momo engaged in geisha ceremonies he championed for the region. Maybe now was the time to keep cultural traditions going in the new economy opening up around them. It would greatly enrich her sense of cultural well-being to do so. It would give her and her father so much joy to see the business and his legacy in safe hands and on a new trajectory.

If we extend this concept of cultural well-being to our striving for stimulation, experiences, or entertainment, significant new tools and services have emerged. Streaming music, film, arts, podcasts, and other content serving our interests and pursuit of enjoyment is a significant economic growth area. Many examples explored in Part B draw on fulfilling this form of well-being. They hold strong parallels to some aspects of educational well-being.

2.2.5 Systems Well-Being

Maintaining well-being is not only relevant for humans. The last decades have seen a significant increase in the sophistication with which vendors of systems and machines ensure these remain in the required state. Rolls-Royce, for example, provides Engine-as-a-Service ("power by the hour") for jet engines.

Remote monitoring and upgrading are important mechanisms for providing service well-being. They serve as inspirations for educational well-being. We will pick up these ideas later in exploring product innovation and the concept of education and learning offered just as we sell and maintain software (Educational Well-Being-as-a-Service).

2.2.6 Economic Well-Being

The sophistication of economies, and the well-being that goes with possessions, resources, and finances, has grown exponentially from our hunter-gatherer origins. The need to put food on the table and provide shelter and security, as Maslow's foundational needs, have long been replaced with the need for salaries, savings, investments, superannuation, insurance, property rights, endowments, and myriad other means of securing financial well-being. For some people in some economies, these have long since matched returns from the fruits of labour.

The nature of economic well-being makes specific mechanisms possible. In particular, there are now solutions (apps) available that assess available assets and can derive current and future (e.g. retirement age) states of economic well-being for an individual.

Will similar products and services emerge for educational well-being? Can we imagine an educational record going well beyond the current emergence of skills passports, with all our degrees, qualifications, skills, and experiences? Will we see automated assessments that scan this "edu-record", leading to a statement of our educational well-being? Will we dispense with (one-off) credentials altogether and move to continuous measures of our educational well-being? Will these relate more to what we know now, what we can do with it, what we don't know, what we need to know to perform, and when and how we can learn it?

2 Educational Well-Being

> *Adam reflected on the euro's overnight rise against the US dollar, and how the Frankfurt stock exchange hit a nine-month high despite challenging economic conditions. Semi-retirement began to look even more attractive, particularly with new FinTech start-ups making further dents in SAP's long-range sales forecasts. His bank had sent an automated superannuation balance and he noticed that yesterday's US share movements were already reflected in his long-term pension plan forecast. It was nudging closer to what his wealth management adviser had advised he would need to maintain his current spending levels until the age of 96. Adam's online financial adviser was suggesting Eurobonds as a good option this week, so he moved another 5% of his portfolio from US shares into them. And he added to his balances in the tech sector, and delayed payment services, given how their rise continued to play out and appear likely to make gains beyond his early call of that opportunity within his financial management social media group.*
>
> *Adam and his wife were excited as the new opera season was starting in the European summer. Their church group was ramping up its plans for cultural tours of Eastern Europe. He was pleased to be sure that was all affordable. Thank goodness they had been careful in managing their financial well-being for the last 40 years. This activity was increasingly automated for them. Adam even had a chance to donate to his university's annual scholarship programme appeal as the end of tax year was approaching and as their push notification reached him at that opportune time. He was keen to know more about how he could support causes he valued, if only he had better insight into the plethora of asks increasingly coming his way. He wished he knew more about how the world of opera would progress in the years ahead, and how he and his wife could continue to enjoy it and support it in donations and patronage, and how financial institutions could sponsor the art form for mutual benefit. There were so many ways his professional knowledge and personal interests interacted and coincided, and so much he wished he knew about how to optimise those combinations. He was unsure how to find out more about it.*

2.2.7 Philanthropic Well-Being

Increasingly important for self-actualisation is the sense of purpose, satisfaction, and well-being that comes from giving back. Gaining philanthropic well-being is associated with making impact, and our personal interest in that. Typically, we seek influence, control, insight, and personal awareness of how our giving makes a difference, in the same way as we seek self-awareness for other forms of well-being.

Gabriella was so pleased to see the staff giving programme reach such great pene-tration in her insurance company, she had now migrated there from the world of consulting. She felt more at home in the insurance world. It served so many businesses from the food and beverage and tourism sectors that had been her roots. She was often exposed to hard-luck stories of people working in the sector, and was now exposed to many more when hearing of claims that came through staff she supported. Gabriella was pleased the staff giving programme supported community projects that helped some of those in greatest need.

She had wished to find more direct ways of giving back to the workforces in this sector. She found it difficult when so many claims from small local business in that sector could only be partially recompensed for loss. The policies they held with her company only went so far.

The head of the digital side of the business was a pioneer in leading the staff giving programme. She was intrigued to see how he unleashed crowdfunding opportunities. She was also impressed by how they promoted staff engagement in her company. She could see how that drove staff commitment and a broader sense of staff well-being and goodwill.

It caused her to reflect on how much more the University of Barcelona might achieve in its alumni engagement and fundraising campaigns. She was a proud donor to the university in its fundraising for scholarships to the new Tourism courses launched several years ago. It felt like a way she could support those seeking to follow journeys similar to her own. But the hard-copy letters accompanying the "brag sheets" about the university's latest successes, and asking for money largely to fund research they felt was important, seemed to miss a chance to use new engagement and digital means of uncovering personal interests. She imagined she would be part of a large and growing group of alumni like this at the university.

2 Educational Well-Being

The emergence of philanthropic well-being is new and fast growing, showing how well-being overall is a changing feast. Other forms of well-being, possibly more specialised, are likely to emerge (e.g. digital well-being). It is clear these new needs for well-being create opportunity. They become the focus for new products and services, and create new markets and even new economies. What other innovations will emerge as we learn from this and other forms of well-being to secure our long-term educational health?

2.3 Positioning Educational Well-Being

The landscape of different forms of interconnected well-being outlined above all link to foundational principles of Maslow's hierarchy of needs. Where in that model would we place the need to learn, gain knowledge and expertise, and be competent? Indeed, what is educational well-being? Our definition-building starts with educational well-being, as the level and self-awareness of our knowledge and experience, and its fitness for purpose, satisfying our needs for supporting other forms of well-being.

For a long time, we have had minimum levels and standards of education, applied to populations through a national curriculum. We have done so in ways similar to ensuring we provide a basic level of physical well-being for all through implementing health programmes, including vaccinations against major infectious diseases, and health checks and procedures for other significant health development stages.

In addition, these education levels have associated certification or credentials that relate to assessment, examination, and award. A high school certificate, a diploma, a bachelor's or a master's degree, and subsequent professional qualifications of accredited professional competence have become traditional measures of educational attainment. They have been our learning economy's currency.

As education providers and consumers, we have invested in giving and gaining qualifications. Paying for access to these credentials is how the learning economy has operated, and how suppliers to that economy have traded and organised themselves. Thinking about education in terms of well-being, as opposed to a system of gaining certification, has implications for the assumptions and the trading model of the current learning economy.

The base level, or hygiene standards, of educational well-being has been added to with paths chosen for concluding stages of formalised learning. This is where we choose career paths based on desired aptitudes and interests. Benchmarks are set by the academic community and infrastructure of our disciplines and institutions. Sometimes there are advisory roles for employers, or professional accreditation standards.

The need for educational well-being is growing exponentially, and well beyond the need for certification and qualifications to gain first jobs on career ladders. In our emerging definition, educational well-being provides the knowledge and skills we need, and the competence we seek, to allow us to realise all other areas of well-being. Never have we known or understood so much about our broad well-being. And never have we so needed to have knowledge, self-awareness, and to be conscious of our own competence so we can share it

and demonstrate it to others. Never has our need for educational well-being been so great or the size and scale of the learning economy needed to be so large.

We have some consciousness of how well we are doing educationally through social interaction and feedback, and a sense of where new knowledge and experience we are exposed to fits in with prior knowledge. But what is the BMI equivalent for competence at a certain age? We know how long our superannuation pool might last us, or how many holidays we can afford at current salaries. But how much education or experience do we need for the rest of our lives? We know what an IQ is. But what other measures of competence are relevant to us at different life stages in the context we are operating in? We know how to measure the number of followers, friends, connections, and likes on social media. But how much education is enough? Does it matter anymore whether it is formal or not? Or who provides it? A lifetime of need for educational well-being is looming as among the biggest changes in all our lives. It is happening now. We are only beginning to make sense of it.

2.4 Measuring Educational Well-Being

Until now, our approaches to measuring educational well-being have been to expose ourselves to formal learning. Doing so culminates in examination or assessment, resulting in certification and qualifications. The assumption has been that we reach a level or standard determined as lifelong levels or measures of educational attainment. Indeed, our educational systems have gone to great lengths to accredit, calibrate, and validate levels of attainment in high school grades, degree awards, professional body entry, and the like.

We have developed a sophisticated system of educational and knowledge recognition. We have evolved graduation ceremonies for schools, colleges and universities, and for admission to professional bodies, all celebrating and acknowledging levels of educational attainment. What graduate does not have their framed graduation photo somewhere in their family homes? Our graduation ceremonies have enduring traditions of chancellors and presidents conferring and permitting the award of credentials. In many places these public events are accompanied by traditional rituals and artefacts such as processions, caps and gowns, testamurs, and a mace. These props are an accepted part of demonstrating the validity and respectability of the awards made for educational attainment, and how we can trust them to warrant a participant in them has gained an acceptable level of competence.

When we have needed specialist surgical or dental treatment in the past, we have placed great faith and trust in the certificate on the surgery wall saying our specialist gained competence, perhaps 30 years before. It indicated they had reached a level of education which

meant they could be trusted. They knew. And the experience they have had since would only mean they knew more, and could be trusted further.

But does this still hold true today for surgeons and dentists, and engineers, accountants, or any other specialism? Does a doctorate from 30 years ago mean anything for the skills and experience an academic will need in the next ten? With the rapid development and acceleration of underpinning knowledge, technology, methods, expectations, and practices in all fields of work and activity, haven't the certificates on the wall, and letters in front or after our name, been replaced with new ways of the currency of educational well-being getting known, demonstrated, validated, and assured? Would we not do this now through forms of demonstration of competence other than formal and historical credentials?

Our access to customer reviews of the current performance of organisations, teams, and individuals is ubiquitous. Our ability to do up-to-date assessments of competence in job selection and performance review is advancing to the point where a credential might still be used as part of the selection process, but how many graduates still enter new work environments without an assessment of skills and their competence to perform? How many experienced professionals rely on pointing to the certificate they received many years before to continuously maintain and progress in job roles and careers? If new career entrants and experienced practitioners face a different reality, what place do formal credentials have as the only way to measure educational well-being? No surprise a number of large global organisations have now started recruiting talent without requiring a high school qualification or degree.

It is important to introduce concepts of knowledge and experience as contributors to competence in our measures of educational well-being, and to the concept of consciousness of our competence as key to how we can measure it and be self-aware of it, or otherwise. We will return to these concepts in more detail as we consider disorders in our current educational model that are spawning the new learning economy. But some awareness of them now is important for exploring mechanisms we can use to attain educational well-being in the new learning economy.

2.5 Mechanisms of Educational Well-Being

This book argues that educational well-being is a new and important concept. It is there to be served alongside many other aspects of our overall well-being. We need mechanisms to serve our lifelong need for it. More schools, colleges, universities, and academies are taking more students than ever before. There are credentials, certificates, diplomas,

and myriad qualifications, in more diverse specialised subjects, than we could ever have imagined. Yet the need for new means of providing educational well-being, in new forms, is accelerating.

Campuses of colleges, schools, and universities will continue to exist. Their move to digital campuses and blended learning delivery methods will also grow and flourish, as will online-only providers (digital-first universities) and stackable micro-credentials. But in addition, other mechanisms for delivering educational well-being are now becoming known. We can summarise possible educational well-being mechanisms we have introduced, as in Table A.1.

Table A.1   Needs for, and mechanisms to provide, educational well-being support

Educational well-being need	Type of mechanism
Self-awareness of our state of educational well-being	Measurement tools assessing current state of educational well-being in general terms (e.g. digital competence) or domain specific (e.g. for a certain profession)
Learning monitoring	Tools facilitating tracking of learning consumption (e.g. hours or quality of learning)
Ability to self-check and continuously assess	Construction of educational well-being goal setting strategies and implementation plans with measurable progress reporting from facilitated self-assessment
Ability to share and demonstrate competence	Build upon digital badges and skills passports to fully integrated educational well-being portfolios, and extrinsic and intrinsic services to manage them
Access to external checking processes	Employer, professional institution, private provider, or government-provided educational well-being assessment services as part of organisational development, professional development, and personal development in service provision
Development of learning literacy	A focus within lifelong learning plans on meta-needs of learning and educational well-being literacy, with products and services (such as self-assessment checklists and automated educational well-being coaches) emerging to provide them

2.6 The Importance of Educational Well-Being

Educational well-being is important on many different levels. For individuals, the need to maintain competence is becoming increasingly important for longer and more complex careers and lives. We do so in an environment where the future of work is uncertain, and changing faster. Traditional once-off training for a career is now replaced by continuous preparation we must make for multiple career changes.

Emerging disorders to our continued competence have brought a realisation that educational well-being is something to be conscious of, and concerned about. Our lack of assured personal lifelong educational well-being is now a major factor in our lives and how we live them. It is rapidly becoming one of the most important aspects of our overall well-being as it impacts many of our economic, emotional, cultural, spiritual, physical, and other needs.

Lack of adequate educational well-being is not only an issue for individuals, who must continuously redefine their career trajectories and increasingly compete with robotic colleagues. Lifelong consciousness of educational well-being will be a broader issue in a fast-developing society. Digital competences are needed to navigate and derive benefits from solutions of banks, health providers, and retailers. Policy changes require contemporary financial literacy. Relevant knowledge and experience are required to separate trusted from fake news.

Our educational well-being is also becoming critical to the multiple organisational settings we relate to, principally our employers. They have previously hired for competence in the form of knowledge. Training by employers, added to that knowledge, allowed work experience to be gained while undertaking productive work. Novice professionals or technicians could then progress and add to that basic level of competence through the benefits of continuously beneficial experience. They could provide this through supported employment.

That world has changed. Employers now are conscious that competence of their experienced staff may fail to answer challenges from disruptive business models and rapidly changing work processes. Technology and innovation significantly impact these processes. The practice of dispensing with experienced senior workforces and replacing them with new young staff is a sign of a workforce with significant disorders whose well-being has been compromised.

As a result, an organisation's learning literacy, measured by the time from emergence of new knowledge to its impactful deployment, is now a source of competitive advantage. Or, as the Dutch business theorist and planner Aries de Geus[12] said, "The ability to learn faster than your competitors may be the only sustainable competitive advantage".

Employing organisations have started to invest in environmental knowledge sensing, creating corporate academies, partnering with educational service providers, and investigating new forms of upskilling initiatives. For example, German-headquartered technology company Voith established its DRIVE programme, focusing on digital literacy and aiming

to provide educational well-being to its 20,000 staff globally. The programme provides 60 hours of content in five languages, separated into basic training (e.g. introduction to Industry 4.0) and role-specific training (e.g. digital maintenance).

This book argues that employers, alongside professional institutions and educational and training institutions, are only starting to become familiar with the concept of educational well-being. Doing so allows them to understand the nature of the new learning economy. Most are far from fully comprehending it, let alone seeing the opportunity it provides. There will be significant roles, for multiple existing and new organisations, in assuring future educational well-being.

The national and societal significance of educational well-being is even more complex and nuanced. For national economies, learning economy growth, and diversification in its participants, has created multiple effects. Income through education exports has become a significant global economic market. International student fees can make higher education a dominant international trade component of some economies. In some it is the second- or third-largest export income source. Spin-off effects of large numbers of migrating international students also bring significant multiplier effects to local economies. This occurs in various areas of leisure and entertainment demand, property rental markets, property asset values and mixes, casual labour supply, and other economic activity. Seeing international and domestic student education as facilitating talent acquisition and retention for national workforces is significant for all economies. It is also prominent in building long-term international relations between countries, governments, and peoples.

Standards and reputations of educational attainment, and its relative cost, in various areas of formal and informal educational well-being provision, are significant competitive measures. Individual providers reference them to influence student choice. They also influence national competitiveness. Each university focuses on its standing in global rankings, but how many universities a nation has in the top 100 is now a competition among nations. We even have rankings of student cities as this plays out in subnational, extra-organisational settings.

Equity issues of educational well-being are great. Public provision, and governance and regulation of privatised global supply, will be critical as part of equity, diversity, and inclusion needs of governments, communities, and society. The wish to create a future for all, and the concept of all boats rising on a tide of improved education, will interplay in complex ways with diversification, growth, deregulation, and globalisation. New governance

models, and systems and frameworks, will be needed to enable and manage the benefits of new learning economy growth.

In Part B, we explore strategic principles for providers to the new learning economy. We draw from models already evident in other sectors. We consider their applicability in the new learning economy and outline the impact current innovation in our sector has on each principle becoming more broadly applied and adopted. We conclude our insights into what the new learning economy will look like by returning to some individual, organisational, national, and societal implications, and considering the various stakeholders interested in how the new learning economy will work.

2.7 Three Key Components of Educational Well-Being

The upfront model of the current learning economy, as already outlined, has served us well. It has led generations of people to gain knowledge. It allowed them to comprehend and to contribute to the world they live and work in. Government-supported, mandated primary and secondary education, and optional tertiary education, form three well-defined stages. They have traditionally equipped learners with knowledge required to start professional careers.

Accelerating change and fast-paced technological progression mean this structured upfront education model is now limited. Learning during the working stage of life has become an individual, self-motivated activity. Instead of well-orchestrated and mandated knowledge acquisition, learning while working occurs through reflection materialised through experiences.

This globally established model of building competence in two stages is visualised in Figure A.6. In a stable world, we continuously know more as we progress through primary and secondary education. This stage is followed, for many and in increasing proportion, by forms of tertiary education. Then a change occurs in terms of learning. We transfer from learning as our explicit, primary, and largely mandated activity to learning as an implicit, secondary, and optional activity. It arises as we establish routines, learn from success and failure, and continuously improve our practices through experience. In this second stage, what we do matters more than what we learn via doing it. In sum, and simplified, one might define the following formula:

Competence = Knowledge + Experience
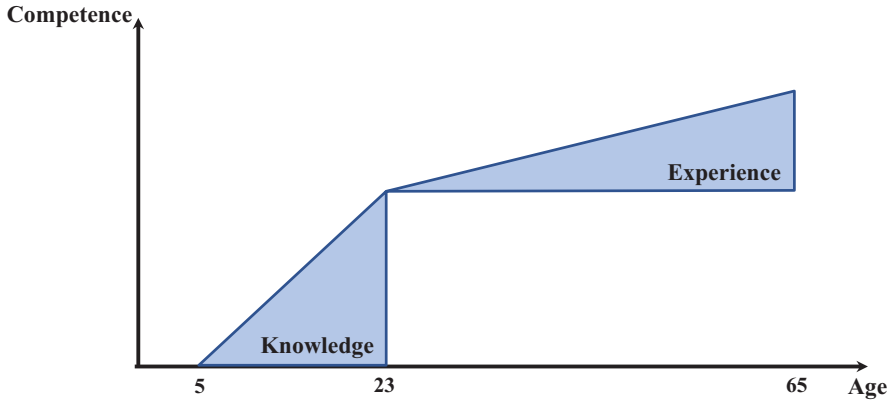
FIGURE A.6   The two stages of competence development.

This two-stage model of competence development is deeply established in curricula, recruitment practices, and societal expectations. It is unsurprising that competence development through learning in education systems has been tinkered with more than disrupted up to now. Many global educational institutions pride themselves on reputations and legacies, using them as proof points for this model as evidenced by career success of their graduates and alumni, people just like Adam, Saki, Julianne, Dann, and Gabriella.

Dann was so proud to be on stage for the graduation of his tenth successful PhD student. He fondly remembered each of the nine before Mark who was graduating that day. He also fondly remembered the two days he had graduated on stage with his bachelor and doctoral degrees. The first felt like a coming-of-age for him as in front of his parents and college classmates he attained that signature stage qualification of his peers and family's expectations. From when his parents had been first in his family to earn degrees, the expectation was now widespread that people like him followed in their footsteps.

Almost all his classmates had since pursued business and professional careers. He was the only one from that group to pursue an academic career.

His doctoral achievements ten years later felt like a coming-of-age as an academic, with the final stages in his knowledge acquisition and research training complete. The ten doctoral graduates he had since mentored and guided to success were evidence to him of a different stage. He had now gained experience of how to

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> *help others follow the tried-and-trusted path of new knowledge development that continued to accumulate all the competence he would need to be a facilitator of education and learning for future generations. He could add further doctoral studies outcomes to his competence in industrial sociology. Into the future he could develop new undergraduate courses and programmes to deliver to eager new students of his discipline.*
>
> *The maturing of his position as an academic at the top of his field left him confident in his ability to continuously provide for future educational needs in his area of expertise.*

Clearly, much of how we have organised and delivered primary learning (gaining knowledge) in structured education systems, and secondary learning (gaining experiences) during our working life, has been successful and stable up until now.

This model has been so stable and so successful that people have not really been conscious of their competence. There has been no need. We could rely on our competence from past actions. Being conscious of one's own state of competence is a rare metacognitive capability. It is best explained through the four stages of competence model.[13] This model refers to the psychological stages we go through in our progression of learning (Figure A.7).
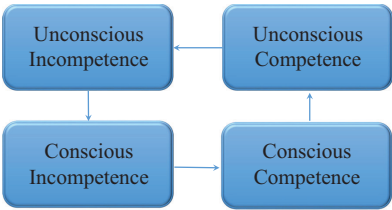
FIGURE A.7 The competence model.

The first stage, titled *unconscious incompetence*, describes the stage in which we don't know what we don't know. As a result, we cannot articulate what we need to know. This stage is only critical if our incompetence matters to us (e.g. most of us have not heard of the Dungan language, a north-western Chinese dialect, and most will never need to be fluent in it). However, as the world progresses and new knowledge is produced rapidly, the extent of our unconscious incompetence grows rapidly, and sometimes it becomes more consequential.

While a challenging working life means for many they are "busy being busy", it becomes progressively difficult to comprehend what relevant new knowledge is being produced and to what extent this matters to us. Unconscious incompetence is a dangerous state. We are exposed to severe disturbance by the unknown. Unconsciously incompetent people are under threat of disruption without knowing it; they relax when they should not. This is the stage when the learner needs support to build awareness of the knowledge that is out there, even though they are unable to articulate why they need it.

> *A large grocery retailer with approximately 900 stores was eager to improve the sales performance of its bakeries. Analysts ran reports over the last three years of sales data and identified the five most successful bakeries for the metric "profit per square metre". The project team then visited these five outstanding bakeries to identify the root causes of their success. However, each of the five top bakers provided the same answer when asked, "Why are you so much more successful than your colleagues?" – "I don't know". This answer is typically provided in such "positive deviance" projects. Many successful people are unconsciously competent.*
>
> *Initial knowledge acquisition and ongoing experiences have served them well, making them highly competent. However, consciousness about what competencies matter, and where and why they are highly competent, is absent. In such situations, the project team needs to invest in observations and comparative data collection studies to identify the root causes of success, so making these competent workers consciously competent.*

Once we develop awareness of the need for competence, we become consciously incompetent (stage 2); that is, we know what we do not know. An artist might realise Instagram has become a lucrative digital sales channel, but admits they have no competence in deploying Instagram as a way to offer their artwork. Consciously incompetent people can articulate their learning demands, which can be acquired through mandated means (e.g. following a defined curriculum), or by self-interest. However, not all forms of conscious incompetence lead to realisable learning demands. While unconscious incompetence is a problem of awareness, conscious incompetence is a problem of selection. There is an oversupply of knowledge we do not possess, but how does a learner select the knowledge they need or want?

When we commit to overcoming our incompetence and invest in competence development, we seek to move to the third stage; that is, we endeavour to become consciously competent.

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In this stage we aim to gain the competence required to do a certain task, anticipating we will know exactly how to deploy this competence. A tennis player finishing a comprehensive tennis boot camp will serve the ball according to movements taught by their tennis coach, and will be aware of doing so. Conscious competence is the ideal state. It requires monitoring as a continuously changing environment potentially means new incompetence will emerge, such that we are at risk of becoming newly incompetent, consciously or unconsciously. Another threat is that we remain competent, but increasingly lose the ability to say why.

In the stage of unconscious competence we are not aware of the root causes of our competence. The bakers in our example lack reflective capacity to point to their competence. This is irrelevant if all we need is for those people to perform well. However, the unconsciousness here prevents us learning from them as we don't know what competencies to replicate to achieve similar success elsewhere.

Investing in converting unconscious into conscious competence can have significant economic benefits as staff upskilling is guided by evidence; that is, the practices of successful staff members as opposed to confidence (e.g. recommendations of a confident instructor). The practice of many organisations, however, is to reward successful staff members at the end of the year. This does not reinforce evidence-driven peer-to-peer learning. Rather than rewarding success, they should reward "understanding success" as only this will enable learning from success to occur.

This now introduces this concept of consciousness to the knowledge and experience that make up competence. These are our three foundational principles of educational well-being introduced earlier when uncovering mechanisms for delivering it.

As can be seen, the power of this four-stage competence model is that it adds consciousness to the equation as the third concept. Possessing competence is not all that matters. We need awareness of the extent to which we are conscious of our competence (the degree to which we are competent), and *why* we are.

The model's circular nature does indicate the risk of our unconscious competence deteriorating again into unconscious incompetence. Our lack of understanding of our competence leads us to lose that competence, unconsciously. The model's cyclical nature also indicates why, by definition, an upfront model can never fully provide learning to the point of full educational well-being. There will always be a need for lifelong learning. Its need will grow and accelerate as our progression round the cycle of competence and consciousness accelerates. This was always the case. We just never realised it before.

Inspired by this model, we can now extend the previous competence equation and define educational well-being as follows:

Educational Well-Being = Competence + Consciousness

We have broken down the activity and purpose of learning for educational well-being into the acquisition of three distinct elements: knowledge, experience, and consciousness. Educational well-being is the state in which an individual is conscious of being equipped with the competence to perform well. One can now speculate on how broadly "performing well" can be defined: as a citizen within the broader society, as a parent educating children, as a paid employee with an organisation, and so on. Undoubtedly, educational well-being is a state of being sensitive to the individual's context. We will, for relevance and simplicity, mostly refer to educational well-being in the context of the working life.

In addition to the context for educational well-being, there is an important distinction between educational well-being as a hygiene factor and educational well-being as a source of advantage. This is depicted in Figure A.8, which is grounded in the Kano model. We will call this the ambidexterity of educational well-being.

We first introduced the concept of ambidexterity with regard to physical well-being. We all need not to be unwell. An elite athlete has a different need for peak physical ability.

The curve below the line describes the requirement for educational well-being as needed to master work tasks. An accountant must be familiar with current bookkeeping standards and systems. We expect these levels of competence of all practitioners and having them is no source of amazement. It is what we expect as competences associated with a title, credential, and role. An absence of such essential competence, however, would mean a practitioner's work would be inadequate according to professional standards. A gap in competence represents an urgent need for learning. The learner would be like a patient showing symptoms and requiring therapy.

Above the line is different. The learner is more like the athlete referred to earlier, free of pain or any health issues, and eager to strive for more. Unlike the learner-as-patient who is driven by urgency and the need for safety, the learner-as-athlete is driven by ambition. Extra education exceeds current work requirements, and could mean the learner explores higher career opportunities (e.g. via doing an executive MBA) or considers career changes. These two types of learners will create quite different demands in the new learning economy, and in themselves create diverse demands for products and services. It is effective to portray

dual education roles as creating a hygiene factor for all, and allowing pursuit of excellence or specialisation by some.
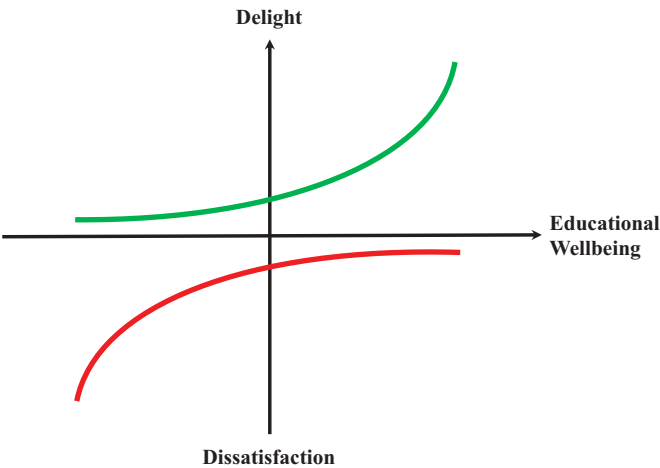
FIGURE A.8   The ambidexterity of educational well-being.

We will return to this diagram in Part C when we consider the ambitions of participants in the learning economy and their appetite to be competent to operate, compared with an ambition to excel in areas of opportunity for growth and new markets.

These three key components of knowledge, experience, and consciousness are separated out here to distinguish them in our understanding and identify them as distinct contributors to educational well-being. They are of course mutually reinforcing and interconnected. Our knowledge gained through learning frames our experiences. Knowledge acts like a sensitising device and we perceive the world through the frameworks and concepts we have.

We learn knowledge through many experiences. Indeed, some important innovations in learning environments and educational systems combine work experiences in learning programmes. Many would argue our most important knowledge from learning is through experiential learning, and through learning immersed in simulated or real work contexts and environments. Much learning of knowledge, and learning through experience, comes from reflection. Reflection and the ability to be self-aware of our competence have been evident for some time in emerging approaches to learning and professional development. Our separation of them here is a precursor to them becoming even more prominent, and potentially separately and distinctly provided for, in our new learning economy.

These have been and will continue to be among the most fruitful areas for future innovation in the new learning economy. Indeed, deepening and finding even greater synergies between knowledge, experience, and consciousness, and between learning and working environments, offers enormous potential for distinctive, and transformational new learning economy innovation and transformation.

All three components are deeply interrelated. This poses great challenges for how we assess and credentialise the knowledge-experience nexus, and what methods we might use to gain self-awareness, or consciousness, of our competence and share it with others.

> *Saki started replacing music with podcasts. On her daily commute to and from work, she started to enjoy being inspired and educated by podcasts from around the globe. This included "The future car podcast" by Siemens Digital Industries Software, and certain episodes such as Capgemini's "Accelerating automotive's AI transformation".*
>
> *Similar to music, she stopped listening to podcast series when they took directions of no interest, and stayed subscribing to those she enjoyed. She shared highly relevant podcasts with colleagues, and listened to those recommended to her. During commutes Saki learnt a lot, but never considered seeking a certificate acknowledging this. Her own awareness of what she had learnt was enough.*
>
> *Saki was delighted when the partnership between Toyota and her alma mater, the University of Tokyo, allowed her combination of university degree and 25 years of service to be recognised as a Professional Engineer by the Japan Society of Mechanical Engineers. It was heartening for her to know her continuous investment in formal education and experience were leading to greater recognition of all she had learnt. The award ceremony she attended with her parents was really helpful in overcoming feelings she was developing, from reading blogs and non-conventional management and trade commentaries, that the world of automotive engineering might take a different tack from all she had pursued. These feelings were accentuated by her sense that some of the most recent brilliant minds coming into the company were questioning more conventional thinking in her industry. They were bringing in radical new ideas and innovations, and were getting recognised and advancing their careers for doing so. She had a vague idea this might mean some of the lifetime knowledge and experience she had always believed made her increasingly competent, might count for less in future. If only she had some way of measuring this and then addressing it.*

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Whereas certified competence is essential to gain entry into professional careers, demands for third-party assessments reduce as a career progresses. With increasing levels of consciousness and self-awareness, individuals will know what learning is good for them.

With an adequate level of learning literacy, individuals will learn, and unlearn, but will require less certification. They will learn for their own development, recognising the importance of their educational well-being, as opposed to needing to respond to employer requirements. This is comparable with people interested in exercising regularly, leading to a self-assessed form of physical well-being.

There are significant implications of increased learning consciousness, or learning literacy, particularly for types of services and providers in the new learning economy. Most of all, it will lead to increased demand for non-certified learning, and as a result eliminate an entry barrier (the often regulated right to produce a certificate of learning) to the learning economy.

This depiction of increasing need for, and focus on, educational well-being was already challenging the system of education that had evolved, as described in section 1. As the pace of change has accelerated, the increasing need for educational well-being has led to a number of disorders emerging in our educational system, and the underdeveloped learning economy on which it had been implicitly based. These disorders relate to the nature of learning itself and to its suitability for the needs it was designed for. They also relate to the economic model behind how that learning has been supplied and demanded. We explore these two forms of disorder in the next two chapters.

3 Three Learning Disorders of the Current Learning Economy

Three learning economy disorders are creating an environment ripe for innovation and growth. They are market imperfections so pronounced as to create urgency for sector change. A sense of urgency is an important precursor for change, well known since John Kotter articulated his famed eight-stage model.[14] However, the new learning economy will not just be "a burning platform" response; it will also emerge because of factors that make the future particularly opportunity-rich at this time. Three amplifiers will impact the rate and extent to which change happens, but the disorders will create new learning economy opportunities the shape and nature of which we can already forecast and imagine.

The rate of generating and sharing data and information, the pace at which new technologies require new skills, and the rate at which emerging business models create new economic relationships are accelerating rapidly. To remain in control requires new competences, at the same time recognising existing competences may be irrelevant. Learning models that assume a stable world, served well by an upfront, staged model of education, are no longer appropriate.

Today's learning economy, and providers active in it, are exposed to three learning disorders arising from three false assumptions:

1) The *knowledge* gained through upfront education is sufficient to master the requirements for commencing work and life thereafter. This knowledge, designed for career entry, gives continuously assured competence. In many instances, demonstrating possession of knowledge (e.g. via a degree) was regarded as sufficient and long-lasting evidence for capability and credibility-building.

2) During our careers we gain continuously competence-enhancing *experience* through practice. This experience adds to upfront-knowledge, over time leading to continuously increasing competence. In sum, the more experiences we have, the more competent we are.

3) There is no need for learning *consciousness*. The individual learner does not need to know how much they do or do not know, what they need to learn or unlearn. As a result, "learning to learn",[15] and how to unlearn, is unnecessary.

These assumptions have informed government policy, education provider offerings, student demand, and employer recruitment and working practices. Professionals and workforces, in various stages and levels of educational systems, have framed careers using these assumptions. Educational providers have adopted them when building infrastructure,

systems, processes, and business models. However, the lifespan of these assumptions is ending.

Each of the five characters introduced at this book's outset is exposed to consequences of these false assumptions, causing major systemic interruptions in their career developments. They can be generalised as disorders of educational well-being.

These three disorders are globally pervasive, and amplified by three further contextual and environmental changes. Together, they negatively impact educational well-being in a way and to an extent that a new learning economy is being created. The disorders catalyse both opportunities for new ways of learning, and a case for supply and demand of new products and services to provide future educational well-being.

3.1 The Knowledge Disorder

Adam's career progress was significantly interrupted when the skills and knowledge he was so proud of, became increasingly irrelevant. A combination of social media and machine learning seemed to drive new digital business models and services around the world. This is where the action now was. He had been taught little about either.

Did no one in his highly ranked technical university, which had just awarded him an outstanding alumni award, see in 1990 that this knowledge would be so important to him? Why was this happening just as his life goal of becoming a global CEO was in his grasp? How would computer science or commerce graduates of the 1990s European university have any understanding of opportunities for digitally disrupting business models now prevailing in global markets, in all sectors, and increasingly dominated from Asia and Silicon Valley?

Adam's story has a dominant knowledge disorder.

Knowledge is an intellectual asset built with significant commitment and investment of time, energy, and finance. If we take a typical model of one-year preschool, 12 years at primary and secondary/high school, and three or four years at a university, we spend 16 or more years with learning as our primary activity. These years create an intellectual asset we call knowledge, intensively used and drawn upon when entering and during our working lives.

Like all assets, the value of our knowledge decreases over time. If this loss in value is limited, we hardly notice it. For example, our understanding of base mathematics serves us well to the end of our lives. Knowledge of many laws of physics (e.g. gravity) are handy for many activities (e.g. building a drainage system at home). Our language and similar skills (e.g. rhetoric) are essential for most jobs and our daily social interactions, for a lifetime.

First day – Yesterday[16]

Tea Dietterich is CEO and founder of 2M Language Services, headquartered in Brisbane, Australia. As the daughter of a Finnish mother and a German father, Tea invested substantially in learning English, French, Spanish, and Italian. Her clear goal was to be a translator and interpreter. On the first day of her career in 1994, she arrived with pen and paper. She had reliable speedwriting skills, was quick on her typewriter, and surrounded by countless, often very technical, books providing quick access to domain-specific terms. Every morning, she read the main European newspapers, to maintain an understanding of current developments and terminologies. Tea was fluent in six languages – that competence, and her training in simultaneous interpretation, gave her the "confidence that her human mind was unbeatable".

By 2020 everything had changed. No longer was Tea's work measured by the quality of her translation. In fact, first rule-based, then statistical, and now neural machine translation (MT) engines dominate her industry. In this augmented environment using MT engines trained by computational linguists, Tea assesses the quality of algorithmic translations. She decides if the proposed translation is satisfactory or if an alternative, human-generated translation is required. More than ever, data security and protection of intellectual property (IP) matter in engagements where she and her team translate in real-time, statements of the world's leading CEOs, using global communication networks.

But Tea did not just have to learn, she had to unlearn. Over two decades she has had to surrender several biases and prejudices. She had to develop comfort with her new digital co-workers, and accept that her immediate urge to translate between languages herself is outmoded. These attitudinal shifts required substantial unlearning.

However, not all types of hard-earned knowledge are characterised by absence of devaluation. Changes in the environment in which we deploy our knowledge increase the risk of misalignment; what we know, and what we need to know, differs. If the rate of environmental changes increases, this misalignment risk intensifies. This accelerates devaluation of our knowledge. Learning economists would call this phenomenon knowledge depreciation .

We now have truly arrived in an age of accelerated knowledge depreciation. A recent UK study by the Confederation of British Industry (CBI) and McKinsey into the skills gap estimated that by 2030, 90% of the current workforce will need reskilling.[17] The report predicts that preventing this skills gap will require annual investment of £13 billion on adult education alone, or £4,300 per worker, over a decade. Such substantial investments necessitate new funding models. CBI recommends, among others, a flexible skills levy, training tax credit for small and medium-sized organisations, or a lifelong learning loan allowance.

This is the core of our first learning disorder: the knowledge disorder, which Figure A.9 visualises. The first triangle shows gaining of knowledge through our (primary, secondary, tertiary) education systems. The second triangle, in contrast, shows how this knowledge devalues over time; that is, upfront investment in building and acquiring an intellectual asset depreciates. The rate of this depreciation, and its shape (e.g. linear, exponential), will depend on many external factors, including the pace of change and contextual setting of an individual's career. It is substantial for some types of specialised knowledge (e.g. technical knowledge), and less so for generalised knowledge (e.g. mathematics).
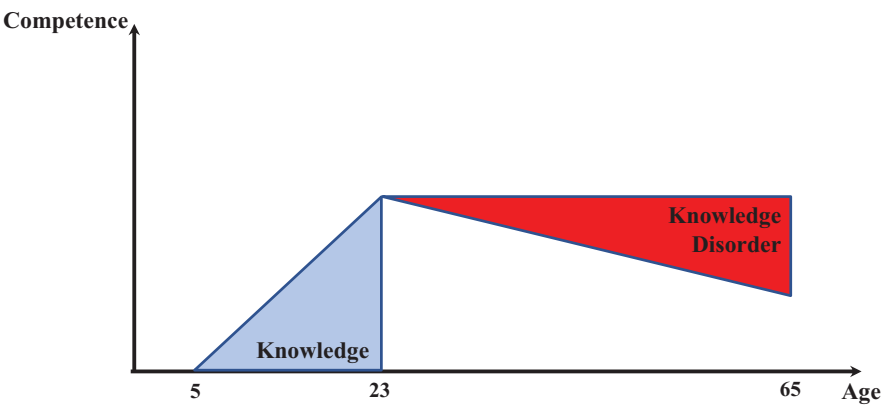
FIGURE A.9   The knowledge disorder.

The (growing) knowledge disorder is a significant market imperfection within the existing learning economy. It reduces the time span during which upfront knowledge provides value ("return-on-knowledge"). In consequence, providing upfront knowledge will be insufficient; it falls short of what is needed.

Addressing the knowledge disorder requires new, continuous forms of knowledge provision. This materialises most prominently in the shift from the current upfront model of just-in-case education, to a model of just-in-time education. Providing just-in-time education at scale requires ubiquitous access to relevant knowledge. This is known as on-demand streaming, now common in industries like entertainment and media. It increasingly enters the learning economy by platforms acting as brokers between knowledge producers and consumers. Overcoming the knowledge disorder, however, is not only a question of continuously adding new knowledge. Equally important is to identify when previous knowledge is outdated and irrelevant – when to unlearn.[18] Business models shifting from product to platforms, emerging real-time customer segmentations, and customers becoming prosumers in value chains are examples where previous textbook business knowledge is obsolete.

3.2 The Experience Disorder

Saki believed her mastery gained through experience of the emergence of alternative fuels (like unleaded petrol, diesel, and ethanol) meant her competence became ever more extensive. She knew she could adjust her skills and expertise to whatever the next development in combustion engines might be. She had a particular specialisation, based on experience, in how combustion engine performance integrated with how people drive cars. This eventually led to her joining the core design team for new Toyota models, applying those technologies, and utilising her deep, extensive, specialised experience.

Toyota went out of its way to ensure her experience rendered deeper and more specialised mastery, so she was at the leading edge of incremental advances in knowledge. As long as we all drove carbon-based cars, she would thrive.

She was of course aware of Tesla but was not distracted by talk of driverless electric vehicles. It wasn't what her lifetime of peak engineering experience was about. Wasn't her experience her greatest asset?

How would a Japanese engineer, with a lifetime of world-leading experience designing Toyota combustion engines, grasp how limited her experience would be for emerging driverless electric vehicles?

Saki's story has a dominant experience disorder.

3 Three Learning Disorders of the Current Learning Economy

Experience is reflective knowledge gained through practical application. The individual might or might not be aware of such reflection. The greater our experience, the more opportunity we have had for reflection and continuous improvement. However, in a changing environment, economies of scale in experiences are compromised. The need to gain new experiences increases and the value of obsolete experiences decreases.

The experience disorder has two facets. Either the growth rate in the value of experience reduces or existing experiences become counterproductive. Experiences are less valuable if the linear accumulation of proficiencies is less productive in growing our competence. Changing working conditions may lead less often to opportunities for repeating and building on experiences. Teachers who have taught their entire working lives in physical classrooms might struggle to adapt to online teaching environments, particularly if they must adapt quickly.

A more serious experience disorder is if accumulation of experiences becomes counterproductive. Having experience that is not needed becomes worse than having no experience at all. This may become evident in the growing community of people working in entrepreneurial environments. Practices within start-ups and scale-ups change quickly and in that field one rarely encounters experience of long-lasting value. The need to explore situations creatively, from first principles, may become preferable to the limitations of some inappropriate and stifling prior experience. The call to derive learning experiences from failures articulates this. Here, the learner seeks unusual experiences as sources of insight, as opposed to relying on learning from repetitive, predictable experiences.

Managers who for years relied on confidence ("gut feeling") when making decisions, struggle with an evidence-based mindset in which new data sources and business rules inform decisions. Indeed, when data and analysis is the new dominant paradigm, their extensive experience in using gut feelings in itself becomes a barrier to unlearning and adapting. Figure A.10 shows both experience disorder variants and how they fall short of our former false assumption.
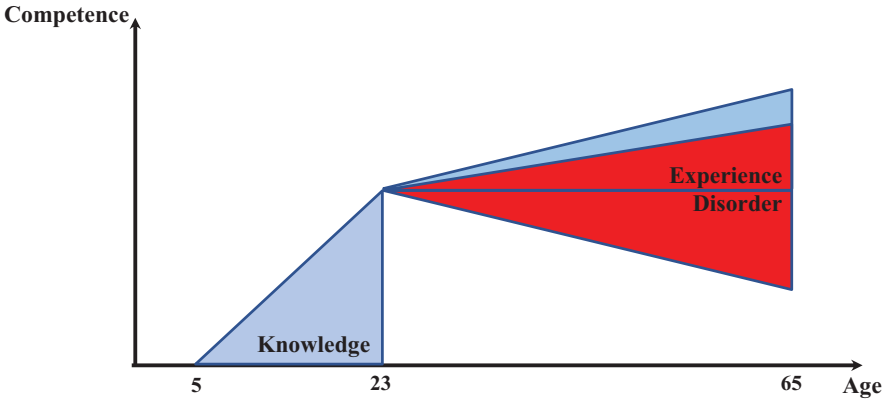
FIGURE A.10   The experience disorder.

The experience disorder's root cause is best described by the reflective model of learning theorist Graham Gibbs,[19] depicted in Figure A.11. Learning is explained here as a reflection on an experience culminating in personal action plans "What are you going to do differently in this type of situation next time?" This reflective model works well if next time looks like last time.

In a changing world, however, this is less often the case, making this type of reflective model less valuable. If we rely on this model of reflective learning, we cannot adjust to new situations and the processes of working from first principles, or generating new experiences from knowledge in new contexts.
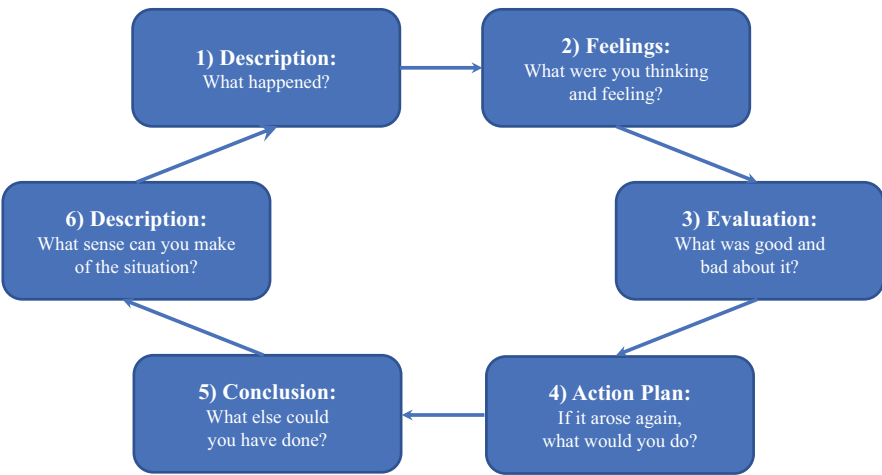
FIGURE A.11   Gibbs' Reflective model.

Addressing the experience disorder requires constant environmental sensing and a willingness to engage in new experience making. Does the new environment require new knowledge or can it be mastered by previous experiences? Are there opportunities to consciously invest in new experiences? An individual's experience disorder challenge is that experience equates to reputation. If new learning is not valued more highly than one's existing standing, and previous experiences cannot be regarded as sunk costs, the experience disorder prevails. A new class of experience-based learning providers is likely to emerge that will provide related services by assessing the relevance of existing experiences, or creating environments that accelerate development of contemporary experiences.

3.3 The Consciousness Disorder

Julianne was encouraged never to be distracted by new fads and emerging fashions of publishing, like blogs, podcasts, and social media. She had been advised, and experience told her, that some had to resort to experiments with these new publishing channels. Numbers of prestigious journalists like her were falling as poorer performing traditional media forms closed down. But her belief, built over time, was that quality would win out in the end. After all, her father, who had edited The Washington Post *for 30 years, always said it would apply to her.*

"Don't be distracted from the high road, Julianne", he said. "Always remember the little black book of contacts and the trade network I gave you, and you have added to, is the way you stay ahead of competition. Anything else is a distraction. Avoid it. Stay focused".

How would the journalist who graduated from Columbia in 2010, won a Pulitzer Prize, and was lauded for her competence, know her skills would have waning appeal by 2023, and that non-graduate social media bloggers had replaced the primacy of journalism? Why did she not see this coming? Why did she not learn sooner about the need for mastery of SEO, blogging, social media publishing, and other competencies?

Julianne's story has a dominant consciousness disorder.

As discussed above, we define educational well-being as the sum of competence and consciousness. The previous two disorders relate to competence. The third disorder relates to our consciousness of it. The combination of these three disorders occurs when the value of our competence, in the form of knowledge gained through formal education and experiences, deteriorates, and we have decreasing consciousness of the value of our competence.

The consciousness disorder is more than a lack of awareness of our competence. It also comprises the absence of a conscious process of learning or unlearning. Current education systems are largely tailored to providing knowledge rather than equipping learners with the process for learning and unlearning, and the ability to sense when to activate this process. As discussed earlier, the consciousness disorder materialises when we move from a state of unconscious competence to unconscious incompetence; that is, we are unaware of our deteriorating knowledge and the reduced value of experiences.

These three challenges unmask the false assumptions we have made about sustainable educational well-being. They are creating new demands for products and services in the learning economy. They show the design principles of our upfront education model are compromised by three distinct learning disorders. Our knowledge is not lasting as long, our experience is in danger of becoming counterproductive, and we lack consciousness of how knowledge and experience together make us competent or incompetent for what we seek to do. It is the rationale for an emerging new learning economy, on a scale, in a form, and with the sense of urgency outlined in this book.

3 Three Learning Disorders of the Current Learning Economy

4 Amplifiers of Learning Disorders

4.1 Black Swans

On 20 September 2025, in a surprise move, Tesla launched the fifth version of its automotive battery. Jointly developed with a Chinese start-up, this low-cost battery promised 5,000 kms in one charge. Saki heard this announcement while on her early morning run. It was automatically classified as "high importance" by her AI-empowered music provider, such that it interrupted her music stream.

Saki immediately stopped running. She knew this news would have a dramatic impact on her lifetime competence. In the evening, over a plum wine instead of her usual green tea, she considered this day as her personal "knowledge market crash" – from this day on, combustion engines seemed to have become a blast from the past.

Unexpected, high-impact events, like the invention above, are known as a black swan. This is a concept (or metaphor) first mentioned by Nassem Nicolas Taleb in his 2001 book *Fooled by Randomness*,[20] which largely focused on disruptive events in finance markets. Taleb extended this notion in his 2007 book *The Black Swan: The Impact of the Highly Improbable*.[21] According to his definition, three facets characterise a black swan:

1) Rarity – They are outliers, and as such hard to predict as they have not occurred previously
2) Impact – They have severe implications
3) Rationalisation – They can be explained, but only in hindsight

Examples of black swans are the rise of the Internet, the disappearance of the Soviet Union, the September 11 attacks, Brexit, and several US presidential elections. In some cases, the world is divided as to whether an event is actually a black swan. For example, Taleb himself does not regard COVID-19 as a black swan and sees this pandemic as compatible with statistical properties, while others do characterise this pandemic as a black swan. Ultimately, a black swan is a subjective perception, predictable or foreseeable for some, and a complete surprise for others.

Black swans are a significant amplifier of the disorders of learning. They can bring a rapid end to hard-earned competence and current consciousness. For Saki, it meant technological

and engineering breakthroughs on the electrical vehicle long-range battery ended the combustion engine's established domain. With that went Saki's related knowledge and experiences.

Similarly, established stock trading knowledge quickly evaporated in the aftermath of the September 11 attacks when the New York Stock Exchange and the NASDAQ were closed for eight days, allowing time to comprehend and react. Another wide-reaching black swan occurred on 9 November 1989 when the glasnost movement reached its climax with the fall of the Berlin Wall. Literally overnight, the East–West divide and its impact on Europe's economic, political, and social life, became history, and with it the knowledge and experience that had grown in isolation on both sides of the wall for 28 years.

Black swans also amplify the third disorder as it is difficult in times of abrupt turmoil to maintain consciousness about what matters. At 8:46 a.m. on that 11 September morning, American Airlines Flight 11 hit the World Trade Center's North Tower. United Airlines Flight 175 crashed into the Southern Tower only 17 minutes later. Many world citizens did not know what they needed to know anymore.

Was this the beginning of a global escalation of attacks and counter-attacks? Were flights and skyscrapers now unsafe? How would we invest our money? What new safety standards would transport hubs require? It is difficult to remain consciously competent in the midst of a black swan phenomenon. The context for applying our competence shifts rapidly, often without a clear destination.

Black swans result from our inability to comprehend probabilities, and an often naive desire for (or belief in) a stable environment. Indeed, our upfront educational model has a core assumption that black swans do not exist. Only in a completely stable world would it be rational to invest so comprehensively in upfront education by assuming enduring value and limited depreciation of knowledge.

Taleb uses the compelling metaphor of a turkey's life to make this point. For a long time, say 1,000 days, the turkey has a great life. Sun shines, the grass is green, food is plentiful. The turkey learns to make the most of each day and builds experiences for finding food. As every day is Groundhog Day, the turkey stops worrying and enjoys life. However, day 1,001 turns out very differently. This fourth Thursday in November brings massive disruption. Those two-legged humans, who have provided shelter and food for 1,000 days, now celebrate Thanksgiving.

Luckily most black swans are less disruptive to our physical well-being than Thanksgiving is for the turkey. But many substantially impact on our educational well-being.

We don't know when the next black swan will hit. It might be a financial invention (e.g. a new global e-currency), a technological breakthrough (e.g. the ability to translate conversations in real time), substantial medical progress (e.g. the ability to replace organs with the potential to increase global life expectancy beyond 100 years), environmental changes (e.g. rapidly accelerating global warming), or significant trade or military conflicts (e.g. due to conflict in Eastern Europe).

Every black swan will lead to substantial revisions of textbooks, make experiences obsolete, and lead to confusion in the consciousness of citizens seeking certainty in times of unknown uncertainty. Black swans are the most abrupt, unexpected, and high-impact amplifiers of our three learning disorders.

4.2 Digitisation

Julianne was tired. It was another late Sunday evening for her – 10 p.m. and she was still revising her latest article. The editorial system kept rejecting the contribution she wanted to submit so it could be a compelling early morning read. Apparently, the readability score was still below 90%, and the trust score below 80%. Julianne could not make sense of the algorithms that dared to judge her submission's rhetorical qualities and would reject her article if these scores were lower than 95%.

Based on her education, and 15 years of journalistic experience, she thought she knew how to write. However, this recently launched, embedded digital quality assessment was beyond her comprehension. She was aware that some statements in her article relied on her interviews. Did this really mean they did not represent trustworthy information?

She remembered the emergence of "fake news", but never thought an entire digital world of editorial systems would emerge to conduct automatic assessments of factual correctness. Julianne wished the good old days would return, a time when she wrote for an audience and not an e-assessment system.

Digitisation, or the increased use of advanced technologies, is ubiquitous in society and our working lives. It materialises in sophisticated devices (e.g. smartphones), constraint-free capabilities (e.g. cloud computing), new levels of user-friendliness (e.g. voice-enabled assistants), ease of access to data and information (e.g. big data), and robotic services (e.g.

chatbots). Some digital technologies (e.g. blockchain, autonomous things, advanced manufacturing, quantum computing) are only beginning to have impact.

Unlike the immediate, high-scale impact of black swans, digitisation impacts extend for a long time (the Internet's emerging power, for example). Once they gain momentum, fuelled by network effects, the impact can grow exponentially as in the escalation in users for platforms like TikTok.

Julianne's experience shows sophistication and ubiquity in contemporary digital solutions have the power to rewrite job descriptions, and dramatically redefine the interplay between humans and machines. In consequence, predigital knowledge can quickly become obsolete when the digitisation wave starts rolling. Similarly, predigital experiences, including the effectiveness and efficiency we develop via repetition, have limited value when a new digital world requires new practices. For example, imagine the radiologist informed of a diagnosis the instant an MRI scan is completed, as opposed to spending time manually making sense of an X-ray's shades of grey.

In their book *Only Humans Need Apply: Winners and Losers in the Age of Smart Machines*, Thomas Davenport and Julia Kirby[22] refer to the higher ground humans have fled to in search of new employability opportunities. Machines increasingly can do what we used to do, but faster, cheaper, and better. Those exposed to digitally amplified knowledge and experience disorders will not reach higher ground.

In our related research, we have coined the term "digital intelligence" to describe the new set of knowledge and experience we require to master an increasingly digital world. Digital intelligence (Figure A.12) consists of the following:

- *Digital literacy* is the hands-on skills to master digital technologies. For example, many organisations today treat the data analysis and visualisation tool Tableau as the "new Excel". Some US baseball teams recruit coaches with the expectation they will have Tableau skills.
- *Digital behaviour* is the ability to use technologies with integrity and according to ethical standards. This requires compliance with regulations (e.g. the General Data Protection Regulation, GDPR, in Europe) and sound judgement of appropriate practices (e.g. should a bank contact a customer who is an obvious gambler?).
- *Digital elegance* is where design and art meet digital technology. For example, artists selling their artwork via Instagram and bloggers creating compelling user experiences.

4 Amplifiers of Learning Disorders
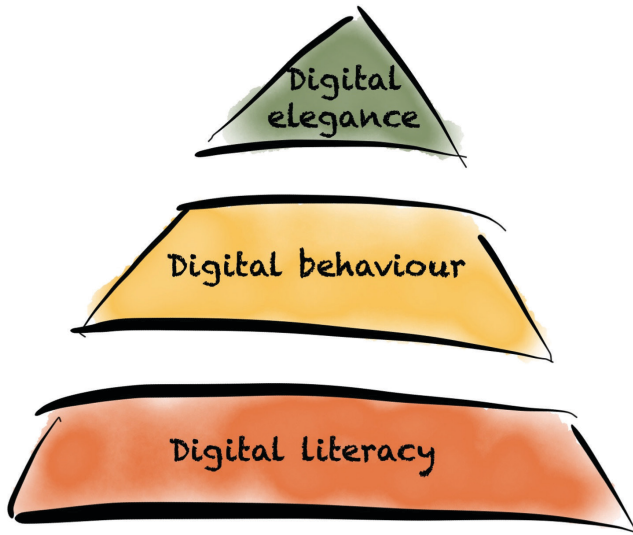
FIGURE A.12   Digital intelligence.

The exponentially growing need for digital intelligence significantly amplifies the learning disorders described previously. Our knowledge and experiences are becoming less relevant due to digitisation, and we are decreasingly consciously aware of the demands for digital intelligence. It is difficult for most of us to assess what technologies will impact on our working and private lives, or even to ask the right questions. Will my degree be provided as a NFT, a non-fungible token that as a digital asset is linked to its owner? Will my bank account have brakes put on when I spend too much in a pub? Will the ambulance arrive at my door without me being in pain, if my personal device knows I desperately need urgent treatment? We predict the call for digital intelligence will be a substantial driver in our seeking to consciously maintain knowledge and experience that serve us well.

This shows that digitisation amplifies the consciousness disorder. We are progressively less aware of promises (and threats) from digital technologies. Thomas Friedman[23] visualises this effectively in a simple diagram (Figure A.13) in his compelling book *Thank You For Being Late: An Optimist's Guide to Thriving in the Age of Accelerations*. Our cognitive capabilities are simply not equipped for exponential growth. While we might, at best and with dedication, grow our digital intelligence in a more or less linear fashion, technology grows exponentially according to various laws (e.g. Murphy's Law). If this is so, then the gap between what we can comprehend and understand and what is technologically possible will also grow exponentially. This gap is the growing unconsciousness gap, amplified by digitisation.
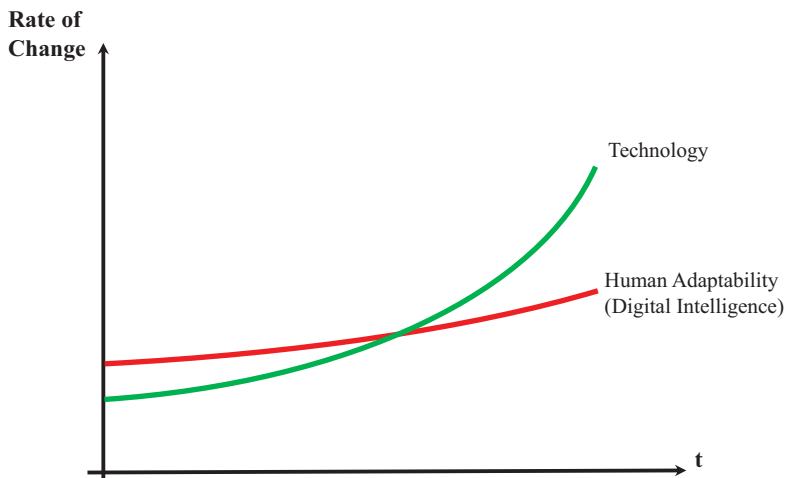
FIGURE A.13   The digitally amplified unconsciousness disorder.

Providers in the new learning economy face both exponentially increasing capabilities of digital technologies and equally fast-growing expectations of their customers, digital natives who grew up in a digital-first environment. In 2012, Arthur Levine and Diane Dean contrasted traditional universities' approaches with attitudes of digital natives (Table A.2).[24]

Table A.2   Traditional universities and digital natives

Traditional University	Digital Natives
Fixed time (semester)	Variable time (24/7)
Location bound	Anytime, anyplace
Provider-driven (university determined)	Consumer-driven (student determined)
Passive learning	Active learning
Analogue media	Digital media
Teaching (process)	Learning (outcomes)
Individual	Collaborative (group)

Ten years later, commencing student cohorts have never experienced a world without the Internet or smart devices. The latter are still rarely used by universities. Unlike many industries, most learning providers do not offer advanced apps. Sophisticated mobile services, of mobile learning, are rare despite around two-thirds of all students accessing learning management systems (LMSs) with their mobile devices.[25] Thus, the gap visualised in Figure A.16 can also be interpreted as the very own learning disorder of providers in the new learning economy. Their digital adaptability is growing more slowly than their customers'.

4 Amplifiers of Learning Disorders

4.3 Ageing Population

Adam patiently sat at the coffee table in his parents' home, chatting with his mother. His father, 78 years old, was still in the office next door. He was always there. He loved to work.

His father having been a tax consultant all his life, Adam knew how much he loved his job. "It is better for me than playing Sudoko or golf", was his response when his retired friends asked why he continued working. It really helped him stay sharp.

The only activity that took him from his desk was his road bike, which served his ambition to cycle 300km every week during the European summer. His next trip was coming up soon and he enjoyed reading about it on the social media group he belonged to. He wished he could access more materials to learn more about these rides and the impact they would have on his fitness and mental health. It made Adam reflect on what he would do with his career and how he might best prolong it as part of a good life.

Black swans are immediate, high-impact amplifiers of the disorders we have described; digitisation is the ubiquitous, exponential amplifier, and the ageing population the extending amplifier. The first two amplifiers matter much more, and for longer, as more of us live longer. Medical progress, higher living standards, improved nutrition, and increased literacy levels are among the main reasons we are witnessing a constant increase in life expectancy, the ultimate measure of population health. Since 1900, average life expectancy has nearly doubled. In Japan, average life expectancy for men/women is now 81/87 years, nearly 30 years more than 1947, the time relevant statistics were first reported.

Though Japan is a more pronounced case by global standards, the overall impact of an ageing population on the learning economy is universal. The requirement to provide support for an ageing population means the average retirement age will probably increase. We need to deploy knowledge and experiences with consciousness for more years to come. However, it is not just that many of us will *have to* work longer. Like Adam's father, more and more people *want to* work longer. It maintains mental agility, prevents dementia, and provides additional income. People may simply enjoy working: it gives them purpose (Figure A.14).

Life Expectancy in Japan
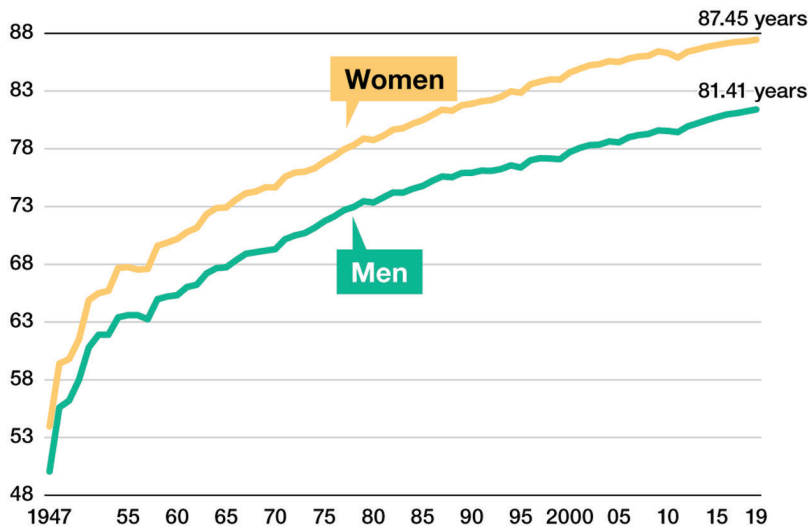
FIGURE A.14 Centenarian population and average life expectancy in Japan.

Independent of a mandate or desire to work, learning demands will increase over a longer period, and the three learning disorders will consequently matter for longer. Movements like University for the Third Age (U3A) are emerging. In different ways across the world, learners are targeted after full-time employment and parenting responsibilities are completed. U3A started at the Faculty of Social Sciences in Toulouse, France, in 1973. U3A students typically get certificates (not degrees) and, when affiliated with a university, can study diverse subjects. David Staley calls such universities "designed for those over 60", superager universities. These institutions do not seek educational enrichment, but develop brains and sharpen cognitive abilities in the stage of life that follows work and precedes retirement. Staley envisages a university in which superagers receive grades, present their research at learning gatherings, and which offers a curriculum that challenges beliefs and perceptions acquired over decades.[26] Barbara Vacarr, then-president of Goddard College, a liberal arts college in Vermont and Washington State, publicly declared the market of senior learners the "new frontier" of higher education.[27] Bryan Alexander even refers to the "sixty-year curriculum".[28]

4 Amplifiers of Learning Disorders

5 Economic Disorders of the Current Learning Economy

Key catalysts of the new learning economy do not solely relate to the demand for learning. There are equally important issues in how common economic principles are applied to our learning delivery systems. Despite the learning and teaching ambitions that established educational providers might have, their bureaucratic machinery often holds them back. True academic enterprises,[29] operating at corporate speed and according to the latest business and management paradigms, processes, and principles, are the exception, not the rule.

In this section, we summarise the economic disorders of our learning economy. We outline the economic principles and practices widely deployed in other sectors less overtly visible in the current learning economy.

5.1 Operations and Production Disorders

The modern economy's operation is characterised by innovations in production and processes, financial practices, theories of operations management, and approaches to competition and strategy.

Innovations in production and processes include long-standing developments in the division of labour to specialists best able to provide inputs to processes. These led to theories of absolute and comparative advantage that typically and classically underpin the organisation of production in traditional manufacturing industries. They have led to widely understood benefits of international trade. Division of labour and specialisation, however, have not developed as extensively in learning economy processes. Most universities are local and operate much the same.

Recent decades have also witnessed the development of so-called process reference models, defined templates for designing and running processes in areas such as telecommunication (eTOM), supply chain management (SCOR), and technology management (ITIL). As a result, there are defined process best practices and shared benchmarks.

This is absent in higher education. Processes like time-to-market or time-to-customer are well defined in many sectors, and there is intense pressure to shorten or minimise them. However, the education sector has limited familiarity with and low maturity in such product life cycle models. Unsurprisingly, many areas in the learning economy offer potential for repeatable processes and optimisation.

5.2 Productivity Disorders

Most economies are committed to productivity increases over time as an outcome of economic optimisation. Measures of productivity or efficiency are well established key performance indicators (KPIs) in organisations across sectors such as manufacturing or financial services where approaches like activity-based costing identify cost drivers and calculate true unit costs. Government departments calculate costs-to-serve, and call centres focus on average call handling or pick-up time.

In the learning economy, economic productivity is less obviously or continuously measured and considered in decision-making processes. This is so for both learners and providers in the learning economy.

The market environment of inputs and supply, and levels of demand and regulated prices, prevents similar productivity improvements and economies of scale emerging in the learning economy. While total student numbers have grown significantly and continuously over sustained periods, campuses, numbers of providers, staff, and therefore operating costs have concurrently increased in proportion.

For the underlying root cause of higher education's limited productivity gains, it helps to understand its boutique production strategy as found in handicraft industries. This argument is traced back to economists William Baumol and William Bowen[30] who studied labour-intensive industries (here: performing arts), but the argument is made in the work of Coaldrake and Steadman that it is often also applied to the learning economy.[31] Coaldrake and Steadman call "a cost disease" the negative flow-on impact in which automation increases the value of human labour in those labour-intensive industries which do not have the same potential for automation. Thus, rising salaries make productivity gains difficult.

A KPMG study[32] comments on this productivity problem in higher education, with reference to an OECD highlights report, that found in 13 selected countries (including Finland, Israel, United States) real expenditure per student doubled in two decades (see Figure A.15). The challenge is that revenue cannot be increased to the same extent. The potential to streamline internal efficiency, in particular in the non-research part of the business model, has already been realised in other industries that deploy approaches such as robotic process automation.
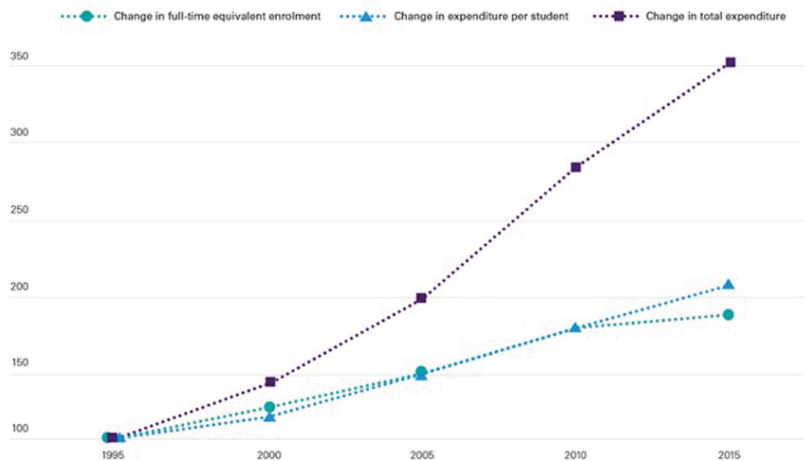
FIGURE A.15   The doubling of costs-to-educate.

We have few examples of scalable, extendable, new models of economic delivery in the learning economy that give step changes in economic productivity. Innovative regulation in education is necessary; otherwise, profound economic benefits risk being inequitably distributed. But the way the learning economy is regulated prevents economic efficiency. We question whether we are regulating the operation of a fair market, or whether the current operating models lead to denial of potential economic efficiencies.

Only recently have large-scale learning providers, mostly universities, established organisational improvement teams and begun conducting advanced process improvement initiatives like robotic process automation. However, the learning economy is still far from deploying efficiency measures like time-per-lecture, cost-to-serve, or time-to-market.

5.3 Employment Disorders

The learning economy employment practices have similarities to former regulatory and restrictive practice features of manufacturing. These arise from both the academy's custom and practice, and collective bargaining agreements.

The separation between academic and professional staff reflects the academy's traditions and conventions more than formal agreements. Workplace agreements seldom state widely

practiced unwritten "rules" that only a doctorally qualified academic can supervise or teach postgraduate work, and master's graduates can only teach undergraduates or below. One could argue these are sector-specific quality standards like those expected of practicing engineers, architects, or general practitioners (GPs).

But is there scope for change and innovation in the rules of education employment practices? The distinctive practice continues employing, managing, appointing, promoting, and rewarding the two staff types quite differently. The customs and conventions they practice are distinct, as are the cultures and communities they have evolved from. One might argue they exhibit professional demarcations seen in the global newspaper publishing and printing industry in the 1970s.

> *Dann was delighted that his colleague James had been promoted to associate professor in his university's latest academic promotion round. James' determination to pursue a research career, and his recent grant award and publication record that made promotion possible, were testament to his relentless focus on scholarship.*
>
> *He was also a good teacher; it was difficult to get promoted without being so, although not impossible as many examples demonstrate. James did his share, no more, of administrative and service duties that increasingly were allocated to academic staff as professional support resources declined.*
>
> *Scholarship was Dann's passion. He resolutely retained its primacy despite his university's greater focus on markets, finances, and productivity. How could such thinking ever prevail in a university aiming to climb the rankings?*
>
> *How different academic work was from Dann's good friends and colleagues in professional ranks. They had no opportunities to advance, other than wait for new opportunities to emerge in their own or other schools, faculties, or institutions. Dann had just heard that Belinda, his school's admin officer, had secured a job at another university in town. They would miss her brilliant work in keeping the department running, though Dann felt sure a new appointee would soon pick up the reins. They always did.*

There are some signs of roles, and dichotomous specialisations, evolving with the emergence of industry fellows, adjunct and practice professors, and casual sessional staff from the professions. These are instances of other non-academically qualified staff in universities becoming increasingly involved in academic work. The increasing sophistication of research activity, and digital and pedagogical teaching practice advancements, are leading to hybrid academic/professional roles, like laboratory or research technicians and learning designers, as McIntosh and Nutt show.[33]

But these are changes at the margin, not radical workforce restructuring for the learning economy. The greater changes in mobility, leisure, journalism, tourism, and food and beverage sectors, including the fully deregulated and casualised gig economy, might give pointers to deregulation of academic work ahead of us. The division of labour whereby all academics are all-rounders, undertaking broad and balanced research, teaching, and various service and engagement roles, appears long overdue for review.

5.4 Make-or-Buy Disorders

In most manufacturing economies, the make-or-buy decision is a well-embedded decision point in the production planning and control process. For each part of the final product, an economic decision is required if a purchase order or a production order is needed. The make-or-buy decision allows benefit from external markets that can provide required components and services. We choose external markets when they can provide lower cost and/or higher-quality components than the host manufacturing organisation.

The make-or-buy decision, however, is far less prominent in the learning economy. Traditional providers of schools, colleges, and universities operate on make as the default production model. Employed teaching staff are allocated to teach units and to organise the "production" of unit content. Whether an external provider could offer the required content and delivery in a more cost-effective or better form is rarely considered.

There are three main reasons for this. First, organisational routines, developed over decades, have never catered for a buy-model. Second, despite the emergence of aggregators, there is no efficient market mechanism enabling buyers and sellers of learning content, or additional learning services (e.g. learning analytics), to come together and trade. Third, even if a learning provider were interested, and able, to purchase external content, the integration costs (content synchronisation and delivery) would be high. Unlike other manufacturing environments which have a plethora of mature standards, the learning economy has only limited standards to facilitate "plug-and-play" learning modules.

The make-or-buy decision is becoming more prevalent in student support for digital and online learning. External providers of online programme management services (so-called OPMs) and specialist support services are providing, through B2B relationships with universities, aspects of course content design and delivery, assignment writing, online student tutoring, plagiarism detection, and both academic and pastoral support. The new learning economy will see more such relationships, part of a "buy-over-make" paradigm, as a further rationalisation opportunity. This could lead to what Davis calls the "plug-and-play-university".[34]

5.5 Support Services Disorders

The absence of a make-or-buy decision is visible in academic work. It is also prevalent in the support system. Production in many economic activities has increasingly adopted outsourcing models for professional services. These are often offshored as well as outsourced, taking advantage of different employment costs and efficiencies and economies of scale between countries. This is a centuries-old cornerstone of international trade in our economies.

Our current learning economy is more typically one where a localised learning provider's professional services are employed within its own organisation, usually in close proximity to small groups of educational professionals. Even when pursuing significant projects in process improvement in the current learning economy, we seldom ask whether these services should be outsourced or offshored, let alone whether locating them off-campus is an option.

Indeed, other economies have accommodated great change in professional services models, including widespread, successful adoption of robotisation and other forms of automation. These models are at embryonic stages of consideration in the learning economy.

We could semi-automate course and programme rules for student services, and financial and administrative processes for staff support. Doing so would simplify our processes and optimise our professional support, leaving space for a focus on core academic and learning activities. New providers in the learning economy could specialise in providing such support services. A more efficient and optimised new learning economy undoubtedly offers significant scope for rethinking professional services provision.

Gabriella was completely blindsided by recent announcements of change in her insurance company. For four years now she had initiated, approved, and led a major programme of in-house learning and development. The programme was designed

to deal with claims from the food and beverage, and tourism sectors – the small business clients of her company's policies. It had really connected with her sense of career purpose. She had built on her education and experience to culminate in something that gave her personal pleasure and a feeling of making a contribution.

Years of oversighting the company's graduate entry programme, and then high-potential leadership development cohorts, allowed Gabriella to advance a corporate education programme in conjunction with her alma mater, the University of Barcelona.

She had assumed her company would continue to employ its own loss assessors, and run customer service centres in various city locations, alongside new phone services. Taking pride of place in her résumé and her LinkedIn profile were her development of learning programmes that developed customer service skills, risk assessment capability, and leadership in marketing policies.

How could she have known her company would outsource all its loss-assessment, customer service, and marketing activities? Staff directly employed in her company to do this work had fallen by 80%, decimating her learning and leadership programmes.

Gabriella had started to explore how the expertise and learning resources she had developed might be made available to staff of outsourced providers. She had no idea they would prefer remotely employed, offshored workforces to such a great extent, or that robots would become such a large part of their activities.

This was a massive learning exercise. Gabriella fully comprehended the benefits of outsourcing and automation. She now understood much more clearly its implications to employers leading corporate education and leadership programmes.

5.6 Pricing and Financial Model Disorders

Markets in other economies have seen significant innovations in financial practices for supply and demand of products, services, and transactions. The emergence of student loans in the learning economy in many parts of the world is a good example. There is scope for much more as the new learning economy advances.

Sophistication in pricing models is still emerging in learning economy markets, as are financing and payment arrangements that create differentiated supply to markets and increase levels and diversity in demand. Most learning programme pricing models, for instance, appear undifferentiated regarding quality, brand, and market position. Most

learning programmes have price levels either set by regulated market environments or, in deregulated environments, have perpetuated practices of fixed pricing positions relative to discipline and institution. We rarely see significant price innovation or flexibility beyond the application of scholarships and discounts. A notable, widely discussed exception is Georgia Tech's online-only master's degree in Computer Science, launched in partnership with Udacity and AT&T in 2013, for a fee of US$6,600 (compared to US$45,000 for out-of-state students). That Georgia Tech's computer science research ranks among the top ten in the *US News & World Report* rankings made this even more remarkable.[35]

A new learning economy will likely see greater pricing and payment system innovation (e.g. dynamic pricing). Beyond individual purchaser decisions and transactions, it will see loyalty programmes, and diverse means of encouraging repeat purchases (via subscription models) and corporate or other group demand. Advanced business model innovation and sophisticated revenue models (e.g. usage-based pricing) are largely absent from the current learning economy. We are a long way from Freemium models, or the scenario of learning being free due to two-sided market models.[36]

5.7 Brand, Marketing, and Competition Disorders

We can extend this market behaviour thinking further. Brand will become more significant in the new learning economy. In the world of fashion and cars, for instance, premium brands are commonplace, with significantly different market positioning and pricing policies, as distinct from functional brands. In the learning economy, brand distinguishes distinct value propositions, target groups, and levels of quality and quantity of demand, not the price buyers are prepared to pay, other than in a few high-reputation providers. This will become more prevalent in the new learning economy.

This might propel us towards greater differentiation and complexity in competitive positioning and strategy for new learning economy participants. At present, fierce competition between providers is about reputation, ranking, and total demand. We encourage consumers to buy brands on the basis of overall reputation. We rarely see providers operating with niche, low-cost, or high-quality differentiated strategies.

5.8 Customer Relationship Management Disorders

Taking an external, customer-centric view has gained popularity in most business sectors. Design thinking sessions encourage customer empathy and redefine problems so actions are grounded in the demand side, not the provider side, of a relationship. Customer journey

maps for different customer personas provide visibility about end-to-end experiences. They capture customer touchpoints ("moments-of-truth"), and related customer and staff expectations and shortfalls. Advanced customer relationship management solutions cover presales (e.g. lead management, campaign management), sales across multiple channels, and after-sales processes (e.g. service or maintenance, alongside retention management). Customers co-design products and services, interact in peer-to-peer platforms, and leave ratings and comments helping other customers gain further insights into a provider's qualities. Metrics such as customer lifetime value and net promoter score (NPS) assessments populate dashboards of Chief Customer Officers. Banks deploy know-your-customer (KYC) solutions to verify their customers' identity.

These concepts are less mature in, if not foreign to, the current learning economy. Beyond the reluctance to perceive learners as customers, the sector is just beginning more advanced approaches to managing relationships with its learning community. There are now Chief Customer Officers in EdTechs (e.g. US-based higher education software and services provider Ellucian), but they are scarce within colleges and universities.

5.9 Innovation and Entrepreneurial Disorders

Organisations in most economies have realised that relying on an established "business-as-usual" model is risky in a world rich with disruption. As a result, resources are dedicated to innovation, that is, curious and dedicated exploration of new practices that could lead to new forms of customer value. Larger corporations have dedicated innovation departments, innovation accounting, and Chief Innovation Officers. The learning economy is currently an exception. As the home of places of learning, they have potential to be leaders, and for entrepreneurial and innovative universities to be distinctive. Michael Crow and William Dabars highlight this in their notion of an academic enterprise: "Entrepreneurial leadership is the differentiator in determining whether a university will function as an academic bureaucracy or as an academic enterprise that takes meaningful and innovative risks to enhance it's value for stakeholders".[37]

Manufacturers, retailers, telcos, and others invest corporate venture capital into promising start-ups with potential to complement their assets and capabilities. But it is still unusual to find a unit funded by a university, dedicated to innovation and entrepreneurial capability, exploring radically innovative futures for learning on a university campus.

It is not just the absence of innovation groups, innovation funds, or internal venture capital. There is a concerning lack of innovation and entrepreneurial practice in the learning economy. Rapid prototyping, agile development practices, minimum viable products,

experimentation, open innovation platforms, systemic ideation, and business model innovation are common in large organisations. They are rare in the learning economy. For a sector rich in talent, new ideas, and research, with expertise in framing complex questions, we might expect learning economy participants to be at the extreme end of new product and service innovation.

5.10 Cross-Subsidisation Disorders

Many markets, and organisations within them, cross-subsidise activities. Economically efficient, well-regulated markets reconcile these over time through industry reorganisation, market development, new pricing models, and by reorganising resources and operating modes. The prevalence of continuing cross-subsidisation is often associated with monopolistic situations, or absence of appropriate regulation: both restrict competition.

Cross-subsidies in universities are primarily at discipline and function level, and are interconnected. Low-cost, high-demand disciplines such as business and law are easier to operate profitably compared to the high costs associated with technical, laboratory-rich, research-intensive disciplines (like science and engineering), and professional experience-intensive disciplines (in health, creative and performing arts, and education). This is exacerbated when low-cost disciplines are particularly attractive to high-price, fee-paying markets like postgraduate business conversion and advancement courses, and international students. The business school as cash cow and science programmes as loss leaders generating research and reputation have long been cross-subsidisation sleeping dogs in the global university sector. This situation is safeguarded by regulation regarding which providers can call themselves a university, regulatory stipulation of comprehensive discipline offerings, and pricing partly determined by public policy that includes industry workforce planning criteria.

The nature and extent of cross-subsidisation has developed as university research has grown in scale, cost, and importance, and as rankings have become ever more visible and significant in determining fee income, particularly from international students. As public funding of teaching has fallen, and that of research has become vulnerable, universities have had little alternative than to fund research in the sciences and engineering that grows their reputation, from fee-paying students in business, creative arts, information technology (IT), and humanities programmes.

This cross-subsidisation disorder became an Achilles heel for the sector when black swans of the pandemic interrupted international student activity, and when digitisation exposed learning models to rapid change. There is growth opportunity in the learning sector, but this

particular economic disorder asks fundamental questions about how to approach it. There are similar cross-subsidies in airlines, public transport, insurance, and healthcare, which are also often influenced by public policy objectives. It is unlikely such objectives and regulation of universities will continue as long-term government priorities for learning economy pricing and funding. Forthcoming change will leave the new learning economy exposed to removal of cross-subsidy opportunities in markets where competition will change significantly. This is occurring with deregulation of higher education providers and learning provision, though not yet in revocation of restrictions on which providers can claim university status. This final challenge in responding to economic disorders in the learning economy will be for participants to find ways of competitively delivering learning to markets in an environment where deregulation has reduced the possibility of cross-subsidies.

6 Growth in the Learning Economy

The learning and economic disorders or inefficiencies presented here generate a sense of urgency because they provide opportunity for new entrants to overcome current providers' failures to respond to them. These disorders must be addressed to ensure an efficient market. However, evolutionary developments in higher education will be more than responses to current pain points.

This will be particularly true as the new learning economy becomes mission critical, or as Arthur Levine and Scott Van Pelt state, "Higher Education is a growth industry in a knowledge economy that demands a more educated and continually re-educated labour force".[38]

Most other sectors are zero-sum games where competitors rival each other for market share. Some markets are shrinking.

According to various forecasts, learning economy growth will be substantial. HolonIQ, for example, predicts that by 2030 the global education market will be a $30 trillion industry, constituting 6% of gross world product.[39] Data published in September 2021 points to the online tutoring market alone growing to $2.9 billion globally by 2025, at a compound annual growth rate of 15%.[40] In 2021, Australia's minister for education called for universities to diversify products in global growth markets. "The global on-line e-learning market is forecast to grow from $130 billion to more than $470 billion by 2026. This growth is driven by students around the world seeking lower-cost education, as well as greater flexibility in how and where they learn".[41]

He went further in a June 2021 speech to the Universities Australia conference, stating his ambition that "Australia should have ten million students studying for Australian qualifications that we are reaching online, in-country or hybrid models".[42]

Arizona State University declared an aim to enrol 100 million students into free business education in 40 languages by 2030.[43]

This growth potential creates an environment for expansion and opportunities for those providers of learning with a high sense of ambition. In the following, we differentiate five different pathways that contribute to, and benefit from, the growing learning economy.

6.1 User-Based Growth

The most tangible growth in the future learning economy will be growing numbers of learners. HolonIQ predicts that by 2030, there will be nearly 800 million more high school

graduates, largely in Asia and Africa. In addition to demographic growth factors, as we have seen there will be higher demand for lifelong educational well-being, catalysed by increased awareness of current learning economy disorders.

Digital technologies like cloud computing, Web3, and zero-cost visual communication systems will all make global markets more accessible. This in turn will motivate more ambition among learning providers about the capacity of learners they could cater for. Experiences with massive open online courses (MOOCs) and successful online learning platform providers have shown that classes exceeding 100,000 students are no longer exceptions. Business models like two-sided market models will unlock new revenue models – competing on learner communities as opposed to content only might become a new form of learning economy competition. In these models, a provider brokers between content or value-adding learning services and learners, a model widely deployed by global platform providers in other sectors.

Nowadays, only a handful of universities target user-growth and related two-sided market models. The aim of having one million students is rare. One million, however, is a figure some light-asset start-ups regard as a modest target. One could expect an ambition like "doubling the number of students in three years" will be a common strategic goal in a learning economy that adopts exponential platform models.

6.2 Content-Based Growth

Another growth dimension characterising the future learning economy will be content-based growth. Similar to the entertainment industry, where providers like Amazon Prime, Netflix and Hulu built substantial libraries, the learning economy of the future will see providers offering learning content to their user base of learners. These providers could massively scale up current content library or platform providers to act as curators and brokers between providers and learners.

The idea that each university or learning provider would take responsibility for developing all its own content became established practice when access was limited by proximity, control, and local availability. Every university has developed on the basis that its courses are best designed, delivered, assessed, and populated with content entirely from its own academic staff that arises from their own capabilities and connections with research and practice in their field. This is a model of competing-on-production in which growth is determined by the capability to scale up production.

There is great reluctance to relinquish this principle of internal content production and ownership. Emerging models of distributed asset ownership and delivery undermine the idea that every global business school needs its own academic capacity in fundamentals of accounting, for example.

There is significant system redundancy associated with having local capacity and capability to both develop and deliver content. This is amplified when periodically updated by localised and controlled academic capacity. It would be preferable to access continuously updated content that is globally available, world-class, best researched, and at the leading edge of practice. In this model of competing-on-orchestration, growth is determined by the capability to source and integrate content. Shifting from production to orchestration has been common over the last decade in established manufacturing industries such as automotive. The learning economy, however, is early in this transformation.

Tech writer Ben Thompson[44] uses the term "aggregation theory" to describe how the emergence of aggregators unfolds, and the way tipping points are reached when services become dominant in sectors. There are already new participants in the learning economy curating significant digital educational content libraries, like Go1. This fast-growing company, with more than 200 content providers and 100,000 learning resources, is the largest global curated e-learning library. It is available for a single subscription within an existing provider's learning platform, or available on theirs. Go1's growth rate, funded by investment capital from Microsoft and SEEK among others, has been rapid. It brings a strong focus on scale and rates of content growth. This phenomenon is similar to growth in streaming services providers. Disney+ is prominent among companies foregoing other goals and forms of growth to focus on long-term content growth strategies. On the back of large-scale content library growth, Disney+ seeks to position themselves for future strategic advantage rather than short-term market share or profitability.

6.3 Value-Based Growth

Learning in the future will be based on a range of experiences. These will extend the pure act of comprehending content. The scope for such value-add services is comprehensive, and will likely see many niche players offering as EdTechs specific solutions to the learner, learning providers, and relevant third parties.

Value-adding learning services are likely to emerge in the near future in areas including:

- Gameful learning in which the learner is incentivised to progress learning in response to game-like stimuli (so-called serious games)

- Location-sensitive learning where geofenced content is available to learners based on their location (e.g. education about the architecture of a building, learning how to use a new device in a hospital setting)
- Omnichannel learning that opens up varied devices and forms of interactions (e.g. voice, gesture) to enable entire new forms of learning
- Pop-up learning experiences in which learning requiring infrastructure (e.g. science labs) is provided at the learning community's location
- Augmented learning where hybrid environments blend real-world and virtual information in new learning experiences ("Eduverse")
- Learning analytics for providers or learners, facilitating advanced insights into learning progression and difficulties
- Identity management systems allowing a learner to securely store, access, and share credentials gained using blockchain-enabled solutions like NFTs
- Digital learning nudges and advanced recommender systems, building on behavioural science, that trigger desired learning actions
- Individualised learning where support is provided for a learner's specific needs (e.g. hearing disability, overcoming language barriers)

6.4 Time-Based Growth

There is potential for providers to increase so-called learner lifetime value, which is a learner's total worth over the whole period of their learning engagement. Increases can occur by expanding the period over which learners' needs are served. This approach entails a more continuous approach to learning that goes beyond the current stage-gate approach of learning accomplishments leading to a degree as the final milestone.

This growth potential will open up for those providers that have access to a base of learners currently graduating, but who need continuous updating or reskilling. This is where universities and other learning providers with large alumni communities, and employers or employment brokers, are in a strong position. However, in most cases learner retention management capability is underdeveloped.

Alumni engagement objectives have been about fostering loyalty to build reputation, brand positions, and platforms for philanthropic activities. More recently, universities have begun targeting their alumni groups with new educational offerings in double degrees and post-graduate qualifications. Alumni are obvious candidates for micro-credentials and short-courses, embracing the idea of continuous access to developing knowledge through the continuous upgrading of knowledge. However, more advanced forms of continuous learner engagement, deploying digital technologies and subscription models, are rare.

6.5 Location-Based Growth

Finally, providers have potential to increase their scope of geographical delivery of services, and global reach through students they enrol. Many learning providers have significant local footprints and physical hybrid campus bases. For some, this is their only source of students. For others, there is a combination of students served from both local sources and diverse domestic and international markets. Diversity and internationalisation in source of students is part of the make-up, and a strategic goal, of many universities.

Some high-performing global universities would see few boundaries to their sources of students. They pride themselves on recruiting best-quality, high-achieving student entrants from across the world. But few current institutions have pursued rapid growth strategies by moving from local to large-scale global bases of operations. This has been a route to market growth for business in other sectors. It offers significant potential for growth in the learning economy. This is particularly so given development of globally available digital means of delivery and support.

The Laureate Education group has endorsed a strong growth focus, seeking balanced growth geographically, in modes of delivery and in forms of award and credential. Its recent expansion into Australia as Torrens University has seen growth from around 150 students in 2014 to close to 20,000 by 2021. It is Australia's fastest growing university, replicating a model first established in the United States. The balance it and other new and existing providers seek between on-campus and online students is dynamic.

There are two ways of pursuing location-based growth: through either physical or digital means. In education terms, international student growth, without location-based growth, means expanding onshore students. While physical onshore growth dominated in recent decades, some offshore transnational students have been targeted in new campuses in developing economies. Location-based growth that is becoming more common is in online markets with digital delivery of services. As platforms and online pedagogies mature, and as global digital infrastructure and capability become more widespread, significant global online growth is likely. This growth potential will open up for providers with strong brands and reputations; a strong digital means of delivery; an ability to market themselves to multiple distinct geographical markets; products and support systems that global students can access; and any local capacity required.

6 Growth in the Learning Economy

7 A Sense of Change

The learning and economic disorders described above create a fertile ground for evolution in the new learning economy when combined with acceleration of digital capabilities, the disruptive potential of new business models, a globalising society, and dissolving industry boundaries. This evolution will catalyse one of three reactions within learning providers: a sense of urgency, curiosity, or ambition. We now discuss these reactions as they provide an important contextual setting for how learning providers will approach their future.

7.1 A Sense of Urgency

Organisations, their leaders, and humans overall react strongly when threatened. John Kotter, as discussed earlier, devoted an entire book, *A Sense of Urgency*, to this phenomenon. It is the first of eight steps of his widely deployed change management methodology.[45] In a similar way, we see boardrooms, university councils, president's cabinets, and consulting proposals filled with terms like "burning platform" and "pain points". The narrative for change is easier when the pain is obvious, similar to receiving difficult advice from a trusted doctor.

Learning providers demonstrated this well when exposed to the implications of COVID-19. With imposed travel constraints, movements of international students were severely compromised. As a result, universities in countries relying heavily on income from international students quickly developed a significant "sense of urgency". The most common reaction was to respond to the drop in revenue with a corresponding reduction of their cost base. Faculties merged, institutes closed, courses with low enrolments were retired, and professional and academic staff numbers reduced, all in an attempt to maintain viable balance sheets. However, there are two issues with this urgency-driven model of change.

First, the sense of urgency might not always be obvious. Kodak took too long to see Instagram coming. The same happened to Blockbuster with Netflix. Do any of the learning disorders described above require immediate attention because they lead to a drop in student numbers? Should universities have taken such actions anyway, without the trigger of the global pandemic? Great leaders detect weak signals of urgency early and react proactively. Hesitant or unaware leaders, however, will expose their organisations to risks of disruption.

Second, the default reaction of cost-cutting in response to financial urgency is a severely limited response for several reasons: there is no competitive advantage if the entire sector

reacts in the same manner; an organisation can only "shrink to zero"; it has a negative impact on the organisation's culture, staff morale and engagement; and it ignores alternative responses that generate new revenue and address budget challenges.

Revenue resilience is a new paradigm for organisations.[46] A simple focus on operational efficiency is no longer sufficient when the real threat is to the revenue model. Kodak once set a global benchmark for the way it automated its business processes, but it was blind to its revenue model's fragility.

We define revenue resilience as the ability to withstand threats to an organisation's revenue. Figure A.16 visualises this. Most companies focus on continuous business improvements that over time bring down costs entailed in serving customers. The widely discussed disruption, however, will typically target both the organisation's revenue model, and its cost model. This is depicted by the rapid decline in the revenue curve, a curve apparent for Blockbuster, Kodak, BlackBerry, and many others.
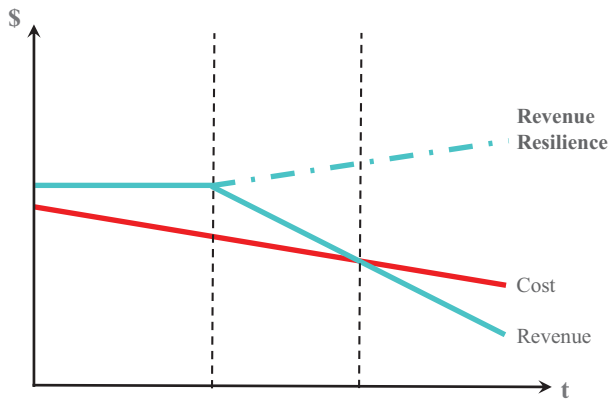
FIGURE A.16   Revenue resilience.

Revenue resilience means an organisation is capable of keeping the revenue curve above the cost curve. To do this, it must be aware of:

- What revenue sources will disappear forever?
- What revenue sources can be defended?
- What sources of new revenue could be explored?

In a report on the future of universities, consulting firm EY describes five scenarios that university leaders might contemplate. The first scenario is where learning costs disappear to the point of learning becoming free. This scenario would obviously substantially impact on current university revenue models.[47] Cawood and Vasques from Ernst & Young (EY) compare

in their report current universities and what has happened to public libraries. These institutions have had to reinvent themselves to avoid being "temples of knowledge that few visit when content is close to free and digitally available".[48] This strongly demonstrates the need in higher education, right now, for a sense of urgency and attention to revenue resilience.

To facilitate identification of the extent to which an organisation needs to become revenue resilient, we developed a template with 15 questions across four dimensions: customers, competitors, product, and regulation. This template, tailored to the domain of the learning economy, is found in Table A.3. In our work with learning providers, we use this template with extended executive teams, with every leader responding individually to the questions. We simply ask, "Do you believe this is a threat to your organisation over the next three years?" and let them provide answers on a 1–5 Likert scale (1 – no threat at all, 5 – a significant threat).

Aggregating these responses, sometimes across 80 or more leaders, elicits important insights about the most significant revenue threats, and the extent to which the organisation has a shared understanding of them.

Table A.3   The revenue threat assessment

Learner Changes			
Learners expect all for nothing	**Learners are no longer locked-in**	**Learners expect a proactive service**	**Learners have the digital literacy to become autonomous**
The learner will have a zero-cost assumption: that is, expect to get educational content free of charge (e.g. lectures, assignments, cases).	The learner will no longer be locked-in – switching costs will disappear or be significantly lower (e.g. simplified switching between universities).	The learner will have access to proactive service providers (e.g. proactive provision of advanced standing after completing a relevant professional course).	The learner will not require a learning provider anymore due to improved literacy (e.g. selecting relevant courses, self-orchestration, and completing content).
Threat: Educational content is still in demand, but the learner has been reconditioned (all-for-nothing/zero cost expectation). Charging for the learning service is no longer viable. **SCORE:**	**Threat:** The learner can easily change to alternative providers and benefit from more attractive offerings. Revenue is no longer locked-in. **SCORE:**	**Threat:** Reactive service models will no longer be viable and learners interact with providers closer to them. Learners expect to be found as they are unconsciously incompetent. **SCORE:**	**Threat:** Advisory services are no longer required as new technologies have empowered the learner. **SCORE:**

Table A.3   Cont.

Competitor Changes			
Learners are becoming competitors	**Employees are becoming competitors**	**Communities of learners are becoming competitors**	**Competitors have a lower innovation latency**
Peer-to-peer learning service provision will emerge as a new alternative, and the sharing economy will become a viable option in the new learning economy.	Ease of market entry, access to complementary assets, and social capital will motivate employees of learning providers (e.g. professors) to create competitive entities.	Customers will have access to communities to crowdsource services and solutions for their learning needs (very much like Axiom, 99designs, patientslikeme.com do in other sectors and for other services).	Existing and new competitors (EdTechs, BigTechs) will be faster in spotting new opportunities, in building closer relationships with learners, and in creating new digital learning services.
Threat: Learner-to-learner engagements provide better, faster, cheaper, more trusted learning services.	**Threat:** Employees with high individual brand value can offer their learning services independent of their employer as required go-to-market assets are readily available.	**Threat:** Communities can effectively renew their scalable asset base and have an exponentially growing data pool, leading to better and more trusted offerings with high network effects for learners.	**Threat:** Digital savvy competitors have a higher speed of innovation and innovation productivity, creating first-mover advantages and a better quality of learning service.
SCORE:	**SCORE:**	**SCORE:**	**SCORE:**

Learning Service Changes		
The learning service is replaced by better services	**The learning service is replaced by different services**	**The learning service is no longer required**
Service innovation will make the existing learning service obsolete (e.g. MOOCs replacing uni-provided content).	The learning service will be substituted by another service (e.g. classroom lectures being replaced with global online classes).	The learning service satisfies a secondary need but will become non-relevant with disappearance of the primary product (e.g. dropping demand in courses related to libraries).
Threat: The current learning service provided by current learning providers is becoming obsolete due to digital progression.	**Threat:** The current learning service provided by current learning providers is becoming obsolete as learners can satisfy needs in alternative ways.	**Threat:** The current learning service provided by current learning providers is becoming non-relevant as learners do not require it anymore.
SCORE:	**SCORE:**	**SCORE:**

7 A Sense of Change

Table A.3   Cont.

Regulation Changes			
Mandatory requirements are removed	**Trade agreements with target markets are compromised**	**Incentives to adopt the learning service expire**	**Regulation makes learning service illegal/expensive**
Deregulation will erode demand for learning products and services previously protected by compliance requirements	The ability to sell into target markets for learning services will be prohibited or diminished by changes in government policy and/or community sentiment (e.g. COVID-19 impact on international students).	Demand for learning products will decrease when incentives are removed (e.g. changes to government funding for universities).	Current revenue streams from sales of learning products and services will be vulnerable to adverse regulatory pressure and changes
Threat: Deregulation eliminates protection or regulation needed for the learning service.	**Threat:** Adverse political or social changes in key trade relationships prohibit sales of learning services into valuable markets.	**Threat:** Customers may forego or delay purchase decisions for learning services, or demand lower prices when incentives are no longer available.	**Threat:** Regulatory changes may prohibit or lead to reduced sales of learning products and services.
SCORE:	**SCORE:**	**SCORE:**	**SCORE:**

7.2 A Sense of Curiosity

Organisations that initiate change because of a sense of urgency are those that *have to change*. A different category is organisations that explore the potential for change because of emerging opportunities. These organisations can change, but do not have to. They are driven by a sense of curiosity. Often labelled as innovation initiatives, such programmes are dedicated to learning more about the potential of certain technologies, the desirability of a solution, or the viability of a new business model. If these initiatives are successful, they lead to new products or services. If unsuccessful, the organisation is left with learning experiences at least. We explore growth via a sense of curiosity in chapter B.5 when discussing innovation as a strategic principle for the new learning economy.

An attitude to change based on curiosity is realistic when it is impossible to realistically assess strategic options ex-ante. For example, a learning provider interested in testing uptake and impact of gameful education runs a few trials in some units or courses. Other examples would be testing interest in personal learning coaches, using artificial intelligence (AI) in marking assignments, or testing viability of digitally recorded lectures through third-party marketplaces.

Committing to such initiatives without certainty of successful implementation and roll-out takes leaders out of their comfort zones if they are used to well-defined current business models. Thus, budgets for such learning experiences are rare. The exception is quantifying and deciding in the light of related opportunity costs.

However, not running such tests can be potentially harmful. Relying on moving only when solutions have matured, and other market participants have rolled them out, could mean a "too late mover disadvantage".

7.3 A Sense of Ambition

For some leaders, innovation that only returns learning experiences is insufficient. These leaders set themselves and their organisations stretch targets. Not achieving them is seen as failure. Therefore, a sense of ambition characterises organisations that *want to change*.

Leaders with ambition are convincing storytellers. Ambition is grounded in an entirely new narrative for the future of ubiquitous and continuous change. By contrast, a sense of urgency relies on firm data pointing to the motivating problem (e.g. a significant drop in market share or student satisfaction), and a sense of curiosity is argued through an interest to learn more about a new phenomenon. Ambitions need to be realistic and motivational enough, a mix difficult for many leaders to find, and rare in the learning economy.

It is also essential this does not remain the leader's individual ambition. There must be wider engagement with and support for the ambition. Ideally there is excitement about it, which tends to unlock additional energy that addresses roadblocks encountered. Finally, there must be financial and other resources necessary to show the ambition is a realistic option. Often this means leaders will commit a substantial amount of their time to the ambition. For example, in March 2020, Pfizer's CEO, Albert Bourla, articulated his ambition to develop a COVID-19 vaccine within six months. He invested 70% of his own time to this initiative.[49]

An ambition is a bold challenge. It becomes idiosyncratic and powerful when it exceeds industry standards. It is *not* a bold ambition anymore to provide flexible work-from-home arrangements, aim for carbon neutrality, or offer hybrid experiences for university lectures.

But it is a bold, provocative ambition when:

- employees can decide when they want to work – see Netflix.com/culture;
- the leader of a country decides to discontinue nuclear power in 11 years, knowing it delivers 40% of national energy supply, as the German chancellor Angela Merkel

did in 2011, and with this drove Germany's success in the fast-growing renewable energy sector. This is when an ambition creates "addition via subtraction";

- a university looks to lifelong educational well-being, as opposed to awarding a degree, as its commitment to graduates, and implements this in the form of a living degree (an idea described further in B.3).

To successfully implement an ambition, four elements must be addressed:

- First, a leader needs to go beyond investing attention and resources into reactions, instead channelling some of these into provocations. *Great leaders initiate an ambition not because they have to but because they want to*. Ambitious leaders don't say they are busy; they are excited. An ambition should be challenging, believable, and achievable. Leaders can create a challenging ambition; it is up to them to make it believable and achievable by appropriate resourcing and prioritisation.[50]

- Second, an ambition cannot just be a moonshot challenge. It needs to be *a hypothesis for which a leader has sufficient insights that it can be validated*. Ambitious leaders have the required courage – they have sufficient competence and resources to assess the likelihood of success. This is sometimes called the ambition paradox where enterprises that can afford an ambition, are unambitious, and vice versa.[51]

- Third, an ambition is *not about being hypercompetitive*. A single focus on winning can cause trouble when performance metrics become the focus, not the organisation's authentic goal. Ambition becomes a trap, not an asset. Marissa Mayer was named CEO of Yahoo in 2012, when Yahoo's revenue had fallen from $7.2 billion to $4.9 billion. She had set eight stretch targets, one of them double-digit growth. Four years later she had failed to deliver on six of the eight. The ambition of a Research Centre is not to secure $x millions of research income. It is to create rigorous, globally relevant research outcomes. Research income will follow, as did Pfizer's revenue when pictures of patients were posted in offices and success measured by numbers of people vaccinated as opposed to drugs sold.

- Fourth, a leader is not the only source of an enterprise's ambition. *Micro-ambitions can be part of many dialogues* in an enterprise. An academic in a local university enquiring about a sabbatical at a local gallery of modern art might be asked in return by their leader, "What about the Guggenheim instead?" Organisations talk a lot about digital first. This can be described as ambition first.

8 Summary

Part A of this book has described how we developed an upfront model in our global education systems. However, changing dynamics in our environment require new assessments of learning requirements and outcomes. This motivated the introduction of educational well-being as a continuous, conscious state of having the education required to comprehend and master current and emerging developments. Its evolution and sophistication places increasing pressure on the dominant, traditional, well-institutionalised upfront model of higher education. This model's shortcomings are articulated as three distinct learning disorders: the knowledge disorder, the experience disorder, and the consciousness disorder.

In addition to these learner-centric disorders, we identified provider-centric disorders. We showed how the economic model underpinning education in sourcing, production, management, and distribution of learning has not kept pace with rapid advances in practices in other sectors, leaving a series of economic inefficiencies.

Together, the need for heightened educational well-being, increasing clarity with which current learning assumptions are exposed to disorders, and economic model deficits paint a picture of an educational system, particularly at the tertiary level, exhibiting opportunities for significant growth and innovation. This growth has dimensions across users, content, value, time, and location.

This growth might be realised through a sense of urgency, a sense of curiosity, or a sense of ambition, in that providers are driven by the demand to become revenue-resilient in light of emerging disruptions, are keen to assess entirely new opportunities, or are committed to reaching challenging stretch targets.

Together, these developments give rise to the opportunity to thrive beyond higher education in a new learning economy. They will rest on evolution in education models and new forms of learning service delivery, targeting existing disorders as much as harvesting new digital and business model opportunities.

This growing economy will have new roles for learners, learning providers, systems, services, and global, hyperconnected ecosystems. In Part B, we will structure possible pathways into thriving in this new learning economy as six strategic principles. In Part C, we will discuss who will take advantage of them, and what strategies they will pursue to get there.

8 Summary

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8 Summary

Part B

Strategic Principles in the New Learning Economy

Part A of our book painted a picture of how the learning economy faces learning and economic disorders arising from decreasing adequacy of our current education model, and delayed uptake of economic approaches common to other sectors. We proposed educational well-being as a new paradigm with the potential to channel the learning economy towards outcomes focused on continuous learner well-being, as opposed to a one-off qualification at the end of formal schooling. In addition to learning and economic disorders which create a strong sense of urgency towards revenue resilience, we elaborated on growth potential in the new learning economy. Accessing this economic growth is an opportunity on offer for all potential providers with a high sense of urgency, curiosity, and ultimately ambition to thrive.

In Part B, we elaborate on the inspiring ideas and strategic principles that allow providers to capitalise on learning economy growth opportunities. Part C will explore potential roles and strategic alternatives of learning economy stakeholders.

Part B presents six strategic principles for the new learning economy, structured in three dimensions: centricity, connectivity, and certainty. Each strategic principle comes with mechanisms both to help decision makers articulate new ambitions and provide them with operational ideas to consider. For example, inspired by Spotify's contemporary personalisation practices, we propose tailored student onboarding and learnlists as new forms of personalised education.

Each of our six strategic principles is a possible way forward. They arise from considering fast-growing enterprises in other sectors that took advantage of these opportunities. Potential providers in the new learning economy can evaluate each of these for its own capability, applicability to targeted markets, and strategic alignment. They can do so in their own specific context using a methodology we introduce in Part C. Some providers might see opportunity in combinations of two or more of the principles for new products and services. In their totality, these six strategic principles articulate comprehensive, burning ambition. They capture opportunity-richness in the new learning economy.

We purposefully portray these six principles as having abundant innovation opportunity. They are intended to stimulate new strategic thinking. Later, in Part C, we explore how variations in applying these six principles give rise to four generic growth strategies for the new learning economy.

These strategic principles extend existing, well-established, still valid areas of strategic focus, like cost efficiency, effectiveness, compliance, and reliability. Organisations will, of course, continue to consider these foundational requirements. However, undercapitalising the digital economy's affordances might mean the opportunity costs of not acting, in terms of revenue-resilience or growth not materialised, could become higher than the costs of acting.

Successfully deploying the six principles differentiates ambitious and cautious providers. Some of the principles have become feasible only since technologies, and our understanding of how to apply them, have matured to required levels of sophistication. For example, scalability was not possible before cloud computing. Advanced personalisation is impossible without AI. New trusted solutions require social networks and blockchain. Creating a connected community requires learners with high levels of digital literacy and empowerment.

In most cases, the necessary attributes are already familiar. These include the need or desire to be trusted, innovative, scalable, or personalised. However, until now these requirements have not assumed the status of a primary concern for learning providers over efficiency or compliance. This is for two reasons.

First, organisations and their leaders are preoccupied with addressing urgent needs, and there have been plenty in the recent learning economy (government funding constraints, lost international student fee revenue, COVID-19 restrictions, moves to online learning, etc.). Second, we are in the infancy of our understanding and operationalisation of the specifics and potential of these strategic principles. How do we create an exponential learning provider? How do we offer trusted learning services? How do we roll out personalised or peer-to-peer educational services?

For each section in Part B, we provide examples highlighting how sectors other than the learning economy have implemented these principles. This shows we are not creating a far-fetched speculation of new learning economy business models. Rather, we are stimulating stronger cross-sectoral learning and inspiration. Instead of focusing unduly on radical and innovative practices of providers within the learning economy, we pick the "best-in-class case" from outside of the sector. We acknowledge a bias towards sectors that, fuelled by digital and business model opportunities, have experienced the most significant growth over the last decade.

We looked for new practices, business models, requirements, and digital engagement models within case organisations. We then applied them hypothetically, guided by actual emerging sector practices, to the new learning economy. In many cases this meant

technology-enabled developments and trends we have imagined for a long time, like personalised learning. Our argument is, their time is now.

Figure B.1 summarises the three dimensions and six strategic principles covered in Part B. Each dimension can be seen as a continuum, with two related principles describing each end of the continuum. For example, a trusted provider will seek predictability, stability, and reduced uncertainties. An innovative provider is comfortable with change, exploration, and uncertainties. We will discuss the "tensions" between pairs of principles for each dimension and explore the extent to which a fusion of each pair of principles could give rise to winning hybrid strategies in the new learning economy.

Centricity:
Who is in focus: Everyone or the individual?

| Scalability | ←——————→ | Personalisation |

Connectivity:
How to connect: Over time or with others?

| Continuity | ←——————→ | Community |

Certainty:
What is valued?: Possibilities or predictability?

| Innovation | ←——————→ | Trust |
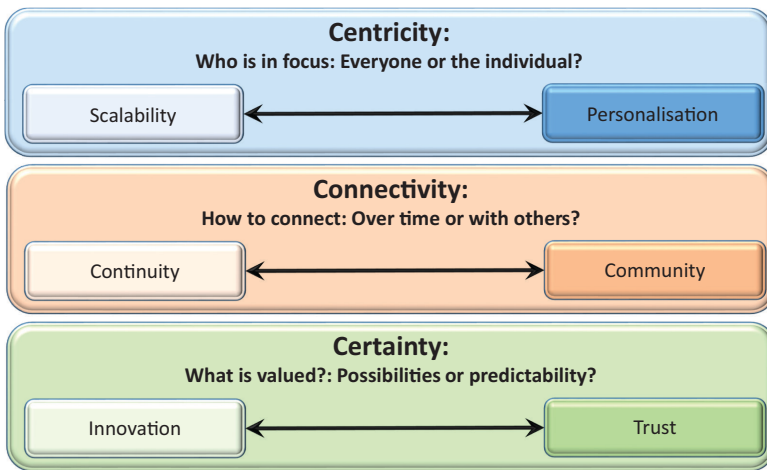
FIGURE B.1   Six strategic principles in the new learning economy.

B.I Centricity

Identifying a target market is among an organisation's most important strategic choices. After defining market scope and nature, it becomes the centre of strategic attention. For decades, marketing literature has offered models and theories for identifying and engaging with target markets. New digital technologies, however, have profoundly impacted these models by facilitating more global definitions of target groups at faster pace and in finer grain.

The world has become one global marketplace. The Internet, and advanced but intuitive communication solutions, amplified by post-pandemic demands and emerging capabilities, have overcome the tyranny of distance. This is more than merely the flawless quality of interactions with the world's citizens. The astonishing quantity of connections organisations can now maintain is also key. By April 2022, the Chinese video-sharing social networking service TikTok was downloaded more than 3.5 billion times, less than six years after its launch. Such growth is enabled by cloud computing solutions and advanced, AI-enabled algorithms that allow scaling up alongside new levels of user experience design. This means organisations can now consider entirely new global, fine-grained, narrowly defined target markets. And they can do so by being scalable, personalised, or both.

Scalability is a strategic principle based on an ambition to grow in the learning economy by exploring two dimensions: growth in the user base, and growth in the content base. Most households are familiar with, and capable of, some form of video-enabled web interactivity. Learning providers already see the profound potential of these technologies in cloud solutions rather than on campus. One can imagine future learning providers will replicate their technology counterparts' global user growth. There is also opportunity to substantially scale up learning content using platform models. Once they dismiss the dominating economic disorder of make-instead-of-buy, learning content libraries of new scale will emerge. Online programme management (OPM) is an example. In this chapter it is unsurprising that we use Netflix as a source of inspiration for both user and content growth.

Personalisation is scaling down our centre of attention. The individual is our focus. AI and machine learning have taken personalisation to new levels of sophistication. We can now use multiple internal and external data sets to tailor content delivery to the individual learner. We can respond to preferences and challenges in real time. Learner-specific incentives and content modifications can help progress learning. Personalisation is a value-centred path to participating in new learning economy growth. Spotify has deployed advanced music streaming personalisation, inspiring our discussion here.

Attention to the masses and attention to the individual might appear contrary concepts and principles. However, scalable personalisation, a hybrid approach to centricity, is a strategic possibility. Industry 4.0, for example, is the paradigm that describes the manufacturing sector's vision of mass individualisation at scale. Mass production throughput is not compromised by advanced data analytics, robotics, sensor technologies, and other digital technologies that allow manufacturers to conduct individual operational steps in the "factory of the future". Education 4.0 might not be much different. For the first time, mass individualised learning is on the horizon as AI solutions catalyse new forms of tailored educational services, in both quality and quantity. A recent KPMG report goes so far as to state, "The first ambitious university to crack high quality personalised learning at scale will leave the rest behind".[1]

Therefore, our first pair of strategic principles of centricity relate to where we focus our attention. Is it scaling to many users, personalising experiences for each user, or a combination of the two? This is illustrated in Figure B.2 and explored in the following sections.
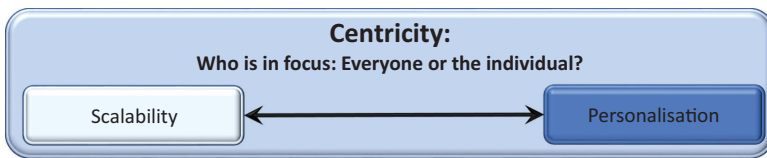
FIGURE B.2   The strategic dimension of centricity and its two principles.

1 Scalability

1.1 The Netflix Case

In 1997, Marc Randolph and Reed Hastings, admirers of Amazon's e-commerce model, looked for products and services that could be sold successfully over the Internet. They were inspired by the DVD launched in the United States in March that year. Randolph and Hastings tested the idea by sending a DVD to Hastings' house in Santa Cruz. When it arrived undamaged, they believed they had found a feasible idea. The Netflix story began.

Netflix is now a leading global content producer and platform. The core of its business model is a subscription-based streaming service offering movies and television shows from the largest library available. It streams to nearly every country.

Netflix started as a DVD rental and sales company. Early on, it abandoned the sales model. Its first online DVD rental store consisted of 925 titles, close to the complete set of titles available at that time. In September 1999, a monthly subscription model was launched. A year later, Netflix had approximately 300,000 subscribers. It relied on the US Postal Service for delivery and lost US$57 million in its first year.

It is widely known that Blockbuster rejected an offer to acquire Netflix. The idea behind the offer was that Blockbuster would look after DVDs and Netflix would manage the online business. Five years later, in 2005, two-thirds of US households had a DVD player. Netflix had 35,000 films available and shipped one million DVDs daily.

Improving Internet speed and reduced bandwidth costs catalysed the "video on demand" concept (originally labelled *Watch Now*). This began replacing the DVD rental business. In 2007, 1% of Netflix's 100,000 DVD titles were available this way, a proportion that would quickly grow in following years. By 2011, Netflix was such an established channel that television remote controls started including a "Netflix button".

Partnerships with content providers like Paramount, Lionsgate, and Metro-Goldwyn-Mayer, signed off in 2010, provided access to a substantially increased library.

In 2013, Netflix debuted its first own content production, *House of Cards*. Analysing comprehensive data sets of viewers' preferences and habits, Netflix's Chief Content Officer invested with confidence and outbid competitors to secure rights to this new series.

Besides the scale of movies available, Netflix had a second significant advantage. Early on, it provided a recommendation service called Cinematch. This had two benefits. First, Cinematch created a lock-in effect as the quality of recommendation increased with the number of movies watched. Second, it recommended less well-known movies, so allowing viewers to enjoy movies they would otherwise have missed.

Nowadays, Netflix is one of the most globally successful Internet-empowered businesses. It accounts for substantial proportions of global Internet streaming. In the United States alone approximately 50% of all households have current Netflix subscriptions. Its share of the subscription video-on-demand market is still higher than competitors like Amazon Prime Video, Hulu, Disney+ and Apple TV+. Netflix releases more television services and films than any other network or cable channel. It has scaled dramatically over two decades, becoming the largest global entertainment/media company, measured by market capitalisation. High-demand content in the Netflix network reaches a global audience quickly, as demonstrated by Korean drama series *Squid Game* that reached an audience of more than 140 million member households in 94 countries one month after its September 2021 release. The quality of its content production is also demonstrated by Netflix winning seven Oscars, and accumulating 36 Oscar nominations at the 93rd Academy Awards ceremony in 2021. In 2022, for the third successive year, Netflix was the most nominated company with 27 nominations winning one Oscar.

American television and media scholar Amanda Lotz, among others, studied the benefits of Netflix's successful global expansion. Her research highlights that the extremely large user base has become a competitive advantage for Netflix. Its uncommon content strategies make the offering of niche content affordable.[2] Known as long-tail economics,[3] this means content production and distribution to only a small market segment is still viable as even this small market segment is big enough. An organisation driven by the well-known Pareto principle aims to derive "80% of its revenue from 20% of its products" (the left part in Figure B.3). A long-tail play focuses on the right part of Figure B.3. However, a long-tail strategy is only feasible if market size is large and costs of production, storage, and distribution are low. How does this thinking apply to learning economy marketing and product strategies?

FIGURE B.3   Long-tail economics.

1.2 Paths to Scalability

Netflix's early technology investment and successful deployment of a long-tail economics model provide a rich set of inspirations for those keen to scale. Netflix excelled in two dimensions of scale.

First, Netflix is a success story through scaling its user base. In March 2022, Netflix had more than 220 million paid subscribers. Second, as visualised in the long tail in Figure B.3, Netflix also scaled up its content library. In countries like the United Kingdom, Japan, and the United States, Netflix customers have access to more than 5,000 titles.

These two dimensions of scale, user base and content base, are separate but correlated. The higher the user base, the more viable it becomes to offer content that is otherwise a niche offering. The opposite is not always true as there could be a massive global market for very narrow content (see single movie production).

Some Netflix practices offer inspiration and guidance for those keen to scale in the future learning economy.

1.2.1 Decouple Delivery from Physical Constraints

From the beginning, Netflix centred on overcoming a customer's need to physically visit a DVD rental store. Like many successful digital age companies, Netflix flipped the delivery model. Instead of the dominating bricks-and-mortar model in which the customer visits the shop and is responsible for the logistics of transporting products home, Netflix "came to the customer" by mailing DVDs to households. The second consequential step was the switch to streaming once Internet infrastructure and costing models were ready for it. Both decisions were essential to Netflix's ambition to scale globally. Committing to a digital delivery chain decoupled it from geographical growth constraints.

Radical decoupling from physical interactions is, however, still the exception in today's learning economy. The dominating paradigm remains physical-first. Few universities are online-only (or even mostly online) providers. Among them is the University of Maryland Global Campus – a public university serving 90,000 students worldwide with 120 programmes. Other rare examples are Western Governors University, a private university in Utah which uses an online competency-based learning model as opposed to the traditional cohort model, and Southern New Hampshire University with 3,000 on-campus students and 135,000 online.

1.2.2 Global Expansion

It took Netflix seven years to expand to 190 countries. In 2010, Netflix operated only in the United States. By the second quarter of 2018, its international revenue surpassed its domestic revenue. This is even more amazing as Netflix must secure content deals for each region and is challenged by global language differences. Louise Brennan has unpacked two strategic Netflix moves behind what she calls "exponential globalisation".[4]

The first strategic move was a three-staged expansion plan guiding Netflix's globalisation. Stage one was expansion to Canada given its similarity to the United States. Stage two was expansion into 50 countries selected based on attractiveness (affluent customers, broadband Internet). This stage required more localised content. In stage three, Netflix "conquered the world", adding more languages and catering for local conditions (e.g. mobile networks, streaming efficiency for cellular networks).

The second strategic move was a strong emphasis on partnering with local organisations (e.g. Vodafone in Ireland, Telefonica in Latin America, KDDI in Japan). This included local content production suited to both local (local-for-local) and global audiences (local-to-global).

Such exponential globalisation strategies are unknown in the learning economy, but maybe not impossible. The dominating game plan is attracting international students to university campuses, not to cater for their learning demands on their home turf. From day one, Netflix, a digital-native organisation, explored online channels and found a suitable model, whereas most current providers of learning regard online as the "poor cousin", an immature (and internally less popular) channel than face-to-face delivery.

1.2.3 Data-Driven Content Production

Netflix now captures data like completion rates and drop-out rates for each viewer type. Such retention insights guide Netflix's own content production: nowadays Netflix Originals comprise 40% of its US library. Content interaction data is also captured (e.g. pausing, day, time and location of content consumption, rating and search enquiries). These data sets provide important and early signals for emerging demand patterns. They also allow granular content creation, so ensure audiences get desired experiences in their required time frames.

It is easy to imagine how comparable, additional data points could help learning providers with content design. Advanced data science capabilities, toolsets, and skillsets are required alongside a data-driven, evidence-based mindset. This shows that providers staying close

1 Scalability

to customers' consumption behaviour have a competitive advantage over providers resting on academic credentials and research as key inputs to content production. Dominant provider preferences for offline, physical classroom settings preclude richness in data sets, severely constraining a future data-driven learning economy.

1.2.4 Recommendation Service

Netflix's launch of its streaming service in 2007 brought a new scale of data sets, providing previously unearthed fuel for both its content production and its advanced recommender services. Netflix uses these data to predict the most relevant categories (e.g. action, comedy), and within categories the movies most relevant to each viewer, thus complementing context-specific recommendations like those based on location, events, and dates (e.g. romance on Valentine's Day). Consequently, Netflix's interface looks different to each Netflix viewer; that is, Netflix's scalability is further enhanced by ensuring its comprehensive content offering narrows for each viewer's preferences.

Such sophisticated facilitation of experiences contrasts sharply to current user interfaces of learning management systems. Imagine the possibilities and opportunities for learning providers offering recommendations to learners based on genres of knowledge and patterns of skills needed. These could be based on changes in economies, and dynamic business and employment contexts; for instance, offering learning content that, once mastered, provides access to related, emerging job types. The uptake of data science is an example.

1.2.5 Advanced User Experience and User Interface Design

Finally, Netflix reduces roadblocks to scale by consciously designing a seamless user experience. This is visible in elegant, engaging, intuitive interface design, and ease of user experience (UX).

Designing an intuitive user experience is central in UX design and becomes tangible in the user interface (UI) design. Netflix employs many UX/UI designers, but similar roles are exceptions in the learning economy. Learning designers are closest, though frequently focused on content usefulness as distinct from ease and desirability of content access and system use. Netflix's UI is smooth, minimalist, intuitive, and consequently easy to navigate. Content is proposed as trailers – after a viewer watches a movie, related content is immediately offered. This creates user-friendly access to the world's largest movie content database. Few university or other learning provider websites, or their learning management systems, offer such cross-selling experiences. Arden University's Alison Watson asks:

Should learning and development (L&D) teams begin tuning into the wonderful things astute algorithms can do? Just like when we finish a film on Netflix and we have three new suggestions thrown our way, indecisive students could benefit from having instant suggestions as to what they may want to try out in the next term.[5]

Visual appearance matters (e.g. movie clips combined with music start automatically as previews to the entire content) and so does process experience, in particular the on-boarding process.[6] First-time users can sign up quickly, providing further data (e.g. preferences) later. The founder and CEO of Cloud for Good, Tal Frankfurt, considers this process experience in his *Forbes* article "What Higher Education Can Learn from Netflix":

> Schools should look to shorten the time to check out and encourage applicants to complete additional information after checkout is completed. This has been a big focus for many of our clients in executive education, for example. Additionally, admissions processes must be streamlined to offer intuitive online services and simple checkouts that reduce application abandonment rates. Some practical examples that can provide a real impact are using prominent calls to action, progress indicators in the application process, offering multiple payment options and plans, and reducing the number of questions asked that are not essential for the app review.

1.3 Scalability in the Current Learning Economy

Traditional production and distribution models in the current learning economy reflect two assumptions. First, a learning provider largely produces its own content rather than sourcing externally. In Part A, we called this the economic make-or-buy disorder. Though textbooks and other material inform content, the instructor tends to curate, create, and orchestrate teaching material, tailoring it to their own preferences and capabilities. Second, face-to-face (F2F), classroom-based learning is preferable even as live streaming and access to video and audio recordings have increased, amplified by COVID-19, and learning management systems enable learning material access.

Both assumptions impose severe constraints on scalability as the learning provider's content production resourcing model, and the F2F delivery focus, create economic and logistical boundaries to globalisation. The result of this model is that universities tend to have an upper limit to their growth: few universities have more than 50,000 students or reach enough learners to generate significant economies of scale. Kevin Carey's vision, articulated in 2015, of a University of Everywhere spanning the Earth through the Internet remains a distant prospect.[7]

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Massive open online courses (MOOCs), supporting remote learning, deliver scale. Often grounded in existing learning content and/or relevant, advanced research capabilities, MOOCs assemble various learning modes (live or recorded lectures, video, self- and peer assessment). While most MOOCs come in open access format xMOOCs, they use a closed license, meaning course material cannot be reused. MOOCs offer established learning providers opportunities to explore international markets with specific offerings. Given the lack of global distribution channels, MOOC providers usually rely for content dissemination on third parties like Coursera, edX, FutureLearn, XuetangX, and Udacity.

Online Programme Experience (OPX) now embraces various service models and public-private partnerships in scalable online teaching, including Online Programme Managements (OPM) and Online Programme Enablers (OPE). COVID-19 focused the higher education sector on professionalising and scaling online delivery, and OPX complements university capabilities. OPM is the most established subset of OPX services covering market research, student recruitment, enrolment, course design, student placement, and retention management. OPX extends OPM by including generalist and specialist providers, alongside MOOCs and platforms like Coursera. Many OPX services are offered white-labelled, meaning students are unaware of third-party involvement, and the OPX provider is reimbursed with a tuition fee percentage.

Growing commercial interest in OPX became visible in Coursera's IPO, SEEK's acquisition of FutureLearn, and 2U's acquisition of EdX. OPM and OPX offer current learning providers options for addressing the make-or-buy disorder identified in Part A.

There is growing intensity and complexity in partnerships and alliances between universities, MOOCs, and OPMs. HolonIQ observes[8] there were 244 new partnerships in the first half of 2021 alone. Partnerships between EdTechs and universities is a fast-moving field, and according to HolonIQ, scenarios for 2030 embrace oligopolistic markets for OPMs, university networks forming alternatives to OPM services, the unbundling of OPM for multiple partnerships with universities, and some universities building their own OPM capabilities.

Only in the last decade have we seen the emergence of third-party online distribution channels that aggregate providers' learning content and provide it to global audiences. Comparative tourism sector platforms (like Tripadvisor or Expedia) are absent in the learning economy. Finding information and learning opportunities is easy. But few places broker or compare content, curate content quality, or lend credentials or any certification to multiple outsourced sources of learning. Go1 is an exception, offering global clients curation of learning materials from multiple sources as a B2B service.

Online learning providers and platforms are addressing significant roadblocks experienced by learners. Their focus on online education helps overcome spatial constraints. Their costing model targets economic constraints and their on-demand model addresses temporal constraints. Some universities and their OPM and OPX partners are trying to maximise the delivery model's advantages, largely through blended hybrid models or experimental sidelines to their core business.

1.3.1 Coursera

Among the most significant online learning platforms, Coursera was founded in 2012 by Stanford University computer science professors Andrew Ng and Daphne Koller. A decade later, Coursera had educated more than 70 million people globally. In March 2021, its initial public offering (IPO) on the New York Stock Exchange achieved market capitalisation of $5.9 billion.

Prestigious universities like Princeton, Stanford, University of Michigan, and University of Pennsylvania were quick to join Coursera. By 2022, Coursera offered more than 5,000 courses, specialisations (bundles of courses), and entire degrees from more than 200 education partners. Coursera partners with global tech companies offering courses which lead to professional certificates, like Google's Data Engineering with Google Cloud. Coursera is a broker of global content, but learning content creation facilitated by data, following Netflix's model, is not yet part of Coursera's strategy.

Coursera's global network allows it to source and provide emerging content quickly, immediately satisfying global contemporary learning demands. For example, the 16-hour free course Science Matters: Let's Talk about COVID-19, launched with Imperial College's Jameel Institute, proved the most popular Coursera offering in 2020, attracting more than 130,000 learners.

Like platforms in other industries, Coursera invites public customer reviews and 1–5 rankings for courses and instructors, allowing potential learners access to peers' viewpoints before committing to a course. Moreover, features like "People interested in this course also viewed" refer learners to complementary courses. These features are common to modern digital platforms but unusual in today's learning economy.

Beyond its distinctive UX design, Coursera explores business models which are innovative for the learning economy. For example, Coursera applies the freemium model to audit versions free of charge, with certificate tracks and many specialisations behind the paywall. "Coursera for Governments and Nonprofits" targets sector-specific educational needs, as

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does "Coursera for Business". Coursera is a learning partner with L'Oreal, Novartis, Airbus, Axa, and other organisations.

Coursera has deployed another innovation with a subscription model facilitating self-paced progression similar to Netflix's on-demand service. A learner can progress autonomously, "binge-learn" and pay less for rapid course completion. Course offerings of online learning providers are closer to the continuous on-demand model. Courses are also repeated frequently according to demand patterns, and not static within semester time frames.

Unsurprisingly, Tom Willerer, who previously worked for Netflix, was Coursera's Chief Product Officer when the subscription model (2016) launched.[9] In 2017, Willerer said:

> Netflix took a different approach by combining the best of Hollywood with the best of the Silicon Valley. We need the expertise of lifelong educators. It's that marriage of the best of Silicon Valley tech companies with the best of academia that will put us in a different league.

It can be assumed Coursera will remain a prolific online learning platform. The more Coursera explores the business model of successful long-tail economy companies, the more it will differentiate through its breadth of offerings, unique pricing model, distribution model's scale, and impact of features common to digital marketplaces. In particular, and as outlined above, Coursera's model makes niche educational offerings viable as a global market creates sufficient demand for them.

All these elements create an environment that can motivate learners to change focus from outcome-driven accomplishment (degrees) to ongoing engagement (continuous learning). If successful, learning may become as common and accessible as regular physical exercise regimes. Ongoing learning might be more important than a collection of degrees following announcements from Google, Ernst and Young, Apple, IBM, Hilton, Bank of America, and others, that a degree is no longer an employment prerequisite.

Coursera's continuous, on-demand education is one provider-centric way of addressing the knowledge disorder. It postulates a continuous, not an upfront, model of learning. Moreover, Coursera targets the consciousness disorder: it's Learning How to Learn course is among its most successful. This MOOC is informed by learning models in diverse areas such as art, music, literature, math, science, and sports, and features two distinct learning modes.

1.3.2 Further Online Learning Providers

Like Coursera, edX was founded in 2012 by MIT and Harvard. It adopted a global mission to "Increase access to high-quality education for everyone, everywhere". In June 2021, educational technology company 2U acquired edX for US$800 million, giving 2U access to edX's 50 million global users, 1,200 enterprise clients, and more than 500 university partners.[10] Some of the world's most prestigious universities contribute content to edX, including Oxford, Berkeley, TU Delft, and the University of Queensland.

This goal of democratising access, and equitable education and learning provision, is a strong driver behind the purpose of Studiosity and Go1 and is a particular feature of how businesses appear to present to the new learning economy. edX provides, for a fee, certificates of successful completion, some being credit-eligible. So-called Xseries certificates are bundles of courses for a specific subject (e.g. Water Management, Astrophysics, History of China: The Modern Era or Future Cities). In contrast to Coursera's focus on professional courses (e.g. business, computer science), edX emphasises humanities and natural sciences.

The Open edX learner platform provides scaffolding and customising opportunities for rich edX content, including a learning management system, learning analytics, and a learner portal. Third-party tools can be integrated in various ways (API, Plugins, Javascript). The digital capabilities and data intensity of these environments provide rich, often underexplored sources for research on learning (e.g. learning retention or completion) and data-led content creation.

While Coursera and edX are the two largest online learning platforms, other providers target specific markets with unique offerings.

US-based Udacity concentrates on vocational courses for professionals. It grew out of free Stanford computer science classes that attracted up to 160,000 students in a course called Introduction to Artificial Intelligence, triggering interest from tech giants like Google, which partnered with Udacity to educate web and Android developers.[11] AT&T partnered with Udacity as part of a nanodegree designed to educate students for entry-level IT roles. Most Udacity offerings are in business and technology, including courses like Flying Car and Autonomous Flight Engineer, Hybrid Cloud Engineer, and Sensor Fusion Engineer. Udacity for Government and Udacity for Enterprise also target specific sectors.

Tsinghua University and China's Ministry of Education Research Centre for Online Education established XuetangX in 2013. It offers a wide spectrum of courses from Spanish language to an online medical master's. Various international partnerships (e.g. with France and

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Nigeria) have expanded XuetangX's reach – the platform's multilingual set-up facilitated these partnerships. Partner universities include Stanford and the University of California, Berkeley.

FutureLearn is a UK-based MOOC provider jointly owned by Open University and SEEK. Founded by 12 university partners in 2012, it has been seen as the European response to US-based Coursera and edX. SEEK's 2016 investment of GBP£50 million is a significant example of a tighter integration of the learner journey with the subsequent transition into a professional career. This investment highlights how access to the next generation of talent is a competitive advantage for a recruitment company like SEEK. FutureLearn covers a comprehensive spectrum of courses including Drone Safety for Managers, Shakespeare and Beauty Decoded, and Strategy in the Global Beauty Business.

SEEK has also invested in the Australian-based platform Go1, and in Swinburne Online, involving Swinburne University of Technology. Go1 has also attracted corporate venture capital from tech players like Salesforce and Microsoft, showing the potential of contemporary platform learning economics to unlock intersectoral engagements in ways traditional stakeholders in the learning economy have not explored. Go1 targets corporate and public-sector markets and focuses on being a strategic learning partner for enterprises. It sources content from often specialised partners like Aged Care Learning Solutions and American Medical Compliance.

Udemy (portmanteau of you and academy) was founded in 2010. Its platform supports instructors to create online courses and supports mobile learning via apps that allow learners to consume content from smartphones. Udemy has a vocational focus and offers practical courses like How to Put Your Business on Wikipedia and Tableau A–Z.

Embedding advertising as a revenue source is the exception in current learning economy platform models. One that does so is Irish platform Alison, founded in 2007. It offers more than 2,000 courses and has attracted more than 18 million learners. Using a two-sided market model, learners are exposed to advertisements unless they purchase the ad-free Alison Premium subscription.

Another prominent learning platform is Khan Academy, a not-for-profit focused on maths, science, and further training for students that complements classroom experiences. Khan Academy Kids even provides a "fun educational program for children aged two to eight".

In summary, many digital online learning platforms, OPMs, and comprehensive OPXs have emerged. They share commonalities with large-scale providers in other content-driven economies like entertainment. Significant differences still exist in UX sophistication and

elegance, business model innovation, and successful transition from one-off learning to ongoing learning engagement. Entertainment and learning are, of course, very different needs. For example, one-to-one coaching remains a difficult challenge to address in teaching models of global scale.

In a later chapter we return to learning platforms when discussing how they are fuelling their exponential growth through network effects.

1.4 Educational Well-Being for the Masses

The Netflix case demonstrates successful scaling-up of user base and content base in the entertainment industry. Such extreme scale-ups are non-existent in the learning economy. However, as Jeff Selingo and co-authors state in their report *The Next Generation University*, "Bigger can be good. The universities we studied were able to use growth as a solution to declining revenues, rather than contraction".[12]

There is of course a significant difference in consuming content for learning rather than entertainment. Nevertheless, insights for the learning economy are offered by similarities in content business and differentiation into two scale dimensions: user and content. As Figure B.4 shows, there are four alternative models, and all can be described as a facet of OPX.
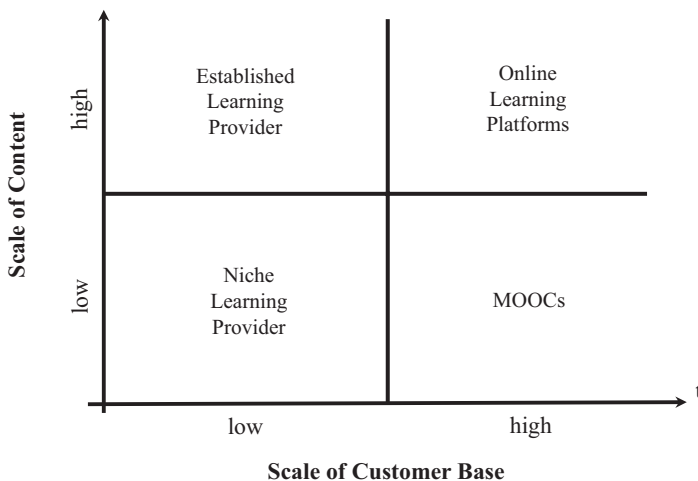
FIGURE B.4   Scalability principles in the learning economy.

The domain of niche learning providers tends to be an exclusive market. Examples are high-intensive one-to-one language classes or prestigious small-cohort executive courses. The

difficulty with maintaining the research–teaching nexus in pursuing scalability is significant. Having all learning facilitators actively engaged in research is more easily achievable for niche learning providers and MOOCs. Separation and specialisation of service and functionality with online learning platforms, and even established learning providers, makes maintaining a research–teaching nexus increasingly challenging.

Most established learning providers with a dominant paradigm of "physical-first", especially universities, are characterised by a reasonably large scale of content, which materialises in a comprehensive variety of undergraduate and postgraduate courses with embedded minors and majors. More than 1,000 units may be on offer. Compared to the entertainment industry, universities have a small scale of users, rarely exceeding 50,000 students who are expected to be on campus for a substantial part of their learning experience.

The opposite occurs when learning providers scale up the user base for niche content. Stanford University's Machine Learning MOOC, launched in October 2011, attracted more than three million students over one decade. In 2012, a student described it as the "online Woodstock of the digital area".[13]

MOOCs are usually offered without charge and are often positioned as a way to build a global reputation. They can attract a large-scale audience to the MOOC provider's other offerings. Besides research-informed niche content, significant global demand exists for high-quality courses with commoditised content. "Teaching Pythagoras' theorem is pretty much the same the world over. For such courses, technology platforms can deliver to very large audiences at low cost".[14] Offering commodity courses would allow universities to shift teaching resources to personalised courses aligned with their research strengths.

However, MOOC can be monetised. The promise of direct and indirect revenue streams might be an incentive to scale niche offerings, even accepting the largest cohorts in MOOC audiences participate for free. A certificate of participation is often available for a fee, which can range from twenty to several thousand dollars. Bundled together, several MOOCs might lead to a micro-credential, or even university credit for a traditional degree. Entire online degrees are also available, with price tags similar to some established on-campus degrees.

Finally, and depending on the content, it may be possible to repurpose MOOCs into corporate open online courses (COOCs) or scale down to small private online courses SPOCs). COOCs and SPOCs can complement in-class offerings and are a further benefit from the one-off investment in creating a MOOC.

New revenue models could follow gaming industry practices where in-app purchases monetise customer engagements. For example, MOOC participants interested in learning more about specific content could access further material via payment (e.g. papers, videos).

The extreme scalability play occurs in online learning platforms when a large set of content is provided to a large, global user base. As discussed above, this is territory for a new cohort of specific providers with dedicated capabilities in sourcing content, strategic partner management, global content management, new business and pricing models, and content orchestration across various providers. Established learning providers, with the disorders of a range of economic inefficiencies, typically do not possess these capabilities and so cannot assume roles in large-scale orchestration and global learning content provision.

Therefore, execution of the scalability principle falls to partnering with an OPM/OPX and to becoming a MOOC provider. Here a provider must assess a course's potential competitiveness in the global learning economy, not simply a well-known local market. Candidate courses tend to be unique (e.g. in the pedagogy or the technological support provided), or relate to the provider's global leadership in specific research capabilities which are compelling because of their contemporary nature and quick market entry potential. UC Berkeley's Department of Chemistry, for example, photographed and recorded experiments in its nine chemical laboratory courses, enabling remote participants to produce their own lab reports. Such virtual labs are currently constrained, but advances in augmented reality offer higher scale and increased levels of interactivity in MOOCs for lab-intensive learning.

Julianne was so satisfied by the transformation of her career as a social media market coach. This was down to the skills she developed through educational wellbeing services offered by Globix Learning. She had accessed them for a year now via her Skills4U subscription. Julianne was attracted to Globix's programme after becoming aware that more than 100,000 learners signed up every quarter to their online courses. However, she never felt she was one of 100,000 when she consumed the learning content from her comfortable home office, but this impressive number gave her confidence this was the right choice. Most notable for her was the crowd of peers in the learning community that complemented course content. Questions were asked and answered by learners. Case studies, blogs, and other readings were shared.

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> *It continually astounded Julianne that the learning service monitored her learning against its global learner database and recommended new courses even before she was aware that if she developed the skills those courses offered, her business could develop further. She was particularly taken by podcasts about the work of Hayley, Skills4U's Chief Customer Officer, who had transferred into the new learning economy from a role in the entertainment sector. Hayley was amazed at how quickly Globix grew market share and scalable services in the new learning economy through using AI-empowered recommendation services as a point of difference. Julianne's alumni newsletters from Columbia seemed to show they were more focused on depth of research quality and regionally tailored content.*
>
> *Julianne observed how Columbia was still gaining from large donations of wealthy alumni to her alma mater. But while young students predominantly chose Columbia, her generation was showing equal interest in transitional universities and new service providers like Skills4U. That was simply because her generation recognised that their learning needs continued to grow. She recalled how journalism and publishing had changed in recent years of her career. Globix's course enabled Julianne to analyse changes to printed media and proliferation of new media channels. Her reminiscences were disrupted when her Globix peers working on the same assignment contacted her for their weekly Zoom catch-up. Four students from four continents made up this team, and Julianne very much enjoyed being a global learner.*

1.5 What Else Can We Learn from Netflix?

In May 2016 in the first episode of Netflix comedy talk show *Chelsea*, host Chelsea Handler asked: "What if instead of treating our Netflix binges like a guilty pleasure, we embraced our TV obsession and used it to better educate ourselves?" Handler was being humorously provocative, highlighting that Netflix binge watching can seriously distract university students from their study obligations.

It's a topic that has caught the interest of universities. Some take the Netflix reference lightly, suggesting Netflix content could be used to teach certain subjects (imagine *House of Cards* as a way to teach politics[15]). The University of Western Australia (UWA) uses Netflix-watching habits to suggest possible study areas to incoming students.[16] Among others, UWA suggests to fans of *The Crown* its majors in history, law, society, political science, and international relations. Those who love *Black Mirror* are encouraged to check out computer science and data science majors.

Mostly, however, Netflix is seen by learning providers as a competitor for attention. Indeed, during a COVID-19 lockdown then-Australian Federal Education Minister Dan Tehan wanted people to stop Netflix bingeing and reskill through new government-funded online courses sourced from Australian universities: "We want to enable people, rather than bingeing on Netflix, to binge on studying".

Netflix has started engaging more closely with education providers. It partners with Norfolk State University in the Netflix Virtual Boot Camp for historically black colleges and universities. The 16-week programme, capped at 130 students, aims to increase black students' representation in technology courses. Three alternative tracks are available: Java engineering, UX/UI design, and data science. Participants receive a Netflix scholarship for tuition fees and course credit.

Netflix has not fully entered the educational content market if one ignores its increasing interest in producing documentaries. However, Netflix's network and capabilities as leading global content provider raises obvious questions. Where are the boundaries of content of leisure interest to its viewers? To what extent is Netflix willing to revise its flat-fee subscription business model to meet future demand for educational content?

In her blogpost "The 'Netflix' of Courses, Classes and +",[17] UI/UX designer Virginia Ramirez presents outcomes from her design thinking work on features of education platforms like Udemy, Coursera and edX. Her study suggests there is potential for a more compelling, Netflix-like education platform. Lan Snell, professor in Macquarie University's Business School, calls this the EdFlix education model.[18]

Participants in the future learning economy wanting to replicate some of Netflix' success factors need to be mindful that it is grounded in two factors. It created a new business model, and it benefited rapidly from digital affordances (Internet speed and costs).

The radically new business model, subscription versus rent, has no counterpart in the current learning economy. Existing providers mostly follow the business model through which customers consume services: either the customer pays a fee (partially subsidised by government), or the service is free (e.g. MOOCs). In most cases, learner engagement finishes upon completing a degree or certificate of some kind. Subscription models are available only with some platform providers. We will elaborate later on reasons for the absence of business model innovation in the learning economy, and what a university subscription model could look like. However, limited appetite for business model innovation and relative lack of business model awareness are significant differences between scalable organisations like Netflix and most learning providers.

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Beyond its disruptive business model, Netflix reacted quickly to new opportunities, such as increasing Internet speed and reduced bandwidth costs which made video streaming possible. Being the first large-scale mover in content streaming was crucial for Netflix. Similar assessments of emerging opportunities become ever more important in our digital economy. Learning providers might ask questions like these:

- Is blockchain mature enough to put educational credentials on a distributed ledger as NFTs?
- Is mobile computing viable for location-sensitive learning?
- Can we use AI for advanced learning analytics?
- How can social networks help with peer-to-peer learning?

Environmental sensing is core to such investigations, but this discipline is underdeveloped among learning economy participants. Other questions Netflix's practices trigger include:

- What if a learning provider appointed a Chief Content Officer (CCO)? Netflix's CCO Ted Sarandos decided to outbid other networks for the series *House of Cards*. What content would a university CCO try to source as the first learning content? What data would guide the decision?
- What if a learning provider signed strategic partnerships with third-party content providers, leading to exclusive distribution rights?
- What if a provider offered a "Learning Party"[19] facilitating learners at different locations to learn synchronously, as a form of social learning?
- What if a learning provider assessed their employees' performance by more than a defined number of hours worked, and paid them accordingly? We have not discussed Netflix's unique culture but are certain it is another significant facilitator of success. It is dramatically different from the culture found in most learning economy participants. Learn about Netflix's employee culture at jobs.netflix/culture.

Established learning economy providers might aim to replicate these practices, but Netflix is already at the next stage, exploring recent investments in video mobile games, the set-up of book clubs, and behind-the-scenes content shows.

1.6 Summary

Digitalisation of economies and societies has redefined geographical constraints, meaning a global market is accessible for providers that understand how to scale appropriately.

Global providers are common across many sectors but are an exception in the learning economy.

Examining Netflix has provided insights into features of similar organisations. Netflix serves as a benchmark for the new learning economy. In particular, Netflix decoupled service consumption from physical constraints and had the appetite to become a global entertainment provider. Advanced UX design, early capitalisation of emerging technology affordances, data-driven content production, and regionalised strategies where needed, have fed Netflix's success. The journey to success was not straightforward, however. Many initial doubters of its approach predicted moving to online entertainment access, and a new business model, would fail. Its Q2 2022 share price fall in response to shortfalls in subscriber growth show that challenges remain, but like other Part B cases, the story combines implementation resilience and strategic intent.

Learning platform providers like Coursera and edX, which source and curate educational content, are the closest models we have to global scalable learning economy providers. For many established providers, successfully realising a global market is less about adopting the platform model, and more about a niche-focused content provision model alongside value-adding partnerships with OPM/OPX providers.

The contextual setting for such global expansions changed rapidly during COVID-19. There was growing uptake of and familiarity with sophisticated video engagement technologies (Zoom, Webex, Teams, etc.), creating low distribution costs for final stages of service delivery to the learner. However, significant challenges await many current providers, such as building global brand, capabilities, infrastructure and, most importantly, appetite to shift from a dominant local to a global market. In Part C, we explore how well various stakeholders in the new learning economy are equipped to pursue the strategic principle of scalability, and how they might realise it by developing their capabilities and discontinuing activities inconsistent with it.

1 Scalability

2 Personalisation

2.1 The Spotify Case

In 2022, Spotify was the most successful global music streaming service. Its market share was roughly one-third of total global consumption. Since 2008, this Swedish company has provided access to millions of songs and podcasts based on the concept of a freemium business model. While the core service is free, by adding a subscription payment a user avoids advertising and has much greater control over what they consume.

Spotify is largely a broker, providing access to a comprehensive library of audio content available to millions of customers globally. Thus, it is crucial for Spotify to create intelligent services that match customers to content, ensuring a customer listens to music or podcasts they enjoy most, whether or not they had heard it previously.

Spotify's first step towards a personalised offering engages music editors in creating playlists for "moods and moments", including "waking up", "feeling happy", "working out", and "Sunday mornings". These playlists allow users to select a compilation of songs tailored to their individual contexts, and personalised preferences that context generates. Of course, as many people share similar moods and moments, a playlist can be enjoyed by many people. Tailoring offerings to a group of people with similar attributes is Spotify's first *personalisation* step as it accounts for personal circumstances.

Spotify also offers customised recommendations, updated weekly, like Discovery Weekly. When users lack time to select music, selections are offered to them. For this Spotify uses information about listening behaviours and patterns, then offers music in playlists with particular names and explanations which helps users understand, if they are interested, why certain music is offered to them. Selecting individually recommended songs is facilitated by an AI engine called BaRT (Bandits for Recommendations as Treatments) which weighs user information with comparable users to create personalised recommendations about future listening. The algorithm analyses a user's listened-to music, to understand the elements of the composition users like, and their inherent similarities and differences.

Personalisation can also take into account available and usable personal data. This is helpful in building a deeper relationship with listeners. For example, a personal playlist taking a user's age into account could create nostalgic feelings by assembling music from the user's teenage years.

The Spotify case shows that personalised service providers go beyond simply providing access to content. Spotify proactively allows users to discover relevant content, or content combinations and extensions. This discovery process can range from simple

recommendations to immediate service provision. For example, according to Spotify, 30% of its streams are algotorial, meaning a playlist is either created by a music editor or an algorithm, not by users.

Spotify has recently gone one step further. Some playlists are now customised to the specific profile of an individual user. The resulting playlists are truly unique, existing only for one user. Such extreme forms of personalisation are known as individualisation ("lot size 1").

The interplay of Spotify with groups of people creates a relationship dynamic that extends the notion of personalisation beyond an individual user. Family accounts allow the interweaving and sharing of genres and tastes. This creates synergies between previously stand-alone profiles and can be called social personalisation, in which offerings are tailored to a small cohort of people. Unlike top-down groupings (e.g. customers who want to work out), social personalisation is defined bottom-up by like-minded users willing to share and inspire each other. Sharing playlists between groups of friends and listeners is also becoming popular, leading to cross-pollination of listening preferences in social groups beyond families.

2.2 Paths to Personalisation

2.2.1 Three Forms of Personalisation

There are three ways to facilitate personalisation of learning: via selection, automation, or dedication.

Selection provides choice to individual learners who can pick an elective, select the time of learning, the instructor (e.g. from tutorials scheduled at the same time), or the channel (online/offline). Personalisation like this requires a level of learner competence to make informed selections. It is tempting for learners to pick relatively easy learning modules when more challenging modules would provide more appropriate learning experiences. In any case, empowering learners to own a larger part of content orchestration will most likely be a core requirement of the new learning economy. As UK consultant Andrew Crisp frames it:

> For years, universities have been way too product-centred and they need to be more like Spotify so that students can curate their own playlist of skills and career opportunities, rather than having to follow a rigid pattern that is prescribed by an organisation.[20]

Automation as a form of personalisation relates to the fast-moving domain of learning analytics. Advanced algorithms, grounded in machine learning and AI, now allow

2 Personalisation

cost-effective forms of personalisation. They can identify individual learning needs and preferences based on observable learner behaviour and performance. Such insights can trigger task repetition if evidence suggests the learner is struggling with it. Modifications in the way task repetition is presented (e.g. grounded in an abstract conceptualisation, a case study, etc.) can target optimal ways to ensure successful learning.

Dedication is grounded in capabilities of those facilitating the learning experience. This is clearly visible in intensive one-to-one instructions (e.g. tailored languages courses for those starting careers in another country). Dedication occurs when the instructor tailors all learning journey elements to the individual learner's skills, needs, preferences, and interests. It relies heavily on instructor competence and benevolence, making it difficult to scale.

2.2.2 Elements of Personalisation

Personalised learning can also be distinguished by differentiating content, progression, pedagogy, delivery, and support. To varying extents, all five elements can be personalised.

Personalisation of content is a personalised learning approach likely to develop most in the future. Many learning institutions offer alternative pathways throughout their curriculum, including choosing majors, minors, and electives. More advanced forms of personalisation would include variations to the way content is explained. For example, a conceptually minded learner might find a well-defined theoretical model intuitive, while a more pragmatic mind could only access the learning via case studies. Using machine translation, content could be modified based on language preferences.

Personalisation of learning progression represents a significant shift from a provider-centric model to a learner-centric model. A provider-centric model focuses on teacher needs, like defining content week by week within a university curriculum and delivery programme for the entire enrolled cohort. A learner-centric model offers content selected by the learner, according to their stage of progression. An on-demand learning economy enables this substantial shift. Arthur Levine and Scott Van Pelt have summarised it as follows:

> The current model assumes all students learn the same things in the same period of time. In reality, if the time and process of education are held constant, student outcomes will vary widely. This is because different individuals learn the same subjects at different rates. Even the same individual learns different subjects at different rates.[21]

Levine and Van Pelt explain the persistence of the current semester-constrained, timetable-focused model by its roots in the industrial age. It was invented to standardise a delivery model that claims each subject requires similar attention over the same time frame, with successful completion rewarded with the same number of credit points. In contrast, a personalised, outcomes-driven model would not necessarily aim for the same pattern for each unit. It would allow greater flexibility in presenting and consuming learning content.

Personalised progression eliminates significant constraints with learner journeys which tightly couple learning progression and fixed time tables. Personalised progression creates an individual schedule for each learner, with personalised incentives to encourage progression. These could be gamified solutions or incentives very closely linked to individual preferences. Learners might find their own reward schemes, unlocked with achievement of learning outcomes. Such models currently sound unlikely but would gain popularity when simple "*if-then-this*" rule definitions become widespread. Personalised progression could be more accessible using smart contracts, facilitated by blockchain or platforms such as ifttt.com that create conditional statements. An example is unlocking open positions based on their requirements and one's personal and growing set of qualifications.

Personalisation of pedagogy is often discussed in the context of so-called personal learning environments (PLE). In this model, the learner and their needs and circumstances drive the learning process. This shift is fundamental. It requires learners knowing how to learn rather than relying on teachers knowing how to teach. That is, they need to overcome the consciousness disorder.

Personalisation of delivery provides opportunities for learners to select the most suitable learning modes, such as delivery channel (classroom vs. online), then specifying online channels of preference. During and post-COVID-19, hybrid delivery models have become more common in universities, meaning students can choose between classroom attendance, participation during content live streaming, and consuming recorded content on-demand at preferred moments in time. This selection approach replicates personalisation approaches common in industries like banking and retail. The notion of *omni-channel education*[22] is in its infancy. As Ann Kirschner says: "I wish I could point to examples of universities that are well on their way to adjusting their policies and processes to serve students this way".[23]

Finally, services to *personalise the learning support* could include a personal learning coach, helping with learning progress decisions, and learning support that tackles individual roadblocks to comprehension. All can be key to ensuring consciousness of competence and educational well-being.

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2.3 Personalisation in the Current Learning Economy

Personalised learning experiments go back over centuries. Around 1880, Superintendent Preston Search of Pueblo, Colorado, allowed students to move and learn at their own pace. Not every student did the same tasks, at the same time, in the classroom. The Pueblo Plan was one of the first attempts at personalised learning, though constrained by lack of adequate learning materials.

In 1912, the San Francisco Normal School promoted students through learning stages based on mastery of levels of achievement. Once a student mastered one grade level in a subject, they moved to the next, meaning a student could at the same time study sixth-grade English, eighth-grade science, and seventh-grade math. In 1928, Sidney Pressey, professor of psychology at Ohio State University, invented a "teaching machine" with the aim of "freeing […] the teacher and pupil from educational drudgery". Pressey's "adjunct auto-instruction" machine presented students with a question and four multiple-choice answers. When students answered correctly, the machine's window presented another question.

Moving forward, in 2009 "School of One" was launched in New York. This was one of the first approaches that utilised technology to tailor individual students' learning based on their unique skills. It was listed among *Time* magazine's Best Inventions of 2009. "School of One" used data from a short assessment at the end of each day to create a customised schedule for the following day, tailored for students and teachers, and based on what students had learnt the previous day. Students could, for example, encounter mathematics content in many ways, including teacher-delivered, small-group collaboration, and independent or virtual instruction. Two years later came New Classrooms, a follow-up concept comprising a personalised learning model called Teach to One: Math (see teachtooner.org). This model explored new academic, technological, and operational strategies. Research into the model's effectiveness showed students participating in Teach to One: Math made significant growth gains compared to the national average, gaining 1.2 years of learning growth in one school year.

Personalised learning is now regarded as a grand societal challenge. Progression in our understanding of this, and related concepts, is a priority for charitable organisations, such as the Bill and Melinda Gates Foundation. Together with other charities, a task force created the following working definition:[24]

> Personalised learning seeks to accelerate student learning by tailoring the instructional environment – what, when, how, and where students learn – to address the individual needs, skills and interests of each student. Students can take ownership of their own learning, while developing deep, personal connections with each other, their teachers, and other adults.

According to this group's work, personalised learning is tailored to:

- learner profile (strengths and needs, motivation, goal, information and feedback),
- personal learning path (learning plan, learning experiences, ownership),
- competency-based progression (ongoing and individual assessment), and
- flexible learning environments (operational alignment, staffing and roles, space utilisation, time allocation, grouping and connections).

Though there have been comprehensive educational and pedagogical investigations into personalised learning, an economic approach has only become feasible at scale with the emergence of sophisticated digital technologies. These are adequately and rapidly allowing us to capture, correlate, and analyse data needed to identify and provide learning experiences tailored to a learner's needs and context.

Like the music industry, the learning economy can be regarded as a massive, global market-place with educational content providers on one side, and on the other vast numbers of global users demanding learning content. In this environment we can position personalisation on a spectrum with two extremes defined by "educationalist" Dan Buckley as either the T-route in which the teacher controls personalisation, or the P-route in which the pupil takes control.[25]

However, information overload characterises contemporary learning markets. It is increasingly difficult for both sides, teachers and students, to identify content and delivery modes most appropriate for the learner. Advances in adaptive learning and AI are, however, providing entirely new ways to navigate content. We might define this as the third alternative in Buckley's model: the M(achine)-route, or the A(ugmented)-route, which will most likely determine the future of personalised learning.

2.4 Personalised Educational Well-Being

We differentiate personalisation in the future learning economy by depth and breadth of the personalisation. This variety relates to several learning developments.

2.4.1 The Depths of Personalised Learning

The depth of personalised learning demonstrates the granularity of personalisation. Coarse personalisation tailors learning to a defined cohort of learners. For example, a US-based university might offer parts of courses in a language other than English (e.g. tutorials in Mandarin), or provide specific learning support for students who have a disability (e.g.

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hearing loss). Personalisation becomes finer for smaller cohorts, eventually reaching the ultimate level of individualisation when a cohort consists of one person only.

To identify relevant learner cohorts, we can borrow an important design thinking concept. To arrive at customer-centred solutions, design thinking identifies a customer persona. A persona is a fictional character, representative of a specific customer cohort. In the learning economy, this would mean defining a learning persona. Work with a learning persona proceeds via four steps.

First, research and analysis identify relevant cohorts. What are key demographic or other features of potential subgroups? Second, the learning persona is described. This typically is a fictional character similar to the five individuals we feature in this book. By giving the learning persona a name, further attributes, and a personality, the learning persona comes to life. It becomes tangible. In the third step, specific problems and opportunities related to the learning persona are identified. This may be done through focus groups or similar activities with actual learners who share aspects of the relevant persona profile, allowing possible learner concerns, expectations, and aspirations to be explored. Fourth, possible solutions are designed and tested. The co-design of such solutions through close collaboration with the learners improves the outcome's adequacy and its acceptance.

Learner journey maps (like design thinking's customer journey maps) are a common approach to gaining a deep understanding of a learner persona's problems, expectations, and aspirations. They map a visual representation that captures the learner persona's end-to-end experiences over time: the learning journey's main stages, touchpoints with different providers, pain points along the journey, emotional states, and other information like learner expectations at specific points in their journey.

Figure B.5 is a learner journey map for Nancy Chu, a fictitious learning persona. It charts the five main stages of Nancy's learning journey, capturing points of friction and other information. More comprehensive learning journey maps cover multiple providers and include the early stages of how the ambition to learn is formed, and how a provider is selected. Post-learning experiences could help identify ongoing learning opportunities and needs.

Journeys maps are used in some learning provider marketing analyses that consider study aspirations, interest in courses, affiliation to an institution, programme orientation and retention, progress, student success, and ultimately graduation and alumni relations.
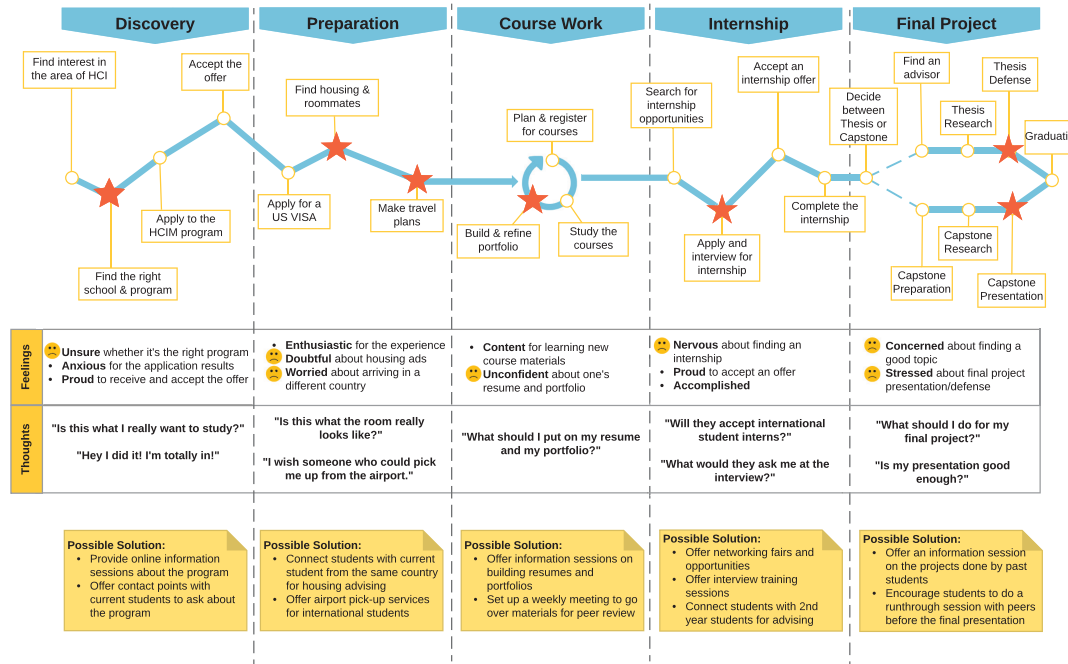
FIGURE B.5 Example of a learner journey map. Image Credit: Vichita Jienjitiert.

Source: Taken from https://dribbble.com/shots/4278842-Student-Journey-Map.

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Learner journey maps, together with a description of the learner persona, provide rich insights and facilitate empathy with the specific type of learner. This is an essential prerequisite for a provider starting to offer tailored, personalised learning services.

The depth of personalised learning depends on the quality and authenticity of learner profiles, and the level of detail to which their individual requirements are captured and mapped. A key benefit of learner personas and learner journey maps is the focus on experience design rather than a reduced focus on the utility of a solution. By understanding the learner's unique context (e.g. how they search for learning content, when they learn, what incentives they seek), more comprehensive information becomes available as input for advanced personalised learning.

David Staley, author of *Alternative Universities*, calls hyper-personalised places of learning Microcolleges. For Staley, each Microcollege is a manifestation of the mind and personality of the professor. "The professor designs the overall learning experience for each student by monitoring their progress through various self-paced courses, identifying and pairing students in mentor-mentee relationships. […] Each professor establishes the philosophical and pedagogical orientation of the Microcollege".[26]

The professor is complemented by digitalised tutorials that each student can consume according to their own abilities and preferences. A final evaluation by the professor determines whether and when a student graduates. A key feature of a Microcollege is individualised lessons to a small cohort of students who interact with each other and learn under the guidance of a recognised expert.

EY's report into whether universities of the past are still the future, includes a scenario based entirely on flexible and customisable learning journeys, illustrating how global higher education consultants have already embraced the personalisation principle and its exploration through learner journeys.[27]

The implications of personalisation for the research–teaching nexus are again profound. Researchers are increasingly challenged to communicate to diverse audiences, and to achieve research engagement and impact. Learning providers that continue to regard teaching and research as being interdependent, and simultaneously pursue the personalisation principle, confront significant challenges and should ensure research knowledge is available for multiple learner journeys in ways suited to multiple preferred learning and communication styles.

2.4.2 The Breadth of Personalised Learning

The *breadth of personalised learning* relates to personalisation's focus. This could be the learner's:

- strengths or skills (what are they good at?),
- needs (what do they need to know?),
- interests (what do they like to learn?), or
- preferences (how do they like to learn?).

> *Saki already had comprehensive skills in automotive engineering gained in her tertiary study and the years of experience that followed. In particular, she possessed mechanical engineering knowledge. However, as the nature of cars changed, she had entirely new learning needs. The electrical engineering principles behind an e-vehicle were very much unknown to her.*
>
> *In addition to updating and extending her engineering knowledge, Saki is interested in the future economic and environmental aspects of e-vehicles. This is not within the core of a typical engineering curriculum but is very much of personal interest to her. Saki does not enjoy learning through theoretical textbooks as she has highly personalised learning needs and preferences. She much prefers content rich in case studies and enriched by compelling visualisations. Saki prefers asynchronous online learning; she is a true night owl. She is aware that many interesting articles come from a German institution founded by leading German car manufacturers. If only these papers were available in Japanese. Saki needs to table this at her next catch-up with Hakaku, her personal learning coach. Surely, there must be a service that translates relevant content into your preferred language?*

Personalised learning needs to *consider the learner's skills, needs, interests, and preferences.* They could follow the P-route which the learner articulates (e.g. Saki's need to comprehend electrical engineering knowledge behind e-vehicles). Or they could follow the T-route where the provider can, for example, translate career goals (the desire to become a robotic engineer perhaps) into well-defined learning needs. Depending on the level of detail with which the career goal is articulated, personalisation could take different forms. Figure B.6 differentiates four types of personalised learning.[28]
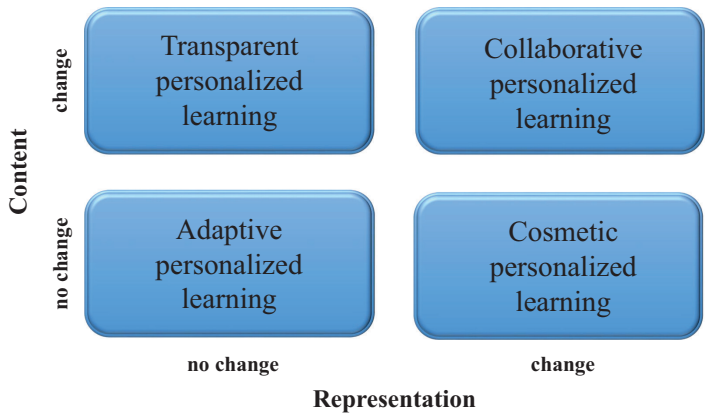
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FIGURE B.6 The four faces of personalised learning.

Source: Inspired by Gilmore and Pine, 1997.

Collaborative personalisation is common and well-known in areas like running shoes (see Nike By You), or mass-customised cars where a wizard guides the customer through relevant principles like car colour and wheel types. A powerful configuration and pricing engine manages any constraints to provide a customer-friendly view of the product's configurable bill-of-material. In personalised learning there are many examples of collaborative personalisation, such as when university students are guided through study options and provided with insights into their needs, finally arriving at a course suited to them. The course could include individualised elements (e.g. internships, overseas mobility study). However, product individualisation is currently the exception.

Unlike other industries that have mastered complex mass personalisation, the current learning economy is in its infancy with collaborative personalisation. Pricing principles are not widely adopted – it is mostly about selection within a study programme. Furthermore, product complexity is much lower than for other mass customisable products – Nike's sports shoe has 82 material principles. While providers like Nike offer advanced apps, including compelling visualisations, collaborative personalisation of learning is far less advanced.

Adaptive personalised learning offers the same product in various formats to suit multiple learning contexts and levels. An undergraduate student studying a certain subject has very different needs to a professional seeking a micro-credential. While the undergraduate is exposed to underlying theories and comprehensive textbook material, the professional might need or prefer advanced case studies. The learning provider offers different, predefined views on the same learning product, which can be consumed depending on learner demands, needs, and preferences. This is similar to Spotify's "moods and moments" personalisation discussed above.

Cosmetic personalised learning occurs when we personalise the way learning content is offered. This is the domain of omni-channel learning when a learner picks the preferred channel of consumption, say in classroom or online (recorded, interactive). Cosmetic personalisation may include offering different "product sizes". A marketing professional, for example, might just want to purchase two units on real-time search engine optimisation, while an undergraduate student's interest is to purchase the entire marketing degree. Finally, further progress in automated translation services will see more cosmetic changes in the language in which the content is provided.

Transparent personalised learning makes the act of personalisation invisible to the learner. A first opportunity point for personalisation is initial assessment of a learner's current skills. One could look at the popular language learning app Duolingo which offers training in more than 30 languages to more than 300 million users globally. Duolingo uses an adaptive, short (five-minute) placement test comprising a series of dynamic questions used to identify the new student's literacy and areas requiring attention. Answers are used to tailor language training to the learner's status. Based on deep learning, the engine behind the test combines AI and machine learning. It is Pressey's teaching machine revamped 100 years after its invention, thanks to opportunities presented by digital advances.

Spaced repetition is the concept Duolingo uses to identify how often a word is seen, in what context, and when it is used correctly. This information prompts related questions, including uses of this word, over specific time periods. AI predicts the likelihood a user will answer the question correctly, feeding into related language practice. According to Duolingo, using such advanced deep learning algorithms increased learner retention by 12%.[29] This is all transparent to the learner. It is a sophisticated form of individualised learning.

The sophistication of Duolingo's transparent personalisation is an exception to prevailing practices in the current learning economy, although assessment of existing skills is common. Universities often conduct such assessments for postgraduate studies and usually recognise previous learning to a defined level when determining advanced standing. However, this process tends to be manual and is constrained by the combinatorial power of the number of units offered. Duolingo personalises at a much finer level of detail. It is close to individualisation, as it is not constrained by learning blocks called units.

2.5 What Else Can We Learn from Spotify?

Spotify's strategic commitment to *velocity* is an important feature of its decision-making culture.[30] Spotify founder and CEO Daniel Ek's description is: "If you are slow, you better

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be right most of the time. But if you are fast, you can test and iterate more, which creates a culture of innovation".

This commitment to iterative decisiveness is visible in Spotify's desire to be the world's biggest and most transformative podcast platform, and so it continually explores "future formats of audio". Innovative engagements include the Spotify Greenroom, a live-audio app that allows users to contribute content. Spotify's in-house podcasting team, the Ringer, uses the Greenroom for live sessions after every World Wrestling Entertainment event, capitalising on high audience demand to learn about and jointly reflect on each event. Spotify garners context-specific options in a coexisting one-to-many podcast channel which can be carefully edited, and a more interactive, immediate Greenroom conversation. Applied to the future learning economy, one could imagine a learning provider offering immediate educational content about current events, so capitalising on a fast-mover advantage or a short time-to-learner process.

In any case, it is likely new learning economy education providers will have to assess and experiment with emerging platforms such as Greenroom, or the comparable Clubhouse, if their appetites are similar to Spotify and they want to explore "future formats of audio". As Nicholas Cuthbert, CEO of OK Student, stated about the role of Clubhouse: "If universities could recreate this user experience in their own online provision it would be a game changer".[31]

Many aspects of Spotify generate ideas with potential for the future learning economy. Consider Spotify's onboarding process. A new user is asked to pick five preferred artists. This accelerates the system's ability to match the type of music a user enjoys, meaning reduced time-to-personalisation. A similar onboarding process as part of a new sign-up with a learning provider might allow a learner to highlight previous learning experiences (e.g. MOOCs, books) they found beneficial, thus enabling a provider dedicated to personalised learning to quickly tailor learning experiences and content to each new learner. This requires adequate metadata and advanced analytics. As learning content is more diverse than songs, which have largely similar meta-attributes, the learning economy could develop far in this direction.

A more fundamental approach to on-boarding learners in a personalised learning environment arises from understanding communication and learning styles preferences. The educational world has a wide understanding of how different personality types learn in different ways and have learning style preferences. This largely explains the variety of learning media and approaches behind our many learning mechanisms. This variety ranges across case studies, theoretical principles, group work, problem-solving study, research-based

assignments, and tasks including presenting, writing, and role-playing. A personalised learning strategy could draw on this rich array of alternative learning styles in combination with diverse learning content.

Playlists, or personalised compilations of songs, are a characterising element of Spotify. Learnlists might fill a similar role in the learning economy. They would consist of preferred MOOCs, videos, papers, blogs, podcasts, and other learning content. Learning providers largely create such learnlists presently, representing sequential content, provided during a unit within one semester. Learner-centred, personalised learnlists, or learnlists sourced from the crowd of learners or our prior learning experiences, could complement or replace provider-centric learnlists in the future.

In the domain of digital platforms like Spotify, it is normal for a user to express micro-preferences (e.g. for a song) by pressing the Like-it button. Spotify Premium users can even "hide" disliked songs. We are used to "likes" in many digital environments, but current learning economy providers prevent such instant reactions. Learners are, of course, regularly asked to provide feedback about their consolidated learning experience, during and at the end of a semester for whole subjects. Micro-feedback (I liked the video used in week 4 of my unit) is usually impossible. The ability to skip a unit within a study programme is difficult. At worst it carries assessment risk as such fine granular, user-specific feedback and selection is missing. Learning personalisation mechanisms remain stuck at higher levels, and learning providers cannot offer Spotify's song-by-song fine-tuning of personalised content delivery.

Spotify's *Release Radar* is a selection of new songs from liked artists. There is a high probability these songs, because of similarities (genre, voice, etc.), are also liked by the user. Replicating this idea in the learning economy means a learner could subscribe to preferred instructors. They would get notifications if the instructor releases new learning material.

Spotify's *City and Local Pulse Charts*, available for 200 cities, include songs most popular in a geofenced area. Global learning providers might replicate such approaches to make geo-sensitive learning recommendations (e.g. tailoring content to locally dominating industries).

A Spotify user can choose to *connect their account with Facebook* and share playlists with friends. A Spotify song can also be shared on Facebook and connected friends can then tap through to Spotify to listen to this song. Such a socialising of learning content within a community might be of relevance for a group of learners that jointly progresses towards a common goal, very much like a group of runners practicing for a marathon would share preferred running tracks.

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Spotify's *Blend* combines into an integrated playlist the music tastes of two alike users. Similarly, one could consider a "learners-like-me" model in which content or channel preferences of comparable learners are integrated into one *learnlist*.

Thinking about how education providers might engage with third parties (e.g. recruiters), value-adding solutions could include Spotify's Streaming Ad Insertion (SAI), which gathers live data like ad impressions, frequency, reach, anonymised age, gender, and device type. Another possible solution is Spotify's Audience Network, which gives advertisers access to their desired audiences, not podcast titles alone. Combined with MOOCs, this could realise novel forms of engagement and monetisation.

2.6 Summary

Personalised learning is the most customer-centric form of education. Like most sectors, the learning economy can now explore service innovation potential, and how best to capitalise on affordances of related digital technologies like AI, machine learning, and new interaction platforms to personalise learning.

Personalised learning has many facets, which are illuminated by defining the learning persona that reveal a learner's demographic, psychographic, and other contextual characteristics. The characteristics impact multiple dimensions of a learning experience, including content, channel, pedagogy, assignments, and rewards. Personalisation's strategic principle is a long-standing ambition within the education sector which is only now becoming a feasible option thanks to advanced, and increasingly easy-to-use, digital personalisation technologies.

Spotify demonstrates how current technologies can be deployed for music and podcasts. Spotify's relentless ambitions and its focus on velocity provide many inspirations for ambitious participants in the new learning economy. In particular, Spotify clearly shows how to successfully bridge oppositional aims of targeting the masses versus targeting the individual: it is now a large-scale music and podcast streaming provider expanding the boundaries of audio with a focus on extreme personalisation.

Spotify's story includes challenges in implementation and acceptance. The relationship between the platform and its artists is often delicate. This would also hold for a learning economy Spotify-like provider and its content providers. In early 2022, some music artists withdrew content over Spotify's decision to continue offering podcast content criticised by many scientists. This illustrates the delicacy of the content curation landscape and multiple reputation management issues with Spotify's model. New risks will emerge for education

providers that move from traditional controlled distribution channel models to partner-ship models with providers (like Spotify) that cater for much larger audiences. Partnership models come with flow-on risks between various content providers.

Mass personalised learning, or Education 4.0, as an analogy to Industry 4.0, might become the umbrella term and a strategic template for learning services providers that make centri-city, scalable personalisation, their key strategy. A host of challenges and opportunities for strategy and implementation accompany this choice.

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B.II Connectivity

A growing learning economy comes with entirely new forms of learning engagements fuelled by increased digitisation of our society. They have high levels of connectivity as a key feature. On the one hand, we now have connected devices like remotely monitored assets and continuously streaming data sensors, leading extended engagements beyond the moment of purchase. Remote maintenance of assets is one example. On the other hand, we have emerging connectivity between users on various social platforms, leading to high levels of decentralised interaction (e.g. rapid information dissemination) that has generated communities and groups of users who share common interests.

Similarly, learning providers will have two new ways to build connectivity with their learners. They can connect continuously with their learners over time or connect their learners with a community of other learners (e.g. within a large subject). We call the former continuity and the latter community and they are portrayed together and in relation to each other in Figure B.7 below.

Continuity provides significant temporal growth potential. Instead of a well-defined exit point for interactions with a learner (graduation, completion), continuity means an always-on relationship with a learner. Continuous learning on-demand will see learners establishing a partnership with selected institutions that could expand without an ex-ante defined end point, like consumer engagement with selected entertainment providers (movies, music, etc). Learning providers can provide services to their customers for a longer period, offering potential for higher customer lifetime value. We will explore how other industries have for decades deployed continuity models (e.g. software), and these are now entering other domains (e.g. automotive). These benchmarked industries provide a rich pool of inspiration and direction for learning providers ambitious enough to replicate these models in the learning economy.

Community offers value-based learning potential. Beyond a largely individual undertaking, learning will increasingly be social. Inspired by the power of positive externalities, learning providers focused on community as a growth enabler, will create learning experiences whose quality improves with the number of learners. These direct network effects are accompanied by indirect effects as the growing community of learners attracts other learners and providers. Industries like social media, recruitment, and travel show indirect network effects that offer potentially significant new revenue streams, some so substantial the individual user can consume services for free. As a growth enabler, the community principle will foster many learner groups such that creating, managing, and serving a community of learners can become more important than creating learning content.

Connecting over time is more difficult as the number of connected learners creeps higher, such that continuity and community could be in tension. Continuity-focused providers will concentrate on retaining their learner base for as long as possible. Community-centred providers will seek to expand their learners base. Despite the possibility of tension, there are also ways to combine continuity and community, notably because a community comes with social loyalty. Community belonging creates stickiness, thus supporting continuity. This combination is behind emerging approaches to alumni engagement in global universities. It has great potential to extend and grow.

FIGURE B.7   The strategic dimension of connectivity and its two principles.

3 Continuity

3.1 The Tesla Case

Valentine's Day 2019 was a good day for Ross Hunt, an Irish AI expert, and every dog owner with a Tesla. It was also a good day to be a dog. On that Valentine's Day, Tesla launched the "dog mode" that stops pets getting overheated in parked cars. Provided the battery is at least 20% charged, the climate control switches on and the large in-car screen highlights the temperature. Activation of the dog mode got Ross Hunt out of trouble after leaving his poodle in his Model S in June 2019 while meeting his solicitor at a Dublin bistro. A passer-by, Ms Martin, was concerned about the dog's well-being. She alerted the Dublin Society for Prevention of Cruelty to Animals. An inspector arrived and argued with Mr Hunt. Later, in court, a Tesla technician explained the dog mode functionality. The judge dismissed charges.

Tesla is remarkable when it comes to innovation. The Model S, for example, is compelling both for engineering excellence and overall customer experience. Using car production as a platform, Tesla's battery technology is known globally. Powerwall is a home battery that allows solar self-consumption. It is self-activating in an outage. The larger Powerpack is an advanced battery solution for commercial application.

How is engineering excellence and battery technology instructive for the learning economy? We will explore one feature of each Tesla vehicle in more detail. Tesla's sophisticated in-car software and hardware integration unlocked a business model innovation that has revolutionised the relationship between a car manufacturer and its customers. Similarly, the notion of a continuous upgrade could overcome learning disorders by achieving lifelong educational well-being.

There are two classical automotive industry business models. Make-to-order means a car is engineered according to customer specifications. Make-to-stock means mass production; its extreme form was famously articulated by Henry Ford in 1909: "Any customer can have a car painted any colour that he wants so long as it is black".

Common practice today is, of course, somewhere between an off-the-shelf and an individualised car. Mass customisation facilitates a guided process that produces an intuitive car configuration based on sequential customer choices. Once the customer receives the car, ownership is transferred. The manufacturer–customer relationship essentially ends, except for occasional service requirements. The car erodes in value over time. Manufacturers hope the gap in value between a used car and a new car eventually becomes significant enough to prompt another purchase.

With the launch of Model S, Tesla follows a make-to-evolve business model. A sale begins the relationship! When the car is parked and connected to Wi-Fi, enhancements to the Tesla are made via over-the-air (OTA) upgrades, with a large display in a Tesla informing the driver of available or installed upgrades. This happens frequently: a Tesla is upgraded every 16 days on average. Each car has release notes documenting installed software version features. For example, Tesla's software version ten provided new features like Karaoke (for backseat drivers), enhanced 360-degree visualisation, maps improvements, Tesla App window controls, and additional driver profile settings.

Some Tesla upgrades are even made available in response to regional emergencies. When Hurricane Irma approached Florida in September 2017, Tesla issued an OTA upgrade in Florida that unlocked full battery capacity in its 60 and 70 kilowatt-hour Model S and X vehicles, meaning Tesla drivers could escape from the hurricane's path given access to 30–40 miles above the vehicle's typical range. In September 2018, Tesla reacted to consumer criticism of overly long stopping distance for Tesla's Model 3, launching within days an OTA upgrade that shaved around 20 feet off the Model 3's braking distance.

Such upgrades are enabled by advanced Tesla hardware that is underutilised at point of purchase. The capability of eight car cameras is gradually increasing as video analytics improve (e.g. by using deep neural networks). Speculation for future uses of Tesla's inbuilt in-car camera range from monitoring vandalism in self-driving robo-taxis, to driver eye movement control, to facilitating in-car video conferencing. Unsurprisingly, Tesla states today's cars have the hardware for full self-driving in most circumstances.

Currently Tesla provides upgrades to the car, not the driver. This matters for drivers who use different cars. Car rental companies, for example, try to consider driver-specific requirements across various rented vehicles.

Traditional make-to-order/stock models and the make-to-evolve alternative are contrasted in Figure B.8. Without further connectivity, a "traditional car" continuously loses value (depreciation). Make-to-evolve model cars could overcompensate material deterioration and even increase car value (appreciation) over time. One might speculate that the day you purchase a new Tesla is the day of its lowest value. Today's formal tertiary education largely follows a make-to-order/stock model. The knowledge disorder introduced in Part A means it devalues rapidly and continuously.
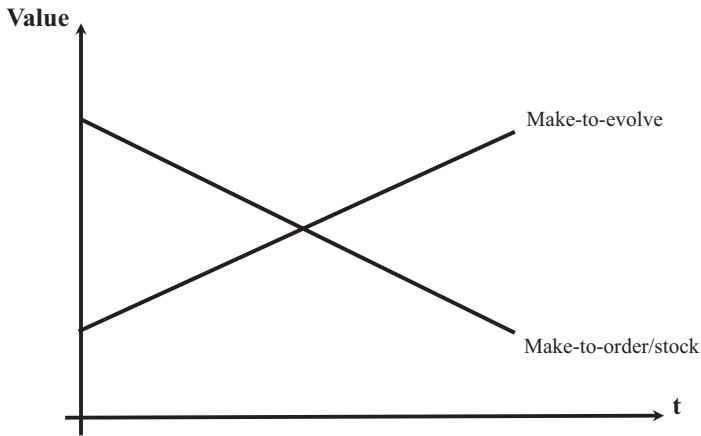
FIGURE B.8 Make-to-evolve vs. make-to-order/stock.

Post-purchase, OTA operating systems upgrades have become a widely spread practice among car manufacturers. BMW now offers post-purchase upgrades for heated seats. This could be a seasonal purchase only (e.g. during winter months). Temporary purchases can allow customers to try before they buy (e.g. testing an active driving assistant before committing). Such purchase models might be attractive for lease customers. The practice of car manufacturers offering purchase upgrades is like the computer games industry's in-app purchasing model where a player improves capabilities by micro-purchases mid-game.

OTA delivery capability means customers can delay the point of consumption (and payment). They need not select a once-and-forever product specification when purchasing. Ultimately, cars become more tailored to users, who must accustom themselves to paying extra for specific services (e.g. activating gesture control).

3.2 Paths to Continuity

Harvard Business Review's May–June 2019 issue was titled *The Age of Continuous Connectivity*. The lead article is by Nicolaj Siggelkow and Christian Terwiesch, professors at the University of Pennsylvania's Wharton School and co-authors of *Connected Strategy*. Their article begins:

> A seismic shift is under way. Thanks to new technologies that enable frequent, low friction, customized digital interactions, companies today are building much deeper ties with customers than ever before. Instead of waiting for customers to come to them, firms are addressing customers' needs the moment they arise – and sometimes even earlier.

The authors outline how organisations like Disney (via MagicBands at Disney World), McGraw-Hill Education via electronic textbooks, and Nike via its wellness system including chips in shoes, are creating ongoing, increasingly personalised conversations with customers. To differentiate alternative strategic principles, Siggelkow and Terwiesch distinguish three stages of customer interactions:

- *Recognise*: customer is aware of a need
- *Request*: customer identifies a product or service to satisfy the need
- *Respond*: a provider delivers the product or service

Their connected strategy framework consists of four strategic principles, each with different positioning in the three-stage customer interactions model.

1) *Respond to Desire*. A provider fulfils a customer need, ideally immediately after receiving a request. This strategy is tailored for customers seeking immediate fulfilment, clear on the product they require, and wanting to minimise efforts related to purchase. Amazon's one-hour delivery, and Domino's Pizza's ambition to deliver a pizza ten minutes after an order, are examples.

2) *Curated Offering*. The provider offers recommendation services, steering customers towards solutions designed to meet their need. This works if customers appreciate advice about an overwhelming set of products but want to make the final decision themselves. Curated offering examples include customising a car or a sport shoe, and Netflix recommendations.

3) *Coach Behaviour*. The provider nudges the customer with reminders. Identifying the need moves from customer to provider. This strategic principle requires streaming of ongoing data. It can be applied in many ways, for example, wearable devices, suggesting maintenance for a car based on mileage or even actual status of car components.

4) *Automatic Execution*. The customer empowers the provider to manage needs and fulfilment identification. An organisation allows ongoing provider monitoring of an asset, or immediate maintenance, without explicit subsequent permission required. Amazon Dash Replenishment allows tracking a printer's cartridge level and replacement when required.

Organisations exploring business models grounded in continuous engagement must be mindful of requirements linked to these models. First, interactions are of higher frequency. Depending on which of the four paths to continuity an organisation follows, increasing data-intensity underpins interactions. Second, levels of trust must be higher as customers

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hand to providers responsibilities along the recognise-request-respond chain. Third, the organisation must reposition its role in the customer's life – final fulfilment is over. Fourth, new pricing and financial models are required, suited to continuous engagement.

Moving from an established, one-off fulfilment model to a model of continuity will often come with product servitisation. A prominent example is shifting from selling IT assets to providing cloud solutions. However, such as-a-service solutions are now widely available. Car manufacturers offer Mobility-as-a-Service (MaaS). Light-as-a-Service (LaaS) sees providers moving from selling light bulbs to providing ongoing light in customers' spaces. Via remote monitoring, faults or shortfalls are detected and addressed immediately.

A common continuity model is the subscription model widely used in the software industry. Large-scale enterprise systems are sold with a recurring maintenance fee (the largest provider of such services, SAP, charges 17%). In return, the provider updates the software. Updates incorporate regulatory changes (e.g. payroll tax rates) and new product features (e.g. ride sharing for employees). A subscription model delivers recurring revenue streams and compounds value in a customer relationship.

The success of such models has been demonstrated in the entertainment domain (e.g. Netflix), and increasingly in e-commerce with offers like Blue Apron's meal delivery, Ipsy's make-up, and Stitch Fix' personal styling service. Products now sold in subscription models include regular items like beer, wine, contact lenses, baby items, pet food, and vitamins. A comprehensive 2018 McKinsey[32] survey showed 15% of US online shoppers have signed up to one or more subscriptions. This model's popularity and convenience have motivated large consumer brands to launch related services (e.g. Gillette on Demand, Sephora's Play!, and Walmart's Beauty Box). Others have spent significantly to acquire successful subscription businesses, such as Unilever's US $1 billion acquisition in 2016 of Dollar Shave Club.

Subscription models take recurring (often monthly) fees for consumption of services. They come in various forms:

- ongoing and regular provision of new products, services, or content (e.g. food parcels, newspapers)
- access to a significant and, over time, growing content library (e.g. entertainment streaming services like Spotify and Netflix)
- provision of regular maintenance services (e.g. asset providers' as-a-service models) to maintain asset quality

Subscription models offer customers ease of consumption and processing time savings (automatic execution). Where product variety is high, improved personalisation occurs over time (coach behaviour, e.g. apparel, beauty, food).

For providers, subscription models extend customer relationships. This entirely new form of continuous customer engagement comes with new challenges such as churn management, customer lifetime value management, and new financial metrics like monthly and annual recurring revenue (MRR, ARR).

3.3 Continuity in the Current Learning Economy

Unlike automotive, IT management, entertainment, and e-commerce, a continuous education business model is rarely practiced in the learning economy. As outlined in Part A, the learning economy falsely assumes "staged" need, not a "continuous" learning model. Learning providers are divided according to distinct stages, from preschool to primary, secondary to tertiary education. After that, a diverse and largely unregulated market takes over. The learning economy is mostly dedicated to providing time-stamped, one-off "products" or awards – degrees, certifications, and micro-credentials. Continuous learning economy engagement models discussed in the previous section are largely absent.

This is surprising. It takes little imagination to create innovative learning economy models that respond like the models and examples presented above. This section overviews diverse models found in the learning economy. We outline their shortcomings related to the proposed model of continuous learning, before proposing a new model for Educational-Well-Being-as-a-Service (EaaS). In a global blogpost, Graham Brown-Martin explored the concept of a University-as-a-Service, speculating on how music industry lessons, and unbundling, might offer different ways to continuously engage with learning providers in meeting our now-dominant lifelong learning needs.[33]

3.3.1 Micro-Credentials

Micro-credentials (aka nano/micro-degrees) are specialised "bite-sized chunks" of learning. They allow different levels of granularity, therefore requiring a lower commitment level than degree programmes. In a 2020 education working paper, the OECD calls these "alternative credentials", defining them as "credentials that are not recognised as standalone formal educational qualifications by relevant national education authorities".[34] Stacked micro-credentials build on each other, as a greater combined achievement. Vertical stacking means a topic is studied in increasing detail. This addresses depth. Horizontal stacking captures the complementarity of topics. This addresses breadth.

Key features of micro-credentials are accessibility (online) tailored to specific skill development. Competitively priced, they are widely, even globally, available.

A successfully completed micro-credential comes with a digital badge that shows an accomplishment verifiable via the web. The MacArthur Foundation instituted digital badges in 2011 when, with HASTAC[35] and Mozilla, it launched an annual US $2 million digital media and learning competition to create innovative badges and badge systems. Digital badges are now available in the accomplishment section of platforms like LinkedIn showing the digital badge metadata which reveals authenticity, provider name, and other details.

Colleges and universities increasingly provide micro-credentials (academic certificates). They may confer academic credits alongside professional organisation credits (industry certificates). Usually, micro-credentials are seen to bridge content taught at a tertiary education provider and niche skills for professional practice. The OECD report notes that the definition of micro-credentials varies regionally.

- In the US, micro-credentials represent a learning activity that is more than a single course but less than a degree. Different providers use different labels, such as MicroMasters (edX), Nanodegree (Udacity), and Specialisation (Coursera).
- In the European higher education area, micro-credentials confer a minimum of five ECTS,[36] and can be accumulated to a larger credential.

Beyond established players such as colleges and universities, an entire subset of the privatised learning economy specialises in developing and delivering micro-credentials, often with a niche content or geographical focus. Le Cordon Bleu Australia, in response to COVID-19 requirements for online education, created "OpenCreds" in the hospitality domain covering gastronomy, event management, and restaurant and hotel management.

Micro-credentials mostly target vocational learning, lifelong learning, and specialised skills. They are often consumed in preparation for a new career, position, or project. Given rapidly growing micro-credential numbers, individual learners face vast selection problems. Making a poor decision compromises educational well-being. Doing so, without full consciousness of competence, is fraught with uncertainty. Micro-credential curators do not yet exist beyond content portfolios managed by large online learning platforms and OPMs.

Despite challenges to competently navigating micro-credentials, notions of fine-granular, certified learning, and the capturing and sharing of these accomplishments in digital badges are fundamental for continuous learning and long-term educational well-being.

3.3.2 Education Record

Continuous learning efforts are best consolidated and represented when stored in secure personal education data records. Medical records are increasingly available as personal health data stored in the cloud and are accessible by individual and authorised healthcare providers. An education record is a domain-specific, private data cloud. Compared to the health sector, however, the learning economy is less advanced in prototyping, progressing, or standardising education records. Doing so would allow learners to bring their own data to a new learning provider or to the job interview with a prospective employer. Education records will become trusted, accessible places reflecting a learner's cumulative learning accomplishments.

Of great interest in facilitating lifelong education records is the role of blockchain.[37] This distributed ledger technology promises to provide new forms of validation for creating, issuing, viewing, and verifying certificates and academic records. The European Commission's Joint Research Centre for Human Capital and Employment published results of a study called *Blockchain in Education.*[38] This documents a blockchain-empowered environment in which the learner has self-sovereignty to maintain control over storing and managing their personal learning data.

In recent years, universities worldwide have experimented with blockchain. In October 2017, the University of Melbourne was the first Asia-Pacific university to issue credentials on a learner-owned blockchain. The security, privacy, and independent verification blockchain offers university alumni a sustainable credentialing system, and provides universities with brand protection. The University of Melbourne's solution allows alumni to store and share their credentials with a simple app called Blockcerts Wallet.

Recent developments in secure, trusted credentials focus on using NFTs. Digitised and encrypted, NFTs use blockchain technology to make distinct assets and support their exchange (like a collectible, a digital game item, an event ticket, or a student's individual certificate). For example, a job applicant would own and provide a NFT demonstrating successful learning, as opposed to the current administrative burden (and frequently the costs) of accessing required evidence on an original certificate. Beyond the NFT certificate, a student could own NFTs capturing assessments or portfolios of artistic designs or creative works. Knowledge creators could provide their content as an NFT to an educational provider. This would facilitate trading digital textbooks, or content traded on a learning platform.

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Learning economy participants are already self-organising their educational entity as NFTs. The NFT School (nftschool.dev) is a collective of web developers and technology experts. As an open-source project, it offers a variety of NFT tutorials.

Whether as stand-alone records or sets of education-related attributes forming comprehensive digital identities, managing private learning data will continue maturing as a means of evidencing educational well-being. They will be a core part of future digital identities and provide a trusted digital continuous learning infrastructure.[39]

3.3.3 Professional Institutions and Trade Associations

A well-established continuous learning format in today's learning economy is the model used by professional institutions and trade associations. These are institutions whose members belong to the same professional field (such as engineers, accountants, radiologists, or architects, and associations of workers in an industry or career such as banking, insurance, hotel management). Often geofenced within one country and levying an annual membership fee, these bodies offer services to their paying members, including ongoing credentialing. This is a mandated requirement to remain recognised as a member. This recognition often carries substantial symbolic value; it represents currency and credibility to the member's customers. Continuing professional development and education requirements of these bodies are typically well described. Some are regulated by legislation in local contexts and environments.

For example, the American Registry of Radiologic Technologists (ARRT) demands that a registered member must report 24 continuing education (CE) credits within a two-year (biennium) time frame. This is required when applying for renewal of certification and registration. Members can choose from a list of Recognized Continuing Education Evaluation Mechanism (RCEEM) courses or complete approved academic courses. A member can select topics relevant to their practice. Credit is provided on successfully completing an examination.

ARRT's practices show how professional bodies govern and manage members' continuous education, playing an important role in ensuring proficiency of professionals and technical members. However, this continuous learning model has shortfalls.

- Tesla's engagement is truly continuous. Upgrades are made when required (brake distance, hurricane) or available. Professional continuous education, however, is usually bound by time periods rather than bound by content or learning that

  responds to educational well-being. The requirement to earn 24 CE credits over
  24 months exists independently of actual changes in the radiology field. The
  required number of credits does not reflect developments in the field, nor the
  profession's or practitioners' learning needs.

- Members source continuous education units from varied content sources rather than a coherent educational model.

- Members have significant choice when compiling credit within the reporting period. However, as discussed under the consciousness imperfection disorder, members may lack capability to select content that matters most to them or that most effectively addresses their long-term educational well-being needs.

The CE model of professional bodies does incentivise continuing education. However, educational well-being needs still have significant implications for practicing professionals.

3.3.4 Learning Platforms and Online Programme Management

The scalability chapter above shows curators of learning offerings (that is, online platforms and OPMs) often deploy a subscription model ("learning on demand"). This has a model of a flat fee for consuming available learning content provided the learner does not seek university credit or to enrol as part of a degree programme. In these cases, there is a charge for the award course. In all other cases, learners can consume content from the online library much as Netflix content is consumed. For a few hundred dollars Coursera Plus allows access to 90% of its library, equalling 3,000+ courses. Subscription models like this mean convenient content access is unconstrained except by time. And achieving a certificate or more is no longer an educational programme's only exit point.

This model makes continuous access to learning content easy. Like entertainment, it could become a habit to a disciplined, motivated learner. The model could be complemented by recommender services and measures of literacy to address the consciousness need.

Duolingo offers continuous engagement with available learning content, beyond ease of consumption through a subscription model. Virtual coins are earned as learning progresses, new levels of learning can be unlocked in a gamified way, and a fluency score shows current competency. Skills not demonstrated for a period of time change in colour (from green to yellow and ultimately red), highlighting needs to consciously re-establish and demonstrate literacy.

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Without doubt, online learning providers and programme managers have shown the applicability of recurring subscription models to learning and offer alternatives to traditional degree-based pricing models.

3.3.5 Corporate Academies

Voith is one of the world's most significant providers of large, mechanical engineering assets. The family-owned company founded in 1867 is headquartered in Heidenheim, Germany. Organisationally, Voith has three divisions: hydro, paper, and turbo. Voith's more than 20,000 worldwide employees share the three disorders introduced in Part A.

To address increasing unconscious incompetence in its staff, in 2019 Voith's HR team launched the global e-learning platform DRIVE (Digital Readiness Ideation Velocity Engagement). DRIVE is an upskilling programme covering contemporary subjects like the Industrial Internet of Things and AI. This programme, consisting of 60 hours of learning, facilitates acquisition of more than 600 digital skills. DRIVE offers a broad introduction to digital technologies as well as more specific overviews about the technology impact on various specific functional areas (e.g. sales, maintenance). The programme is available in four languages and varied learning modes are supported. Two years into the programme, more than 8,000 Voith employees have participated in DRIVE. Of particular interest is that Voith now offers DRIVE commercially as an upskilling service to manufacturing services globally. Voith's HR team has turned addressing an internal learning demand into a market-facing profit centre. They participate in the new learning economy, serving learning needs beyond those of their own employees.

DRIVE is an example of how organisations ensure their employees stay up to date. DRIVE participation is strongly encouraged, not mandatory. However, promotions or project allocation may require a staff member to have completed a DRIVE course.

Corporate academies like DRIVE come in various forms. Some global organisations established campuses and sourced professional educators. GE founded its Crotonville campus, an hour north of New York City, in 1956. A 12-week advanced manager course was offered. Today, Crotonville courses target GE staff and educational requirements of GE's customers. Accenture created a training centre in St Charles and has recently entered into a collaborative strategic venture in coeducating its own staff using content shared by its experts and staff from its partner, the University of South Australia.

Some companies are built on very close corporate–university partnerships. The Starbucks College Achievement Plan, for example, covers 100% of the tuition fee for eligible

Starbucks employees who can select from more than 100 bachelor programmes offered by Arizona State University (starbucks.asu.edu). This ambitious initiative plans to graduate 25,000 Starbucks associates by 2025. Walmart's staff upskilling initiative, "Life Better U", launched in 2018, is a partnership with the University of Florida, Purdue University Global (Purdue's online-only arm), University of Denver, Brandman University, and others. Walmart pays 100% of the tuition fee. The company's US workforce consists of 1.5 million part-time and full-time associates. The set of Walmart's educational partners is similar to those that partner with Disney Aspire, the Walt Disney Company's 100% tuition-paid plan for nearly 100,000 employees and cast members. Amazon's comparable Career Choice programme has no constraints on educational partners.

Corporate academies vary tremendously in scope, from training every staff member to dedicated upskilling of subsets of their workforce.

More recently, the importance of corporate educational well-being has led to new governance and senior roles, like Chief Learning Officer (CLOs). The CLO's main aim is to design and establish a learning organisation. To better understand this role, Abbie Lundberg and George Westerman conducted 21 interviews with CLOs at 19 large corporations.[40] Their findings revealed priorities like concentrating on capabilities not competencies, and cultivating curiosity and growth mindsets. Lundberg and Westerman found CLOs are tasked to personalise, digitise, and atomise learning, and increasingly facilitate peer learning.

Corporate academies have several shortcomings in terms of continuous education:

• Though some offerings are broad, the corporate academy focus is inherently inward. Content consequently leans towards applicability of learning in the organisation's context, which might compromise transferability if needed. They address employer rather than learner educational well-being requirements.
• Depending on the corporate academy's resourcing (e.g. access to high-quality instructors and content), learning quality is limited by education not being the organisation's primary business.
• Not all staff might can access the corporate academy.
• Learning is typically one-off, not an ongoing engagement.

Nevertheless, corporate academies are one means by which "learning-as-usual" (LAU) can coexist with daily business-as-usual activities. Having a dedicated governance model for workforce educational well-being is a recent trend. We may see wider uptake of the concept for all learners in the future learning economy.

3.3.6 Intrinsic Motivation

The most common continuous education model is one which draws on an individual's inherent motivation to learn. There is no shortage of educational content, often freely available across multiple channels. No longer is the supply side of content a significant roadblock to learning. We rarely have to travel to specific libraries or be at a place in time. Few hurdles remain to our cognitive preparedness to learn. One might say a significant proportion of educational content is now a *public digital asset* accessible to anyone with an Internet access. There is no capacity cap, and there are comprehensive learning assets including books and commercial online and offline courses offered by vendors ranging from specialised training providers to postgraduate education at colleges and universities.

The most significant roadblock to continuous learning is ourselves. In a world full of choice, it is a daily challenge to invest limited time and absorptive capacity across multiple opportunities. Learning is just one demand on our time. Despite its importance, it is often compromised in light of what we feel is more urgent or important. This might include immediate job duties, family obligations, recreation, and entertainment. As Netflix CEO Reed Hastings said in 2017, "Sleep is our competition".

Those who make their educational well-being a priority have no shortage in an increasingly content-rich world. They can consume podcasts during travel time, read books on weekends, and enrol in globally available online education often free of charge. However, unlike the domain of continuous physical well-being with its rich set of apps, devices, and training programmes, a significant shortage of guides and tools confronts those motivated to address their knowledge, experience, and consciousness disorders. An individual largely carries the load of identifying and orchestrating learning content for themselves. While sustained physical education leads to obvious improvement in body shape and physical appearance, continuous learning does not come with such immediate rewards or evidence of improved educational well-being (beyond maybe another certificate on the physical or digital wall).

Self-focused, continuous education is often disintegrated, hard to sustain, and of variable quality. It is unreliable because of each learner's idiosyncratic learning process. In consequence, it provides a rich opportunity for new service provision.

3.4 Educational-Well-Being-as-a-Service

This section is inspired by concepts of continuity deployed in other sectors. It leads to a new model called Educational-Well-Being-as-a-Service (EaaS) that replicates the model that works well in the software industry.

EaaS aims to ensure a continuous state of educational well-being using a subscription model. It converts a time-stamped, one-off degree, certification of a qualification at a certain point in time, into continuously updated learning status. The old model relies on an assumption that an accredited tertiary education provider's degree represents the only knowledge a professional will need for a lifetime. As discussed in Part A, a knowledge disorder exists. Currency of previous learning, and educational well-being, deteriorates over time, and now more quickly. To prevent this, the degree holder will be offered "educational upgrades" that take an alumni's knowledge to the requirements of the latest available degree. This model is like a "living degree". Continuous upgrades have significant economic benefits as studies show substantial retraining is four times more expensive than regular upskilling.[41]

In 2010, Julianne was awarded a Bachelor of Journalism from Columbia University. Since then, the university has regularly informed her about degree programme upgrades. These were qualified as minor and major upgrades which gave Julianne a good understanding of the magnitude of new knowledge now being taught to current students. When Julianne felt the new content was compelling, and her lack of currency was significant for her educational well-being, she approached her supervisor in the news company she worked with, requesting support for her educational upgrade. They agreed on a 50:50 funding split for costs of the upgrade.

Since 2010, Julianne has participated in three Columbia "upgrade summer schools". She always enjoyed refreshing her skillset. After long days of study and stressful exams she enjoyed catching up with former peers to reminisce over dinner about "the good old days". Julianne admitted sitting exams was always a challenge, but she understood this was the effort required to stay competitive as an employee of choice. After each educational upgrade, she proudly reprinted her business card and updated her LinkedIn profile to ensure it stated Bachelor of Journalism (year of upgrade).

Julianne's story is not extraordinary. In 2008, the City University of New York's Graduate School of Journalism made an innovative promise to students as it became obvious the speed of the Internet age would require continuous learning. The School organised special workshops so alumni could maintain their educational well-being. The workshops were either refreshers, updates (e.g. a new editing tool), or entirely new skills (e.g. blogging). Jeff Jarvis, then-director of the School's interactive programme, compared this offering to a 100,000-mile warranty on a car, in providing assurance to graduating students.

However, EaaS requires capabilities most education providers do not possess and therefore need to develop.

3.4.1 Version Control

Version control is at the heart of software engineering. It is well known from book editions or product releases. Many manufacturers (e.g. automotive) manage various product versions, meaning they can track down particular versions if an issue arises (e.g. a product recall). A revision is a controlled release of an upgrade. Depending on the upgrade's significance, a revision might be minor (version 3.2 to 3.3) or major (version 3.2 to 4.0).

Each revision is time-stamped and there is firm governance over issues like roles and responsibilities. Dedicated version control systems are either available as separate solutions or embedded in existing systems (e.g. *Wikipedia*'s page history). They support tracking and bundling of changes, and their controlled release.

Version control in the software industry dates back to 1962 and IBM's OS/360 IEUPDATE. Version management is largely unknown in the learning economy despite content being regularly updated, typically according to teaching cycles (e.g. semesters), or shorter cycles in online learning platforms or other MOOC-like offerings. Updates occur organically, triggered by actual changes to the domain being taught, and by internal changes such as new staff taking over subject delivery.

Lack of version control in the learning economy results from the absence of a culture, and a governance system, that rigorously controls content upgrades. There is no requirement to track down specific versions of content a student has consumed. We lack defined release cycles determined by specific moments in time (e.g. new semester) as opposed to actual change in knowledge. Larger providers using advanced LMSs typically have no technical constraint; most LMSs nowadays come with version control capability. This feature, however, is seldom used.

The more significant challenge for implementing an EaaS model is establishing governance and cultural practices in a learning economy not used to version control. Curriculum changes, whether small or significant, need to be captured and version-managed so differences in curriculum over time are captured and tracked. It is especially important to identify and quantify gaps between the specific version a student graduated from, and the current version on offer. This gap is caused by the knowledge disorder becoming accelerated.

If a learning provider utilised version control, an accomplished degree would have a version number. For example, a graduating student might be awarded a Bachelor of Nursing version 3.4.

Gabriella is Chief People Officer at one of Barcelona's leading insurance companies. She smiles as she looks at the unusual job posting she is about to put to the market. One of the qualifications states, "MBA 3.0 or higher". The selection panel made this decision as only from the MBA 3.0 onward were topics like disruptive innovation, platform economics, and design thinking embedded in the curriculum. She was well aware that potential recruits with MBA qualifications of versions 2.5 and earlier would be unqualified for the job she was recruiting for, unless they had another way of demonstrating their knowledge of experience in these new and critically important areas of business practice.

3.4.2 Release Management

Release management is the capability to plan, build, test, and release a new version to market. This is a well-defined process in software development (see ITIL standards) but underdeveloped in today's learning economy.

This process is relevant to both alumni, and to learners enrolled in a course that undergoes release of a new version during their study. With every new release, the knowledge an alumnus gained and the knowledge currently offered by the updated course are further removed from each other. Being judged by this gap, and assuming no knowledge top-ups have occurred since graduation, the alumnus is *continuously unconsciously more outdated*. This is exposure to a combination of knowledge and consciousness disorders.

Release management in the software industry and by Tesla addresses such gaps with a remote upgrade. In the learning economy, release management is very different, though the notion of upgrade is applicable. Alumni who have subscribed to upgrades would need to be notified of the upgrade, the delta content would need to be studied and examined, and an actual upgrade of the degree certificate/digital badge would need to occur. Such upgrades might be missed by alumni if they are minor but may become mandatory as employment skill requirements. They may indeed reduce exposure to the experience disorder as workplace experiences better align with updated knowledge and consciousness of it.

If degrees are captured as continuous digital badges as opposed to one-off time stamped certificates, one can imagine a world where a degree officially expires if not maintained or updated. The actual upgrade could come in any available learning form and would depend on the principles of the provider: online/offline, scheduled delivery/on demand, and so on. The upgrade might be bundled with valuable cohort activities. For example, an executive MBA programme cohort might enjoy and appreciate opportunities to collectively go through

the upgrade course every few years in a bundled short course, accompanied by social and networking activities.

If version-managed curriculum update release becomes mainstream, common software industry practices might enter the learning economy. As a CEO might fashion marketing statements when rolling out a significant new version of a physical product, we could envisage educational programme leaders launching new versions in their respective communities. ("Version 4.0 of the Imperial College Bachelor in Civil Engineering is now out and for the very first time we have included entirely new content covering digital twins, self-healing concrete, and photovoltaic glaze in our programme!")

3.4.3 Price and Subscription Management

Selling continuous education as an upgradeable digital badge requires new technical and governance systems and revised pricing models. While many learners are used to paying in defined time periods (e.g. per semester), these charges end at graduation. A continuous degree would mean recurring charges as the product offered is continuously enhanced.

In the simplest pricing model, a student pays a recurring fee for a certain period and in return receives access to all upgrades. Differentiating pricing models might closely correlate upgrade frequency with subjects studied. IT students might regard year 1 content as outdated when they graduate. Medieval Italian art history graduates, however, might have lower demands for continuous upgrades.

Furthermore, subscribers could be private individual learners or corporate clients. The latter would see an organisation subscribing to upgrade packages for all employees from the same education provider, and in return these employees are continuously upgraded, possibly collectively. This illustrates complex B2B and B2C business relationships that may emerge in the new learning economy for continuous learning, and other new products and services.

Pursuing the continuity principle offers particular opportunities for learning providers seeking to continue substantial research programmes. The idea that continuing advancement in knowledge requires the updating of learners' knowledge, supports the proposition that a learning provider should continue engaging in research. This may be one principle where the benefits of continuity are enhanced by interdependence in teaching and research. This observation is supported by Tesla, the source of this principle, which is itself heavily engaged in innovation and new technology developments that serve the continuous upgrading of products and services.

Gabriella just returned from an extended lunch with Felipe, CIO of her insurance company. She was amazed by the substantial differences between IT and HR. Felipe told her he would go to bed each night smiling, knowing the trusted provider of his enterprise system continuously upgraded their comprehensive and industry-specific enterprise system. Especially in the COVID-19 environment, with frequent regulatory changes in payroll and government subsidies, he was impressed with how accurate and promptly these upgrades occurred. Yes, he paid a substantial amount for it, but the opportunity costs, he firmly believed, were much higher.

Gabriella, in contrast, was not sleeping well. She was more and more aware her organisation lacked the skills required to respond to complex external developments. For example, she sensed her staff lacked the data literacy required by GDPR. Customers demanded real-time insurance products but there was no internal capability to explore these further. And though the company recently hired a number of new executives, her feeling was the CEO's interest in innovative new platform models was beyond the competence of these recent recruits.

She looked at her diary and noted this afternoon's meeting with the University of Barcelona's executive dean of the Faculty of Economics and Business. Her company employed more than 250 alumni, making it the biggest employer of University of Barcelona graduates. Inspired by her lunchtime conversations, she wondered why the university could not do for her what the enterprise system vendor did for Felipe?

3.5 What Else Can We Learn from Tesla?

The strategic principle of continuity can catalyse entirely new services and engagement models in the learning economy. The widespread move from products to services in many industries, combined with new digital technology affordances, has profoundly changed how consumers interact with providers. Tesla shows how applying this principle created a continuous engagement model in a traditional industry.

Tesla can inspire the new learning economy in ways far beyond its continuous engagement model, not least the company's strong "digital first" attitude. In contrast to traditional manufacturers aiming to bring the Internet to the car, Tesla sees the car as part of the Internet. It is a highly connected device requiring, and benefitting from, ongoing communication. A digital-first approach makes digital affordances the foundation for any product or

service design. Digital second, however, means adding new digital capabilities to existing services. In the education sector this occurs when established content, learning models, and assessments are simply transferred to new online channels: outcomes are usually suboptimal. Services are not modified where needed as the full capabilities of digital technologies are not utilised.

There is the obvious role of Tesla's charismatic and *decisive leader*, Elon Musk. Various books have unpacked his idiosyncratic leadership approach. Musk is known for many attributes, including thinking big. He is described as being able to create compelling visions, committed to executing well, curious about learning from failure, and open to constructive criticism. Leaders like Musk are the exception across most industries and very rare in a risk-averse learning economy.

Tesla's decisive leadership materialises in various ways. The company does not invest in the established, asset-intensive model of car distribution through dealerships. It only invests in an *online car sales model.* The absence of the "shady car salesman" and the model's robustness in times of disruption (COVID-19) allow a customer seven days to seek a refund if unsatisfied. Shifting to an online-only model is significant for established learning providers.

Tesla understands how to *attract attention* in a hypercompetitive industry, demonstrated by announcements about its Cybertruck, an all-electric light-duty truck, or the Roadster 2.0, which accelerates to 100 km/h in two seconds. Such disruptive products are absolute exceptions in a learning economy characterised by substantial sector uniformity, with incremental change masquerading as radical new product launches.

Tesla also practices constraint-based investments. For a car manufacturer dedicated to mass producing electrical vehicles, improving battery performance is everything. Tesla's Gigafactory 1 (aka Tesla Giga Nevada) demonstrates its commitment to exploring how to dramatically enhance battery effectiveness and efficiency. There is no apparent comparable understanding of what constitutes substantive technical constraints in the learning economy.

3.6 Summary

Expanding established learning offerings through a continuity model is an obvious example of untapped growth potential in our learning economy. The continuous learning market is fragmented, unstructured, and largely underexplored. Any movements in this direction could usher in benefits of nondisruptive creation.[42] The absence of a zero-sum game means

there is no agitated competitor or a requirement to invest in customers that need to be "won over". Moreover, providers with an existing alumni base, which is often sizeable, have a head start. They could attract otherwise idle communities of previous learners to new value propositions. There are expectations of a growing market as more individuals become aware of their learning disorders. They will experience depreciation of their learning, gain limited value from further experience, and realise they don't know where to look in attempting to address learning shortfalls once they become conscious of them.

Though the benefits of nondisruptive creation and a growing market might be strong motivators to proceed with this strategic principle, continuity comes with a significant challenge. Advanced models like the living degree presented here, of Educational-Well-Being-as-a-Service, require capabilities lacking within current learning providers. These include capabilities like version and release management. They include regulatory (e.g. accreditation of an upgrade) and financial challenges. New business models must be designed, such as subscription models. Also essential, but unfamiliar to most learning economy participants, are market entry and engagement strategies redefining customer lifetime value.

Current extensions of student engagement beyond graduation tend to focus on facilitating ease of selective participation in ongoing course offerings and seminars. These focus on simply staying in touch with the cohort a student graduated with. Even when labelled, for example, "MBA for Life" (Griffith University, Australia), such initiatives are more about continuous engagement than well-curated and rewarded continuous learning.

3 Continuity

4 Community

4.1 The YouTube Case

YouTube is the world's second most-visited website and the second-largest search engine. Each day, more than two billion users watch on average one hour of YouTube videos. Each minute, 400 hours of video content are uploaded. YouTube accounts for roughly 15% of all global Internet traffic and has attracted a billion users in a decade. The platform launched in February 2005. In 2006, Google bought YouTube for $1.6 billion.

Such an exponential explosion was not to be imagined when YouTube's first video, 18 seconds of co-founder Jawed Karim at the San Diego Zoo, was uploaded. A simple user interface and compelling value proposition quickly made YouTube the place to upload and consume videos for many purposes. It helps individual searches for immediate entertainment, and it has large sociopolitical impacts as demonstrated by YouTube's role as a video distributor during the Arab Spring protests in the early 2010s.

YouTube is a textbook example of an Internet platform connecting contributing Internet users (uploading videos) with consuming users (watching videos). Consumers can become producers as the simplicity of uploading videos makes the content provider role an easy one. YouTube provides the infrastructure. Users determine what content is produced and what content becomes popular. Channels cluster content, allowing users to subscribe to updated content in their interest areas.

YouTube also partners with media companies. Since 2015, media corporations like Sony, Universal, Disney, and Warner Brothers Media have established corporate YouTube channels. Disney's channel has more than 7 million subscribers; Warner Brothers Media has more than 10 million. NBC Universal uses YouTube as a channel for releasing on-demand videos like *Trolls World Tour*. Initially, YouTube was a platform on which organisations like Viacom allowed YouTube users to post Viacom content like *South Park* clips. It is now a platform that commercialises its global audience by allowing users to buy or rent movies.

The demand on YouTube for content from media companies looks small compared with YouTube's most popular channels based on subscriber numbers. T-Series, the Indian music label and film production company, has more than 220 million YouTube subscribers. The world's most successful children's YouTuber, Russian Anastasia Yuryevna Radzinskaya, or Nastya, has 100 million subscribers to her channel Like Nastya. It attracts more than 60 billion views annually.

Called YouTubers, these influencers attract a community of followers who often wait nervously for release of Nastya's weekly episode. In return, this massive global attention attracts companies eager to leverage these YouTubers' impact for their brand and product marketing.

The learning economy is one sector that has seen extensive YouTube activity and subsequent influence. TED curator Chris Anderson described YouTube's impact like this:

> What Gutenberg did for writing, online video can now do for face-to-face communication, that it's not far-fetched to say that online video will dramatically accelerate scientific advance, and that video contributors may be about to launch the biggest learning cycle in human history.[43]

Khan Academy started video tutoring with YouTube videos in 2006. By the end of 2013, 26,000 free videos were available. YouTube's Khan Academy channel has more than 7 million subscribers and attracted more than 2 billion views over the last 15 years.

Even larger is the YouTube community gathered around TED talk content. Some 2,500 TED lectures have been viewed on YouTube's TED-Ed channel more than 250 million times by more than 21 million subscribers. That means YouTube's TED channel has roughly 4 million more subscribers than Disney and Warner combined (as of August 2022). Education appears to exceed commercial entertainment in audience YouTube interests.

Rosemann[44] used YouTube as a distribution channel for content produced for a first-semester IT class at Queensland University of Technology. In his illustrated 3' 36" video (Figure B.9) he explains Everett Rogers' diffusion of innovation theory. The video has, as of August 2022, been watched more than 200,000 times and attracted more than 1,300 likes. This demonstrates how easily public digital assets such as YouTube can be used as global distribution networks that dramatically amplify the impact of learning content.
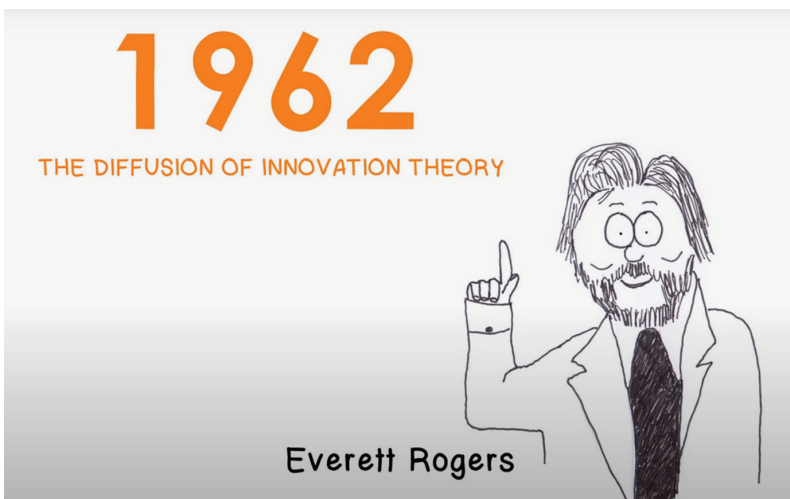

FIGURE B.9   QUT's YouTube video on the Diffusion of Innovation theory.

4 Community

This explains why some prestigious universities have YouTube channels. Harvard's channel has more than 2 million subscribers. It offers a 90-minute video on Advanced Algorithms in which Jelani Nelson uses a chalkboard to explain how to analyse and create algorithms – it attracted 14 million views over a six-year period. Oprah Winfrey's Harvard commencement speech on 30 May 2013 attracted a little more than 3.5 million viewers.

The success of YouTube's platform model is based on creating communities of like-minded individuals who can consume, and mostly also share, video content. This is known as a peer-to-peer model as the platform facilitates interaction and exchange between platform participants. Platform quality increases with each additional user: more users mean more content, more reliable rankings, and better popularity scores. The next section focuses on alternative paths for creating such communities.

4.2 Paths to a Community

4.2.1 The Roles and Types of Network Effects

Positive network effect is the term economists use to describe how more people using a product or service increases its value. Network effects were first studied in telephone markets. Communications markets more broadly (e.g. the Internet) are signature examples of network effects. The more people who own phones, or Internet-attached computers, the more attractive having a phone or the Internet is to others.

Companies with a business model grounded in network effects have an essential advantage over competitors without a network effect. This can lead to a "winner-takes-all" scenario where one company capitalises on network effects to clearly dominate the relevant market.

This effect can be observed with YouTube and other platform companies like Facebook, TikTok, and Strava. Once the network effect kicked in, these companies escaped from the competitive field by benefiting from first-mover advantage. Unlike most other industries, this often leads to 50% and higher market shares.

Figure B.10 visualises the difference between positive network effects, the lack of network effects, and negative network effects. The three curves show the extent to which value generated correlates with respective user bases.
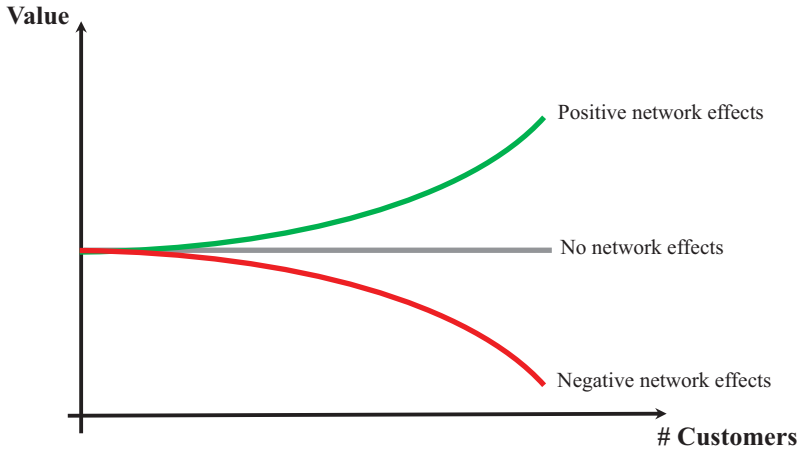
FIGURE B.10   Types of network effects.

The exponentially growing curve shows how a user base grows exponentially on the value proposition for its users. Of course, exponential growth is not limitless: the network will become exhausted due to the finite user numbers or might become congested. Solutions such as cloud computing have helped overcome many sources of congestion, moving the congestion point beyond market size by facilitating scalability.

The horizontal line represents organisations without any network effect. If you buy motor insurance or get a new home loan, you will hardly notice the customer base size of the insurer or bank you deal with. You could be customer number one, or customer number one million. Regardless, the value you receive would be more or less identical (ignoring obvious cost efficiencies for providers due to growing user numbers).

The declining curve represents negative network effects which kick in when increased network size reduces the value proposition. We experience this in congested traffic, communication networks, or overcrowded physical lecture theatres. Negative network effects are not just negative. They play an important economic role as they ensure equilibrium.

Depending on the business type, positive network effects might require a *critical mass* before the effects kick in, that is, the point at which costs reach the value generated by the user base (Figure B.11).
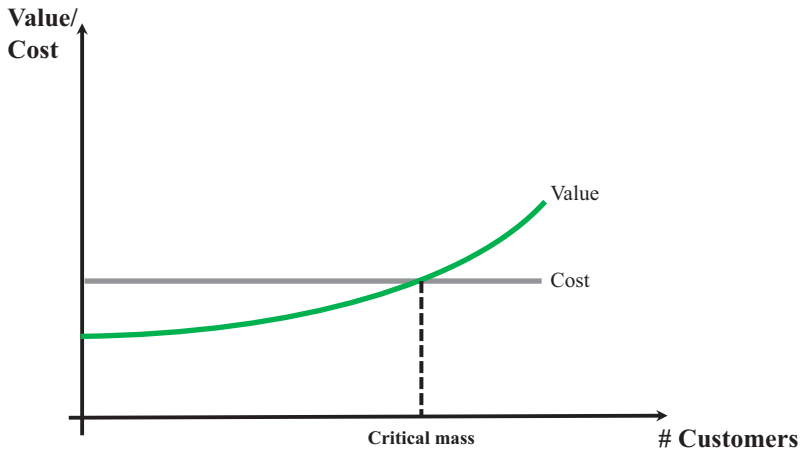
4 Community

FIGURE B.11   Critical mass for network effects.

This critical mass can become a severe bottleneck for an organisation if value generated depends entirely on network effects (the so-called cold start problem). It might mean the business never gets off the ground as all users who sign up until critical mass is reached (early adopters) experience costs higher than the value they get in return. They would have to subsidise the growing network until it generates sufficient value. To overcome this initial problem in the network lifecycle, companies have three options.

First, they could *incentivise early adopters* by offering a discount to compensate for limited value provided in the early days. This can be observed when governments provide subsidies to initiate a desired new network. An example is subsidies for e-vehicles introduced because a small network of e-vehicles cannot attract enough charging stations.

Second, reaching critical mass could be achieved by creating a compelling *value proposition independent of the user base*. When video recorders came out, there was a very small market for pre-recorded videocassettes. However, the ability to record a television show and watch it later created a stand-alone value proposition that was not network-dependent. Network effects that kick in when other users sign up then make the product or service even more compelling.

Third, the organisation's revenue model might be tailored so that income is not generated via a fee-for-service model where every new user is charged, but by *alternative revenue models*. Strava, like many apps, is available for free. When a solution's purchasing and use costs are low, or even zero, little is needed before value is higher than marginal costs. This means critical mass requirements fall.

It is important to highlight that network effects are different to widely known economies of scale, which are supply-based; that is, an organisation creates a cost advantage when the number of units produced increases, and as a consequence distributed fixed costs per unit decrease. Network effects, however, are demand-based. They are a function of the user base, not production capacity or throughput. This again demonstrates the shift from an economy of corporations (when economies of scale mattered) to an economy of people (when value generation for users based on network effects matters). Amazon's e-commerce (1P) marketplace has economies of scale due to shared warehouse facilities, synergies in the distribution, and consolidated purchasing power. Amazon's peer-to-peer marketplace (3p), on the other hand, has network effects.

We need to differentiate direct network effects from indirect network effects. Direct network effects, or same-side network effects, occur because an additional user creates value for other users. They are based on interactions between users (like uploading and consuming videos) and therefore grounded in customer-to-customer (C2C) models.

Indirect network effects are cross-side, complementary network effects. Increasing the size of one network is of value to another network. For example, as more customers come to a shopping mall, more vendors are eager to sell their products in that mall. In return, a higher number of vendors increase products available, attracting even more customers. Indirect networks effects are common in platform models where two sides must be balanced (e.g. the brokering role of a platform like OpenTable). Once in full swing, indirect network effects are a blessing for marketplace providers as both sides stimulate each other. However, the initial set-up is exposed to a chicken-and-egg problem. Buyers are attracted by a critical mass of suppliers and vice versa. Figure B.12 visualises the difference between these two network effects.
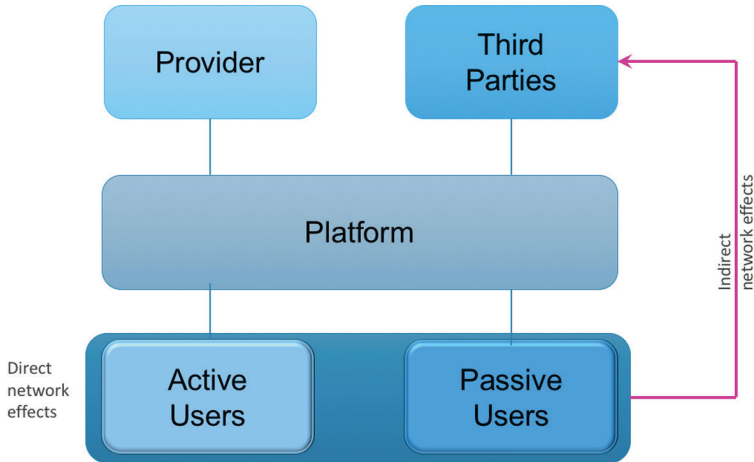
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FIGURE B.12   Direct and indirect network effects.

Indirect network effects might only be unidirectional, which is often the case for adver-tising (e.g. newspaper, television, social media). Bigger audiences are more attractive for advertisers, but more advertisers do not necessarily attract or retain an audience.

4.2.2 Eight Ways to Define Digital Communities

Network effects occur within a defined community. It is important to define a community's boundaries and the strength of the desired network effects within this community, and it is a strategic opportunity for organisations to move from competing on products and services to competing on communities.

Can industries other than of "platform natives" (e.g. social media) create network effects? Can incumbents reliant on linear revenue models also create business models with network effects?

Here we outline eight approaches to creating positive direct network effects. All rely on C2C relationships. Some are direct, others are via community-created content or curation.

1) The most common source of network effects is *facilitation of interactions* with other network users, using a homogeneous, bidirectional network in which all users have similar attributes and interests. The quintessential network effect that makes up the telephone market was based on larger network size having higher value for each user as there was a greater chance to connect with someone a user wants to interact with. While contemporary messaging platforms are still based on this value proposition, they no longer require a dedicated device. Only a smartphone

or laptop, and a software download are required. This means the onboarding of new customers can happen instantly, free of complex contractual arrangements. This explains the rapid growth of platforms such as WhatsApp, Snapchat, and Skype. They cover multiple modes of interaction as opposed to previous single channel messaging services (e.g. phone or fax). This effect might be intuitive for communication networks, but can incumbents in other industries capitalise on such effects? Similar to the "community of phone users", organisations must start seeing the forest (the community), not single trees (individual customers). The essential question is: What community are we close to? For example, behind every mortgage is a homeowner, behind every motor insurance policy a car owner, behind every cinema visitor a person who likes movies, behind every travel booking someone who likes travel.

2) PatientsLikeMe is a community centred on the principle that connecting with a patient with identical or similar demographics and symptoms is a valuable source of insight for patient therapy. The assumption is that users will benefit from interacting with similar users given common attributes. Someone who went through successful therapy for the same symptoms as a current patient can be highly valuable, and in some aspects more trusted than a general medical practitioner who has not seen such symptoms before. The larger the community, the greater the chance of *finding someone like me*. Strava facilitates connecting cyclists like me – riders who enjoy cycling similar routes. One can imagine the "customers-like-me" principle applied in other industries – students-like-me, travellers-like-me, homeowners-like-me. Such communities could be provided by organisations like universities, travel agencies, cinemas, and banks. The network effect depends on cohort diversity. It is a trade-off. If the cohort is similar, then finding a like-minded customer is no significant challenge. If community members are unique, it will be difficult to find similar users and a very large user base is required.

3) A third form of network effects is *twofold communities*, which typically are the core of marketplaces and platforms. Such communities are of two types: either like-minded complementary communities as in dating platforms, or typical vendor-consumer communities in which an individual can play both roles. An Uber driver might be an Uber user. The same is true for Airbnb, Alibaba, eBay, and Craigslist users. The network represents market size. Demand and supply both extract full benefit by capitalising on competitive mechanisms (e.g. eBay auctions). The more buyers, the higher the auction price. The more sellers, the lower the price. These balancing effects lead to an increasing network of both buyers and sellers who keep prices stable.

These first three ways of creating communities are about facilitating one-to-one relationships – the community helps find people like me; people I like to interact with; people I want to engage with in a consumer-vendor relationship. The following involve large-scale one-many relationships.

4) Another source of creating network effects via C2C interactions is through *followers*. Populated in the world of social media, and different from the first three C2C interactions, this is based on a subscription mechanism. It establishes an ongoing connection. It could be a bidirectional relationship (person A follows person B, and vice versa). In many cases it is a unidirectional relationship. On social media platforms like Twitter or Instagram, following populates your personal newsfeed based on activities of those followed. This approach is now widely found elsewhere. Strava facilitates following other athletes (cycling buddies or role models). Following allows the monitoring of behaviour (e.g. a training or learning plan), opinions, and contributions of selected individuals. Following can be available to anyone (e.g. YouTube, Tumblr, LinkedIn) or only allowed after an optional verify function (e.g. Facebook, Instagram). The larger the network, the greater the likelihood a member finds interesting people to follow. In return, the bigger the audience (followers), the greater the impact, value (and self-esteem).

5) A specific form of network effect is created when access is facilitated to *learning from the performance of outstanding individuals*. eToro is a social investment platform that allows investors to view, follow, and copy decisions of the network's top traders. Each investor's reports are available, including their portfolio composition and performance over the last 12 months. This type of network facilitates access to best-in-class network members. The larger the crowd, the higher the peak performance. Social trading can be seen as a way to delegate decisions to individuals who are trusted because of documented performance. One could imagine replicating such mechanisms in other industries. A casino might offer betting on the most successful poker player in the house, not the poker game.

Finally, network effects could result from crowdsourced content creation. The larger the crowd, the more content that is available and the better it will be for all (the wisdom of crowds).

6) A typical example is digital community platforms where members of the same neighbourhood share information about coffees, upcoming street closures, or robberies. The more people create such content, the more valuable the community is for all participants.

Case Study: Thermomix

Thermomix is a kitchen appliance from Vorwerk. It provides cooking functions like steaming, mixing, blending, whipping, stirring, and grinding in one device. What started in 1961 as an "advanced mixer" has become the ultimate wonder machine. It has a decent price tag: US$1,500. The value generated for private chefs can be broken down into actual product value, made up of the plethora of cooking functions available in one device, and the network value. The latter is accessible via a touchscreen which provides access to, and step-by-step guidance through, more than 25,000 recipes derived from a Thermomix Recipe Community of more than 200,000 users. Similar to the YouTube community, the Thermomix community is co-creating content, and via this creating network value beyond pure product value. This example shows organisations can convert a physical device into a platform that generates network effects.

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7) In addition to individual users being the main content producers, further network effects are unlocked when *network members work together to build content*. Co-creation means network members can interact to create content together by sharing and building on each other's strengths and expertise. An example is online encyclopedia *Wikipedia*, one of the most popular global websites. In less than two decades, *Wikipedia*'s decentralised peer production process has led to more than 55 million articles in more than 300 languages (with 6.5 million in English). It attracts more than 250 million daily views. The *Wikipedia* network can be differentiated into active registered users (the editors) and passive users. Some active, well-regarded editors can become elected administrators with special rights (e.g. allowed to delete pages or prevent articles being changed). Like YouTube, *Wikipedia* is a digital public good with low transaction costs. The main difference to YouTube is that *Wikipedia* activates further network effects by letting network members work together. As early as 2005, *Wikipedia* was *the* example for demonstrating a global co-contributing network can lead to high-quality content when a very large network of individuals with decent digital literacy and shared ambition is empowered. It is worth noting, however, that since *Wikipedia*'s founding in 2001, regulations required to sustain high-quality content have increased and now cover a plethora of policies.

8) Once a community is used to (co-)creating content, further network effects can be derived from the community by *using the community*, either implicitly or explicitly, *for curation*, *quality assurance*, *and content production*. Implicit curation occurs when user behaviour (e.g. items viewed or purchased) is observed, analysed,

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aggregated, and used to derive recommendations for network members. Amazon's book recommendations (people who bought X also bought Y) and Netflix movie recommendations are based on consolidated behaviour of customers interested in the same book, or who had listened to the same song. Facebook, LinkedIn, and Twitter recommend new friends, relevant professional contacts, and people to follow based on collaborative filtering, which requires large data sets depicting user behaviour and activities. Collaborative filtering works well in a large network but faces the cold-start problem in a small network because insufficient data is available to derive high-quality recommendations.

A word of caution, however. We have mostly covered positive (growth) impacts of network effects. However, network effects can also be reversed. If a network starts shrinking, the imploding effect can accelerate. Fewer customers mean fewer vendors, leading to fewer attractive offerings, with a further negative impact on customers. Internet companies like Orkut (Brazil) and MySpace (US) fell prey to the reverse impact of network effects.[45]

4.3 Communities in the Current Learning Economy

The current learning economy is grounded in a one–many B2C model in which providers educate cohorts of learners. With the uptake of corporate academies and new learning providers, there is increased interest from large organisations in educational offerings of learning providers that is leading to (slow) uptake of a B2B model. However, a peer-to-peer model (C2C), or better, a learner-to-learner (L2L) model, like YouTube, is rare in the learning economy.

One experiment in L2L education is P2PU (People-to-People University), a non-profit open online learning community founded in 2009 with support from the Hewlett Foundation and the Shuttleworth Foundation. P2PU's curriculum is crowdsourced and initiated by facilitators who chair local learning circles in public spaces (e.g. a library). A learning circle is an in-person study group that shares the desire to learn about a specific topic. The facilitator is largely in charge of moderating the learning process and is not necessarily a subject expert. In line with P2PU's non-hierarchical structure, courses are proposed via a grassroots movement. P2PU's platform allows learners to select an existing course or create one that is then promoted to the local domain.

Examples of P2PU courses are AI for Everyone, A Field Guide to the Outer Planets, and Bitcoin and Cryptocurrencies. There is no tuition fee and no accreditation. In P2PU's School of Webcraft, digital badges can be earned. The model is seen as a social scaffolding facility

complementing traditional forms of learning. It assumes social learning increases learning motivation and creates educational content sources other than centrally provided content.

Dann was becoming excited about ideas emerging about sharing student learning resources. The ideas came from the networked community of his research collaborators around the world. He had always had the closest bonds and links with fellow professors from California, Europe, Southeast Asia, and his own strong research group. They appeared to have more in common with each other than with colleagues in their own schools and faculties. Dann certainly knew where his loyalties and sense of shared purpose sat.

But he was always troubled by how the teaching he had to do at his own institution was parochial and local in content. He tried sharing some of the learning from his research networks about the state of the art in his field. However, he could see his students were much more inspired by case studies he and his colleagues compiled out of their work experiences and collaborations. He guessed that put their learning in a context where they could relate to theories more easily. It was hard to get the latest ideas from his global research group through internal course approval processes, and to gain local professional accreditation.

Dann and his collaborators discussed the frustrations with bringing their research breakthroughs, and those of others, to life for their own students. The early forays into building an online resource of case studies from around the world was proving a real hit when Dann took the lead in sharing them with his students. He was even more pleased to learn his own case studies appealed to students on courses in California, Tokyo, and Paris when his research collaborators shared them with their students. Suddenly, students were finding ways of contacting and learning from each other.

It was not surprising that students saw so much value in sharing their learning with each other. They did so by using the new platforms and mechanisms put in place by the combination of technology providers and collaborative professors. After all, Dann and his collaborators had for so long travelled the world to spend a week each year with each other, because it was special. If only his university could find better ways of using technology to harness synergy between Dann, his global network of collaborators, their research, and the global experiences and ambitions of their students.

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Connectivist MOOCs (cMOOC) are a large-scale approach to community-centred education first taught by Stephen Downes and George Siemens in 2008. A cMOOC is an open, learner-generated course focused on social and other network tools, making it very different to teacher-dominated, content-centred MOOCs focused on information transfer and assessment. Every cMOOC participant is a prosumer who contributes to producing and aggregating content.[46]

Dann's experience in the vignette above shows a clear example of how a teaching–research nexus benefits the community principle. Establishing communities and maintaining them can take substantial time and resources. Those that naturally form around parallel research investments and interests offer significant opportunity for learning applications, utilising the community principle. Universities as learning providers have a current advantage with long-established communities and networks built around research activities and infrastructure. There are more recent, sometimes more dynamic, ventures among other future learning economy participants, but this is again a strategic principle that supports maintaining the teaching–research nexus in activities and strategies of current universities.

4.4 Educational Well-Being for a Community

High-quality learning experiences are typically associated with high-intensity, small-cohort learning engagements (think Harvard executive education). The exponential impact of network effects, however, requires large numbers of learners in MOOC-like situations to unlock the positive value of peer-to-peer interactions.[47]

Thus, stakeholders seeking network effects in the learning economy must address four steps:

1) *Define the boundaries of the community* by articulating the type of learners. The more there are similarities between learners (learners-like-me), the more there will be benefits in them interacting. Broad definitions of such communities are discouraged, at least to start with.

2) Define the desired *direct network effects* by assessing the relevance of each of the eight options described in section 4.2. Depending on the mechanisms used to create a network effect, the ratio of active to passive network members will vary substantially. For example, while the number of users who actually upload videos to YouTube is rather small, the number of active, video-uploading TikTok users is substantially higher.

3) Address the *cold-start problem*. This is typically done by providing learning content attractive enough for a learner who consumes this content on their own. With an

increasing community of learners, additional value will arise quickly from peer-to-peer interactions and, if successful, overcome this cold-start problem.

4) Define the desired *indirect network effects*, that is, the extent to which this community might attract third parties and the willingness to facilitate (and commercially benefit) from these engagements. This could come in the form of advertising, but even more in the form of sourcing additional educational content or complementary services (e.g. career advice, tutorials).

4.5 What Else Can We Learn from YouTube?

There are other stimuli we can derive from closer observation of YouTube. An outstanding feature of the YouTube community is its prominent influencers. Whereas established providers of learning are largely institutions, the YouTube platform gives rises to impactful individuals. However, we can imagine spaces in the future learning economy in which individuals can find a global audience for learning content. "Learning channels" would be required for "teachers without borders" to offer their material. This could be a subscription model, a free-of-charge service, or a freemium model in which public educational content is extended with educational content learners pay for.

YouTube, like most platforms, monetises its digital attention via advertisement income (on landing pages and embedded in content). Depending on uptake and scale of advertising revenue, substantial reduction to learning content prices could be feasible with two-sided market models emerging in which third-party income subsidises free consumption by community members.

More than 70% of YouTube watch time is on mobile devices. The mobile experience is consequently paramount for YouTube's UX designers. Making consumption of learning content more compelling on mobile devices remains a significant opportunity and challenge for new learning economy providers. Platforms like YouTube can offer much inspiration. Mobile on-demand learning content has the advantage of truly decoupling point of teaching from point of learning. Another departure is geo-sensitive learning, which provides content based on a learner's physical context. For example, a student might learn about national legal system structure and systems when near a court or learn about the history or the engineering of a bridge when crossing it.

4.6 Summary

Learning providers seeking network effects get better outcomes with high learner numbers. Network effects are very attractive because they create demand-side additional value provided by learning community members, not by the learning provider as is more typical.

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Though common to global platforms and many entrepreneurial entities, network effects are unusual in the learning economy. This is likely to change quickly and the community strategic principle is therefore an attractive option for the learning economy. Literacy with direct or indirect network effects is low within the learning economy, and so is capability for designing and managing communities. We provided eight options for catalysing direct network effects. These create a rich design space for future learning providers to choose from.

In the best possible case, exponential impacts of network effects materialise as the "winner takes all". If learning providers fail to capitalise, organisations already managing significant communities and their network effects may enrich their offerings with educational content and interactions. The merits of a "content-follows-community" approach severely threaten the "community-follows-content" approach that existing providers pursue. We illustrate this issue when outlining participant types having opportunities to follow the strategic planning methodology outlined in Part C.

B.III Certainty

The ability to predict the future with certainty is declining, as the impacts of black swans elaborated in Part A dramatically shows. Modern leadership theories describe the current environment as exhibiting VUCA: volatility, uncertainty, complexity, and ambiguity. Volatility refers to the nature, dynamics, and speed of catalysts for change. Uncertainty is the lack of predictability and the likelihood of surprises like black swans. Complexity is the difficulty in comprehending the interplay of variables, and the limited ability to identify cause-effect relationships. Ambiguity is inexactness, and the potential for more than one interpretation.

Given VUCA, strategies are no longer stable over, say, a five-year horizon. Agility has replaced waterfall models as a project management paradigm, and how organisations manage lack of certainty is a key differentiator. The certainty dimension provides structure to the next two sections. Its strategic principles take two extreme forms.

Innovation requires comfort with uncertainty. The newness of innovation projects compromises our ability to predict their outcome. Failure is not uncommon. Learning experiences gained from innovation are valuable in providing new insights. Minimum viability replaces perfection as a goal, recognising fragility in hypotheses that drive innovation initiatives. Organisations striving in uncertain environments invest in innovative projects, conduct frequent environmental scanning, are familiar with outcome specification which develops over time, and empower the organisation's edges. They proactively explore new possibilities and seek first-mover advantages.

Trust, however, demands certainty. The more certain an outcome or behaviour, the more it is trusted. Trustworthy organisations have demonstrated ability, reliability, integrity, and benevolence. They focus on reducing sources of uncertainty (e.g. variations in staff or process performance) so customers have consistent experiences. The highest priority is predictability in how the organisation proceeds and performs. Trust is a leading indicator for organisational performance, correlating positively with important factors like customer loyalty and advocacy.

The certainty dimension seems in obvious conflict: a continuum spanning high certainty (trust) to high uncertainty (innovation). However, innovation and trust are both important for successful participation in a growing learning economy. Trusted innovation can lead to early engagement. Innovative trust management approaches can create new advantages. Organisations that manage certainty ambidextrously[48] maintain consistently high delivery performance and continually explore new action possibilities.

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This reveals the third pair of strategic principles in Figure B.13. They can be applied, separately or in combination, in strategies participants may pursue in the new learning economy. In the sections below we examine their characteristics and how other sectors have applied them.
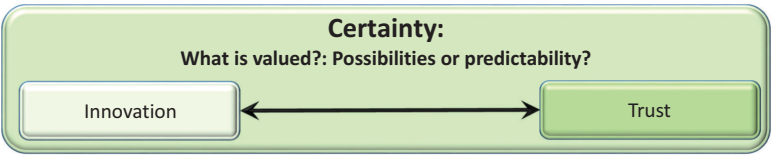

FIGURE B.13   The strategic dimension of certainty and its two principles.

5 Innovation

5.1 The Google Case

Google showcases the extraordinary transformation of two young researchers who, on 4 September 1998, cofounded one of the world's most influential organisations. Then-Stanford University PhD students Larry Page and Sergey Brin could not have envisaged their impact. Today, Google is much more than a search engine. The Alphabet consortium includes online advertising technologies, cloud computing, software, and hardware. Its mission clearly states its ambition to "organize the world's information and to make it universally accessible and useful".

A key success factor for Google's comprehensive, contemporary, and compelling port-folio is its incredible innovation appetite, and its capability to execute. Google Workspace describes Google's principles for creating an innovation culture:

1) Think 10x: Improve by 10 times rather than by 10%
2) Launch, then keep listening: Launch beta versions, learn quickly, and make rapid iterations accordingly
3) Share everything you can: Have weekly meetings to ensure everybody is informed
4) Hire the right people: Attract people who want to tackle big problems that matter
5) Use the 70/20/10 model: 70% is core business, 20% is related to core business, 10% is unrelated to core business
6) Favour yes over no and promote a "what-if" approach of thinking
7) Look for ideas everywhere: Crowdsource innovation and conduct environmental scanning
8) Use data, not opinions: Value evidence more than confidence
9) Focus on users, not the competition: Create value for people, and everything else will follow

These principles, combined with Google's high innovation appetite and investment in innovation, have produced a long list of breakthroughs at global scale. Its sophisticated, market-leading search engine (with nearly 92% market share in August 2022) blends with its Google Chrome web browser, Google Maps, Google Assistant, Google Translate, Google Scholar, and self-driving Waymo cars and the Android smartphone operating system.

Aligned with the Think 10x principle above, in January 2010 Google established X Development (short X, formerly Google X), an entity dedicated to innovative breakthrough projects aiming to make the world radically better. X's CEO is known as the Captain of Moonshots. Project Loon, a prominent X project, is exploring using high-altitude balloons

to create and provide an aerial wireless network. Project Wing, Google's attempt to offer a drone-based delivery service, is an initiative that "graduated" at X and became an Alphabet subsidiary in 2018. Though it was announced in January 2021 that Loon was shutting down, this Google endeavour shows its ambition to tackle challenges using sophisticated technologies, and its preparedness to fail fast and move on.

X projects usually start at a problem's hard end, seeking reasons for ceasing the project. If projects are terminated, participating staff are rewarded to recognise their enterprise.

However, while X is the peak of Google's innovation iceberg, innovation is embedded in the day-to-day culture. Most organisations centre on "business-as-usual" (BaU). Improvements are seen as a way to design tomorrow's BaU. By contrast, Google maintains an innovation-as-usual (IaU) culture. Innovation is normalised. It is unexceptional, something everyone can and should contribute to. A plethora of micro-innovations will not satisfy the radical ambitions of X, but widespread grassroots innovation can seed significant advances. Gmail, for example, was conceived by Google developer Paul Buchheit, who apparently created the first version in one day reusing code from Google Groups.

5.2 Paths to Innovation

Innovation creates new value using new ideas. This definition highlights innovation's relative nature. An organisation might regard a new product, service, or process as highly innovative; customers might simply expect such offerings. A big step for an organisation might be a small step for customers. Examples could include a state-of-the-art mobile app, digital-only experiences, real-time feedback, and the absence of redundancies. Sadly, most learning providers are a long way away from such innovations. When they do launch them, they might hear "finally" rather than "thank you" from learners.

Organisations must define innovation in the light of external stakeholder expectations, not the internal efforts required to innovate. "Leapfrogging" is the required capability to remain at the innovation forefront. Organisations must recognise that customers' expectations in the digital age will grow faster than internal capabilities. It is no longer sufficient to take a step at a time. Organisations must develop comfort in moving quickly from outdated legacies to available realities, even if substantial change goes beyond comfort zones.

One way to ensure shared understanding of the appetite for, and disruptive potential of, innovation is the three-horizons model of growth (and innovation) (Figure B.14).[49]

- Horizon 1 (H1) initiatives are incremental innovations to a company's existing business model and its core capabilities.

- Horizon 2 (H2) projects extend a company's existing business model and core capabilities to new customers and markets.
- Horizon 3 (H3) is the creation of entirely new capabilities and new business models that have a potentially disruptive impact.

Davis also refers to three innovation cycles for the higher education sector. The first is the widely seen COVID-19-amplified digitalisation of delivery channels, meaning local proximity is not a prerequisite for consuming university offerings. The second innovation cycle is "unbundling" university curriculum and designing alternative nano-degrees and learning experiences. The third cycle "will nibble away at the tertiary sector until, perhaps, the familiar model of a public university falls beneath the wheels of creative destruction".[50]
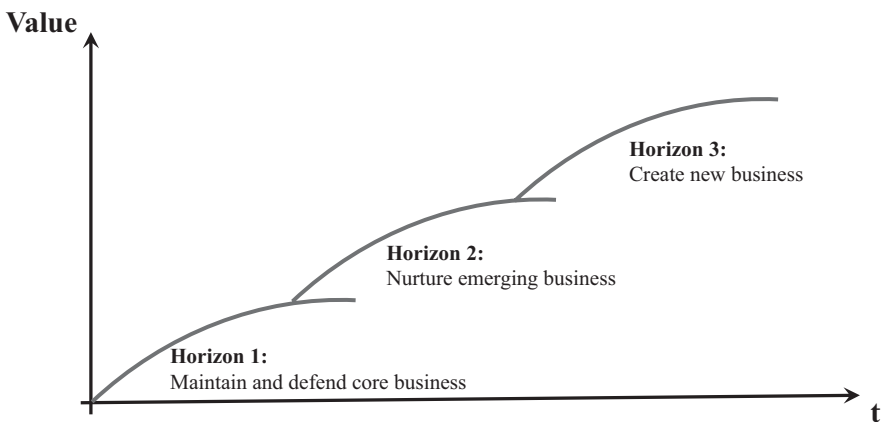

FIGURE B.14   The three horizons model.

A ballpark calculation is that innovation funds are spread across these three horizons using a 70-20-10 formula.

These three horizons were initially assigned specific delivery times: short-term (H1), mid-term (H2), and long-term (H3). This no longer applies.[51] The previous assumption was that only time-consuming innovation could have radical impact. It had to be H3-type innovation, or radical innovation. And nowadays radical innovation is often delivered as quickly as incremental H1 innovation. H3 initiatives have been accelerated by cloud computing, light-asset business models, access to pre-packed sophisticated digital capabilities, and willingness to launch minimum viable rather than perfect solutions. Decisiveness, gaining insights, and most importantly speed, matter now more than serviceability, maintainability, and completeness.

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Another innovation myth buster is that innovation is highly systemic, not creative. Independent of the innovation horizon, an innovation process essentially follows four stages. These do not constitute a strict, sequential waterfall model but overlap substantially.

First, a trigger for the *innovation process* must be identified. This could be one of three forms. (1) Problem-based identification is grounded in a well-articulated issue such as an internal inefficiency (e.g. a complex and time-consuming travel process), or a customer-facing problem (e.g. confusing, delayed, or insufficient student service management). Identifying the right problem can be challenging. Often, an initially defined problem statement requires revision when underlying issues become clearer. Problem explorations are a core, first activity in design thinking projects with agreement and clarity about the right problem being the milestone. (2) An external constraint can initiate an innovation process. The COVID-19 pandemic is a textbook example. Enforced disruption of international travel, social distancing, and tracking requirements have triggered a plethora of rapid innovations (e.g. the shift towards online and hybrid education). Constraints can be natural and human-made. Examples for the latter include Germany's withdrawing from nuclear power prompting renewable energy innovations, and universities abolishing semester timetables, giving rise to on-demand lectures. (3) Innovations might be triggered by opportunities from new technological affordances, new revenue models grounded in emerging business models, or new demand patterns. Environment scanning is essential for identifying opportunities and assessing their relevance.

Second, once the problem, constraint, or opportunity is identified, possible solutions or ways to create new value are ideated. Divergent thinking, conscious creativity, and design skills are required as often underdeveloped capabilities. Ideation does not mean unstructured "out-of-the-box" thinking in colourful rooms filled with beanbags and table tennis tables. Systemic ideation proposes structured ways of identifying new design options, like utilising idle assets (what could a university do with idle infrastructure during semester breaks?), deriving ideas from different sectors (how would a software company sell degrees?), and taking oppositional approaches (could we pay students for learning?).[52] In ideation work at Queensland University of Technology, a comprehensive card deck is used. Six dedicated innovation lenses with specific prompts provide new perspectives and trigger inspirational discussions (Figure B.15).[53]

FIGURE B.15   Card deck for systemic ideation.

Third, divergent ideation activity is followed by iterative testing which is driven by convergence towards those ideas that are (technically, organisationally, legally, and ethically) feasible, viable, and desired. This work includes minimum viable products, prototypes, narratives, experiments, and comprehensive evaluations and revisions. An early focus on "optimisation" is often counterproductive as it compromises design flexibility. The iteration stage involves lead users and the launching of "micro-innovations" to assess the proposed solution in contexts that are as realistic as possible.

Fourth, and finally, the "winning idea" is rolled out. The better and more authentic the testing, the faster and more seamless implementation will be. Having the right technological infrastructure (e.g. cloud assets) and organisational capabilities (e.g. agile practices) accelerates implementation and so reduces time-to-market.

Figure B.16 summarises this four-staged innovation process model. The duration of this process is termed innovation latency. The higher this latency, the greater the risk that an organisation will pay the price of being a late mover. Famous cases of this include Blockbuster, Toys"R"Us, Kodak, Borders, and Compaq. All took too long to became aware of environmental changes (awareness latency), realise these would have an impact (acceptance latency), or were too slow with implementation activities (action latency).
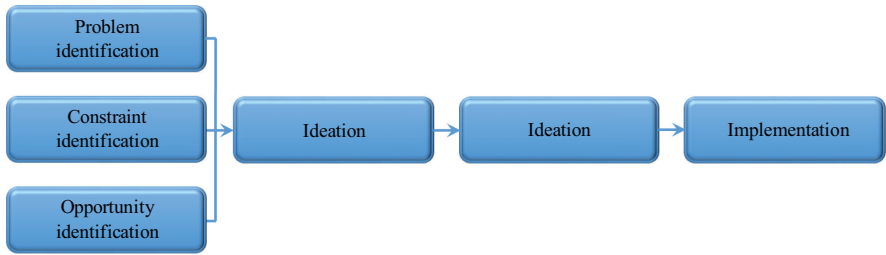
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FIGURE B.16   A four-staged innovation process.

Davidson College, a private North Carolina liberal arts college, offers an example of implementing an innovation process in the learning economy. Its three-stage process screens (1) the overall opportunity; (2) project value and feasibility; and (3) design and proposed return on investment. Project proposals that pass all stages are piloted.[54]

Innovation also has innovation accounting, a term coined by Erie Ries in his popular, impactful book *The Lean Startup*.[55] Innovation accounting is unlike established financial accounting which usually focuses on consolidating and monitoring well-known monetary measures. Innovation accounting is about upcoming, often difficult to predict, measures like opportunity costs and opportunity appetite.

Opportunity costs are the costs of the best alternative an organisation does not pursue. They are the difference between the returns on the best foregone option and the chosen option. Opportunity costs are typically not seen or measured, so organisations make decisions in light of costs they see. Decisions made without considering unseen opportunity costs are suboptimal. They bias protecting current practice, not providing weight to new opportunities.

Organisations usually have well-defined, well-governed risk appetite statements, but opportunity appetite statements are scarce. NASA has Organisational Risk and Opportunity Management. NASA formerly defined its risk appetite, then realised many opportunities went unexplored because explicit consideration and management of risks only imposed roadblocks to exploration. NASA's decision governance now includes the simultaneous consideration of risks and opportunities. Risk might not change, but explicitly including opportunity has increased the appetite to tackle mitigation of identified risks rather than let them be reasons for inactivity.

The Centre for Future Enterprise at Queensland University of Technology has developed, in close collaboration with CEOs from various industries, a template for an *opportunity appetite statement*. Similar to a risk appetite statement, types of opportunities are provided and executives rank their appetite to pursue them (low, medium, and high). Completed opportunity

appetite statements provide an organisation with a shared, explicit understanding of opportunities regarded as most valuable, an important contextualisation for innovation. Table B.1 lists the types of opportunities included in an opportunity appetite statement.

Table B.1 The opportunity appetite statement

Opportunities	Appetite (low, medium, high)
Create new value propositions for our customers	
Explore new business models	
Explore affordances of digital technologies	
Adopt successful practices of other industries	
Identify purpose-led opportunities	
Utilise idle assets in new ways	
Investigate new provocations	
Deploy scientific outcomes	
Explore the entrepreneurial ecosystem	

Opportunities in a university context could include investigating business models (e.g. freemium, subscription, two-sided market model), exploring making venture capital available to invest in EdTechs, and exploring digital technologies like AI (for personalised learning) or blockchain (for creating secure edu-records).

Innovation provides overall strategic resilience. Capability to innovate is crucial to revenue resilience because it helps organisations identify ways to retain old and create new revenue streams. Black swan-like constraints (e.g. COVID-19), and growing opportunity richness in the environment, require advanced innovation capabilities that bolster resilience. Most firms endorse an undisputed focus on protecting BaU controlling risk. Nurturing, valuing, and growing opportunity-centred IaU remains the exception across organisations, particularly those in the learning economy.

5.3 Innovation in the Current Learning Economy

Universities are exposed to disruption like all sectors where digitalisation and globalisation present rich opportunities to ambitious stakeholders. Alexander goes so far as to state, "We can imagine a campus where half of the faculty both researching and teaching – are software".[56]

The "godfather" of disruptive innovation, the late Clayton Christensen, elaborated on this threat in his book, co-authored with Henry Eyring, *The Innovative University: Changing the DNA of Higher Education from the Inside Out*. Using case studies from Harvard, Brigham

Young University, and others, Christensen and Eyring show how universities can find less costly ways to perform learning services. This is a defensive strategy as disrupters usually enter markets with limited offerings that are attractive because of low cost.

The learning economy, so far, has limited its investment in authentic innovation capability and activity. Few initiatives are radically reimagining how learning occurs, how operating or delivery models could look, how to deploy modern technologies, or how to redesign revenue, cost, or resourcing models.

Arizona State University (ASU) is an exception we discuss in Part C. Michael Crow, ASU's president, refers to Google's innovation orientation:

> The reconceptualization of Arizona State University could in some sense be likened to a moonshot project. […] Creativity, passion and persistence are hallmarks of the American research university, and to adapt a concept from the thinkers of Google, which through innovation has undertaken a corporate initiative to solve for X, we might well say that a hallmark of a New American University is the willingness to attempt to solve for X with U.[57]

Crow sees ASU as an example for what he calls a Fifth Wave university,[58] which is partly defined by its commitment to comprehensive innovation.

> Fifth Wave universities will develop new institutional frameworks (design innovation) that support both novel approaches to discovery and knowledge production (epistemic innovation) and teaching and learning (pedagogical innovation) in order to simultaneously advance knowledge and facilitate social progress. Fifth Wave universities will represent innovative design in higher education through four aspirational imperatives, being (1) student-focused, (2) solutions-oriented, (3) connected to market needs, and (4) build to maximise public value.

This statement identifies commitment to the teaching–research nexus, and the interdependence of research and teaching activities, in the strategies and activities ASU is pursuing as an innovative university.

In KPMG's report *The Future of Higher Education in a Disruptive World*, higher education providers are differentiated by whether they will optimise or transform. Optimisation occurs when an organisation needs to improve effectiveness and efficiency, and so improve performance, enabling it to meet strategic ambitions and enact its business model. Transformation occurs when an organisation significantly changes strategic ambition or fundamentally shifts its value proposition and business model. Transforming organisations

have a high sense of ambition and high capability to conduct change, attributes that are underdeveloped in organisations satisfied with optimisation.

Most current learning providers are in the innovation inactive or optimisation group, reflecting low levels of willingness to experiment. Though COVID-19 created urgency, innovation was the exception beyond the inevitable transition to online teaching. There are few instances of a true digital-first approach to content and assessment creation, consistent omni-channel education, or exploration of new markets now that learners around the world have the literacy for advanced video interactions. It seems many providers hope the new normal will be the old normal, with students attending physical classrooms according to a well-defined semester timetable.

Some universities acknowledge innovation's importance for future-proofing by creating dedicated Chief Innovation Officer roles. Examples include the University of St. Thomas in Texas, Case Western Reserve University, University of Copenhagen, and Georgia State University. Often these roles are primarily responsible for translational commercialisation of research outcomes, and contributing to national innovation systems. They have limited oversight of internal innovation for learning services.[59]

Here we profile Chief Innovation Officers at two US universities.

Phil Ventimiglia is Georgia State's first Chief Innovation Officer, one of the very first globally. He was appointed in 2014. A key driver for establishing this role at GSU was the attempt to modernise the portfolio of the previous Chief Information Officer and to create a stronger business alignment. Phil had two decades of BigTech sector experience, including roles at NCR (where he was vice president for Innovation and New Product Development), Dell, and IBM. He brought digital and design intelligence, along with entrepreneurial and commercial savvy. Phil's first experience in the learning economy was working for NCR in India where he helped establish a new international school in Hyderabad. Building innovation and development centres, first in Hyderabad and then in Singapore (with Dell), taught him how to codevelop with external stakeholders at scale, rapidly and rigorously

This background shines through with his passion for growing digital literacy among staff and students across all disciplines. This includes initiatives like championing incorporation of digital literacy into the curriculum, creating ExLabs Digital Maker Spaces on all of GSU's campuses, and launching experiential learning initiatives like the Digital Learners to Leaders programme. Phil is passionate about leaders

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becoming lifelong learners, and democratising design thinking as a widely used approach at GSU.

This materialises most in GSU's Center for Excellence in Teaching, Learning and Online Education (cetl.gsu.edu). The Center is dedicated to "advancing the scholarship and practice of exemplary instruction at Georgia State University". It gave birth, among other things, to new forms of pedagogy like simulcast classrooms, and flex learning that is quickly becoming the new model for post-pandemic higher education. The Center also tests important assumptions at the core of GSU's learning innovation road map, such as prevalence of adaptive learning and open access learning material.

Early investment in digital uplift paid off when COVID-19 hit the higher education sector. A hybrid learning environment was in place, partly because GSU's space-constrained downtown Atlanta campus needed space-independent channels for learning and interacting. Digital inclusivity is another of Phil's priorities as a large proportion of GSU's students come from disadvantaged backgrounds.

Phil reports directly to GSU's president, a clear sign of his seniority and the impact of his role. Further exploring relationships with strategic and new partners from the BigTech and EdTech sectors will be among near-term priorities as Phil seeks co-innovation partners.

Being dean of a business school came with a well-governed, structured role, clear boundaries, an established position description, and precisely defined expectations, key performance indicators, and obligations. Professor Beena George left all this behind when she changed roles in July 2019 to became Chief Innovation Officer at the University of St. Thomas in Houston, Texas.

Instead of leading from the top and being concentrated on the inside, Beena now sees herself as a facilitator of innovation across the university with a strong focus on environmental scanning and capitalising on emerging opportunities.

When Beena commenced her role, she spoke to Chief Innovation Officers in the higher education sector in an attempt to profile the role and typical priority areas. She found that most of her colleagues were expected to focus on commercialisation and on boosting translational research and development activities. Advanced student experience design (e.g. student journey mapping), new partnership models,

and process or business model innovation were far less common on the agendas of her new peers.

The University of St. Thomas, however, clearly expressed a high appetite to progress comprehensive innovation, and Beena looks back to earlier innovation success stories for guidance. In her role as a business dean, she oversaw design and implementation of the innovative Master in Clinical Translation Management Program, integrating business acumen with an understanding of the clinical translation process.

As Chief Innovation Officer, Beena focuses on initiatives that redefine the traditional university's boundaries. Her university now offers 100% online associate degrees (in cybersecurity or network technology), providing students access to high-demand skills within an accelerated two-year time frame. These associate degrees are promoted to potential students (B2C), but a stronger focus on a B2B model is on the radar. This process innovation, leading to shorter time-to-degree, aligns with the university's mission to educate students to be morally responsible leaders who think critically, to act wisely, and to work skilfully to advance the common good. Further activities include transforming laboratories into learning complexes and the complete transition of the university's veterans' services. The core product innovation, that is, continuous curriculum improvement, however, is very much part of the university's BaU activities rather than part of the innovation portfolio.

Beena's innovation team has dedicated staff and innovation funds to ensure the required capacity for exploration. Besides involvement in specific innovation activities, this team is working hard on growing an authentic innovation culture. Equally important is to build innovation literacy so that approaches like the three-horizon model, design thinking, prototyping, minimum viability, and experimentation or ideation techniques such as TRIZ become widespread capabilities.

Innovation at St. Thomas becomes most tangible in The Max,[60] the university's virtual innovation network. Here, Beena facilitates the testing and launching of bold new ideas to fulfil the vision of the "Call Toward Tomorrow"; any staff member or student can submit an idea to The Max or participate in an innovation competition. These multistage competitions last six months and include a related capability uplift and a final presentation to the university's cabinet (the senior leadership committee) to ensure a successful, well-supported idea-to-impact process.

An impressively resourced innovation council which provides Beena with important guidance includes, among others, a NASA astronaut, an opera director, and a CFO of a highly innovative robotic process automation company. "It took me two years, but now

> *I am comfortable to 'go with the new flow' ", Beena admits when looking back at her transition from dean to Chief Innovation Officer. She says this with a smile that clearly highlights how much she enjoys guiding her university on its innovation journey. And the curiosity when it comes to her role as a Chief Innovation Officer becomes visible when Beena's colleagues ask her with a sense of humour "Have you innovated today?"*

Jeffrey J. Selingo's study, published in 2018 and based on interviews with higher education innovation officers, found the interpretation of a Chief Innovation Officer role is still in its infancy in the learning economy.[61] Selingo identified common responsibilities of a Chief Innovation Officer in the learning economy:

a) Conduct environmental scanning and sense-making, identify potential external disruptions, and create an inventory of innovative practices from inside academia and outside

b) Generate and build momentum for ideas and nurture an innovative mindset

c) Develop innovation processes characterised by speed, minimum viability, and open innovation leading to a broader innovation culture within the organisation

d) Connect with external innovation partners

e) Administer seed funding and "release time" for promising projects requiring the existence of separate innovation funds

f) Give air cover for innovation and offer an innovation office as a safe space, and outside an otherwise risk-averse environment that aims to protect business as usual

g) Act as the external spokesperson for innovation by, for example, presenting at conferences, leading to a reprofiling of the universities' brand

The shift in attention from teaching to learning, and the growth in learning science have also given birth to several university centres dedicated to exploring new learning opportunities, like the University of Michigan's Office of Academic Innovation, the University System of Maryland's William E. Kirwan Center for Academic Innovation, UC Berkeley's Academic Innovation Studio, and Boston University's Digital Learning and Innovation.[62] The Red House at Georgetown University "seeks to shape a new learning paradigm that expands high-impact practices". In 2017, Georgetown launched a degree called "Learning, Design, and Technology", unique in its dedication to learning science in the higher education sector.

However, establishing explicit innovation governance, like appointing a Chief Innovation Officer or creating dedicated innovation funds, is more the exception than the norm in the learning economy. Overall innovation activity within learning economy providers is low

compared to sectors that aggressively and regularly explore product, process, and business model innovation.

Using Doblin's classification of ten innovation types clustered in configuration, offering, and experience,[63] Table B.2 briefly overviews common forms of innovation in the current learning economy. Examples can be found for all ten types, often more incremental (H1) than disruptive (H3) innovation.

Table B.2   Selective innovation activity according to Doblin's innovation taxonomy

Type of Innovation	Innovations in the current learning economy
Profit Model	Freemium – MOOC as a disruptive, zero-cost offering Microtransaction: Micro-credentials Switchboard – Learning platforms that connect buyers and sellers Licensing – Offer content to corporations (e.g. COOC, SPOC)
Network	M&A – Combined degrees across multiple universities Secondary markets – Offer idle campus assets Supply Chain Integration – Partner with feeder schools or colleges Collaboration – Industry partners funding/contributing to curriculum
Structure	Competency Centre – Bundle services like student support and learning design Asset standardisation – Same physical and digital assets used by various disciplines
Process	Standardisation – Across all offerings (e.g. enrolment, distribution, assessment) Efficiency – Lean Six Sigma initiatives Flexibility – Switch context-dependent between offline and online teaching Automation – Use robotic process automation (e.g. appointment of casual staff)
Product performance	Superior product – Besides research-informed content innovation, only minor attempts Engaging functionality – Embed practical learning experiences Performance simplification/conservation – Pre-recorded bite-sized material instead of 90-minute on-campus lectures
Product system	Extensions – Embed third-party products (e.g. advanced IT solutions) Modular systems – Make your own curriculum
Services	Try before you buy – Engage high school students Guarantee – Employment promise (see B.6) User communities – Peer-to-peer learning (see B.4) Self-service – MOOCs
Channel	Diversification – Expansion into online learning Non-traditional channels – Offer courses as a VR experience
Brand	Transparency – Students as partners – initiatives in which learners co-design content and curriculum Values alignment – Positioning of a university (e.g. research-informed, STEM focus, regional expertise) Certification – Assess third-party learning achievements
Customer engagement	Experience simplification – Streamlined enrolment and enquiry management Autonomy – Learners combine content and own data to shape their own learning experience Community and belonging – Create peer-to-peer learning experience ("students like me"), embed cohort models and shared social experiences Status and recognition – Provide digital badges

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MOOCs, discussed in B.1, were seen as a potential disruption for universities, given a global mass offering as opposed to local offerings, zero-cost versus tuition fees, and decoupling from semester schedules. However, ten years after their emergence, the consensus is that the disruptive impact of MOOCs is limited.[64] They serve niche markets, have not significantly shifted demand patterns, and only a few providers have successfully pursued monetisation (e.g. in the form of Small Private Open Courses, SPOCs, or Corporate Online Open Courses, COOCs). Though MOOCs did not disrupt as some thought, they did sensitise universities to the threats and opportunities of innovation.

Ambitious universities continue to be innovation first-movers. Stanford University launched three MOOCs in 2011, including an Introduction into AI course with enrolments upwards of 160,000. A decade later, Stanford remains an early explorer of innovation in the learning economy; its course Virtual People has several hundred students and is one of the largest offerings almost completely taught in virtual reality (VR), requiring students to wear a VR headset (Figure B.17) while learning about VR's role in areas like popular culture, engineering, behavioural science, and communication. To conduct this class, Stanford posted headsets to students who created avatars for themselves before virtually meeting and engaging with their peers. This VR experience allowed the instructor and tutors to engage differently, even when teaching remotely. The student avatars could stand in a circle facing each other rather than being talking heads in a typical video conferencing system. This is a contemporary example for innovative exploration of a non-traditional channel.[65]

FIGURE B.17   Instructor and students during the Virtual People course at Stanford. Image credit: Tobin Asher/Virtual Human Interaction Lab.

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Georgetown University is also comprehensively and proactively exploring VR. It has a virtual tour for visitors, the library hosts a community of immersive content creators, and the School of Medicine uses VR to simulate the experiences of ageing patients.[66]

5.4 Innovative Educational Well-Being

The new learning economy will be approached with different appetites and funds for innovation, depending on the legacy and ambition of different types of participants. Organisations used to technology-driven, radical, global innovation (like EdTechs and BigTechs) will be more at ease when identifying financial and in-kind innovation resources, and appropriate forms of innovation governance (e.g. appointing a Chief Innovation Officer) than established learning providers that regard digitalisation, globalisation, and new business models more as threat than opportunity.

Professor Stephen Parker, Global Lead, Education and Skills, KPMG Australia, offers this perspective in KMPG's report *The Future of Higher Education in a Disruptive World*:

> Traditional universities are approaching a crossroads. They must decide whether to transform themselves into new kinds of entities, optimize their existing operations in search for further efficiencies and increased capability, do nothing in the hope that if no rescue appears, they will have time to decide later, or do nothing in the belief they are invulnerable.

KPMG's report also states, "The future has just arrived inconveniently early".

The learning disorders presented in Part A might provide a new narrative that can initiate innovation initiatives. There is little doubt the current learning economy is "under-innovated". Using Doblin's ten types of innovation again, we can easily identify many opportunities awaiting exploration (Table B.3).

Table B.3   Potential innovations in the new learning economy

Type of Innovation	Potential innovations in the future learning economy
Profit Model	Premium – Offer a higher price, superior product (e.g. personalised, accelerated, tailor-made learning) Cost Leadership – Sell high volume at low prices or as free pathways (e.g. in the form of global learning services targeting a mass market) Microtransactions – Offer very small bites of learning (e.g. as $0.99 content on a mobile learning app) Subscription – Move from degree-based pricing to upfront, time-based pricing model Membership – Charge a time-based payment to gain access to physical assets, IP, learning content Installed Base – Offer a MOOC for free and charge for "in-MOOC" or "post-MOOC" purchases Flexible Prices – Charge different fees based on demand Float – Receive payment prior to building content As-Supported – Embed, and commercially benefit from, advertising Metered Use – Charge learners only for consumed services (e.g. lecture and tutorial attendance) Disaggregate Pricing – Sell individual degree components
Network	Complementary Partnering – Collaborate with recruitment companies or specialised learning service providers Alliances – Set up university/BigTech or EdTech partnerships Coopetition – Partner with local universities and offer learning services that combine the "best of both worlds"
Structure	Organisational Design – Redesign structure so it fits strategy (e.g. "Head of Personalisation", "Innovation Department", "EdTech partnership manager") IT integration – Transform a federated into a centralised, cloud-based model of IT service delivery Outsourcing – For example, finance, IT, payroll, or student contact management
Process	Localisation – Target learning services to a region (e.g. local language) or geofence learning content (e.g. legal systems when close to court) Flexible manufacturing – Create a seasonal resourcing model that aligns with peak demands during the semester and recognises idle periods Crowdsourcing – Engage learners in delivering peer-to-peer services On-demand production – Switch from scheduled content delivery to on-demand delivery Logistics systems – Implement workflows for routines and as a result standardise transactions that are otherwise handled via email
Product performance	Ease of use – Improve user experience in learning management systems and overall interaction (e.g. deploy voice-based interactions and proactive routines) Added functionality – Provide complementary learning services (e.g. specific to desired industry or learning difficulties) Focus – Create learning services tailored to specific communities or demands (e.g. pop-up learning centres, regional focus of content)
Product system	Complements – Sell related learning products and services (e.g. in-depth case studies as part of a MOOC) Product bundling – Sell family learning package, combine Bachelor's and Master's as an integrated offering, build degrees composed of classes from various, affiliated partners
Services	Loyalty programme – Provide benefits that increase with learning services consumption Added value – Add additional learning services (e.g. regular learning mentoring, access to peer-to-peer learning) Concierge – Provide premium service to minimise friction (e.g. pick-up, catering)

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Table B.3 Cont.

Type of Innovation	Potential innovations in the future learning economy
Channel	Flagship Store – Showcase and offer highlights (e.g. as part of a downtown location) Non-traditional channels – Offer content via corporate academies or social media platforms Pop-up Presence – Create a temporary environment to showcase or sell learning content Indirect Distribution – Partner with local delivery partners as part of a global roll-out On-Demand – Move from timetabled content to on-demand provision
Brand	Co-branding – Offer global joint webinars with partner universities Private label – Offer third-party own label content Brand extension – Offer content as part of corporate academies
Customer engagement	Curation – Offer orchestrated content and reduce customer search costs Experience enabling – Embed advanced learning experiences (e.g. mixed reality, holographic projections) Autonomy and authority – Offer students ad hoc access to learning services so content can be consumed context-sensitive and in real-time Whimsy and personality – Humanise learning services by showing benevolence, accessibility, and vulnerability

Identifying and exploring such innovations requires specific methodologies including systemic divergence and rigorous convergence, and ensuring internal and external stakeholders experience an engaging and motivating innovation culture.

NESTT, is an approach created for process innovation at Queensland University of Technology. It combines a well-defined innovation process with a focus on designing exciting innovations. The NESTT is a fast-paced, four-week sprint methodology. The first two weeks are dedicated to divergent exploration of new design options, followed by two weeks in which proposed ideas are assessed for feasibility, desirability, and viability, then narrowed to the most promising proposals.[67] The compelling characteristic of the NESTT is its physical set-up. Ultimately, the NESTT is a room divided in two by a simple line in the middle of the room (Figure B.18). One half is dedicated to discussing desired short-, mid-, and long-term futures of the process. The essential question is: "What is possible in light of current opportunities?" The desired outcome is proactive identification of a desired end state. The room's other half identifies pain points encountered during the process which trigger root cause analyses and lead to often predictable solutions for eliminating the pain points.
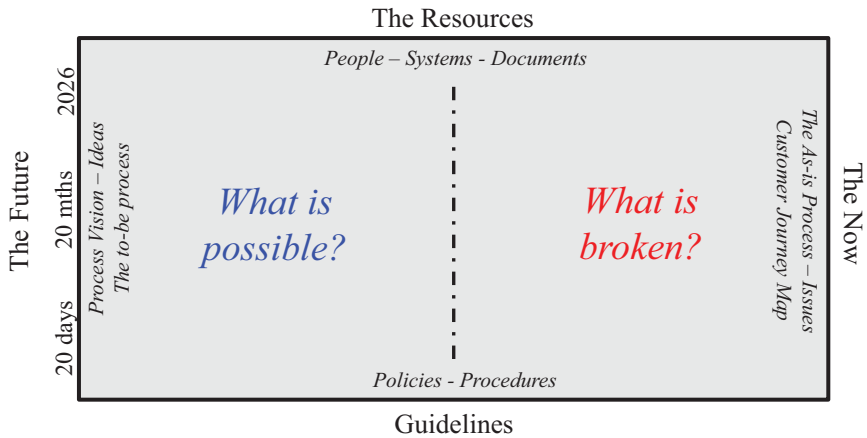
FIGURE B.18   The NESTT space.

The NESTT's four weeks are structured as follows.

Week 1: Navigate. The contextual setting of the process is mapped out. The NESTT team is briefed by a senior sponsor to understand strategic imperatives, measures of success, and no-go zones. Then, and this is most important, the team starts work in the "future half". The essential aim is to make the "future design so compelling that today becomes obsolete". Most process improvement approaches centre on addressing pain points. The NESTT identifies opportunity points, so unlocking additional excitement and commitment as the mapped-out future state is high on desirability. The focus is no longer on fixing today's problems, but on developing ways to make the desired tomorrow a reality. When the first week closes, the NESTT space's four walls are populated with: clear articulation of the desired future state, identified current state including localised weaknesses, and descriptions of physical, digital, and human resources involved along with guidelines (e.g. travel policy, external regulation).

Week 2: Expand. Equipped with a comprehensive map of the process in focus, the team explores available design space. Ideation techniques described earlier are used, along with actors who facilitate acting out a day one year from here, or representatives from industry sectors known to have advanced practices in the focus process. An open, creative mind is required to identify and establish stretch targets; narrow perspectives are expanded. For example, when improving the travel management process, discussion moved from rejigging pre-travel approvals to what we can do with the 100 years we collectively travel each year. Week 2 ends with a list of identified ideas, each described using a defined template on a single page (idea-on-a-page).

Week 3: Strengthen. Convergence begins. Each idea is scrutinised. Is it technically, legally, organisationally, and ethically feasible? Is it commercially viable? After conducting initial user studies, do stakeholders demand this idea? What is the initial response? What are proposed revisions? This third week typically reduces the pool of ideas and leads to idea revisions and mergers.

Week 4: Tune and take-off. The team conducts detailed work on ideas that "survived" Week 3. What are related assumptions? Discussion with the organisation's risk manager provides insights into risks requiring mitigation. The business case is detailed. Finally, ideas are presented to executives, seeking endorsement to proceed to prototyping and later stages of the idea implementation process.

At Queensland University of Technology, the NESTT has been deployed for processes including travel management, grant submissions, and web page approvals, with efficiency gains and new value propositions identified. This requires decisive team members and project sponsors, an ambitious mindset to formulate stretch targets, and collaborative team culture. NESTT teams comprise seven to ten people representing various interests in the process; travel management involves intensive travellers (one academic, one alumni manager), accountants, workflow designers, and HR representatives. Other universities have replicated the NESTT. Its open design, using a room with glass walls, meant high transparency for the innovation. The NESTT's acceptance and popularity was obvious when it became a verb: staff would ask if a process could be nested.

5.5 What Else Can We Learn from Google?

Jeff Jarvis shares the following "utopian view" in his book *What Would Google Do?*, in which he explores Google's hypothetical approach towards higher education:[68]

> I imagine a new educational ecology where students may take courses from anywhere and instructors may select any students, where courses are collaborative and public, where creativity is nurtured as Google nurtures it, […] where education continues long past age 21, where tests and degrees matter less than one's own portfolio of work, […] and where universities teach an abundance of knowledge to those who want it rather than manage a scarcity of seats in a class.

The author goes on and encourages, "What if we told students, like Google engineers, they should take one day a week or one course a term […] to create something: a company, a book, a song, a sculpture, an invention?" He also proposes the aggregated university, in which students take courses from anywhere, peer-to-peer learning networks where

the best student in class takes over teaching duties, and subscription models enabling students to access a teacher or institution for years and be fed with answers, questions, and knowledge.

Google already actively participates in the learning economy. Google first attempted to disrupt typical higher education sector arrangements by launching its certificate programme ("Grow with Google"). It takes six months to complete and costs a fraction of a typical university degree. Google's courses, such as data analytics, UX design, and project management are available on Coursera and lead to professional certificates. Google highlights the standing of these courses when its Senior VP of Public Affairs, Kent Walker, states: "In our own hiring, we will now treat these new career certificates as the equivalent of a four-year degree for related roles". Google also offers 100,000 need-based scholarships.

Google partners with US community colleges, the University of London, the NASSCOM Foundation, Tata STRIVE and SafeEducate through 100,000 additional Google Career Certificates offered in India. Global extension of these initiatives is likely, even imminent.

Google's possible, actual, disruptive, and also counterproductive impact on the learning economy is widely discussed. Tara Brabazon, then-professor of education at Charles Sturt University, Australia, wrote book called *The University of Google: Education in the (Post) Information Age* (Routledge 2006). Brabazon critically discussed the ease of information consumption and its educational implications. Famously, when teaching at the University of Brighton, she banned her first-year students from using Google (and *Wikipedia*).

Google's size, contemporary nature, and high innovation and growth appetites can inspire the new learning economy. Google's flagship search engine has similarities with the education sector – people often don't know what search terms to use, and also don't know what education is right for them. Google seeks to solve search uncertainty with zero-click search: based on the initial search query, the likely answer is provided, without a need to click on further web pages. Similarly, we will likely see more proactive education *service* providers, an idea we discuss in more detail when exploring extreme trust in B.6.

A standout feature of Google is its user interface simplicity. Google's landing page centres on its purpose: a simple search bar, nothing else. This contrasts sharply with many university landing pages where study options, event notifications, industry engagements, and much more compete for digital attention.

Google is dedicated to innovation. It also understands *failure is a significant part of innovation*. In John F. Kennedy's celebrated words, "Those who dare to fail miserably can achieve greatly". Google Wave (later called Apache Wave) was a proposed real-time collaborative

editing solution released in 2009 to 100,000 invited users, and in 2010 to the public. It sought to unify email, instant messaging, wikis, and social networking. In April 2012, all Waves were deleted and discontinued in 2018. Google Glasses, eyeglasses with an embedded head-up display, were sold from April 2013 to early adopters for $1,500 before becoming publicly available in May 2014. By January 2015, Google announced Google Glasses production was ending. Privacy concerns, safety considerations, technical shortcomings, and limited aesthetics are often cited as the causes of their lack of market penetration. Other Google solutions retired shortly after market entry are Google Buzz (social networking), Google+ (social media), Google Tango (augmented reality platform), Google Talk (instant messaging platform), Google Nexus (smartphone), and Google Reader (RSS feed aggregator). These failed solutions have not compromised Google's reputation as an innovator. All were stand-alone solutions, so retirement had no significant flow-on effects for Google's service portfolio. By contrast, fear of failure, and with it fear of sunk costs and reputational damage, restrict most learning providers' appetite for risky innovation.

Google addresses the experience disorder with this statement on its company culture: "We hire people who are smart and determined, and we favour ability over experience". The notions of tenure and academic rank in the learning economy are a long way from this.

Many other facets of Google could stand as benchmarks and inspirations for the new learning economy. Many, like cater-for-all-demands workplace arrangements, are so far from learning economy realities it is unlikely they will, or can ever, be replicated by existing providers. However, new providers can approach the new learning economy without legacy constraints, and be more Google-like.

5.6 Summary

Innovation is an organisation's growth assurance. Continuously exploring new ideas to create new value proactively builds much-needed revenue resilience. Google, like most BigTechs, is characterised by its commitment to IaU. Google also clearly demonstrates innovation is about systemic innovation processes, defined innovation governance, and new forms of innovation accounting. Innovation is less about creativity and serendipity. Opportunity appetite statements are one way to explicitly balance established, often hindering, risk appetite statements with commitments to explore.

In contrast, the current learning economy is largely "under-innovated". Using Doblin's classification of ten types of innovation, we listed some signs of innovation in the current learning economy. However, many are incremental, horizon 1-type innovations. Doblin's framework,

and other systemic ideation lenses, serve to identify a wide range of further innovations indicating potential for ambitious innovation in this sector.

Ambitions need conscious investments in innovation capabilities, like well-defined innovation processes that acknowledge but minimise failure. A few universities have started to formalise innovation governance, appointing Chief Innovation Officers. We can expect that as the innovation field further develops, the same phenomena will occur in the learning economy.

5 Innovation

6 Trust

6.1 The Amazon Case

Amazon was the second most-trusted brand (after the US Postal Service, USPS) in the United States, according to a 2020 study by Morning Consult. Respondents were asked: "How much do you trust Amazon to do what is right?" Some 38.8% answered "a lot", the highest point on a five-point Likert scale (USPS: 42%). Morning Consult's study found Amazon was more trusted than "Tom Hanks, extreme weather warnings, scientific studies and teachers".

In this study, trust was measured against customer perceptions. Consumer behaviour also clearly shows Amazon's very competitive position. According to eMarketer, in 2021 Amazon accounted for 41.4% of annual US retail e-commerce sales, which is estimated to be a $933 billion market. Amazon's position is significant when compared with the second-largest e-commerce retailer: Walmart accounts for just 7.2% (eBay 4.3%, Apple 3.8%). Amazon's market share exceeds the combined share of the next top nine players in the US e-commerce market.

E-commerce is a trust-intensive retail market. Customers have no tactile experience, and there is uncertainty about exact delivery times and quality. A retailer requires customers who trust its capabilities and its ability to perform reliably and with integrity and benevolence. Amazon's market share clearly demonstrates its trusted position.

Amazon was founded by Jeff Bezos in his garage in Bellevue, Washington, on 5 July 1994. What started initially as an online bookshop grew to a global online marketplace selling toys, electronics, software, apparel, and furniture. Only two decades later, in 2015, Amazon overtook retail giant Walmart as the most valuable US retailer. Amazon has ventured into cloud computing (Amazon Web Services), content provision (Amazon Prime Video, Amazon Music), stationary food retail (Whole Foods Market), and consumer electronics (Kindle, Echo).

Amazon has become a benchmark for continuous, ambitious innovation. Its reputation extends to early and successful deployment of digital technologies and to mass-scaled, global supply chain management. It pioneered features like customer reviews, personalised product recommendations, hyper-convenient physical shopping (Amazon Go), and continuous replenishment.

The trust that hundreds of millions of people have in Amazon worldwide is one tangible outcome of Amazon's appetite for growth and innovation complemented by strong commitment to flawless execution. Only via supply chain excellence could Amazon extend its product spectrum so far, now even encompassing short shelf-life items like groceries and food as

among the most challenging e-commerce items to market. Supply chain excellence allows Amazon to target a one-hour delivery time frame in densely populated cities.

However, trust results from more than reliable, high-performance execution. Trust also results from authentic customer-centricity. If you order a book on Amazon that you or a family member with the same Amazon account have already purchased, Amazon will question if you want to buy it again. That customer well-being matters more than the corporate aim of revenue generation is a sign of benevolence, an essential trust determinant.

6.2 Paths to Trust

Trust was a topic of academic and public debate in ancient Greek philosophy. Today, books in disciplines like sociology, psychology, and economics are dedicated to the topic. Despite the length and depth of trust investigations, we still lack consensus on what trust actually is and how to build it. This is significant because trust is growing in importance for three reasons.

First, the impact of digital technologies on how we engage with organisations has *increased the trust-intensity* of these relationships. Uncertainty characterises online engagements because they lack the tangibility of face-to-face interactions or purchase transactions, amplified by the appetite for private data and uncertainties about data protection. Moreover, it is difficult for customers to assess the trustworthiness of sophisticated technologies like driverless cars, the hyper-automated Amazon Go store, and AI integration.

Second, and in contrast, solutions are emerging that *reduce uncertainties*. The distributed ledger technology blockchain makes data storage and tracking secure, allowing retailers to prototype solutions that track the origins of items like arts, wine, diamonds, beef, and cheese. Ubiquitous social media also provides end users with a voice. Rankings, reviews, and user forums offer information beyond what providers make available. We no longer rely on the restaurant web page – instead we source insights from platforms like Yelp before making a confident booking.

Third, trust is a *largely underexplored* element in economies and businesses. If everything else (e.g. price, quality of service) is equal, trust can be a key differentiator. Research shows that trust positively correlates with business metrics like customer retention (the willingness to continue buying), advocacy (the willingness to recommend the provider), and engagement (the willingness to be an early buyer of new products). Trust even allows a vendor to charge a margin as customers are willing to reward the trusted relationship.

6 Trust

Like Oxford-based scholar Rachel Botsman,[69] we define trust as confidence with uncertainty. Trust only matters when there is uncertainty. If we proceed in light of uncertainty, we need to be confident enough we will receive what we hope for. This requires vulnerability given the remaining risk that underlying uncertainty might play out unfavourably. Decomposing trust into two components of uncertainty and confidence allows us to derive operational guidance on how to build trust. Figure B.19 shows the simplified relationship between uncertainty and confidence.
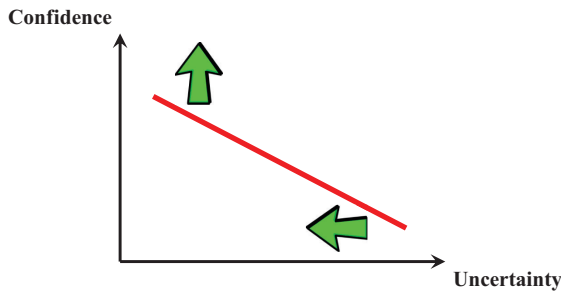
FIGURE B.19   Breaking trust down into uncertainty and confidence.

The following two sections present mechanisms for both trust dimensions: how to reduce uncertainty, and how to increase confidence.

6.2.1 Reducing Uncertainty

Customers rightly do not trust a product or service if the uncertainty accompanying it is unacceptable. Imagine a bungee jump that would cause one injury in every hundred jumpers, a driverless vehicle that has an accident every 1,000 kilometres, or a delivery service whose delivery periods vary substantially. These organisations need to address product and service qualities, and the processes involved, to build trust. This includes uncertainty grounded in systems alongside those related to staff. A specific form of uncertainty is perceived uncertainty in which customers perceive an uncertainty that is not real but which prevents them trusting the provider. For economic reasons, a provider is usually unable to reduce uncertainty to zero and customer vulnerability persists; a customer might not get what they expected.

6.2.1.1 Systemic Uncertainty

The greater the systemic uncertainty, the less the organisation can reliably perform to defined levels of performance, which lowers customer trust. Systemic uncertainty could be captured in time-based performance metrics (e.g. queueing time, delivery time),

quality-related metrics, or other performance measures. Organisations seeking higher levels of trust will typically first aim to decrease systemic uncertainty if this is a source of distrust. This explains the use of improvement approaches like Six Sigma which target reduction of variation across the organisation.

6.2.1.2 Behavioural Uncertainty

Staff have different qualifications, skills, expertise, attitudes, and personal characteristics, meaning unavoidable differences in the quality of service a customer receives from different staff for the same enquiry. Call centres try to limit such differences with well-defined scripts. Other interactions are more difficult to standardise. A travel agent might provide different levels of service depending on their own travel experiences. The same might be so for a doctor, consultant, or high-tech equipment salesperson. Technological solutions that augment customer conversations, and robotic process automation, can increase the consistency of human-dependent activities.

6.2.1.3 Perceived Uncertainty

If a customer has limited insight into the process underlying a product, there might be mistrust. Is the product from the claimed source? Is the well-known chef in the kitchen cooking the dinner I just ordered? Transparency matters. Blockchain technology is now used to ensure provenance tracking, meaning a customer in China can be sure the milk they are about to purchase is Australian. Restaurants have an open kitchen, partly so customers can see chefs working in their clean kitchen.

6.2.1.4 Vulnerability

If a customer's engagement involves uncertainty, they are vulnerable. The higher the potential costs of this vulnerability, the more trust is required. Typical trust-building vulnerability mechanisms are convenient return policies for online purchases that fail customer demands or insurances. A real estate company reduces the vulnerability of its customers if it offers to pay x% of the rent of an apartment they try to rent out after a few weeks. Consultants offer value-based pricing models so customers can reward them based on actual value created.

Lifelong learners experience significant vulnerability in seeking educational well-being. Threshold standards specified in UK higher education policy as a means of regulating student completion and employability outcomes, in the Teaching Excellence Framework, illustrate how this principle of accountability is featuring in learning economy regulatory changes.

6.2.2 Increasing Confidence

Organisations aiming to build trust by increasing customers' confidence do not change their actual offering. They provide additional "scaffolding" to help customers build sufficient trust. This is relevant when a customer otherwise is unable to assess whether they could trust the service offered. Imagine selecting a hotel in a city you never visited. Platforms like Expedia and Booking.com facilitate customer trust in a provider by aggregating previous customers' reviews. Sometimes what matters in building confidence might be the critical review of an expert or someone we know.

Our research identified nine options for building confidence, depicted in Figure B.20.
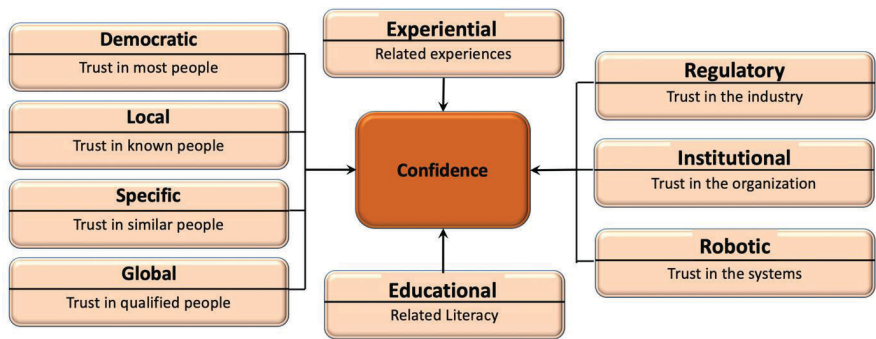
FIGURE B.20   Nine mechanisms to boost confidence.

6.2.2.1 Democratic Trust

In democratic systems everyone votes and the majority decides. Democratic trust relies on actions and perceptions of the majority of customers. A provider of movies, television shows, video clips, or music might show its current top ten ("trending now"). Their popularity could be seen as an indicator of quality, and therefore a way to build confidence. Applying democratic trust can also occur when the number of downloads or views is made public. Democratic trust is built when customers can rate a service ("perceptions"), perhaps using a simple "Like it" or a ranking on a 1–5 Likert scale. Such assessments allow a more nuanced form of confidence building, in particular when the customers are categorised (e.g. a single business traveller might only want reviews from customers who visited a restaurant alone).

6.2.2.2 Local Trust

In some scenarios, confidence requires input from individuals we know and therefore trust. This could be members of our family, friends, or colleagues. The views of members of our local trust network matter more when we purchase specific items, like asking a friend what they think about a dress or a road bike we are about to purchase. To accommodate local trust, Airbnb implemented a Facebook API that allows travellers to see other customers' views (democratic trust), and to see which Facebook friends of the traveller previously stayed with the same host. Walmart's virtual fitting room (Zeekit) offers customers a mobile app to connect live with trusted friends for instant advice on the perceived fit of an item like a jumper or trousers.

6.2.2.3 Specific Trust

Known personal contacts are popular sources of trust, but they cannot provide advice in situations that require very specific knowledge and experiences. Patientslikeme.com is a global community in which more than 800,000 people with nearly 3,000 conditions share experiences. They do so to facilitate patient-to-patient learning and support. Specific trust is about deriving trust from "people like us" – their situations are comparable to ours.

6.2.2.4 Global Trust

If a product or service is complex and the investment is significant, experts' views might help develop the required trust. E-commerce providers add written product reviews from technical experts for selected, high-value, or complex products. Popular platforms like LinkedIn highlight endorsements from people who are "highly skilled at this". In these cases, a recognised expert transfers trust. An expert could also be an institution (e.g. a product comparison platform such as Google Shopping, confused.com, or Canstar).

6.2.2.5 Regulatory Trust

Regulatory standards ensure customers can trust a sector's endorsed participants. Such regulations ensure core quality and predictability within a sector as they impose constraints. The banking sector is a typical example for regulatory trust. Regulatory requirements like the Sarbanes-Oxley Act and the Basel IV standards ensure customers can trust their banks to manage their money safely.

6.2.2.6 Institutional Trust

Organisations have had years, even decades, to build a brand, and with it brand trust. Institutional trust is transferred from organisations to its services, products, and staff, providing credibility and quality signal, especially when products are new to a market. Institutional trust is a long-term outcome which can be lost quickly, as shown by examples like Volkswagen's emission scandal, Facebook's Cambridge Analytica data leak, and Samsung's exploding Galaxy Note 7.

6.2.2.7 Robotic Trust

In computational-intensive situations we tend to trust machines more than humans. Think about calculating 18 x 34, or driving to an address within a suburb you have never visited before. Chances are high you would use a calculator or your car's (or your phone's) navigation system rather than ask the person beside you. Many patients prefer robotic over human surgeons for surgeries. We trust computer spellcheckers more than our own linguistic capabilities.

6.2.2.8 Experiential Trust

In day-to-day interactions we build trust gradually. The longer we know someone, an acquaintance or a business partner, the more we learn about them. If the way they behave is characterised by consistent ability, benevolence, and integrity, we tend to trust them. If we order a meal online a few times and like it, or e-commerce orders from a provider always arrive in the promised time frame and according to the expected quality, we develop trust in the provider. Experiential trust is the opportunity to build trust with customers by reliable actions in accordance with customers' expectations.

6.2.2.9 Educational Trust

A Brisbane-based skin care clinic bought an expensive needling device for advanced skin treatments. Its customers were reluctant to request this service. It was simply too unknown and came with too many questions. Will it work? Will I have marks on my skin for a few days? The owner placed an iPad in the waiting room with a five-minute educational video explaining how the machine worked and the amazing results it produces. This is educational trust, a form of trust boosting required when a customer cannot make an informed trust assessment but is willing and able to be educated.

6.3 Trust in the Current Learning Economy

Trust is a primary concern in the learning economy. It is not explicitly addressed or managed, though trust is a topic widely discussed in the sector. Learning providers have begun implementing dedicated trust measures, trust management methodologies, or advanced trust governance. We can, however, identify selected trust-related practices that align with our previous recommendation to either reduce uncertainty or to increase confidence.

Many universities address *systemic uncertainties* about tuition fee payments by providing upfront, fixed pricing arrangements. Compliance with detailed, comprehensive accreditation requirements reduces systemic uncertainties by providing consistency about the content of courses offered, giving evidence that assures overall degree quality.

Some institutions address their students' *vulnerabilities*. Centre College in Danville, Kentucky, promises its students will meet all academic expectations including study abroad, an internship, or research experience, and graduate in four years. If not, Centre College offers one more year of study, tuition-free. Few universities provide employment guarantees. Davenport University in Grand Rapids, Michigan, provides up to 48 credit points tuition-free to students without a job six months after graduation. Given the same circumstances, Manchester University, in North Manchester, Indiana, offers up to a year of additional free study. Rivier University, a small Catholic university with 2,600 students in New Hampshire, created an Employment Promise Program guaranteeing students a job, or the university will pay the federally subsidised student loan for up to one year.[70] Adrian College, Adrian, Michigan, pays students' loan payments until they earn US$37,000 per year.

More than any other sector, the current learning economy relies on *global trust* mechanisms, that is, rankings that compare learning providers on various criteria, applied to entire universities, and subsets like schools or selected courses. Rankings are provided by governments, magazines, newspapers, web portals, and academics. A popular ranking with impact on students and their parents is the QS World University Ranking, produced by UK-based Quacquarelli Symonds. First published in 2004, QS ranks more than 900 universities worldwide. QS consolidates several data sources including peer reviews, citations, and international staff and student numbers.

Between 2004 and 2009, *Times Higher Education* published a university ranking with Quacquarelli Symonds before starting a new partnership, and ranking, with Thomson Reuters. The World University Rankings (WUR) are globally influential, and in 2022 included more than 1,600 universities in nearly 100 countries. WUR is based on 13 performance criteria in four areas: teaching, research, knowledge transfer, and international outlook.

The Academic Ranking of World Universities (ARWU), maintained by Shanghai/Ranking Consultancy, has provided annual rankings since 2003. ARWU outcomes are based on academic prestige measures like articles in *Nature* or *Science*, Nobel prize winners, and Field's medallists.

A high and growing number of global, regional, and specialised university rankings are available. Decision makers like students and parents, who struggle to derive an informed trust judgement given the learning economy's complexity, rely on these rankings as proxies for an institution's teaching quality.

The established learning economy is characterised by *regulatory trust*. Accreditation is most typically an external quality assurance granted by government agencies, or in the United States by private agencies. Standards vary across the country, but criteria such as integration of real-world case studies or threshold qualifications for lecturers (e.g. possession of a PhD degree) ensure universities follow regulated quality practices and standards. The US-based Council for Higher Education Accreditation maintains a directory of hundreds of accreditation bodies around the world.

Well-established providers also benefit from established *institutional trust*. Harvard, MIT, Oxford, and the National University of Singapore have world-renowned brands and trust in these brands transfers to courses and instructors. Institutional trust is not always global. It can be very local. A university might highlight that its graduates have the highest employability in a city, state, or discipline. It is hard to find a university anywhere in the world not aggressively and continuously asserting such positions of trust.

Prestigious private schools, more than public schools or universities, can rely on intergenerational *experiential trust*. Children might (have to) attend the same school as their parents, or another one trusted by peers or future employers. We often ascribe the label "reputation" to this form of trust.

Many providers also elicit *educational trust* by offering engagement opportunities for high school students, ranging from "science camps" to enrolment in selective units for advanced standing. This allows prospective students to build an informed view, and with it, higher levels of cognitive trust.

An example for building *specific trust* is the student gateway HiQ at Queensland University of Technology. A series of design thinking workshops and student journeys identified as desired by QUT students, led to complete redesign of a highly decentralised form of student advice. In its place, a centralised one-stop shop was implemented, including synchronised engagement channels like an attractive physical space, one web page, an app, and a single

phone number. QUT also learnt students had a high level of confidence in the views of "students like them". Consequently, QUT engaged about 70 student ambassadors, mostly advanced students, to provide services to fellow junior students. A positive side effect of this solution is that many student ambassadors were international students who together can provide advice in 17 languages. This is an example of a trust shift, that is, moving from seeking advice from student services to seeking trusted peer-to-peer advice. Rachel Botsman describes this as "trust is moving to the edges".

Specific trust in the current learning economy is not always coordinated by an institutionalised learning provider. Spoonfeedme.com.au, for example, is an Australian platform with the following vision:

> to be the leading education peer to peer provider in the world, empowering talented students with the ability to help other students maximising their potential and exceed in their studies.

This platform offers bite-sized videos created by students summarising lectures at Australian universities. With written notes, and in the language of peers, Spoonfeedme offers additional channels and access to university content. Students also use common digital platforms to self-organise peer-to-peer communities. In 2021, teaching a large first-semester class called Future Enterprise in QUT's Bachelor of Business, its students organised a private Facebook group that by year's end had nearly 500 members. Learners' clearly want to reach out to "learners like me" when seeking trusted advice.

Many existing trust measures in the learning economy are based on research and reputation trust, or educational well-being measures of trust. They are often presented as interdependent and linked in ways that may not endure as our understanding of trust and its application in the new learning economy progresses. The concepts themselves are separating in policy environments. In the United Kingdom for instance, the emergence of a Teaching Excellence Framework, alongside an existing Research Excellence Framework, gives further independent, regulated, trusted insights to learning economy customers based on student outcome measures relevant to their educational well-being.

6.4 Trusted Educational Well-Being

Education is a trust-intensive service for many reasons. There is high uncertainty for the learner. Selecting a learning provider is typically a once-in-a-lifetime decision, and learners have limited experience in making reliable decisions. The investment of time and money is high, as is the student's vulnerability.

6 Trust

As previously discussed, the learning economy deploys a range of trust mechanisms which reduce uncertainty and boost learner confidence in its services. There is substantial room for improvement if trust is truly to become a primary concern for providers, and perhaps a competitive advantage, in the new learning economy.

In Part A we elaborated on the economic shortfall in a learning provider's make-or-buy decisions. Established providers usually rely on their staff when assigning responsibilities for teaching courses and units. This practice has obvious compromises: there is no ideal match between qualifications (and preferences) of available staff and the units to be taught. This "insourcing" practice leads to behavioural uncertainties, and to trust concerns for learners. Addressing make-or-buy shortfalls with a different sourcing strategy could allow universities to manage quality concerns for selected units. This will require scaffolding external changes, like the existence of a market from which appropriate lecturers are identified and engaged.

There are perceived uncertainties universities can, and have begun to, address. At fine-grained levels, this is about learning aims, content, and qualities of offered units. A short trailer provides good first impressions for what to expect from a 90-minute Netflix movie, but most students still rely on written unit descriptions when making 90-day commitments for the next semester. It is worthwhile learning providers consider lessons from the entertainment sector and its aim to create additional transparency so its users make decisions they can trust.

Another trust mechanism very popular in many B2C service sectors, but hardly touched in the current learning economy, is *democratic trust*. Consumers of various digital services are very used to expressing preferences, likes, and relative satisfaction using Like-it-buttons, stars, or written comments. This is so for videos we watch, hotels and restaurants we visit, and providers in many industries, from plumbers to physiotherapists. It seems surprising that established learning providers evade allowing students to express their preferences in similar ways. Though private end-of-semester surveys capture student satisfaction in general terms, students have no continuous opportunity to press a like-it button after attending a lecture or tutorial, or watching an instructional video. In 2009, Jess Jarvis phrased it like this: "Today, instructors are graded on sites such as rateMyTeachers.com, but students are still prisoners to their school's faculty".[71] Students cannot navigate the curriculum on offer with confidence they would derive from democratic trust, let alone select preferred teachers as Jarvis proposed.

Adam contemplated what to study next semester. There was a range of electives he could choose from, but he struggled to decide just based on unit outlines. They all sounded comprehensive, but he wanted to make sure he could trust his decision. Luckily, his university had introduced new student feedback mechanisms so he could quickly identify one unit that clearly stood out with a convincing 4.8 rating based on 287 students' views. The comments were enticing ("engaging lecturer", "real-world assignment complemented theoretical material well", "challenging but rewarding unit"). He checked the views of the subset of students with a profile like his, students doing the same major, and they confirmed that this unit seemed the perfect choice.

Adam watched three-minute trailers for the three units he considered. This allowed him to assess each lecturer's style and how they articulated the desired outcomes for each unit. All this information provided Adam with much-needed confidence. When he submitted his unit selection for the coming semester, he truly felt he could trust his judgement.

Amazon once had a prototype for a service called "readers like me". It is like Spotify blending playlists of two listeners with similar tastes. One can easily imagine providers of learning, particularly platform models, unlocking *special trust* among connected like-minded learners so they can benefit from each other's learning patterns. A university might also seek to connect students with similar demographics (e.g. mature-aged students), interest areas, or language backgrounds by creating opportunities to establish well-scoped communities.

There is great opportunity for providers in the new learning economy to explore entirely new "trust plays". To achieve this, we need to differentiate between core trust and extreme trust.[72]

Core trust (aka contractual trust) means a provider acts as promised. We trust, hopefully, our dentist, plumber, and barista. However, this can also be seen as a fee-for-service arrangement. We expect these professionals to do the best possible job and act according to the training they received. Core trust in the learning economy means a learner gets what they expect. These expectations are hygiene factors in the learning economy. Today's learner will expect multiple channels for consuming learning content, assignments to be returned on time and with comprehensive comments allowing valuable learning experiences, and on-campus experiences to be safe. Compromise these experiences and the learner will trust the provider less. They may even turn to distrust.

6 Trust

Extreme trust exceeds core trust. A customer who has extreme trust in a provider trusts the provider more than themselves. In the music industry, a customer trusts providers to select music better than they can. The choice of available musical products is so comprehensive, it is very difficult for a user to be aware of and select suitable songs beyond what they already know. Providers of wine, make-up, and basic clothes like T-shirts are creating proactive services in which they choose products on the customer's behalf and then ship them. The other extreme trust scenario is where specific knowledge is required to make an informed choice, say for medical services. An extremely trusted provider in the new learning economy would select learning content for a student more effectively than the student could. Data-intensive algorithms would be essential, so insights are adduced from large learner cohorts. External data sets would contribute too (e.g. emerging critical skills for a certain profession). Learners could then trust their learning provider in the same way they trust general medical practitioners or personal coaches, and consequently follow their advice.

6.5 What Else Can We Learn from Amazon?

On 3 February 2021, Jeff Bezos announced to his "Fellow Amazonians" by email that he was transferring from Amazon's CEO to a role as executive chair. He wrote:

> I don't know of another company with an invention track record as good as Amazon's, and I believe we are at our most inventive right now. […] Amazon couldn't be better positioned for the future. […] Keep inventing, and don't despair when at first the idea looks crazy. Remember to wander. Let curiosity be your compass. It remains Day 1.

We picked Amazon to exemplify a trusted company. We could, as Bezos' words make clear, have easily picked Amazon as the case study for the innovation chapter. This demonstrates that a highly successful interplay can come from what seems a tension: innovation's comfort with uncertainty, and trust's aversion for uncertainty. Innovation creates new ways to build trust (e.g. when a digitally empowered supply chain is characterised by reliable performance). A trusted company has customer endorsements to experiment with.

Besides showcasing the marriage of innovation and trust, the future learning economy can source an abundance of inspirations from Amazon.

Amazon is obviously ambitious. Amazon Prime created an entirely new value proposition in the global retail sector. The hyper-convenience of a one-click purchase, delivery within an hour in metropolitan areas, or the ability to leave a store without a checkout (Amazon Go) – these are extraordinary endeavours that were big steps for both Amazon and its customers. Such extreme ambitions are rare, particularly within the learning economy. Rather than

articulating desired final states ("delivery within an hour"), the dominating narrative for change in the learning economy describes the way today's state will evolve ("streamline the enrolment process"). Even challenging undertakings like the COVID-19-required shift to online classes are big steps for the learning provider, and small steps for the learner given available technologies and citizens' readiness to use them. Surprising, unique, or extreme ambitions are rare in the learning economy.

Amazon has a high innovation appetite and low patience levels. New opportunities are prototyped quickly, new technologies explored immediately, and benefits of being a first-mover are well understood. How different does the learning economy look? Risk aversion is a roadblock. There is little willingness to lead in establishing novel and ambitiously bold experience. This explains why universities have not aggressively ventured into omni-channel education, new business models, advanced user experiences, AI-enabled cross-selling, or technology-enabled and augmented learning experiences. For Amazon these ambitions are widespread in its IaU culture.

This explains why Amazon has established its own Machine Learning University (MLU) that "provides anybody, anywhere, at any time access to the same machine learning courses used to train Amazon's own developers on machine learning".

Amazon explicitly acknowledges it does not know what is does not know, a state we called "unconscious incompetence" in Part A. In Amazon's fast-moving world of early and ambitious experimentation, relevant textbook knowledge (deductive knowledge) is often not readily available. Amazon must rely on continuous testing and induction to gain insights. Amazon conducts A/B tests (or split tests) every day across its markets around the world. It does this to learn which web design works best for its customers. This devotion to testing and learning from data is the exception in the learning economy where, in the scientific spirit, actions are grounded in deductive explanations as opposed to hard data alone.

Finally, and recognising an entire book could be devoted to "what to learn from Amazon", we highlight Amazon's *diversification* strategy. Over nearly three decades, Amazon has ventured across a comprehensive set of products and services. This ranges from books to bananas, from cloud computing capacity to Charlie Chaplin movies, from Echo to Esprit. The learning economy, in contrast, firmly remains a one-product-only sector focused on product revisions, extensions, and launches. It does not create complementary (billable) services or new revenue channels that capitalise on otherwise idle assets. Amazon commercialised its idle cloud computing capacity outside peak Christmas period and created leading cloud provider Amazon Web Services. Meanwhile, universities look calmly at idle campuses as most students enjoy semester breaks. Moves to trimesters have emerged, but physical space utilisation rates disappoint against cross-sector benchmarks.

6.6 Summary

Trust is the ultimate leading economic characteristic. Its significance is growing in a digitalising economy and society. Transactions become data-intensive, online interactions lack tactility, and sophisticated contemporary technology like AI and robotics are difficult for customers to comprehend. Organisations that regard trust as a source of new opportunities can thrive in the new learning economy. Those following the common view of attending to trust when it is threatened will falter.

Trust literacy is low. Organisations do not have well-defined approaches to managing and measuring trust. They lack trust governance, unlike significant IT companies that appoint Chief Trust Officers or trust designers.

Inspired by Amazon's dominant trust position, which materialised as its market share grew in the trust-intensive e-commerce sector, we approach trust from two viewpoints: reducing uncertainties and increasing nine different types of confidence.

The learning economy, as we have shown, applies some of these trust mechanisms, but there is significant potential to increase the focus on trust and facilitate new forms of trust design.

7 Six Distinct Value Propositions in the New Learning Economy

In Part B we introduce six contemporary strategic principles relevant to higher education's evolution in the new learning economy. Each is exemplified using cases of cross-sector, technology-enabled business model innovation. Each case generates ideas for replicable approaches in the learning economy. Strategic principles of scalability, personalisation, continuity, community, innovation, and trust provide distinct new strategic inspiration to learning economy participants, going beyond the current focus on efficiency, compliance, and student-centricity. They are increasingly evident in many sectors, but largely untried concepts in the learning economy; examples are scant.

The strategic principles might be applied by learning economy participants to provide new forms of educational well-being. They can create unique value propositions for future learners. The focus of each principle, their capacity to create a distinct value proposition in the new learning economy, and the way they address any of the three learning disorders are described in Table B.4.

Each section in Part B outlines the extent to which practices related to these strategic principles are evident in the learning economy. More importantly, we outlined a series of ideas arising from applying the intent of these strategic principles to the new learning economy. This shows innovation in the new learning economy does not only result from creative thinking. Frequently it is the outcome of a systemic ideation process, like replicating the sharing of content bundles as practiced by Spotify, which led to the idea of *learnlists*. Tesla's continuous upgrades inspired the concept of Educational Well-Being-as-a-Service.

Part B has introduced and elaborated six strategic principles for creating distinct value propositions in the new learning economy that go beyond the status quo. We are now armed with six big ideas to serve ambition in the sector.

Part C will discuss who is most likely to explore these six strategic principles, how well stakeholders are equipped to capitalise on them, and how all participants in the new learning economy can conduct rigorous assessments of the best way forward in this opportunity-rich environment.

Table B.4   The six strategic principles and how they create value in the learning economy

Strategic principle	Main focus	Distinct value potential in the learning economy	Means of providing educational well-being
Scalability – The Netflix Case	Ubiquitous service provision, global target market, data-driven content recommendation, curation, and production	The global education provider: Distinct due to global reach, economies of scale, and size of content library; low price-high-volume model	Knowledge and experience disorders provide continuous learning needs and equity of learning access, forecast learning needs from learning experiences, and monitor learning exposure and accumulation
Personalisation – The Spotify Case	Individualisation of services that continuously sense developing demands and preferences, combined with sharing of personalised content bundles	The personalised education provider: Distinct due to individualisation of services; price-volume model depends on degree of automation	Knowledge, experience, and consciousness disorders require personal awareness of educational well-being, content, and learning style tailored to learner's preferences
Continuity – The Tesla Case	Continuous connectivity as a new product offer, upgrading the platform product over time	The lifelong education provider: Distinct due to continuous connectivity and proactive offering; long-lasting engagement leading to lock-in effect	Knowledge, experience, and consciousness disorders require comfort that educational well-being is proactively maintained by service provider
Community – The YouTube Case	Learner communities and peer-to-peer interactions lead to positive, direct, and indirect network effects and potential "winner takes all"	The networked education provider: Distinct due to integrating its learner community as a source of content provision; potential two-sided market with revenue from third parties	Knowledge and experience disorders call for provision of current, crowdsourced content
Innovation – The Google Case	Investing resources into exploring new learning services leading to learning services comparable in user experience with services in other sectors	The innovative education provider: Distinct due to early integration of emerging educational innovation; opportunity to charge a margin due to contemporary engagement	Knowledge, experience, and consciousness disorders depending on type of innovation
Trust –The Amazon Case	Provision of reliable learning services and use of mechanisms that build user confidence	The trusted education provider: Distinct due to high reliability and confidence of the learner in its capabilities, benevolence, and integrity; lock-in effect and increased advocacy, engagement, and pricing advantage	Knowledge, experience, and consciousness disorders met by trusted provider offering learning services of relevance; reduced search costs for learner

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7 Six Distinct Value Propositions in the New Learning Economy

Part C

Strategic Planning for the New Learning Economy

The new learning economy is rich in opportunities for providers with ambition. It is high in threats for those reluctant to act. Opportunities will arise to attain significant growth of various forms and will change how existing higher education providers serve new and different educational well-being needs. Threats will enforce retirement of educational offerings that are no longer competitive because they lack content quality, cannot compete with pricing models, or remain centred on established delivery modes. The threats will also cause current providers to shift focus from cost efficiency to revenue resilience. This dynamic will encourage new entrants into the education market. It will create new markets for products and services, and for providers and consumers of learning.

Part B examined case studies of companies that have capitalised on contemporary technologies and business models to create entirely new markets in entertainment, music, retail, mobility, and other sectors. Part B identified three pairs of strategic principles that lie behind the case studies and are applicable across all industry sectors. These six strategic principles relate to three concepts: *centricity*, or whether we focus on everyone or the individual; *connectivity*, or how we connect either over time or with others; and *certainty*, or whether we value exploring possibilities or predictable outcomes.

Based on the cases studies, Part B also provided insight into how those six strategic principles catalyse innovation in the new learning economy. Various innovation examples arise from directly considering the strategic principles behind each case study.

Part C now extends the discussion of *why* (Part A) and *what* (Part B) survival and growth look like, into *who* and *how* to pursue survival and growth in the new learning economy. We introduce five types of participants in the new learning economy and systematically explore how each can adopt and then apply these strategic principles to capitalise on various forms of growth potential. The opportunity to do so lies in pursuing one of four generic strategies defined in this final part of the book. The way the five types of participants can apply the generic strategies is outlined in a three-stage process. Part C introduces this new strategic planning methodology and the five questions it is based on.

The new learning economy will see a *creation of a series of new markets*: markets of online-only learners, new communities of like-minded learners, continuous learners, and markets for value-adding providers (e.g. gameful learning). Emerging new markets are for online programme

management, tutoring support services, omni-channel student support systems, and services of aggregators seeking to offer B2B services to current learning providers and employers needing to improve their learning capabilities. They include coaching services; knowledge and competence diagnostic tools; personalised learning coaching services; learning health checks; upgradeable award courses; and corporate academies. There are myriad other technologies and new business models that allow participants to provide B2B services through other learning providers and B2C services to individual learners seeking continuous educational well-being.

New markets will also include new forms of professional development and lifelong learning services through MOOCs and executive and corporate education. New aggregators will focus on new platforms of curated content for non-award and micro-credential learning resources. There are also new markets for learning and pedagogy support of learning management systems, learning delivery support, and learning analytics. It is yet to be determined how many participants each of these emerging markets will attract, or who precisely they will be. However, we can assume markets and participants will be more global than the local versions dominating today's learning economy, and that the required focus on revenue resilience and growth will require new capabilities. There will be significant deregulation, and opening up to new entrants for some new markets. Figure C.1 summarises these new market and product opportunities.
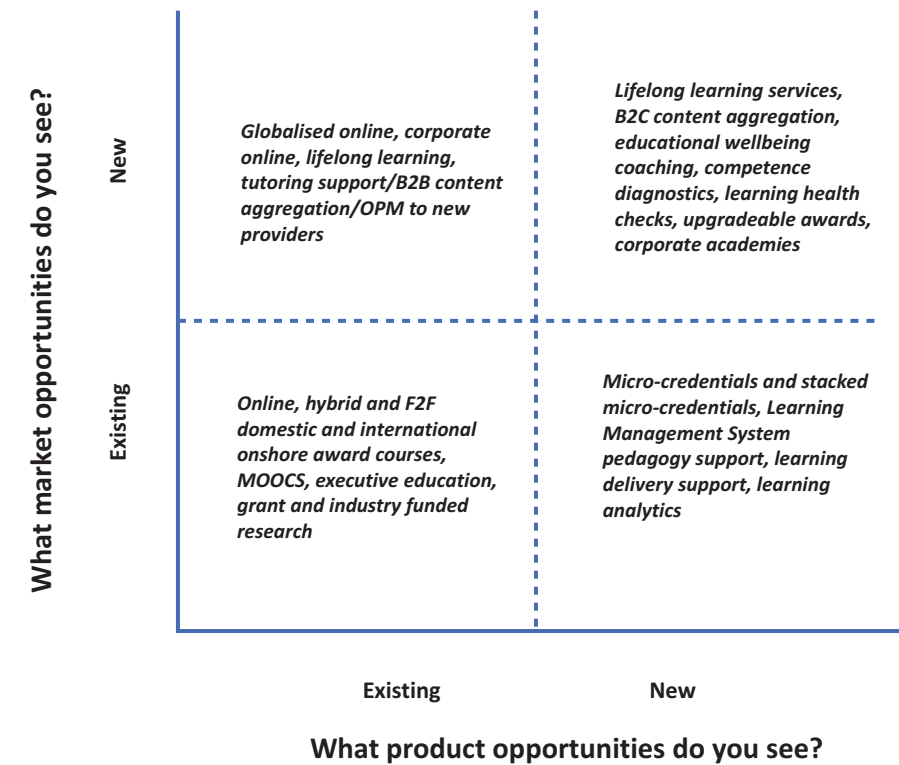
FIGURE C.1   Market and product opportunities for the new learning economy.

We identify industry-funded research as a current product serving existing markets that will gain more attention as the call for translational, impactful research and its commercialisation intensifies. The fifth scenario in EY's report that questions whether universities will endure into the future, asks whether new research commercialisation revenue streams could be sustainable sources of funds on their own.[1] Many in the sector doubt this could become a dominant future revenue stream for any current participant. The current market of philanthropy offers similar prospects, and can be categorised as grants in Figure C.1. But the matrix points to many new products and markets offering even greater growth potential in the new learning economy, which is this book's focus.

To meet this potential, the new learning economy will see these new products and markets, and a *greater variety of participants*. Most importantly, it will see more diversified alternatives to the currently established models of universities and colleges. It will be an expanded new educational well-being global market open to all.

The new educational well-being market will dismantle current barriers to entry rather than protect a group of current providers in a regulatory environment restricting others from participating. As in other digitally empowered industries, the global learning economy will witness new low-cost (or free) services funded by new revenue models like two-sided market models. Roadblocks will be removed to providing just-in-time learning services and increased ease of consumption (anytime, anywhere), enhancing innovation in, and accessibility of, new learning products and services on a global scale to a growing market.

The imminent disruption, transformation, and decline of traditional universities have generated widespread debate, discussion, and commentary.[2] There is even speculation higher education demand has peaked.[3] This book adopts a different view. The market for learning that responds to growing educational well-being demands is well short of any peak, though demand for current award courses may decline. This is similar to the struggle for survival of many banks despite growing demands for more diverse banking services.[4] Bill Gates observed as far back as 1994 that "banking is necessary, banks are not". FinTech companies have replaced and expanded services formerly only provided by well-regulated banks. Similarly, one might argue rapid environmental changes will increase lifelong learning demand, with related growth harvested by fast-moving, innovative EdTechs and BigTechs rather than established providers of educational products and services. Signs of this include Ryan Craig's identification of more than 200 post-secondary alternatives to colleges.[5] *Learning will be more necessary than ever, universities might not.*

For some, the new learning economy's attraction and greatest promise is this growth potential. Satisfying increasing appetites for educational well-being will prompt the greatest demand for new services. This growth, however, will not be a simple extension of existing education models. Digital technologies (e.g. AI-enabled adaptive learning systems), new markets (e.g. lifelong learners), new products (e.g. education-on-demand), and entirely new learning services (e.g. gameful learning) will require strategies and operating models that go beyond established ways of working. Emerging markets will be significantly influenced by how participants' strategies meet the greater diversity and complexity of global needs for educational well-being of citizens, corporations, communities, and entire countries.

There will be multiple participants in new markets; it is unlikely a single winner will take all, at least in the short term. Current research-intensive institutions, varying in experience from 20 to more than 1,000 years, may remain, alongside the continued emergence of a more visible and impactful EdTech start-up community. The latter will provide direct learning services (e.g. micro-degrees), and complementary indirect learning services (e.g. online programme management, student support, gameful learning, social learning, curated content libraries). This will engender a fleet of offerings, and potentially an "Open Education" market where large providers offer core services (enrolment, core content, assessment) and EdTechs offer additional, specialised content and value-add learning services. In this environment, learners would have a core provider and consume additional learning services in a platform model via learning apps. This is already happening with models like Open Banking. This notion of "open education" is different to open education resources and open access that make material available for free or low cost (e.g. MIT's OpenCourseWare that makes virtually all MIT course content available at ocw.mit.edu). "Open Education Triumphant" is one of seven scenarios Bryan Alexander discusses in his inspirational book *Academia Next. The Futures of Higher Education*.[6]

The following section consolidates into a strategic dashboard the six strategic principles already introduced. It then outlines five participant types that will be active in providing current and new products and services to those markets, and the four generic strategies these participants can choose when engaging those markets. It then combines these elements in a new strategic planning methodology for the sector.

1 The Strategic Dashboard

Part B explored six strategic principles: scalability, personalisation, continuity, community, innovation, and trust. These principles, in three pairs, can populate a *strategic dashboard* for the new learning economy, as introduced in Part B and reiterated in Figure C.2. Current and future learning economy participants can use this dashboard to explore and consider where their opportunities lie, assess their current and future capabilities, take into account their growth ambitions, and weigh regulatory constraints that restrict whether they *can* pursue them. Then they can evaluate relevant market demands (e.g. Is there a market of sufficient size?), possible business models (e.g. Is there a viable revenue model?), and any other considerations (e.g. Is offering a premium learning service for a subset of learners an option?). If they *should* pursue an option, they can then select implementation paths. But opportunities lie beyond pursuing one of these six opportunities in isolation. Each of the three dimensions has an oppositional quality and a combined feature. As we will see, the strategic choices are to follow one principle in isolation, two as a pair, or all principles simultaneously.
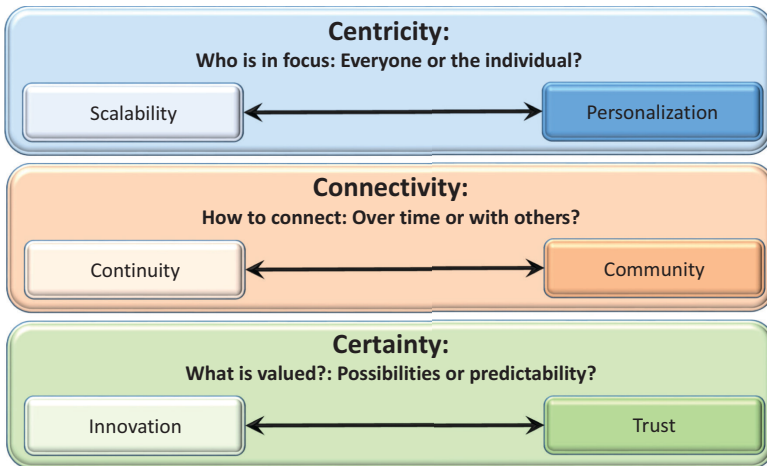
FIGURE C.2   The strategic dashboard for the new learning economy.

We now outline four generic strategies derived from specific applications of these principles. Ambitious providers in the new learning economy can assess the feasibility, viability, and desirability of these generic strategies. Doing so reveals new learning economy design options.

Renowned academic strategist Michael Porter argues against being "stuck in the middle". In his long-established work on competitive strategy, he advocates selecting one of three generic competitive strategies.[7] Accordingly, we argue that decisively choosing from and

between one of these four strategies offers the greatest potential for revenue resilience and accessing the most compelling growth areas.

Before we introduce the generic strategies, and how to select from them, we introduce the sector's current participants and others it will attract as the new learning economy.

2 Five Participant Types in the New Learning Economy

Learning providers can undertake strategic analysis and planning using the strategic dashboard, and tracing on it the strategic principles and generic strategies. But which providers will participate in the new learning economy by pursuing these generic strategies? Understanding and analysing current providers in, and likely new entrants to, the learning economy and its markets help us grasp their nature, individual assets, capabilities, and constraints. We introduce five types of market participants according to their progressively increasing potential for disruption.

First and foremost, participants include current dominant *universities*. They have grown in size and number as student participation rates have increased globally, including independent private providers which are emerging competitors to public universities as demand and activity has grown. The Academic Ranking of World Universities and QS University Rankings each compare more than 1,000 public and private universities worldwide. *Times Higher Education* ranked 1,500 in 2021. Up to 25,000 institutions call themselves universities, with more than 4,000 in India alone. Private university numbers have grown more quickly than public institutions in many countries. Many public universities now gain most of their revenue from private sources. The public–private distinction is blurring.

Innovation activities of many universities include distinct attempts to apply strategic principles as revealed in Part B. Arizona State University (ASU) is an example of scalability and innovation, accumulating high student numbers through a strategy of augmenting campus-based education with globally targeted online education. By August 2021, ASU enrolments had grown to 134,500, with 77,000 on-campus students, 57,000 online, and 10,800 international students from 152 countries. The first-year cohort in August 2021was nearly 60% Arizonian, but included a 29% increase in out-of-state students including record numbers from California.[8] This is a scalability strategy with clear growth and geographical diversification. This also demonstrates successful execution of the innovation strategic principle.

Michael Crow became ASU president in 2002 after ten years at Columbia University as associate vice provost, science and engineering 1991–1992; vice provost for research 1992–1993, university vice provost 1993–1998, and executive vice provost 1998–2002. Moving to ASU was an atypical step – for academics and their leaders, and for students, Ivy League universities usually represent the pinnacle of academic leadership achievement. But Crow is widely applauded for creating the New American University Model during 20 years at ASU – a model whose dependence on state funding has fallen to 10%.

Leading US universities by rankings and reputations are usually Harvard, Stanford, and MIT in the ARWU; Stanford, Harvard, and California Institute of Technology in *Times Higher Education* rankings; and Princeton, Columbia, Harvard, MIT, Yale, and Stanford in *US News & World Report* rankings. Top rankings are comparatively stable. There are changes in the middle levels. Rankings of methodologies and purposes are varied. Some use research metrics, some survey academics, alumni, and external partners. Impact on UN Sustainable Development Goals is a recent addition to *Times Higher Education*'s family of rankings.

The *US News & World Report*'s most innovative university ranking is now widely followed, and in 2022, ASU was ranked first in this category for the eighth successive year, a significant achievement. What is behind this sustained level of extraordinary achievement?

An early sign of pursuing a new and different model of lifelong learning and inclusive education was that new online enrolments grew faster than global competitors. Other nuanced steps include its adaptive learning approach applied as a whole-of-university pedagogical model. The model uses technology and active instruction models through online, face-to-face, and flipped course delivery. It aims to adapt to learners' needs by delivering "the right lesson to the right student at the right time". EdPlus (edplus.asu.edu) is an ASU entity delivering digital teaching and learning models. Its programme manager describes ASU's innovation focus as aiming to "move from mass production to mass personalization". This now extends to using virtual reality technology to teach biology and other subjects through Dreamscape Learn – a pioneering immersive learning environment.

The *US News & World Report* rankings use survey data collected from college presidents, provosts, and deans, who are obviously aware of ASU's distinctive innovation focus. The commitment and leadership that have led to that awareness are evidenced by statements of ASU's former Research and Innovation Officer, Sethuraman Panchanathan. Now director of the National Science Foundation, Panchanathan explains how ASU climbed this ranking quickly and maintained its position without a long-standing reputation: "ASU is like the new kid on the block", he says. "If you go to Harvard or Stanford, they are known to be good. But we have to achieve it through demonstrating we've created impact. ASU's partners are major contributors to the University's innovation position". These include corporate partners like Starbucks, Uber, Mayo Clinic, and Adidas.

ASU's all-pervasive whole of university commitment to innovation, and its leadership's innovation focus are root causes of its outstanding outcomes. "The spirit of innovation bleeds into every move the university makes", Panchanathan continues.

Chief Revenue and Innovation Officers are rare. Rarer still are presidents who focus relentlessly on innovation and taking chances. As Crow says, "And so we need more differentiation,

creativity, innovation and enterprise behaviour to give presidents and chancellors meaning behind their title and value behind their elevated salaries".[9]

Crow translates this commitment to innovative behaviour as leading to changes in institutional missions. He says, "What we need now are lots of institutions that can scale and be driven by technology, and educate people across the entirety of their life".

In ASU, Crow has created a prototype for a "new American university",[10] in what he now calls a fifth wave university.[11] Not everyone thinks that's a good thing. Critics complain Crow is too corporate and has created a "factory of credentialing". That sounds like ill-considered criticism of a university leader who experiments and innovates rather than waits.

We leave Michael Crow with the last word: "Innovation is infused in ASU's DNA because we are designed to spark, support and manifest new ideas", as he said after the institution's sixth year of "most innovative university" ranking on the ASU website.

Oxford and Cambridge universities' approaches to international markets have substantially drawn on concepts of trust. This is founded on high-quality research, reputation building, alumni advancement, one-to-one tuition, and their systems of colleges in which networks and allegiances are key. Harvard's strong focus is personalisation in its educational offering, evidenced by highly selective, small course enrolments. This is combined with a distinctive approach, particularly in its business school and executive programmes, of using case studies and matched networks of learners in courses to ensure personalised learning experiences that blend with community building. Harvard also reinforces reputation and trust through ubiquitous, high-quality, comprehensive research programmes.

Griffith University, in Australia's offer of an MBA for Life, was an early attempt to go beyond traditional alumni engagement. Its design falls short of Tesla's continuous connectivity, and of being Educational-Well-Being-as-a-Service. Nonetheless, the initiative seeks ways of ensuring graduates remain customers who maintain their knowledge as disciplines advance.

These four approaches are evidence of *universities* moving from being "stuck in the middle" to pursuing the principles on our strategic dashboard.

The second type of new learning economy participants are learning platforms and online programme managers aggregating universities' content in what could be called the education sector's retailisation. These participants include some which initially emerged from traditional universities.

MIT and Harvard developed edX to capitalise on high-quality research by facilitating community building around their MOOC offerings to global markets. This was at no cost until

2U completed its acquisition of edX in 2021. Coursera originated from Stanford and was a scalability play. It made its research-based courses, offered by its own professors (and later those from Yale, University of Michigan, and others), available to more than 77 million global users.

New platform entrants without academic research traditions are appearing in the learning economy. These include players like FutureLearn, a joint venture between SEEK and the UK Open University. Such ventures emerged in the new MOOC market during the 2010s.

Third, it is reasonable to expect the learning economy will generate its very own entrepreneurial ecosystem. Like FinTechs, BioTechs, and RegTechs. EdTechs (or EduTechs) are already with us: as in Khan Academy, Hubspot Academy, Keypath, Pearson, OES, Studiosity, Go1. As the new learning economy grows and innovates, the EdTech sector may be the source of the most disruptive, fastest-growing providers. COVID-19 constraints have amplified EdTech activities. In 2020, in the US alone, EdTechs raised US$1.78 billion in venture capital.[12]

The EdTech sector is diverse. Large EdTechs now offer interactive classroom solutions (Boxlight Corporation); online learning platforms where learning content is unlocked in return for uploading original learning documents (Course Hero); a platform of more than 18,000 instructors providing classes in preparation for exams (Unacademy); gameful learning (Kahoot); language learning (Duolingo); and AI-enabled personalised learning of English to half a million Chinese students through a network of 60,000 teachers in the United States and Canada (VIPkid). Large EdTechs have provided learning support for millions of Chinese students via online tutoring, questions banks, and advanced apps (Zuoyebang, Yuanfudao, Byju's), though regulatory changes in China have constrained online tutoring.

Studiosity offers personalised tutoring at times and in ways that suit individual learners. This fulfils a significant gap in personalised learning support that universities do not offer. One could argue Go1, with large curated content libraries, is seeking more than scalability. It is attempting to incorporate aspects of community, personalisation, continuity, and innovation. This reveals more complex strategies than adopting single, or pairs of, strategic principles.

It is likely the EdTech sector's growth will be fuelled by a further increase of venture capital as the learning economy is a sector with growth potential and underdeveloped innovation.

Fourth, there are organisations with business models that put *communities* first, like LinkedIn and Facebook. Rather than starting with learner products, these organisations already have extensive networks and communities of learners. Their systems' data intensity

provides deep insights about learners (e.g. existing skills, networks, and career ambitions), enabling them to harness learner networks and provide learning content and services to them. This direction is a strong possibility given the emergence of LinkedIn Learning, and the online education collaborations SEEK has formed with other providers around the world.

In addition to repurposing existing large communities for learning purposes, self-organised communities of learners might also emerge. The concept of communities also applies to employers who create cohorts of employees who jointly undergo upskilling programmes. Voith's initiative described in Part B is an example as are employee credentials awarded by corporate university ventures like Google and Microsoft.

Fifth and finally, capital-rich, technology-savvy participants will see the new learning economy as markets worth entering, even if their primary focus has been in different sectors. BigTechs like Microsoft, Alphabet (Google), Meta (Facebook), Apple, Amazon (MAMAA), Baidu, Alibaba, Tencent, and Xiamoi (BATX) have cutting-edge digital capabilities, scalability, and user access. Among the most valuable companies globally, they tend to rate high on rankings of prestigious and desirable employers worldwide. These companies have redefined the concept of an industry sector and created new levels of customer experiences.

BigTechs have the financial and intellectual capital, and the innovation appetite required, to develop and roll out entire new global learning services. The fast-growing provision of certificates and micro-degrees by some BigTechs (e.g. Grow with Google, Amazon's Machine Learning University) demonstrates their growing appetite to enter the learning economy. Others such as Salesforce are already extensively engaged with learning economy participants. They also rate education highly, exemplified by Amazon's commitment to invest $1.2 billion by 2025 in its Career Choice programme funding full college tuition and high school diplomas for frontline workers.

Table C.1 compares these five participant types in the new learning economy. It is unusual to see such varied types in one field of play. At present, there are extensive relationships between them in providing for learners. They vary in how they see themselves, or are seen by others, as learning economy participants. They differ significantly in the forms of competition they operate under, and subject each other to. They vary in their current involvement in, and interest in, the sector.

This variability depicted in the analysis in Table C.1 includes heavily regulated current university providers subject to system-wide standards and high fixed prices. This means their dominant interest in the sector is enhancing a largely research-based reputation and rankings. They are significantly motivated to maintain their exclusivity, and the attraction

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power of their research–teaching nexus distinguishes them from other learning economy providers.

Conversely, platform and EdTech participants are significantly deregulated and open to competition. Their primary interest is in new markets. Community and BigTech participants operate in almost totally global commercial environments with a strong technology focus. Community-oriented participants have a partial interest in the sector and focus on learners as opposed to their learning. BigTech focuses presently on current providers' technology needs.

This variety of involvement and interest kindles variability in legacy experience and assets. Experience, reputation, custom, and practice that draw from centuries of tradition, and which pervade our current university providers, contrast with growing forms and measures of new and relevant experience brought by emerging learning economy participants. Platform participants have created their own legacies in new business models and modus operandi, while most EdTechs begin as blank slates free of constraining legacies (e.g. a physical campus, established semester patterns). The legacies of community and BigTech participants may be better suited to new business models and innovation fit for the new learning economy. For community participants this includes large-scale access to community members and their attributes, allowing detailed contextualisation of potential learning services and connections. BigTechs often lack the agility of nimble start-ups and face the challenge of public claims about their size, impact, privacy, and influence. They do have valuable legacies in technology-infused innovation, data-led decision-making traits, global brand value, and cross-selling capabilities.

Table C.1 Summary of characteristics of new learning economy participants

Participant characteristics	Participant Categories				
	University	**Platform**	**EdTech**	**Community**	**BigTech**
Examples	Harvard, MIT, National University Singapore, Oxford	Coursera, edX, Udacity, FutureLearn, XuetangX	Khan Academy, OES, Studiosity, Go1	LinkedIn, Facebook, SEEK, TikTok, YouTube, self-organised communities, employers	Google, Microsoft, Alibaba, Amazon, Salesforce
Form of competition	Regulated entry, some fixed prices, system-wide accreditation standards	Open and free	Open and free	Globally commercial, learner-led	Globally commercial, technology-led
Interest in the sector	Maintaining reputation and existing business model; retaining exclusivity	Be a global broker between providers and learners	Be a technology-enabled provider of a niche service	Add learning services to the offering as a new value proposition	Extend and utilise existing technology capabilities in the education sector
Legacy experience in sector	Centuries of research-informed content development; well-defined governance, and market position	A decade of platform-model experience; limited monetisation strategy based on parent entity experience	Blank slate – entity must rely on relevant prior experiences of individual executives	Advanced experience of learning journeys and peer-to-peer engagement	Current dual role – both provider to current entities, and competitor to them
Legacy assets and sunk costs in sector	Large physical, systems, staff, process, and organisational infrastructure	Adopted business model and modus operandi at market entry	Legacy free	Significant asset legacy of details and knowledge about learners and market	Significant current sales to, and business with, sector as client
Dominant cultural disposition	Conservative, regulated, local, research-driven, rankings-driven, academic-led	MOOC preoccupied, business model committed	Growth mindset, disruptive, unregulated, innovative	CX focused, innovative, exploratory, business-led	Commercial, technology-led, global, large market volume-oriented
Dominant leadership approach	Conservative and academic, compliance and risk-averse, hierarchical	Disruptive and global	Disruptive, start-up mentality, rapid growth, agile, inclusive, horizontal	Focused on customer, new business development, growth	Global focus – large-scale technology business
Availability of investment potential	Local investment available but governance precludes use	Platform is a target of investment rather than an investor itself	Needs securing through series of incremental, growth-focused investment cases	Significant, global, business case focused	Almost limitless for right global opportunities and business case

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This analysis of these five participant types includes examining their dominant cultural and leadership approaches. Current universities are usually risk averse, conservative in leadership and governance, regulated, and compliance focussed. They are oriented towards conventional performance measures including rankings, market share of learners, employability, and student satisfaction.

Platforms have radically different predispositions. They are distinguished from universities in that they break free from cultural and leadership limitations, and are unbounded in their visions and goals. EdTech, community, and BigTech participants progressively develop an increasing focus on growth, new business development, customer orientation, and global presence.

The investment needs and potential of the five participant types also vary significantly. Current universities typically have localised investment capacity, including access to external sources of investment or capital that might be extracted from physical capital disinvestments. However, their governance environments and modus operandi often make utilising these investment sources complex. They are seldom used to the full extent. Platform participants have benefited from significant investments, and there are signs of this continuing and growing.

Investment in EdTech providers is evident and appears closely aligned to strong business cases based upon clarity of strategy, implementation, and growth potential. Community and BigTech participants have the advantage of their own very substantial investment capacity and ready access to further investment potential given their size, global focus, form of ownership, and scale of activity. They offer significant opportunity for self-investment aligned to their own clear strategic thinking and implementation plans.

These descriptions of differences provide a rich and broad picture of different histories, characteristics, predispositions, and preferences in our five types of learning economy participants. They explain their different starting points for exploring new strategies in the sector, and why some strategies are more suited to some participant types than others. They also explain the capabilities each has to pursue the various strategies. Each participant's context significantly impacts its choices of, and implementation paths for, one or the other of the generic strategies that follow.

The participant types described are not necessarily a comprehensive list. There is an opportunity for groups of similar universities, or those operating in particular geographical markets, to work together closely. University mergers is a recurring theme but uncommon in practice.[13] Between 2000 and 2019, only 40 mergers occurred between European institutions of the same type. In the United States, state-based higher education systems of

universities or colleges are more common and designed rather than resulting from mergers. The California State University system, for example, has 23 campuses and more than 485,000 students enrolled, making it the largest state producer of bachelor degrees (more than 100,000 a year).

A high-profile example of complementary assets that an educational merger can assemble is Purdue University's March 2018 acquisition of private, for-profit, online Kaplan University, which led to the creation of Purdue University Global. With this acquisition, Purdue University, a respected, research-intensive university, entered the domain of online under-graduate degree education. The economics of this merger, however, remain challenging – a sign of the sector's unfamiliarity with such mergers.

Closer integration and collaboration between co-located universities, and between kindred universities operating in different parts of the world, are certainly possible as competitive plays of scale. They offer significant strategic opportunities for university leaders using this methodology. This is an illustration of how all five participant types can deploy strategy by working alone, or in combination within and across participant types.

Other stakeholders in the new learning economy, unexplored here, are micro-providers that do not compete on technical innovations (like a EdTech) but provide niche content. An example is NextEd's Next MBA offering. The online-only management and leader-ship course is comprised of lectures by some of the world's leading minds, including Yuval Noah Harari (author of bestsellers such as *Homo Deus*); Daniel Goleman (Harvard); Mo Gawdat (Google X); and Malcolm Gladwell (author of bestsellers such as *Tipping Point*). For one Saturday a month over 12 months, and for an early-bird price of $299, participants learn from and engage with these thought leaders. Similarly, Section4, founded by New York University professor Scott Galloway, offers "elite business edu-cation for all" as a series of online lectures provided by thought leaders like Thomas Davenport. The potential value of Section4 was evidenced by the Series A funding it received in 2021.

Nor have we included government as a learning economy participant. Governments, via regulations, policies, and funding, have a significant impact on the learning economy. However, this impact is indirect. Learners tend not to interact with governments directly, but via government-supported, public universities. Governments have a strong role and interest in higher education and learning economy policy. They have rapidly developing views and ambitions for the sector and its contribution.

Observing and influencing strategic choices made by learning economy participants is a significant matter for governments and public authorities. This includes the extent

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to which access to the learning economy is regulated or opened up, as witnessed in other sectors. Policymakers and regulators need to understand how to achieve policy outcomes by influencing participants through applying principles of strategic planning that we outline here.

Corporate and other employers could be another learning economy participant type. As Part B shows, corporate universities play a significant role in ensuring educational well-being of their staff. However, we see limited signs that corporate academies will go beyond corporate boundaries to become providers of learning services to a broader public. Including them in our community category above introduces some scope for their emergence as strategic participants in a new learning economy.

Gabriella had gained a new lease on life in her role as Chief Learning Officer at her insurance company. Her new responsibilities extended to Europe, the Middle East, and Africa. She had been frustrated that events had dramatically overridden her early ventures in building the company's internal learning capability, based on graduate entry programmes and leadership courses delivered to the company's staff in Spain.

But her peers now fully understood the need for lifelong learning in their workforce, and its value in the complex, collaborative, interconnected place the company now held in the new learning economy. Understanding this, Gabriella was instrumental in clearly advocating through her former role as Chief People Officer for lifelong educational well-being.

In that role she had not been a member of the senior executive. But the company now realised lifelong learning was key to innovation and talent search priorities at the heart of the company's new strategic positioning and intent. Chief Learning Officers had emerged in the Tech company world which she had learnt so much about from micro-credential and other learning resources she had accessed through a variety of global sources. The networks she built through this exploration gave her the basis to advocate so convincingly that the CLO role be established globally.

The role was serving her well in getting her company's learning strategy established. This was now a foundational top-level plan to support her company's global business strategy. Gabriella understood how many participants were part of the landscape: universities like her alma mater, platform providers to which she subscribed and which gave her convenient access to offerings of many universities and other providers,

emerging EdTech companies for educational services, community networks, and mainstream BigTech providers.

Her company had formed a partnership with Microsoft as their technology provider. This had allowed the company to jointly form B2B connections with the venture that LinkedIn was pioneering with INSEAD in digital business innovation. These forms of partnership appeared to be the tip of the iceberg for how their learning strategy would develop.

Gabriella thought of the contributions all these participants would make as she explored how she might guide learning support in the decade ahead for a workforce of more than 25,000 staff worldwide. This was becoming a key responsibility for her role. A major task was to get a sense of what strategies each of these types of participants might follow, and then work out how employers of lifelong learners seeking education well-being might best engage with those participants.

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3 The Four Generic Strategies for the New Learning Economy

Part A established the emergence of significant growth and diversification in demand for learning. The strategic principles we introduced in Part B illustrate the ingredients of strategies for pursuing this growth. Our consideration of the five types of participants presented above illustrates the type of organisations for which growth, and new strategies and business models, apply. The combination of these various dynamics in the learning economy gives rise to four generic strategies for innovation in the learning economy.

3.1 Generic Strategy 1 – The Safe Pair of Hands

Despite the attraction of exploring the six options offered in Part B, many new learning economy participants will *not* pursue any of them with great focus. They will continue with their currently viable strategic approach as long as some demand for established learning outcomes (e.g. multi-year, semester-regulated, certified university degrees) remains unchanged, which is likely to be the case for some years to come.

This path will be followed often. Participants without a sense of urgency (e.g. rapidly declining revenue streams) *and* with low appetite for innovation and growth, will derive comfort from this strategy. University providers strongly committed to reputations built on high-quality research will see threats in the distraction of learning economy growth at the expense of research.

This strategy of continuing current business and operating models will increasingly call on digital capabilities for hybrid operations. This "more-of-the same" strategy requires the lowest levels of investment and reduces uncertainty about future action. It may not offer the lowest risks because opportunity costs could be very high.

This strategy delivers opportunities to fulfil a continued purpose as teaching and research institutions: to serve local, regional, national, and global community needs. It capitalises on existing assets, capabilities, reputation, demand patterns, and modes of engagement. It is a relatively low-growth strategy that serves current tertiary learning demand associated with accredited awards.

There are many reasons why being a *safe pair of hands* is attractive for many universities and other providers. Their long traditions, which have generated reputations and loyalties with their alumni and stakeholders, constrain radical change. Their geographical context may tie them to a demographic environment and conservative expectations, as dominant drivers of

strategy. The regulatory environment, and their interpretation of it, entails expectations and a culture that sees virtue in building on legacies and traditions. This may well deter them from adopting a relentless search for other ways of creating value for learners.

Many universities' leadership and governance are conservative. Their leaders have experienced little other than the traditional model they have personally benefited from. Traditional providers typically have risk-averse governing councils or cabinets that favour traditional models.

Current providers have substantial existing assets (e.g. campuses) and capabilities (e.g. well-trained academics as teachers). They have low-risk, low-investment dispositions, and a long legacy of strategic predictability sustained by uninterrupted and growing demand.

Capabilities in business model innovation, or in developing new, global markets, products, and services are rare. They largely lean towards an abundance of caution rather than an abundance of opportunity. Their commitment to caution elevates revenue resilience in the dynamics of moving to a new learning economy. They protect what they have rather than seek growth in new markets.

One explanation of why this generic strategy will be commonly followed is that work-force cultures in many universities differ from most corporate entities. The professoriate is powerful. The teaching model limits disruptive impact on their capacity to conduct desired research, focusing more on discipline and professional networks than the university as a business or strategic entity.

The impact of employers, peers, and other influencers is powerful. This arises from the complexity of the customer relationship in higher education. Students are the consumers of higher education; however, parents and peers exert significant influence over students' buying decisions. Those decisions are influenced by judgements of current and future employers of graduates, with employers themselves frequently alumni of, and familiar with, particular institutions. Inbuilt conservatism shapes both the perception of relative strengths of institutions and the nature and role of universities. These settings are also barriers to radical innovation and change.

Finally, many provider-centric arguments, which appropriately justify continuing a *safe pair of hands* strategy, are also valid for the demand side of the current learning economy. Students, and their parents are used to the value proposition, engagement model and outcomes (recognised degrees) of a market regarded as credible because it is well regulated. A large cohort of the demand side might be equally risk averse in consequence.

3 The Four Generic Strategies for the New Learning Economy

Dann was so relieved his university continued to value scholars like him pursuing their dual roles in research and teaching. His work had transformed from its early industrial sociology roots, and publishing in peer-reviewed journals while teaching fundamental theories. These days he spent equal time on research translation and commercialisation and on preparing job-ready graduates. But his passion was for his research. He was inspired by his new Industry Transformation Hub grant that allowed him to help local small and medium-sized enterprises transform their business models for the new economy in renewable energy technologies. And he was also pleased his courses with those same industry partners were providing opportunities for work-integrated learning and instructive case studies in his university's business degree.

Dann valued his role's predictability, particularly in teaching with its regular semester cycles. Once his regular teaching courses were underway in constrained time slots, he could create clear air and time for where he was creative and had his passion: his independent research and his academic writing.

He invested as much time as needed into work and new skills to stay on top of his teaching. But his passion and real commitment were for his research and the expertise he was developing as an authority in industrial innovation systems. This contributed, after all, to what his university was most focussed on: the strategic goal of its governing council and vice chancellor to enter the top 200 in global rankings.

And now Dann was pleased his son Simon, after his final year at the local private grammar school, was enrolling in an engineering degree in the same university. Dann and Simon could both see there were plentiful jobs in the local economy for well-educated engineering graduates. That showed no sign of diminishing. Companies continued to demand a bachelor's degree, with opportunities after graduating for professional development and specialisation through an established model of education accredited by the professional engineering body. Simon's school continued to promote this as a strong career option. The local university made great efforts to promote this effectively to Simon and his peers.

The implication of following a *safe pair of hands* strategy is that awareness of what other competitors may do, in the three other generic strategies that follow, becomes increasingly necessary. Defensive strategies must ensure that staying where they are remains lucrative and sustainable. This avoids risks and opportunities that ambitious and growing providers will seek, so generating other strategic imperatives, including for revenue resilience.

Revenue resilience requires a participant choosing the *safe pair of hands* strategy to operate current business models well, and to horizon scan constantly for new technologies and processes that enable continuous improvement of the current operating model for learners' expectations to be satisfied (e.g. hybrid experience, advanced mobile access to content). These are the risk management practices and incremental strategies that many current university providers have mastered.

3.2 Generic Strategy 2 – The Specialist

The strategic dashboard in Figure C.3 illustrates the potential to migrate from a safe pair of hands to a strategy exclusively dedicated to one of six strategic principles. This approach, with a clear concentration on just one principle, is what we call our second generic strategy: the *specialist*.
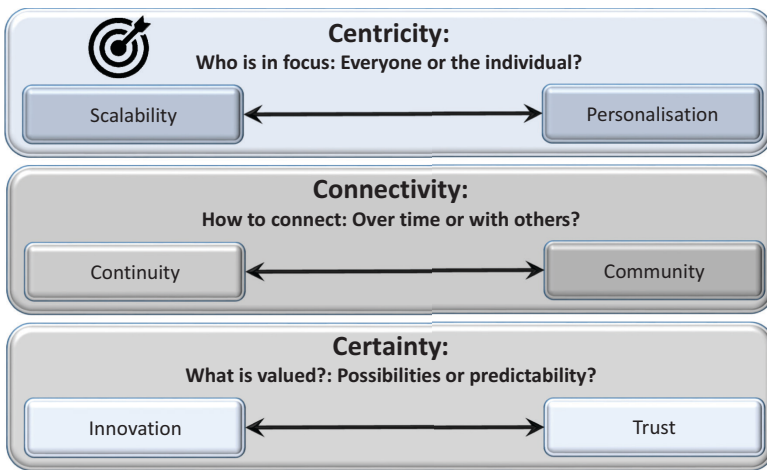
FIGURE C.3   The scalability *specialist* generic strategy.

The specialist strategy has six variants: scalable, personalised, continuous, community, innovative, and trusted. A specialist strategy has the advantage of a well-articulated priority. Universities are complex and diverse institutions. They engage in multiple disciplines and conduct research, learning, and external engagement across them all. They have complex infrastructure and other systems to support these activities as part of a generalist mission.

A specialist's ultimate aim is to augment more general performance measures (e.g. employability, student satisfaction, market share) by competing in a differentiated way on the exclusive quality of this strategy – that learners are attracted to a provider which is a

specialist because of the offering's unique value proposition. If this is personalisation, the offering is highly tailored to learners' preferences and demographics in terms of content, delivery channel, and assessment.

A specialist strategy could even compensate for shortfalls on more established selection criteria. A highly innovative university could leverage advanced digital technologies to create contemporary, engaging digital learning experiences (study-at-home). These may compensate for limitations in learning content quality which might be less research-informed than other universities. A specialist must choose what to do, and what not to do. This choice will have significant implications for the balance of investments in areas like digital versus physical infrastructure. Extensive physical campuses, a regional focus, make-all-content, and complex research infrastructure can be inconsistent with establishing world-class digital platforms and experiences for globally distributed learners as part of a scalable specialist strategy.

Specialists in digital delivery are visible in sectors like banking and insurance where customers are attracted to banks with user-friendly apps. Young customers often rate the quality of the digital engagement higher than the actual quality of the retail banking product offered, or the physical experience at branches. Being a specialist is a way the overall contemporary student experience may become dominant, and how that experience is measured migrates from being based purely on broad metrics like student satisfaction to include specific measures of digital interaction quality.

A *specialist* may pursue a singular growth focus at either extremity of our strategic dashboard's three dimensions. The specialist might emulate a Spotify-like approach to learning service provision by choosing personalisation, which could lead to a distinctive market offering. In fact, personalisation would severely disrupt a strongly provider-centric learning economy (e.g. common teaching timetables, universal need for students to be on campus) as opposed to customer-centric (e.g. personalisation of content and assessments, home delivery).

Economically, a specialist strategy based on personalisation provides opportunities for an additional margin as personalised education can be seen as a premium service. Each specialist strategy also comes with additional commission-based revenue opportunities (e.g. translation services, personalised coaching), demonstrating the importance of business model literacy as a key complementary capability. As an example of what not to do, a personalisation specialist would not offer large-scale, undifferentiated learning experiences as face-to-face offerings to all students in single timetabled sessions and using homogeneous learning styles.

Of course, *specialist* strategies are possible for all five strategic principles on the strategic dashboard. At least in transition, many current providers are likely to pursue migration from the undifferentiated *safe pair of hands* provider model to increasing growth specialisation through one of these strategic principles. They will need to quickly build the capabilities required.

Julianne was increasingly frustrated with her early attempts to reskill through post-graduate short courses offered by Columbia, her alma mater. She had read about them with interest in the regular alumni communications that preceded their annual appeal. This was a pattern of communications and engagement she was now used to.

The micro-credentials in social marketing and business communications promised so much. It was, after all, arising from the work of world-leading researchers in this field whom her former department had recently hired as part of the university's new academic directions.

The content was undoubtedly outstanding. But Columbia's interface for accessing it was so frustrating to use. The cumbersome admissions and enrolment process reminded her of standing in line 20 years ago to access Columbia services. And the learning interfaces and platforms! They were no different to websites she had used ten years ago.

She had become increasingly familiar with contemporary digital interfaces in her music-, entertainment-, and podcast-listening. The way that new commercial skills providers were adopting some of these systems and design principles attracted her attention as learning resources, although their globally sourced content did not include the Columbia research she knew was the best. But their platform did allow her to digitally interact with other learners in corporate settings around the world.

Julianne was very open to exploring new ways of learning. She wanted to stay on top of her profession and was well aware that her preferred, individualistic learning style and needs hankered for a more personalised approach.

3.3 Generic Strategy 3 – The Hybrid

Further exploration of these *specialist* generic strategies suggests some new learning economy participants will foresee new services and products that *combine* both ends of a spectrum of strategic principles. This third generic strategy is the *hybrid*. The hybrid strategy illustrated in Figure C.4 targets both scalability and personalisation.

Any hybrid strategy is a challenging endeavour. It requires a provider to integrate two principles that, on first sight, seem opposed. A supplier aiming for scale will do this most cost effectively if the mass of learners consumes the same service. In fact, the scalability play is very much a strategy measured by growing the *quantity* of learners. In contrast, the personalisation strategy is centred on depth and situational appropriateness of individual learning experiences. As a result, it aims for high-*quality* learning experiences. Simultaneously combining quantity (scalability) and quality (personalisation) means successfully overcoming apparent tensions (e.g. through scalable, advanced AI-solutions that feed recommendations and further personalised learning services to large volumes of learners).

Because of its challenges, a successfully implemented hybrid strategy has much higher potential to offer the learning market a unique value proposition than a more easily implemented specialist strategy.

There are six strategic principles on the dashboard. When two are incorporated into a hybrid strategy, capabilities inconsistent with them, but supportive of other strategic principles, would be de-emphasised. A hybrid strategy that combines personalisation and scalability would require optimising many capabilities in digital foundations to deliver scale of operations and global delivery in multiple languages with advanced user experiences. Advanced analytics capabilities would be required to allow emphasis on personal learning style preferences and personalised content. It is less likely to require capabilities based on creating network effects among multiple connected learning communities, or the distribution capabilities that provide trusted relationships with customers, or relentless focus on technology innovation other hybrid strategies would emphasise. Each specialist and hybrid generic strategy requires a detailed capability requirement assessment, enabling a participant pursuing the strategy to clarify what to do and what not to do, either now or in implementing transition plans.

This could have implications for the breadth of disciplines and programme offerings; the existence, range, and nature of campuses and physical facilities; widespread pursuit of research and community engagement across all areas of academic work; and in-house retention and operation of support services.

Given three pairs of strategic principles, three hybrid strategies can be pursued by the five participant types. Participants apply one of centricity, connectivity, and certainty, which lead to three types of hybrid strategy that could be pursued: a centricity hybrid, a connectivity hybrid, or a certainty hybrid.

Centricity:
Who is in focus: Everyone or the individual?

| Scalability | ←——————→ | Personalisation |

Connectivity:
How to connect: Over time or with others?

| Continuity | ←——————→ | Community |

Certainty:
What is valued?: Possibilities or predictability?

| Innovation | ←——————→ | Trust |
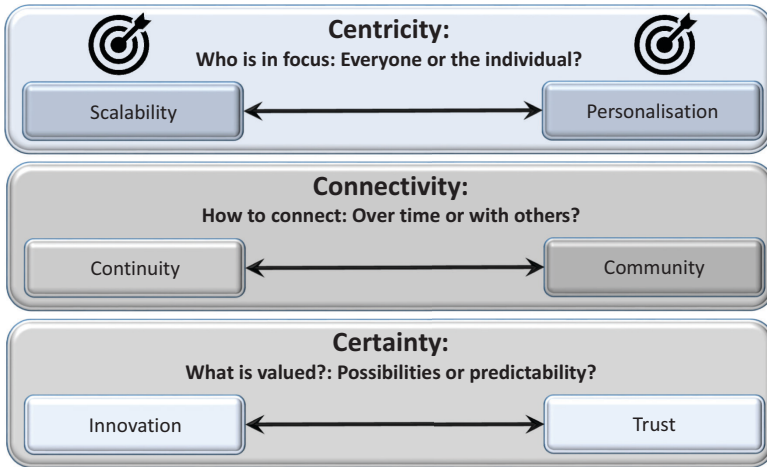
FIGURE C.4   Three *hybrid* generic strategies.

A centricity hybrid strategy (mass personalisation) combines personalisation and scalability principles, and providers must have capabilities for both. This brings about a further complexity. A hybrid strategy demands more than simply adding together capabilities of two specialist strategies. It requires exploring their synergies and harnessing the opportunities and challenges that arise from implementing a combination of principles.

The tension between the two principles requires nuanced and sophisticated strategic responses. Successfully implementing a centricity hybrid demands that a provider first build a scalable operation with a significant volume of learners or users. The rich data from these learners and their behaviours allows development of a personalised approach through learning analytics and through identifying distinct learner experiences and journeys. This is a basis for further extension, growth, and expansion by providing mass personalisation at scale. The route from a current position to a specialist capability, then to a hybrid strategic position suits the centricity hybrid well. Contemplating reintroducing scalability to an already personalised model is a more difficult path to imagine. It is operating at scale that provides data about learners from which analysis and categorisation allow personalisation of services. The centricity hybrid implies a sequential implementation pathway rather than one-step, nuanced and simultaneous implementation of the two principles.

3 The Four Generic Strategies for the New Learning Economy

A connectivity hybrid (*continuous community*) combines two strategic principles of continuity and community in a nuanced way. One route to this hybrid is that a specialist first builds a strong continuity differentiated position. This foundation extends it into multiple communities. Community members would receive added value from exposing their continuity advantages to network effects. There is another route to a connectivity hybrid where seekers of lifelong educational well-being see value in participating in learning communities with network effects, and can also extract value through long-term continuous services. Such services can be offered over time by various types of learning economy participants. The established community can be one way of resourcing provision, as can incentivising such learning services. Imagine the motivational impact that 70% of members of an MBA cohort undertaking their "educational upgrade" (continuity effect) might have on the remaining 30% (community effect). In behavioural science this is called the bandwagon effect (or conformity bias). It is an additional synergy community-centred learning providers could capitalise on when combining services to achieve continuous learning as part of a hybrid. This connectivity hybrid can proceed with either principle being the initial route to staged implementation.

The certainty hybrid (*trusted innovation*) similarly has implementation options. In a Part B case study, we identified how Amazon built a trusted position as its continuous innovation has allowed it to provide reliable supply chain performance. In return, customers trust Amazon. Its appetite and capability for conducting innovation future-proofs the organisation, and with it, shareholders' investments. Until now, current universities have displayed a dichotomy. They have appeared to build reputations based on legacy, tradition, and prestige as trusted providers. In fewer cases, they have sought to be highly visible by adopting predominantly innovative approaches. There is a stark distinction in how Oxford University and Arizona State University are perceived. They have respectively adopted either predominantly trusted or innovative positions. Rarely do universities have a strong reputation for doing both simultaneously.

The ventures of MIT, Harvard, and Stanford into edX and Coursera signal change. We expect "trusted innovation" strategies to emerge among all five types of participants seeking trusted positions through innovative approaches. As outlined in Part B.6, extreme trust is one highly innovative form of providing learning services as learners are completely subscribed to the quality of the proposed content delivered by the provider. Examples given earlier show how places of trusted current learning provision offer a platform for innovative ventures that are bold and radical. There is also opportunity for participants to pursue certainty hybrid strategies where the two strategic principles are pursued together and simultaneously.

Saki was celebrating the third year of successfully establishing her mountain holiday resort with its onsen and renowned cultural experiences. The time since she had left the automobile industry had given her a great opportunity to build a reputation in her cultural field that was second to none. Building on her father's networks, and learning his stories before his passing, were invaluable.

She had formed a LinkedIn group of cultural devotees and built on it. Group members took up the LinkedIn learning offerings that combined innovations from partners like Microsoft, and emerging business ideas around the importance of trust. Saki combined these innovations behind the learning platform. She also integrated them into her resort, which had become a place for immersive physical interactions in one of Japan's most beautiful locations. She combined these attributes through digital immersion in global expertise on cultural tourism and practice that allowed her to carry on, with great success, the business her father had granted to her.

She began to see how her new business relied on the concept of trust between her and her customers. She saw how important her cultural sensitivities were to building trust, and to building on her father's networks. Her new markets also relied on innovative use of digital technology to bring trusted experiences to the attention of remote new customers.

Saki was greatly encouraged, for instance, by how the wisdom of her cultural elders in one-to-one consultations could be combined with support from AI-enabled engines. This recommended up-to-date insights on these matters from other cultures.

3.4 Generic Strategy 4 – The Pantomath

Ambitious participants, or alliances and partnerships between participants, can pursue all six strategic principles simultaneously. This potentially disruptive and high-reward growth strategy is presented in Figure C.5 as the fourth generic strategy. We term this generic strategy the *pantomath*.

3 The Four Generic Strategies for the New Learning Economy
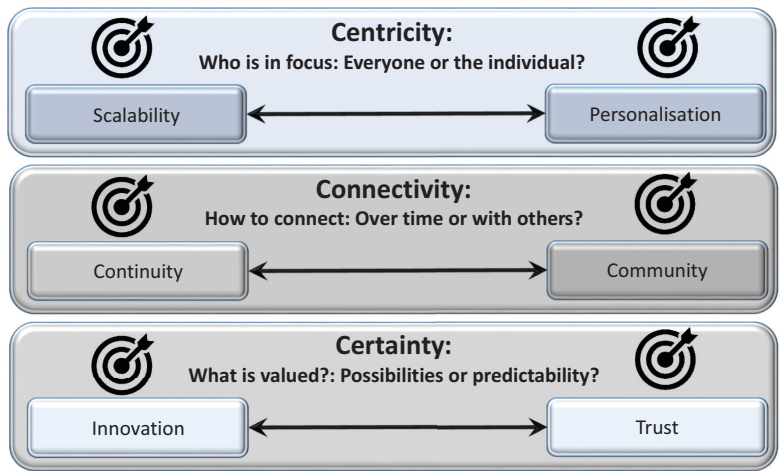
FIGURE C.5   The *pantomath* generic strategy.

This generic strategy requires capabilities in all six strategic principles, plus the capability to successfully integrate them to secure the pantomath's synergistic effect.

A pantomath is likely to require significant collaboration and cooperation between several stakeholders, substantial investments, and an unrelenting focus on the big play. Selecting the pantomath entails dispensing with capabilities and competencies inconsistent with the strategy.

The pantomath is not a strategy that many learning economy participants will pursue. It is the most risk- and investment-intensive of our four strategies. Some, mainly new, participants may already be attempting it. The largest market share of any of our pre-sent learning economy markets is a fraction of 1%. Market shares of BigTechs like Google (Search), LinkedIn, Amazon (US e-commerce), and YouTube typically exceed 50%. Is there an economic argument that suggests a dominant market share provider cannot emerge in some aspects of our new learning economy? Is there an economic argument that suggests a pantomath strategy cannot achieve such dominance?

Timing and sequencing of strategy elements are particularly complex for the pantomath. It is conceivable to chart a route as a specialist through hybrid to pantomath. A comprehen-sive plan to become a pantomath in one step is a very significant undertaking, but a likely play for participants already possessing all the essential capabilities and access to a large global market. Given our analysis of the three types of hybrid strategies, and the sequence for implementing them, the implied route traverses centricity, connectivity, and ultimately results in certainty. This path would likely see a scalable specialist reaching personalised delivery, then combining continuity of services offering to lifelong learners while seeking

the network effects of community. This route can then lead to gaining a trusted position of reliability arising from market share and dominant size and scale. Learning economy participants could only travel this route by relentlessly focusing on learning economy innovation.

It is possible to imagine one or more prestigious and leading university providers, say MIT and Stanford, combining with one of their current innovative offshoots, then partnering with each other and a global tech company like Google or Microsoft to explore a pantomath strategy. Such providers may even collaborate with organisations like Netflix or Spotify, and with learner network giants like LinkedIn or SEEK, or maybe both.

Walsh[14] has written of how Scott Galloway predicts disruption is coming to global higher education. Galloway predicts a handful of elite cyborg universities will emerge to monopolise higher education. He sees partnerships such as MIT and Google, or Harvard and Facebook, allowing dramatic expansion in enrolments, and foresees many brick-and-mortar universities going out of business. Galloway also predicts "zombie universities" where alumni step in to help as the value of their prior investments is threatened. He anticipates dominant brand positions of elite universities will find synergies with the innovation, business acumen, and technology of global corporations, and in so doing significantly disrupt the sector.

Realising such predictions rests on major strategic plays, and the very real prospect one elite university will succeed with a pantomath strategy. It will most likely form a partnership that harnesses brand value and reputation, transformational ambition and audacity, and the experiences, technologies, and communities of many players.

A pantomath partnership, combined with enthusiastic innovators with a start-up mentality and successful early experience, could build a new learning provider that becomes dominant in this sector. Media, film, entertainment, music, and other fields have experienced similar outcomes. Mergers involving newspaper brands, and their integration with other media and technology companies, have transformed publishing and other media. Combinations of film studios, television, online entertainment and technology companies continue to trans-form film and entertainment sectors. "The United Nations of Amazon" is an organisation of tremendous scale. It houses highly personalised services, is known for its appetite for and success with innovation, and is trusted with nearly every second dollar US citizens spend on e-commerce.

It may be difficult to comprehend the demise of the local college, university, or other place of learning which is so much part of a community's landscape and fabric. Many thought the same about their local newspapers, hotels, and taxi companies. Lessons from other sectors suggest we need to pay attention to the pantomath.

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It may even transpire that the newly dominant pantomath ends up delivering sector-leading content, using sector-leading platforms, through a partnership with current local providers that optimise local delivery. This would offer locally available, and locally reputable, face-to-face support to the globally dominant platform and content via franchised or locally supported facilities and campuses, without distracting the focus required of the pantomath.

This most ambitious and disruptive of strategies completes our introduction to four generic strategies for the new learning economy. The next question is how the five types of participants would decide which strategy to follow, and how to implement it.

Adam was very careful to advise his daughter Ella about her study options now she was leaving school. It was so different when he went to the local technical university. It was still there, of course, and its great reputation endures. But there was only one choice for Ella given her desire to be a social entrepreneur, She had to gain knowledge to help her serve the purpose she had identified for herself of leading sustainable developments in agricultural communities worldwide.

She was really excited to sign up to the now dominant MISSG platform, as a joint MIT, Stanford, SEEK, and Google venture. MISSG had respectively revolutionised digital learning practices, content curation, and social learning experiences. All became natural targets when these four global giants eventually made their major play. At first, many doubted such a bold conglomerate could significantly dent local education markets. Now that so many of her trusted seniors had such good experiences of and from it, Ella had no hesitation.

Who would not want to learn from the best content from global universities and businesses? She would use learning and user interfaces perfected by the best tech companies, and study in networks with global business leaders, mentors, and fellow students who were diverse and inspiring. Ella loved this new model and knew she was now in the majority that would experience higher education through this platform. The consensus view was that great benefits followed from having personalised learning features tailored to her own circumstances and learning style preferences, all while accessing content delivered at such scale.

Ella and her peers, her parents too, were very reassured by the combination of trusted universities and other companies behind an innovative, groundbreaking venture. Employers were upbeat about outcomes from this education model. The addition of continuous learning rather than learning ending at initial graduation was

a feature that made this alternative model a real draw for Ella and so many other learners like her. Through its design and delivery, they could also connect with so many co-learners and employers.

Ella was pleased that by accessing the platform, supported by study facilities and tutors at her local Humboldtian university, she had some experience of being a local student like her mother, Leona.

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4 Choosing a Generic Strategy

We defined four generic strategies for the new learning economy:

1. Continuing the established model of providing learning services – the *safe pair of hands*
2. Implementing a single principle – the *specialist*
3. Rolling out paired principles in one of the three dimensions – the *hybrid*
4. Becoming a comprehensive provider of integrated learning services – the *pantomath*

All five types of participants have strategic choices. For participants of any type that remain a safe pair of hands, deciding whether to form relationships with emerging competitors seeking to take advantage of growth options is an important consideration. These competitors will choose one of the other three generic strategies to chase growth in new services providing educational well-being.

The threat to a safe pair of hands, as a probable generic strategy for many of the current universities, is vulnerability to two types of fast-paced, digitally capable competitors (Figure C.6).

BigTechs will most likely enter the educational sector as they have entered sectors like entertainment, banking, retail, or news (see LinkedIn Learning, Amazon's Machine Learning University). Their business and operating model, grounded in contemporary and comprehensive assets and capabilities, is well equipped for learning economy integration. They are well placed to serve another sector in need of digital uplift.

On the other hand, EdTechs will carve out pockets of the learning economy that can be served by small, but agile providers working into an established learning economy and providing cheaper, better, or entirely new services. This is the "textbook" approach observed with large-scale disruptions. Universities are unlikely to be exceptions.[15]
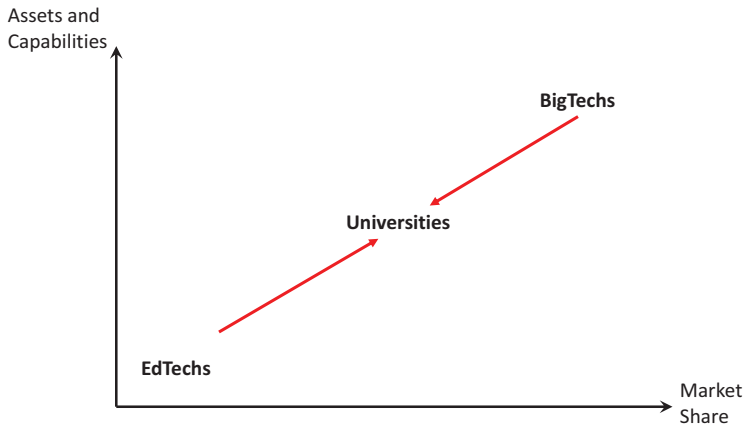
FIGURE C.6   The two-sided threats to universities choosing the safe pair of hands strategy.

Not all five participant types are equally likely to pursue all four generic strategies. Table C.2 indicates where combinations of participant type and generic strategy are expected to be. We can consider these most likely combinations before exploring the methodology by which all would choose their strategy.

Universities currently operate in safe pair of hands mode. The default for platforms and EdTechs is to be a specialist provider to the learning economy. Communities already combine scale with personalisation. BigTechs usually act as pantomaths in the sectors they already dominate.

Table C.2   Likelihood of various strategy–participant combinations

Generic Strategy	Participant Type				
	University	**Platform**	**EdTech**	**Community**	**BigTech**
Safe pair of hands	Default	Potential	Remote	Remote	Remote
Specialist	Potential	Default	Default	Potential	Remote
Hybrid	Potential	Potential	Potential	Default	Potential
Pantomath	Remote	Potential	Potential	Potential	Default

We now present a methodology by which all participants can assess which generic strategy they can and should follow beyond these current default positions. This three-stage methodology allows leaders to undertake a strategic competitive analysis for the new learning economy. It involves answering five questions in three stages regarding their ambition and their current and potential capability to achieve that ambition (Figure C.7).

4 Choosing a Generic Strategy
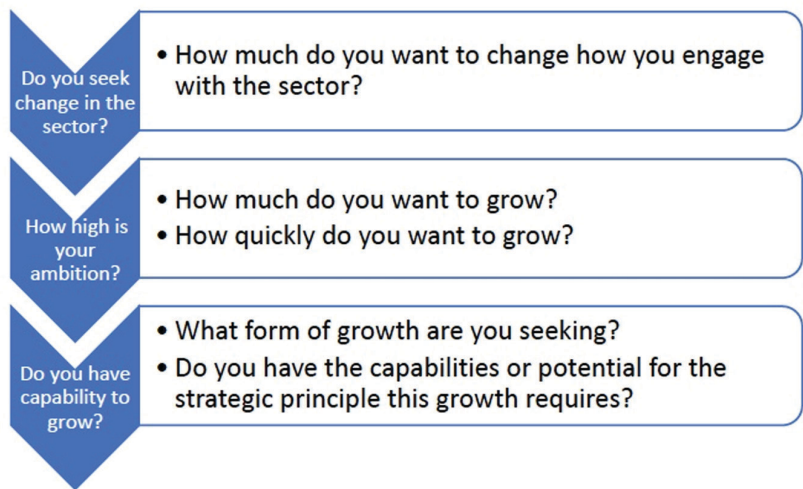
FIGURE C.7   The three stages of the strategic planning methodology.

How radical a participant wants to be will distinguish new participants seeking growth through these generic strategies. A prerequisite to applying this methodology is to consider what level of ambition an organisation and its leaders have. The five questions are then answered in sequence, as in Figure C.7. We now illustrate this methodology through a worked example use of a toolkit.

4.1 Do You Seek Change in the Sector?

We begin work through the methodology with reference to ambidextrous educational well-being, a concept we introduced as Figure A.8 and reproduce here (Figure C.8).
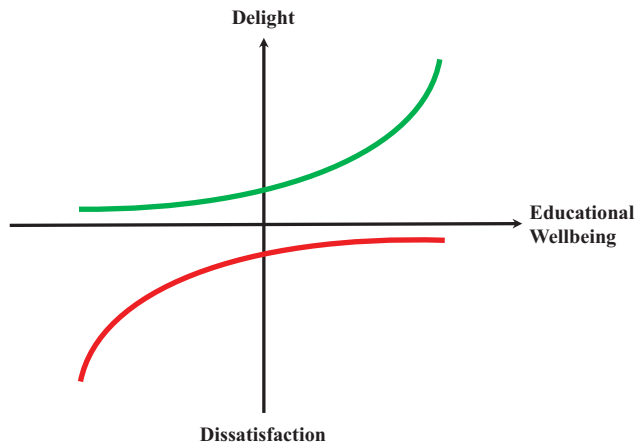
FIGURE C.8   The ambidexterity of educational well-being.

Participants following the lower line seek to successfully satisfy predictable current and emerging requirements (e.g. demand for micro-credentials, online learning decoupled from spatial and time constraints). These might be seen as hygiene factors in the current learning economy. They are challenging as in many situations, learners' requirements are growing faster than organisational capabilities. Many providers risk remaining in the bottom left quadrant of this diagram even as they seek to move to the bottom right.

Participants following this "below the line" strategy choose long-term sustainability of their current form. They aim to achieve this through the safe pair of hands generic strategy, applying strong strategic attention on driving reputation and quality. This strategy relies on existing resources and capabilities. It is executed within current cost and revenue models. It is exposed to external risks as new business models pursued by others succeed, and as demand patterns, and therefore pricing models, change. Assessing these risks requires measuring opportunity costs, an underdeveloped capability in the current learning economy.

This is different from a "strategy above the line" where revenue matters more than cost, design more than analysis, exploration more than exploitation, tomorrow more than today. Consequently, opportunity appetite is higher than risk appetite. Those pursuing the higher line will prompt more ambitious and innovative thinking and activities. Our other three generic strategies – specialist, hybrid, and pantomath – are above-the-line strategies.

Table C.3 is the first of a sequence of steps in an operational toolkit which when completed gives a worked example of a hypothetical current university following our strategic analysis methodology. The worked example is one in which we assume our current university decides to pursue a generic strategy. It does so based on its current and desired future capabilities, and its ambitions for growth. Our worked example demonstrates how this university decides to move from being the *safe pair of hands*, how it makes preliminary assessments of being either a *hybrid* or a *specialist*, and then chooses which strategic principle to follow.

4 Choosing a Generic Strategy

Table C.3 How far do you want to move your sector engagement?

AMBITION FOR SECTOR CHANGE	
How much do you want to change, expand or migrate from your current forms of sector engagement?	
	Score
Continuity in our form of engagement with the sector is of critical importance to us and safeguarding our current relationships with stakeholders, maintaining our reputation, and ensuring all staff, partners and other stakeholders have confidence that trusted positions can be maintained is critically important to our long term strategic position.	1
We would tolerate some level of evolution in our current form of engagement with the sector but our current position, reputation and relationships are of some importance to us. We would prefer our evolving differentiation in the sector to be incremental and to be in line with wider sector evolution rather than lose any current position in the field.	2
We aspire to a significant differentiation from competitors and other current participants in the sector by significantly changing how we engage in the sector. We see this as a time of transformation and possible disruption in the sector and would want to be seen to differentiate significantly in strategy and find new business models.	**3**
We seek to reimagine our engagement with the sector by disbanding the dominant perception of how we are currently engaged and to be perceived to have reinvented ourselves and repositioned in the sector. We see this as a time of rapid transformation and almost certain disruption and believe repositioning is critical to long term survival.	4
Dramatic repositioning and complete and comprehensive transformation in how the market globally perceives our purpose, brand, reputation, services and future potential is crucial to our strategic future and requires a pace of change, disruptive presentation of purpose and experience of strategy delivery for strategic success to be achieved.	5

Our preliminary analysis of your self-assessment of growth pace ambition suggests:
1. Continuity of engagement is very likely to imply a safe pair of hands strategy
2. Evolution of engagement implies a safe pair of hands strategy or a specialist.
3. Significant differentiation implies a specialist strategy or some hybrid strategies.
4. Reimagined engagement with the sector implies a specialist or hybrid strategy.
5. Disruptive transformation is a key requirement of a pantomath strategy.

The analysis shows that of possible answers to questions in stage 1 of our methodology, answer 1 generates a clear choice for the *safe pair of hands* strategy. The other four answers of an "above-the-line" choice lead to one of the other three generic strategies. Which strategy to follow, using which strategic principles, is examined in more detail in stages 2 and 3.

Answers 2–5 would be based on varying degrees of anticipated change in current sector engagement. The specialist is a generic strategy well suited to either a new entrant to the sector or a current provider seeking to expand in one particular domain as a differentiation and transformation focus: for this, appetite and ambition for change must be substantial.

For any current university provider, particularly one that has operated for decades, if not centuries, to become a *specialist* requires a clear, bold decision to forego many legacies of traditional university providers. Determined and resilient efforts would be required in letting go of and overturning reputation, expectations, and histories in infrastructure, processes, brand positions, product offerings, resource capabilities, stakeholder expectations, and other aspects of current positioning.

This is needed to devise, prepare for, and launch an entirely new proposition. The desire for change will be substantial. It might be a "backs to the wall" reaction for a current provider facing severe pressure on revenue resilience. Current pressures, and ways they are playing out for different parts of the sector, offer niche opportunities for current providers choosing this generic strategy.

The *specialist* generic strategy is well suited to a university provider answering this question by expressing a wish to evolve from its current position rather than abandon it fully and quickly. This also requires significant determination, momentum, and clarity, and clear communication by leadership to staff, students, and stakeholders, portraying the current university reputation, traditions, and legacies as moving into becoming a different type of university. Of all the options, other than the *safe pair of hands*, the generic strategy keeps most faith with current position in the learning economy, and requires the least change. But to be successful and distinctive from the *safe pair of hands* requires sufficient change, momentum, growth, and a presence in the preferred destination.

For a learning platform like Coursera, which emerged from Stanford University, this strategy requires an ambition to cut any current chord and go it alone. For many EdTech companies and start-ups, this is a critically important question. As OPMs, many EdTechs have developed symbiotic relationships with current providers, other BigTechs, and community partners, and typically have B2B relationships with multiple current providers as their principal current involvement in the market.

Of these five questions, a critical one for some new EdTechs, in combination with answers to other questions, is when they want to relinquish current B2B relationships and pursue new B2C strategies. Current community providers or BigTechs would need to change their current partnerships and supply relationships with the sector. This could offer new means of engaging and pursuing strategic opportunity in the search for a pantomath strategy that might follow later.

For participants other than existing university providers, their current engagement might be used as a leadership starting point. It may trigger implementation of either a *specialist* or a *hybrid* generic strategy through existing partnerships with university providers.

4 Choosing a Generic Strategy

If Coursera, Google, LinkedIn, or a EdTech wished to become the personalisation *specialist* or a personalisation/scalability *hybrid*, it could be as a major play building from current engagement with a university provider positioned as a *safe pair of hands*. Such engagement is likely to be temporary, decreasing over time to avoid strategic confusion and conflict. The extent to which both providers might evolve by disengaging from their current partnership activities, will be a major strategic driver of their relationship.

For the pantomath, the scale, extent, and point of difference of the generic strategy requires all players to substantially change current engagements with the sector. This decisive, competitive strategy relies for success on repositioning as a dominant global provider of new learning economy services. Constraints caused by retaining any sentimental associations with prior engagement modes are inhibitors and barriers to success. This strategy is not for the faint-hearted and likely to be followed by very few organisations. It requires ambitious players to irrevocably lead learning economy change and disruption. There are great opportunities in this strategy, but may not be one for a player with ambitions to remain connected with current learning economy settings of collegial communities of scholars.

We can summarise this first stage and question of our methodology as one of appetite for differentiation, which combined with above-the-line or below-the-line ambition generates the generalised set of suggested outcomes shown in Figure C.9.
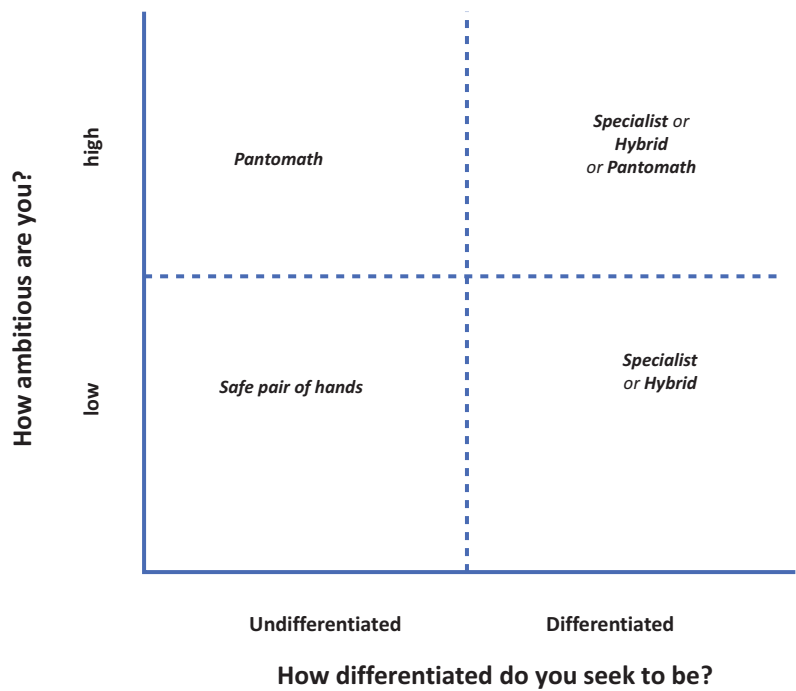
FIGURE C.9 Ambition and differentiation propensity, and the strategies implied.

Our worked example shows our university seeking significant differentiation, meaning that it is relinquishing its *safe pair of hands* approach and committing to an above the line strategy, the nature of which will be determined by its growth appetite.

4.2 How Much Do You Want to Grow?

The second stage in our methodology identifies which generic strategy is most appropriate. It requires us to establish our levels of urgency and ambition: how much and how fast we seek to grow becomes key to choice and the implementation process. Many large universities, or university systems, operate around the world with a combination of online and in-person attendance. Significant global growth in universities has followed the opening of higher education to greater proportions of the population.

The largest institution, established in 1985, is the Indira Gandhi National Open University in New Delhi, India, with a reported[16] 7.1 million enrolments in 2021. The Allama Iqbal Open University in Bangladesh, which opened in 1974, reportedly has more than 3.3 million enrolments. The more recently established National University, Bangladesh is a network of colleges and professional institutions throughout the country operating under a single Act of parliament as one organisation since 1992. It has more than two million enrolments.

Sapienza University in Rome has grown to 147,000+ since 1303, a similar enrolment to the online-only Western Governors University in the United States, founded in 1999. Most global universities fall in the 20,000–60,000 undergraduate enrolment range. The ten largest US universities, with the exception of ASU, have between 33,000 and 58,000, although certain state-wide university systems, particularly California, are much larger. The 50 largest UK universities all have between 20,000 and 41,000 undergraduate and postgraduate students (not including the much larger Open University with 129,000 students). Universities are currently remarkably similar in strategy, business model, style, and size.

Few universities have ambitions to achieve extraordinary growth. Vast numbers in the Asian institutions stated above largely result from networks of local colleges in national systems, and in countries with high population density. Created through legislative change, they operate independently. Dominant Indian Institutes of Technology have fewer than 1,500 students each and are not growing.

But the new learning economy serving future educational well-being needs will increase competition in existing markets, requiring revenue resilient strategies, and new markets will grow extraordinarily quickly. Universities wishing to shift from current trajectories must answer the question of how much to grow. Technology and the emergence of global markets make different answers possible, removing currently pervasive barriers to ambition.

As our six case studies in Part B show, fast growth and massive global scale create very different strategic opportunities, invoking different competitive strategies. This first question is instrumental in determining which of our four generic strategies to follow.

The new entrant specialist is unconstrained by size in pursuing a differentiated strategy following one of the six strategic principles which are unconstrained by legacy operations. As a niche provider, a new entrant thrives on significant growth. Depending upon which principle they pursue, growth may be local or global. New entrants will have a thirst for investment, and need to build foundational infrastructure, reputation, and experience. Specialists focused on scalability, community, innovation, and continuity are likely to aspire to significant growth, but less so if focused on personalisation and trust.

Fast-mover *specialists* pursue their generic strategy by expanding into new markets with pace and momentum while expanding infrastructure, capital, overheads, and operations. They divest current assets and focus, before their competition. Their likely aspiration is for substantial growth and an eventual size that maintains momentum in differentiation.

Specialists would have scope to transition overheads by divesting from foundational and legacy infrastructure, markets, and operations. Their growth ambition is most likely an order of magnitude greater than current operations. Lack of a growth ambition or opportunity may have previously prevented bolder strategic moves from current players. This may change as growth opportunities become more obvious and potential participants more varied. The reach and potential of technology boosts the likelihood of rapid growth.

A current provider pursuing this generic strategy must strategically assess how to balance growth ambition for new business with the maintenance or exit strategy from current operations. The counterpoint to growth is how to manage the accompanying decline or the status quo in existing business. This requires finesse. This generic strategy is being pursued by a congested field of competitors asking similar questions, so it is essential to explore this option with a keen eye on both competitor behaviour and market dynamics.

The hybrid strategy adds complexity by combining two new strategic principles into a harmonious, differentiated offering while benefiting from growth ambition that is spread over two dimensions in which markets will grow. This goes beyond finding ways to combine capabilities and execution of two discrete specialist strategies. An implementation plan for a true hybrid strategy must embrace two strategic principles and harvest their synergies.

This strategy's nuanced nature might mean this offering for market size is more constrained than for the *specialist*. Nonetheless, the *hybrid* must grow fast and may need ambition for an even greater share of total market growth. This suggests the *hybrid* is most probably globally ambitious and unconstrained by local or national markets.

A huge appetite for growth characterises the pantomath. This generic strategy entails dominant market share of global markets that combines many strategic principles on which the generic strategy's design is based. The heart of this generic strategy is large growth combined with global ambition. Leadership, investment, operations, marketing, content assembly, technology deployment, and other strategic implementation measures must fully align with that ambition.

Every potential participant in the new learning economy must answer the question of how much it wants to grow.

Table C.4   How much do you want to grow?

AMBITION FOR SIZE OF GROWTH	
How much do you want to grow given the opportunities emerging in the new learning economy for products and services that provide for educational well-being?	
	Score
We expect to have a similar size and scale of operations in the new learning economy to that we currently hold. While some growth that can fuel our more significant focus on growing reputation, profile, and our standing in the sector are valuable to us, growth in volumes of activity are not attractive if they jeopardise our quality and reputation.	1
We aspire to some incremental and continuous growth in new and emerging learning economy markets with growth in scale and range of activities complementary to other strategic goals of reputation, profitability, reputation, risk exposure, and comparative measures of quality.	2
We have sector-leading growth ambitions that would entail us either significantly extending our current market share in geographical, delivery mechanism, and level of education terms or to enter significant new markets with a strategy that allowed us to gain a dominant market share in particular markets through differentiation.	3
We have high ambition for growth in current markets and into new markets that are emerging in the learning economy. We see a future market share and standing in the economy that is unrecognisable from the current profile and position we hold.	**4**
We aspire to a dominant market share position in global markets for a range of learning economy services in conjunction with other specialist partners. We expect to be the dominant provider in a transformed market place and to significantly disrupt the overall sector with the extent of our growth and ultimate market position.	5

Our preliminary analysis of your self-assessment of growth size ambition suggests:

1. A likely safe pair of hands strategy or possibly a specialist as a differentiation shift or new participant in new market provider
2. An aggressive safe pair of hands strategy or a specialist or hybrid strategy with a differentiation and new business model participant
3. A specialist or hybrid strategy with significant differentiation and new business model execution.
4. **A strongly executed and market-leading specialist or hybrid strategy with disruptive new strategy and business model execution**
5. A pantomath strategy in conjunction with carefully selected strategic partners who share your ambition for ultra-high growth into a dominant market share position.

4 Choosing a Generic Strategy

As our worked example shows (Table C.4), the hypothetical participant we are demonstrating has decided it wants to substantially change its sector engagement. It has also endorsed high-growth ambition, adding to the likelihood it will choose either a *specialist* or a *hybrid* generic strategy. These alternatives can be weighed by determining the appetite for urgency in growth.

4.3 How Quickly Do You Want to Grow?

The second question in stage 2 of our process concerns the desired pace of growth. Desire and capacity may not align, and significant investment might be required. For positioning to be enduring, sustainable, and potentially disruptive, it is important that pace of growth is sufficient to allow non-destructive competitor and first follower behaviours. Pace of growth needs to be fast enough to be distinctive and ensure survival. A strategic play may not require exponential growth.

The current player pursuing a *specialist* generic strategy seeks to break from the pack. The propensity for a peloton to reel in a breakaway rider over a lengthy period is such that many cycling attacks fall short of stage victories. Those that succeed are well timed, often on inclines, for instance, fast and sustained enough to allow sole riders to clinch victories and gain long-term benefit on a leader board. Fast-movers rather than first-movers are often winners.

Translating cycling metaphors into learning economy strategy, a fast-mover breaks away from the pack of current university learning providers by adopting one or another of the strategic principles. A fast-moving *specialist* generic strategy is ideally suited to a player with an appetite to attack from the front. This requires a period of preparation while in the pack – a decisive strike relies on capability, technology, culture, resources, and leadership. The player must launch a move others cannot quickly follow or replicate, driven by appetite for fast and exponential growth. Perfect timing for rapid growth in online delivery, based on any of our six strategic principles, occurs when most other players are downsizing or avoiding risk, or executives are otherwise distracted, timed for the midpoint of recovery from a global pandemic, for instance.

The hybrid strategy is complex. It requires sophistication. Its best application may be to collaborations between participants. A medium pace of growth is likely to suit it best. Of greater consequence than short-term, fast growth is certainty and sustainability of long-term growth for which this nuanced play is designed. It is fast enough to assure momentum, but not so fast and fierce that competitors crowd the strategic landscape, or that sureness of execution is undermined in the rush to fuel growth.

For the pantomath, pace of growth and timing are critical. This generic strategy is likely to evolve progressively during deployment. Once preparatory positioning is complete, it relies absolutely on fast growth, and probably universal and ubiquitous global growth, to ensure that a major play, when made, is decisive. Extraordinarily competent market and business analysis and planning are behind this generic strategy. Detailed insights are needed into very high rates of universal global growth being prevalent. These will occur as educational well-being needs mature, and learning and economic imperfection and inefficiency disorders are most pronounced. This will determine when the play is made. The *pantomath* requires fast growth that is transparent, certain, and universal. This play's timing and success rest on judgements about others' ability to fully counter it, or compete with it.

These questions in the methodology provoke responses that frame an understanding of a participant's appetite for pace of growth. The worked example outlines the range of answers, and their implications for strategic choice. They further influence which generic strategy is adopted.

Table C.5   How quickly do you want to grow?

AMBITION FOR PACE OF GROWTH	
How quickly do you want to grow?	
	Score
We seek to avoid growth to avoid disruption of stable patterns of current assets, offerings, resources and practices. Our priorities are in other areas of reputation, quality, risk avoidance and research achievement and any growth we are exposed to is preferred to be slow to ensure it does not disrupt other more important objectives.	1
We seek low levels of steady, continuous and incremental growth allowing low risk and continuously evolving execution of current strategies and business models without the need for differentiation and rapid change in assets, service offerings and resources. We are satisfied with low pace of growth and change and prioritise other goals.	2
We seek a moderate pace of growth to allow the subtlety, complexity and sophistication of our differentiated strategy and new business model to be securely designed, implemented and deployed without alerting the attention of potential imitators while a long-term strategic position is assured.	**3**
We seek fast rates of growth to allow the financing and securing of a complex strategic play to have momentum and to become quickly established and secured before imitators can respond. The pace of growth is also required to affirm the validity of a complex strategic implementation and allow feedback to inform execution refinements.	4
We require very rapid rates of high-paced and substantial growth that verges on transformation and disruption in current and new markets on a global scale to provide fuel to a radical differentiated strategy and new business model execution that requires transformation and momentum through rapid growth to fuel execution and distinction.	5

Our preliminary analysis of your self-assessment of growth pace ambition suggests:
1. Very slow or no growth is likely to preference and imply a safe pair of hands strategy
2. Slow growth also implies a safe pair of hands strategy or some specialist strategies.
3. Moderate growth is likely to imply a specialist strategy or some hybrid strategies.
4. Fast growth is likely to mean a complex specialist and many hybrid approaches
5. Exponential growth is a key requirement of a pantomath strategy.

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The worked example in Table C.5 assumes a university seeking a moderate pace of growth. As illustrated, this answer suggests either a *specialist* or a *hybrid* generic strategy is preferred.

Other possible answers show that having chosen a radical departure from the current form of engagement with the sector, a participant might still prefer a safe pair of hands strategy if its appetite or urgency for growth is low. Choosing generic strategies based on pace-of-growth preferences depends on the combination of time required to implement and subsequent growth ambition. All four generic strategies take time to develop and implement, and all need time to achieve growth, as depicted in Figure C.10.
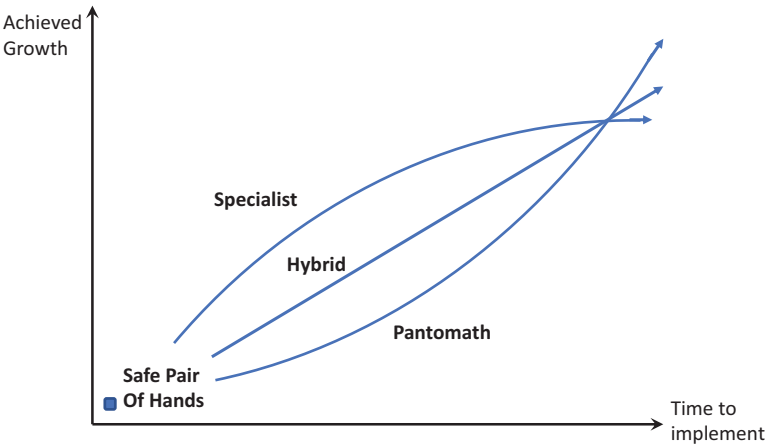
FIGURE C.10   Profiles of implementation times and growth achievement.

Figure C.10 shows a *specialist* strategy as quicker to implement, with growth acceleration concentrated in earlier stages of implementation. A *pantomath* generic strategy is slower to implement due to its comprehensiveness, but growth may become exponential as market share rapidly accelerates following implementation. A *hybrid* strategy's implementation and achieved growth rates lie between these two extremes. A *safe pair of hands* requires little preparatory implementation but has low growth expectations.

Applying this to our methodology shows our worked example university can still seek any of the three new generic strategies, but this further assessment suggests either a *specialist* or a *hybrid* strategy is a better choice. Further clarity about this choice can now be finalised by determining this university's capability and potential to implement one or more strategic principles that match the growth rate it seeks. We establish this through the third and final stage of the process.

4.4 What Form of Growth Are You Seeking?

Having completed stages 1 and 2 of the methodology for our worked example, the final step is to identify the preferred form of growth. The first task in stage 3 is to determine what form of growth is sought. The second task is to determine whether the capabilities we have, or have potential to develop, match those required for that form of growth.

Growth ambition is a dominant driver of innovation in the case studies we used in Part B to derive our three pairs of strategic principles. At the end of Part A, we described how growth ambition in the new learning economy could be for five quite distinct forms of growth. In user-based growth the ambition is for volume of learners. Many learning economy providers will seek economic forms of growth. Some will seek to incorporate purpose-driven growth. The world's biggest universities serve very significant social missions and purposes in making education broadly available to large populations. They operate in a different part of the current ecosystem from Harvard, Oxford, or the Sorbonne. For many potential innovators, the ambition is to increase volume of learners as the preferred form of growth. This ambition has implications for which generic strategy to follow and which strategic principles to apply within that strategy. It aligns most closely with scalability and community principles. Innovation and trust are also highly matched to this form of growth. Personalisation and continuity principles have a partial match.

Content-based growth is quite different as an ambition from user-based growth. A global proliferation of new content, and the ability to navigate it, are becoming critical. Growth ambitions are becoming visible that focus on making available and navigable the greatest growth of current and future content. Such ambitions bring forward different strategic principles and generic strategies than the seeking of massive numbers of learners. The trust and personalisation principles have a strong alignment with opportunities arising from growth in content. Innovation and community also have a high match as principles. Continuity and scalability have more of a partial match.

Value-based growth represents a different growth ambition again from those above. It takes a focus more on the extent of application of learning in the new economy. It lends itself even more to new entrants into the sector. It entails prioritisation of some strategic principles over others with implications on which strategic principles to pursue. For example, a personalisation strategy creates entirely new value for the learner as it tailors experiences to the learner and pre-filters relevant content. In a similar way, a community approach offers peer-to-peer learning as a new form of value, and a continuity strategy will create new value post-degree. A scalability strategy, however, will be largely resting

4 Choosing a Generic Strategy

on established forms of learning consumption unless other ecosystem partners co-create value for the learner.

And we should remind ourselves that time-based growth relates to ambition for the length of time in the relationship with the learner. It sees opportunity in building lifelong connections that are most aligned with the continuity principle. It has implications for which other principles are preferred. Time-based growth is best suited to those who already have learners. It is well matched to the scalability, personalisation, trust, and continuity principles.

Finally, growth may be for a larger market share in local markets, or fuelled by the search for expanded geographical reach. This may be from local to national domestic markets. Or it may be to onshore, offshore, or online international markets. Indeed, one of the most significant decisions in strategy setting for new learning economy participants may be the choice between being a predominantly local provider, with some international reach, or becoming a global player. The implications for which generic strategy to adopt, which principles to apply, and which of our participant categories, or combinations of them, would be best placed to pursue global over local growth, are profound. A global growth goal is aligned most closely with the scalability, personalisation, community, and innovation principles.

We can summarise all of these primary and partial matches of principles with forms of growth as in Table C.6.

Table C.6 Matches between desired forms of growth and strategic principles

Form of growth	Strategic principles highly matched	Strategic principles partially matched
Volume	Scalability, Continuity, Innovation, Community	Trust, Personalisation,
Content	Community, Trust, Personalisation, Innovation	Continuity, Scalability
Value	Personalisation, Trust, Community, Innovation, Continuity	Scalability
Time	Continuity, Trust, Personalisation, Scalability	Community, Innovation
Geography	Scalability, Community, Personalisation, Innovation	Continuity, Trust

The new entrant *specialist* generic strategy is a likely path for a provider that seeks content, value, and time-based growth more than user volume, at least in its initial stages. While the fast-moving current player *specialist* would be more likely to pursue user volume from their starting point as a safe pair of hands. This is particularly the case if they are pursuing a scalable principle, but less so for those seeking specialisation on personalisation or trust. The scalable and community specialists are likely to be well suited to global markets. The extent to which local or global approaches are more attractive, and different forms of growth are prioritised, may differ between the six principles in how to specialise.

The hybrid strategy, on the other hand, is a nuanced generic strategy particularly suited to those that have ambition for content or value-based growth, although applications to time-based growth can also be imagined. This too would be a strategy better suited to global growth approaches rather than the more restricted local markets. This again will differ between the three forms of hybrid strategy, and individualised consideration will be necessary.

While the pantomath could have some interest in value and time-based relationships as their route to gaining growth, it appears particularly well suited to those with high ambition for user volume and content growth. This strategy would clearly benefit most from focusing on global growth rather than targeting particularly local markets.

In using this methodology, our worked example university uses our toolkit to further guide their approach to choosing a generic strategy, and the strategic principles from our dashboard on which to base it as in their selections from the options in Table C.7.

Table C.7   What ambition do you have for forms of growth?

AMBITION FOR FORM OF GROWTH	
What form of growth are you seeking?	
	Score
We seek growth in terms of volume of users of our products and services into the learning economy. We seek to grow our number of students, enrolments, graduates, contributors, or learners and to be ahead of major sectors in how we grow volume in our number of users of our services. We link scale in our users to a sense of purpose.	*1*
We aspire to high rates of growth in our content to a position where we gain a significant market position in terms of content volume and diversity. We seek to have more sources, resources, courses and areas of learning discipline and activity that can be leveraged as a content share, size and variety advantage.	2
We seek growth in the volume of our revenue and value of learning economy activity and the financial revenues and reserves that we have available to pursue our business operations and business model execution. We seek to differentiate on the basis of volume of value of activities as a response to drivers from shareholders and partners.	3
We aim to grow in the spread of time in the life-cycle and duration of learner engagement and educational wellbeing longevity as a means of building long-term relationships and sustainable relationships with learning economy participants as a means of differentiating on the basis of subscriber-like strategic potential.	4
We aim to grow the geographical spread of our markets, operations and influence to local, regional, national, international and global proportions to take advantage of scale economies, build global reputation, diversify markets and business risk exposure and differentiate on the basis of locational reach. We seek to differentiate as a global player.	**5**

Our preliminary analysis of your self-assessment of growth form ambition suggests:
1. *Scalability, Continuity, innovation and Community as most likely strategic principles to pursue.*
2. Community, Trust, Innovation and Personalisation as most likely strategic principles to pursue.
3. Personalisation, Trust, Innovation, Continuity and Community as most likely strategic principles to pursue.
4. Scalability, Trust, Personalisation, and Continuity as most likely strategic principles to pursue.
5. **Scalability, Personalisation, Innovation and Community as most likely strategic principles to pursue.**

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Our worked example university indicates a strong geographical growth preference, with a secondary preference (indicated in italics) for volume of learners. These suggest the five strategic principles of scalability, community, personalisation, trust, and innovation are the most likely principles on which to base strategy. This leaves open a *specialist* strategy involving any one of the five, or a *hybrid* strategy combining the pairs of either scalability and personalisation, or innovation and trust. It may have growth appetite of a potential *pantomath*, but final confirmation emerges from assessing capability against competences required for the selected combination of growth appetite and strategy.

4.5 What Capability Do You Have for Each Strategic Principle?

The choice of strategic principles on which any generic strategy should focus will be based on an assessment of where a combination of opportunity and capability lie. This means determining which principles match preferred forms of growth, as outlined above, combined with a self-assessment of the current position against capabilities required for the chosen strategic principle or principles. This includes a self-assessment of what is required to migrate from the current position to one where required capabilities can be either fully met, or met to a greater extent than by competitors, and to a level that allows successful strategy deployment and execution.

In Part B, we presented consolidated capabilities for each of the six strategic principles. Here we differentiate between existing capabilities (current score) and capabilities that could be developed during strategy implementation.

Table C.8   Self-assessment: What are your capabilities for competing on scalability?

THE SCALABILITY CAPABILITIES		
Do you have the pre-requisite capabilities to pursue the scalability strategic principle?		
Scalable capabilities	Current Score	Potential
Does your organisation have a full and dominant focus on online delivery and have scalable cloud capacity?	N	Y
Is your strategic ambition intentionally global evidenced by 24x7 customer service capability?	Y	Y
Do you have multi-language capability and other pre-requisites of localised delivery of global strategy?	N	Y
Is your focus on long-tail economic market opportunity?	Y	Y
Is the basis of your competitive approach to the market based on content whose quality and relevance data you currently are capturing?	N	Y
Does your service offering offer scope for a recommendation service?	Y	Y
Does your organisation have a high user experience focus?	N	Y
Have you achieved high levels of streamlined customer experience processes?	N	N

Table C.9   Self-assessment: What are your capabilities for competing on personalisation?

THE PERSONALISATION CAPABILITIES		
Do you have the pre-requisite capabilities to pursue the personalisation strategic principle?		
Personalisation capabilities	Current Score	Potential
Does your organisation have a focus on identifying learner categories and personal needs?	N	Y
Do you have access to data on current learner needs and learning style preferences?	N	N
Do you have automation technology capability that can match learning activities to learner needs?	N	N
Do you have learner journey experience and capability and data science capability to ineintify and cluster learner demand patterns?	Y	Y
Are all of your content, delivery models and processes oriented towards a personalised experience with individualised channels, content and support?	N	N
Does your service offer scope for a recommendation service?	Y	Y
Does your organisation have a high user experience focus with capability to account manage distinct cohorts?	N	N
Have you achieved high levels of streamlined customer experience processes?	N	N

In Table C.9, the personalisation principle checklist arises from our Spotify case study, and our exploration of personalisation as a basis for educational well-being. We can see new capabilities in this list, including technologies and processes for personalised learning. The last three capabilities listed are the same as the last three in the scalability checklist (Table C.8). This indicates how a nuanced approach in a hybrid strategy across two principles is more than the sum of the two capability lists. Natural synergy between the capabilities is needed to harness separate principles in a hybrid strategy.

Our worked example shows our university falling short of current and potential capability to pursue the personalisation principle. This counts out that particular *hybrid* strategy from its strategic choices.

Table C.10   Self-assessment: What are your capabilities for competing on continuity?

THE CONTINUITY CAPABILITIES		
Do you have the pre-requisite capabilities to pursue the continuity strategic principle?		
Continuity capabilities	Current Score	Potential
Does your organisation have a dominant focus on delivery of learner life-cycle service. Including highly advanced alumni management experience?	N	N
Do you have systematic means of collecting data on continuously evolving learner needs for your service?	N	N
Are your product and service development processes open to continuous evolution and enhancement based on advanced version control and release management practices?	N	N

4 Choosing a Generic Strategy

Table C.11   Cont.

Are your marketing and enrolment processes and pricing models amendable to subscription approaches?	Y	Y
Are your relationships with regulatory and accrediting bodies suitable for continuous credentialising?	N	N
Do you have a business model for monetising the issuing of credentials and their continuous updating suitable for B2B relationships?	Y	Y
Is your academic philosophy geared to and focused on lifelong educational wellbeing delivery and maintenance?	N	N
Have you achieved high levels of streamlined customer experience processes?	N	N

The full continuity checklist, arising from our Tesla case study in Part B, is reproduced in Table C.10. We have completed a continuity capability assessment for our worked example university, despite our preliminary analysis of ambition for forms of growth already suggesting this principle is not a viable basis for the generic strategy we will adopt. The current state of capabilities in the checklist will impact implementation planning by identifying the need to switch from and divest current capabilities that are not primary to the focus we decide to follow.

Table C.11   Self-assessment: What are your capabilities for competing on community?

THE COMMUNITY CAPABILITIES		
Do you have the pre-requisite capabilities to pursue the community strategic principle?		
Community capabilities	Current Score	Potential
Does the number, pattern and your insight into current learners give potential for significant positive network effects?	N	N
Do you have the potential to offer direct community network effect benefits to learners and indirect benefits to other learning economy participants?	N	N
Do you have the capability to offer interaction facilitation or find learners-like-me services to learner networks?	N	N
Are your production networks amenable to content creation, curation and quality assurance?	N	Y
Are your current learner and content creation networks suitable for creation of new learner market and new content sourcing growth strategies?	N	N
Does your service offering offer scope for a recommendation service?	Y	Y
Do you have flexibility and agility in business model capability to shift revenue models from B2C to B2B?	N	Y
Have you achieved high levels of learner experience focus and streamlined learner experience processes?	N	N

The capability checklist for the community strategic principle arises from the Part B YouTube case study, and from communities in the learning economy. The worked example again assesses current and potential fit against these capabilities, which show a poor match. This analysis in Table C.11 does not favour a specialist strategy based on community principles.

Table C.12 Self-assessment: What are your capabilities for competing on innovation?

THE INNOVATION CAPABILITIES		
Do you have the pre-requisite capabilities to pursue the innovation strategic principle?		
Innovation capabilities	Current Score	Potential
Does your organisation adopt and implement in a systematic way a three horizon model of business planning, or similar?	N	Y
Do you implement systematic ideation processes to continuously review and redefine your learning products, services and processes?	N	Y
Do you have a risk/opportunity appetite where opportunity takes a high level of precedence over risk?	N	N
Is your focus on innovation pervasive over all aspects of your business model, structure, processes, products and services, including your channels to market and brand position?	N	N
Is the basis of your competitive approach to the market based on innovation to the extent that you have a reputation for it ahead of most of your current competitors?	N	Y
Is your product and service offering competitively innovative and is your market, brand and customer management approach supported by continuous product innovation and innovation governance?	Y	Y
Does your organisation have a high innovation focus in its culture and leadership?	N	N
Have you achieved high levels of streamlined innovation processes with innovation accounting in place?	N	N

The capability checklist for the innovation principle derives from the Google case study, and our exploration of learning economy innovation. For our worked example in Table C.12, the checklist indicates a higher level of potential capability match than is currently held, but not sufficient to replace scalability as the preferred strategic principle to follow in a specialist or hybrid strategy. The level of current capability needs review during implementation planning to decide what to stop doing given the selected strategic focus.

Table C.13 Self-assessment: What are your capabilities for competing on trust?

Trust capabilities	Current Score	Potential
Does your organisation have a reputation for reliability in its delivery of learning?	N	N
Is your strategic ambition intentionally based on maximising individual customer, influencer and whole of market confidence?	N	Y
Do you have systematic processes to reduce systemic behavioural and perceived uncertainty in all aspects of your learning design, delivery and its relevance to learners?	N	N
Is your focus on building expectation, delivering and having learners experience reliable lifelong educational wellbeing?	N	Y
Is the basis of your competitive approach to the market based on reputation as a trusted and reliable provider of lifelong learning that benefits learners long-term outcomes?	N	N

4 Choosing a Generic Strategy

Table C.13   Cont.

Does your service offering embrace organisational vulnerability self-assessment and learner confidence management?	Y	Y
Does your organisation have the capability to measure trust in its learners?	N	Y
Have you achieved high levels of reliability in learner experience and career outcomes?	N	N

Our preliminary analysis of your self-assessment of strategic principle preference suggests:
1. None of the principles preferenced indicates a safe pair of hands strategy
2. Any one of the principles preferenced indicates a specialist strategy
3. A pair of principles in a single dimension of our radar indicates a hybrid strategy
4. All principles being supported is a clear indication of a pantomath ambition.

The trust capability checklist in Table C.13 is generated from our Amazon case study, and from consideration in the final section of Part B of the impact of trust in the learning economy. After completing current and potential matches of capability against checklist requirements, we see increased scope for trust in what we can achieve, compared with current positioning. This is not enough for trust to replace scalability as the preferred area of strategic focus. A trust and innovation **hybrid** is also unsupported as a strategic choice.

The set of six capability assessments shows our worked example university is best equipped to pursue the scalability principle, and less well equipped to pursue the four other principles strongly matched to its preferred form of growth. We also completed the capability assessment for the continuity principle, which is an unlikely choice given the forms of growth we are seeking. Doing so helps in assessing what to focus on, and not focus on, in the implementation plan to follow.

Also evident is lack of complementary capability in any pairs as a basis for a nuanced combination of principles for a *hybrid* strategy.

The following commentary gives an overview of how various strategies might see current and potential capability assessments measure up.

A *specialist* generic strategy could be based on any of the six strategic principles. All offer opportunity for strategic differentiation. Current providers may generally have higher starting points on trust and continuity, given their reputations and alumni networks for instance. Scalability and innovation are more likely to be a global technology company's advanced starting points. Learner network community companies are better placed in continuity, personalisation, and community. EdTechs hold advantages in innovation, and many other strategic principles, depending on the skill set and experience base they bring from other sectors. But these are overgeneralisations in a field where all potential providers have a rich and open strategic landscape. They can engage with it to find strategies and approaches to partnerships that align with their own specific capabilities. This fifth set of

questions demands clear, decisive answers to ensure the chosen generic strategy can be executed well.

The *hybrid* generic strategy is possible for any pairs of our strategic principles. As above, the same criteria apply to how the pairs would be selected by each of the five categories of potential innovators. A further choice when considering adopting a *hybrid* strategy, is that it doesn't only have to be only one pair. A hybrid might be formed out of multiple combinations of strategic principles being combined in a nuanced strategy. Most importantly, the combination finally selected is a feature of an assessment of market (desirability), competitive opportunity (viability), and self-assessment of current and potential capability, alone and with partners (feasibility).

The same argument, by extension, applies to the *pantomath* strategy. Ideally, this is based on seeing market opportunity and current and future potential to acquire capabilities associated with all six strategic principles. A *pantomath* does, after all, learn from all strategic principles. A relative lack of capability, in one or more aspects of one or more of the six principles, might not preclude executing this generic strategy if answers to the other four questions in this methodology are strong.

In this way, this methodology is a framework for systemic strategic exploration rather than a checklist that guarantees success. It supports providers with ambition as they seek to design successful strategies for the new learning economy.

This part in the templated methodology toolkit allows a learning economy participant to document and decide the elements of the dashboard of strategic principles upon which its generic strategy will be based. Our worked example is of a university well placed to become a scalable *specialist*.

4 Choosing a Generic Strategy

5 Which Strategic Principles Will Be Pursued?

The assessment of capabilities allows a participant to decide which principles to pursue. Doing this, as for our worked example, also determines whether it is best to pursue none, one, or more than one strategic principle. This in turn determines whether the strategy is a *safe pair of hands*, *specialist*, *hybrid*, or *pantomath*.

Table C.14   Which strategic principles will be pursued?

What strategic principles from the new learning economy dashboard are you considering pursuing from the capabilities you have?	
	Score
Personalisation	N
Scalability	**Y**
Exponentiality	N
Continuity	N
Innovation	N
Trust	N

Our preliminary analysis of your self-assessment of strategic principle preference suggests:
1. None of the principles preferenced indicates a safe pair of hands strategy.
2. Any one of the principles preferenced indicates a specialist strategy.
3. A pair of principles in a single dimension of our radar indicates a hybrid strategy.
4. All principles being supported is a clear indication of a pantomath ambition.

The answers to the questions in our worked example in Table C.14 show an organisation with clarity in its strategic ambition. The university aspires to achieve differentiation from its competitors by significantly changing its engagement in the sector. It has high-growth ambition in emerging markets in the new learning economy. It understands that growth would be moderately paced and welcomes this because it allows subtlety, complexity, and sophistication in its differentiation and new business model.

The university seeks to assure a long-term strategic position without alerting imitators. Its ambition is to grow market share and standing in a way that is unrecognisable in its current profile. This entails expanding the spread of markets, operations, and influence to a global scale. The strategy seeks advantages from having economies of scale, building brand reputation, and differentiating through being a global player. This transformational strategy requires it to develop and execute radically new business models. It sees scalability as the strategic principle most aligned with its desired form of growth, and with its self-assessment of current and potential capabilities. This example is inspired by the Netflix case study and from considering the ideas that would arise if Netflix were a university.

In our worked example reproduced here, the answers generate a conclusion that a scalable specialist is the preferred generic strategy. Other users of the methodology would have different ambitions about the sector, approaches to size and pace of growth, market growth opportunity assessments and preferences, and current and future potential capabilities. They would make different strategic choices.

The methodology presented here allows a learning economy participant to generate clarity of *what* strategy to follow, and what principles to base it on. It does so through analysing planned future sector engagement, appetite for growth, and completing a current and future capability assessment.

Self-assessing current and emerging capabilities, and current legacy and assets, also offers guidance about *how* to implement and pursue the strategy. Leadership, investment, governance, and culture must be considered, along with clarity about what to stop doing while focusing on capabilities the choice of strategy demands. These other considerations are discussed below.

5 Which Strategic Principles Will Be Pursued?

6 What to Stop Doing as Part of Implementation?

We can make several generalised observations of what participants pursuing new strategies would need to stop doing. These are capabilities inconsistent with their new generic strategies. Capabilities key to new strategies are where they need resources and focus.

Transitioning to new strategic positions makes decisions about what to stop doing, or do less of, more complex and varied. New entrants will be less concerned with this. For many current participants, transitioning to a specialist, hybrid, or pantomath strategy will mean deciding whether and when to stop providing large-scale, singly timetabled, face-to-face only learning events and offerings on large physical campuses. Many new strategies will see them replaced with asynchronous learning resources offered in multiple learning preference styles. This delivery mode, for any of the new strategies, is a service transition whose timing is part of an implementation plan for transition. That plan must balance revenue resilience with new market growth. The need for on-campus facilities and operations, and extensive engagements with local communities may be discontinued, and disciplines and product offerings not suited to the new strategy must be carefully managed. Staged migration paths will be required to move focus from current practice to future needs.

A significant question for all new learning economy participants is whether present forms of scholarly research, and the expectation all teaching staff will pursue it, remain a capability given executive attention and resources. These capabilities may remain critical to those following the *safe pair of hands* strategy. They are unlikely, however, to be adopted in the same way by new entrants following the *pantomath* route. A focus on research, innovation, technology, and new business thinking would be critically important to many participants pursuing specialist, hybrid, and pantomath strategies. That BigTech participants like Google invest more in research than all universities should not be overlooked. But Google's investment does not focus on publications, fundamental research, higher degrees, and grants.

Some strategic principles raise questions about the extent of reliance on comprehensive research capability and activity. Can you be trusted in the learning economy with no research, and no position in conventional research and university rankings? If the answer is no, how long will it continue to be so? How can you offer learning with continuity as an Educational-Well-Being-as-a-Service if you lack in-house capacity to advance knowledge that underpins future offerings? These questions put the make-or-buy decision into sharp focus.

Our analysis of capabilities relevant to the six strategic principles in our worked example allows us to get more specific about what to stop doing as part of focused implementation of a specific strategy.

The worked example resulted in the aim to be a scalable specialist. The personalisation principle could have been combined with scalability if a hybrid of the two were supported by other stages of our methodology, or if our assessment of capabilities for a personalisation strategy were strong. Neither is the case in our worked example. The areas of the personalisation checklist where there is current strength are customer categorisation and personal learning needs analysis, customer and student journey experience, and capability in offering a recommendation service. The first two of these would need recalibration for scalability rather than personalisation. The last is shared in the scalability checklist; further enhancing it does need to be part of the implementation plan. Understanding broad learner needs, and having learner journey capability, is the path to implementation more than learning analytics, which concentrates on categorisation and individual personalisation needs.

The continuity principle capabilities our worked example university has, and is investing resources into, are based upon marketing and business model innovation for offering continuous lifecycle services. Continuity is not the dominant future focus in our worked example, so capability and resources in these areas should be diverted to customer needs analysis, marketing, enrolment, and pricing model and business model innovation, for a scalable strategy. Any current continuity focus on these capabilities should stop.

Community, innovation, and trust principle capabilities evident at present in our worked example include a recommendation service capability. This capability is shared with the scalability principle and focus on it should continue. The innovation capability of continuous product innovation is currently held, but its relevance for scalability is less evident. This strategy places less importance on maintaining this capability and focusing executive attention and resources on it.

6 What to Stop Doing as Part of Implementation?

7 How to Implement the Strategy?

Formulating a successful implementation plan for any generic strategy emerging from the methodology above is a significant leadership and organisational task. It builds on the capability assessment of how well the organisation is currently positioned to deliver on the approach selected. The implementation plan must address shortfalls in current capability assessments, ensuring transitions to required capabilities are attainable.

The implementation plan for the university in the worked example arises in part from the capability assessment, particularly for the scalability principle in Table C.8. In this we assumed the organisation's forays into online delivery have been strong, with 25% of current students online, and that this extends over all disciplines, with some international reach. But the digital campus and its support is an add-on to current prevailing approaches to product design, student support, campus development, operations, and staffing. The organisation would need to rapidly and systematically develop its new dominant online focus. In doing so, it would need to stop face-to-face delivery. The section above summarises other things to stop doing in terms of divesting capabilities not required for the identified focus.

For our worked example, the next two capabilities in Table C.8 relate to international orientation and capacity. Intentionally global ambition is a good start, implying contacts, skills, and delivery capability are the starting points of supporting truly global operations. This will be quickly extended to developing multilanguage capability, and having footprints in the range of locations consistent with global operations, in the order in which new global markets are targeted.

In our example, approaches to marketing and markets will need radical change. The current focus on long-tail economic opportunity will need to extend to product development, and marketing and recruitment strategies that target global long-tail markets. These must be based on known intelligence about content which is systematically captured and enhanced, including a changed combination of make-and-buy sources.

It may imply appointing a Chief Content Officer, Chief Digital Officer, and Chief Revenue Officer. It will certainly entail a significant transformation to seeing students as customers. The lack of a current user experience focus, or streamlined customer experience-oriented processes, will need significant attention. There may be great scope for this through partnerships with EdTech players and other partners.

The transition from one position and set of capabilities to another, while retaining revenue from current offerings and building growth in new markets, requires a radical investment strategy and phased approach to resource allocation and asset migration. It requires

significant financial investment and borrowing, or an investment partner. This project is not at a university's margins. It is a major strategic play needing committed and visionary leadership, and managed divestment of existing assets, reputation, systems, and processes.

Beyond assessing the readiness of these technical and operational capabilities is the need for a significant review and assessment of other qualities of leadership, governance, culture, and levels of investment in and forms of partnership.

The form of leadership required for a *safe pair of hands* as a current university provider is completely different to that needed for a BigTech leading a *pantomath* strategy. Leadership capabilities for *specialist* and *hybrid* strategies are substantially influenced by the nature of the strategic principles focused on. One of the first acts of an organisation seeking a radically different strategy for the new learning economy is identifying and assembling a new and different leadership team.

Interviews with 40 leaders in universities in Australia, New Zealand, Canada, and the United Kingdom in 2020 and 2021 paint a picture of these leadership requirements.[17] Analysis of these interviews calls for all leaders to have the flexibility to recognise they lead in turbulent times. They must be open to new business models arising from innovation, and how they lead people must change to suit dynamic, fast-moving times. Two big requirements for leaders are in exploring new educational models that provide equity of access for more diverse leaders, and to do so through more varied and complex partnerships with other organisations. These drivers demand new forms and styles of leadership with greater focus on innovation and transformation. Leaders must have entrepreneurial mindsets and be strong communicators. They need dual skills: to be highly effective leaders of people, and to lead in ways that combine technological innovation with business model strategy. Leadership will be evident in pursuing all these challenges, and having skills and expertise to facilitate pioneering external partnerships. These leadership qualities are required for universities seeking to be competitive as a safe pair of hands. Leadership qualities for exploring other strategies will accentuate these shifts in leadership practice further and faster, extending to more radical skills needs than those identified from consulting current leaders in their current contexts.

EY's report on the future of universities distinguishes between views of what are termed *traditionalists*, who see only ever-rising prices and demand in a secure model in elite institutions, and *revolutionaries*, who see adverse demand changes, forthcoming digitisation, and new competitors to a model under existential pressure. This illustrates the looming dichotomy among strategists who either see the *safe pair of hands* as a reliable path to the future, or who do not.[18]

We quoted earlier leadership insights from Michael Crow, president of Arizona State University, which was recently ranked by *US News World Report* as most innovative university for the eighth successive year. Crow is an advocate for adventurous, bold, and daring leadership. He calls for "more differentiation, creativity, innovation and enterprise behavior to give presidents and chancellors a meaning behind their titles". His most frequent advice to new university presidents is

> You can't worry about, "Well, is this going to work and how am I going to get the next job? And I can't do this because I might get fired". Go ahead and do it and get fired. It's probably worth doing. You're going into a situation where you're the leader. The leader must sacrifice. The leader must do what needs to be done. And if all you're trying to do is leverage your way to some other job, then you shouldn't even be in this business.

Crow's agenda for future university leaders includes innovation, experimentation, and readiness to try new and different things.[19]

Table C.15 Leadership requirements for different strategies in the new learning economy

Top five criteria for *safe pair of hands* leadership	Top five criteria for alternative generic strategy leadership
Academic qualifications and university experience	Leadership qualifications and innovation mindset; experience with transforming and disrupting business in fast-paced, globalised environments
Research standing and academic respect of professoriate	Empathy, compassion, ability to lead through influence; exemplary communication skills; confidence to lead radical change
Experience in a successful current university, and following a strong risk appetite	Experience in successfully transformed organisations, and pursuing an opportunity appetite
Networks and influence in the sector as it currently operates, with high internal awareness	Networks and influence in new forms of partnerships for the sector, and in disruption and transformation partners; and high contextual awareness
Familiarity and success in transactional excellence of asset-intensive businesses, and navigating university rankings and other measures of reputation and prestige; building an academic leadership team to deliver this	Familiarity with digital innovation, transformational excellence, light-asset business operations, new business models, and gauging customer needs and leading a business, with an innovative leadership team to deliver this

As the analysis in Table C.15 shows, the next generation of new learning economy leaders needs to know how to continuously innovate, and to be in a state of constant flow, experimentation, and change. They need to be comfortable with ambiguity, and to seek clarity of purpose more than certainty of outcomes. They must develop competencies required of leaders in other sectors who are comfortable failing often, frugally, and fast. This means adopting a prototype mentality and continuously asking "What if?" They will need to be appointed and rewarded for doing so. The qualities of leaders must match the particular

generic strategies available to new learning economy participants. The general principles of new learning economy leadership will apply to all leaders, but each of the four generic strategies has flavours that leadership ingredients will need to align with. Here, we summarise generalised leadership requirements in the current and new learning economies.

When the University of Sydney, Australia's oldest university, appointed a non-academic as vice chancellor, many academic leaders and members of the academy reacted unfavourably. The new vice chancellor, Mark Scott, had been managing director of the Australian Broadcasting Corporation (ABC), and had led rapid business transformation in the ABC as a provider of news and entertainment services. Scott had never worked in a university, had little research standing, and was unfamiliar with university rankings. His appointment aligned with the new learning economy, demonstrating how change in leadership selection criteria is playing out in traditional universities.

In 2019, Croucher et al.[20] investigated changes in university leadership and governance, offering insights into what constitutes good practice for the changing context which has accelerated since their study. In leaders and governing boards they observed lack of diversity in disciplines, sector experiences, roles, and demographics. These observations support views that higher education leadership and governance need reframing.

Insights from interviews with global university presidents commissioned by Tsinghua University shine a light on the increasingly complex pathways into a university presidency, proceeding through a combination of working through academic ranks and swift, deliberate manoeuvring into leadership roles. Until now, becoming a president has involved academic pedigree, academic leadership experience, political skills, and continuous growth. Coates et al.[21] give insights into how this has become more complex as executive leadership teams have grown, and continue to do so.

Crow's reference to presidents and chancellors needing to live up to their titles in a new context points to needed governance changes. The university cabinet or council has served institutions well in meeting the needs of local professions through campus operations connected to local communities. That form of service now needs to be revisited if a university plans to make a major global play based on technology. The board that served an EdTech operating alone to provide niche and specialist Online Programme Management services for one national market, will be unfit for a *hybrid* strategy. That strategy may demand a continuity or trust focus, in partnership with global community companies and universities.

Leaders in the new learning economy will need governing boards with diverse, contemporary mindsets and skillsets embracing experience of business model innovation, mergers and acquisitions, cultural change, business transformation, digital disruption, business

7 How to Implement the Strategy?

investment, evidence-based decision-making, and out-of-the box thinking. These diverse boards will be charged with explicitly excluding sentimental, restrictive barriers to transformational and radical change. Chancellors and presidents will be charged with finding, empowering, and supporting CEOs to transform a learning economy business for the future, rather than finding a safe pair of hands to ensure continuity with the past through incremental change. Chancellors and presidents themselves will need experience of such change in other sectors, so they can govern for transformation, innovation and change as is indicated in the analysis in Table C.16 below.

Table C.16   Governance requirements for different strategies in the new learning economy

Top five criteria for *safe pair of hands* governance	Top five criteria for alternative generic strategy governance
Experience with the university community and its history and tradition	Experience with governance of mergers and acquisitions, and transforming businesses in disrupting and fast-changing sectors
Local standing with, and respect of, alumni and donors; respected by political actors	Global perspective and respect of investors, major global partners, and innovation ecosystem
Experience in a successful historical business with strong traditions	Experience in new business models, innovation governance, and business transformation
Networks and influence in the local environment and political arena of the university as it currently operates	Networks and influence in new forms of partnerships, and with disruption and transformation partners that will influence change in the sector
Success in maintaining traditions and conventions of public bodies and other measures of reputation and prestige. Finding and supporting a vice chancellor to do this	Familiarity with digital innovation, new business models, and how to gauge customer needs; appointing and supporting a CEO to lead a customer-responsive business

A significant way in which current universities differ from most other participants in the learning economy is the organisational and leadership culture under presidents or vice chancellors. A university working in partnership with BigTech will be ill-served by a culture based on risk-averse, governance-intensive decision-making processes with insufficient degrees of automation. An academic culture of influence, consensus, consultation, and debate can impede fast-paced commercial decision-making about new technology deployment, customer experience focus, new product/market offerings, and business model innovation. The cultural norms of an academic workforce value free thought and discipline sovereignty. Loyalty is awarded to one's research area and network before the employer and its mission. These norms are unsuitable for a major play as a specialist. Difficult decisions about what to specialise in, what not to, and what to stop doing, need informed input from scholars alongside commercial acumen. The difficult decisions are then made by business leaders who understand technology. The future leadership teams of innovative

presidents and vice chancellors will include Chief Learning, Revenue, Innovation, Digital, Customer, and Content Officers. They will have expertise in business innovation, and more of a critical perspective than expertise in academic endeavours of research, and teaching and learning.

7 How to Implement the Strategy?

8 What Do Leaders in the New Learning Economy Do Next?

A leader of any of the five types of new learning economy participants must immediately question whether the messages in this book are influential or have any useful effect. The current learning economy comprises an existing, established set of providers. It is largely a conservative, slow-changing sector. Academic knowledge builds upon traditions of challenging the ideas of others, but academic leadership traditions are more characterised by conservatism, continuity, and tradition.

Leaders in this sector have been conditioned through their selection, appointment, evaluation, and reappointment to operate first and foremost as academic research leaders. This is how the respect of academic colleagues is won. It takes precedence over any need to demonstrate experience and aptitude in business success and leadership. The model of having mastered digital business innovation, to lead transformation into a new learning economy, is rare in universities in all parts of the world. It is particularly uncommon in places that put the greatest stock in personal scholarship. Michael Crow's path from executive vice provost at Columbia to ASU president remains more common than Mark Scott becoming University of Sydney's vice chancellor after leading digital transformation at the ABC.

The route to leadership has for a long time been shaped by the need to gain knowledge, and to add experience to it. This route made university presidents and vice chancellors competent to become leaders. They have not needed a habit of questioning their consciousness of their competence for a changing world. This book's most important purpose is to stimulate every leader to develop this habit, now.

Leaders who have this habit see change and new strategic thinking as necessary. They can apply the book's new thinking. This will set them on new paths once they recognise the current learning economy's disorders and inefficiencies. They will adopt educational well-being as a new purpose that begins with revenue resilience as a goal and focuses on building sustainable reputations for their institutions. If they are inspired to go further by the prospect of growth, there is much in this book to inspire their imagination.

Part B delineates six new strategic principles for how their organisations can change their approach to the sector by borrowing ideas from other sectors. The principles are novel approaches. Each offers great potential for new learning economy competition and growth. If they do nothing else, leaders should question their current approaches to markets and competition through the lens of these six strategic principles.

We advocate that all leaders go much further. There is great merit in every leader of a future learning economy participant applying the three-stage methodology in Part C. They can ask the five questions that help identify which of the four generic strategies to apply. Doing so will determine the plans they need to put in place, and who they should keep and appoint to take with them on the journey.

University leaders must find new ways of approaching strategic planning. This can no longer be a model of revisiting a five-year strategy approved by a university's council, and refreshing it with minor adjustments to assumptions about the competitive landscape. A different process of asking different questions, and involving different participants and partners, must prevail. It must accept radically different ways of considering investment, ambition, technology, positioning, culture, and reputation. It must consider and reconsider the context for governance, registration, stakeholder relationships, and community consultation.

Much greater agility in strategy execution is critical for formulating that very first articulation of the organisation's opportunity appetite. Leadership capability and style, and leadership and organisational culture, must be revisited. Governance arrangements must be introduced that ensure the skills mix on the governing board matches both objective consideration of the range of strategies outlined here, and the ability to execute radical new strategies dependent on new approaches to partnership and new business models.

A safe pair of hands may be well served by the typical current composition of university councils. Their current forms and constituents may lean primarily towards this generic strategy for some time. Governing councils with much more diverse skills are better placed to consider hybrid or pantomath futures and hence whether to become specialised personalised global universities, or whether to enter into strategic partnerships with EdTech, community, and BigTech partners. Governance will rely on a council member bringing more than alumnus status and fond memories of a particular course, campus, or era in a university's history. Diverse governance skills required include digital literacy, technical innovation, sector transformation, global business operations, and major commercial mergers and acquisitions. This diversity is critical for selecting and implementing a bold new strategy.

For participants other than current universities, leadership and governance approaches are likely to be more entrepreneurial, commercial, and business-like. The challenge for them, after reading this book, is to consider where the learning economy sits with their ambitions for the future. Many may have a current engagement with the sector which might change radically. For others, the learning economy may not have featured strongly on their radar of opportunities.

8 What Do Leaders in the New Learning Economy Do Next?

All participants have both opportunity and need to apply the strategic planning method-ology this book provides. It is a structured way of assessing opportunity in the learning economy, alongside current strategic planning processes. This structured approach requires input from potential partners and review of relevant governance, registration, and other regulatory factors. Participants must ensure they have a diverse skill mix in leadership and governing boards. The need to engage with institutional accreditation processes and government relations will be important considerations as these are measures of academic and sector credibility. They are the foundation for managing transformed positions from a place of familiarity, trust, and knowledge of culture and process. This will be particularly important in building relationships and partnerships between new EdTechs, BigTechs, and existing universities and their regulators. A lead-ership and governance skill mix that combines innovation and business model dynamism and opportunity-seeking, with knowledgeable and respected relationships with the current sector, its partners, and its regulators, will be significant enablers of successful strategy implementation and change.

This final chapter provided an agenda for leaders, entrepreneurs, venture capitalists, regulators, learning and people executives, academics, and other stakeholders. For future participants in the new learning economy seeking to better understand what is happening, and what innovation leadership capability is needed to be purposefully innovative in this space, this book represents an action plan.

The book invites learning economy innovators around the world to master and understand the concepts and principles in the book from the viewpoint of their current knowledge, experience, and self-awareness of the consciousness of their competence in the sector. For those inexperienced in or new to the sector, this requires willingness to embrace the new.

Equally it requires letting go of, and unlearning, legacy expectations and beliefs of what the learning economy can become. This arises from the lessons of how other sectors are creating entirely new value propositions from proactively engaging with new technologies, business models, and a digitally literate society.

Learning economy innovators are also invited to apply the principles, methodologies, and ideas from the book to their own context as leaders, participants, or observers. There are countless examples of how the five categories of participants can find applications for stra-tegic principles, and for the four generic strategies in innovating globally.

The most important action a reader might initiate is to lead innovation in the new economy by applying the methodology. The book is an actionable toolkit to make this possible using

their own understanding. The new learning economy needs to develop a deep understanding of these principles and tools.

This understanding may be applied to existing universities and learning providers globally. But the expertise that arises from this also offers guidance to those looking to enter, or grow their footholds in the sector. It offers guidelines to those seeking to make a major play and innovate in the sector from outside, and needing sector expertise and innovation leadership knowledge to know how best to do it and ensure success.

The book also provides insight to global governments and regulators. It shows how best to facilitate a change process to achieve public policy objectives that ensure educational well-being is continuously made available to citizens in economically sustainable ways.

The book is an invitation to employers, alumni, and current students to feel empowered and to enable change in how they manage their educational well-being. It provides insight to global employers looking to understand how best to engage with innovation happening in the sector. And it provides a road map to employers or other industry or professional groups looking to achieve innovation in the sector through their demand influence in a new learning economy.

Finally, the book provides insight and guidance to staff in our current global universities about positioning themselves to lead and play active and valuable roles from within current jobs. For those who have recently left fully employed roles, or are about to do so, it demonstrates the skills needed in future. It points towards how to manage their own educational well-being to be well placed for the new learning economy.

Taking forward the lessons from this book is no easy task. But it is an exciting journey for all types of participants. It is a journey many will follow, and some will be quicker or slower than others. There may, or may not, be merit in not being the first to act. But there will be great risk in being left behind. The journey is one that should start immediately after reading this book.

There will be many implications for leaders, staff, and partners, of universities, platforms, EdTech, community, and BigTech participants, in changes that will occur in the new learning economy. We wish them all well and expect many to flourish on their journeys. But we began, and will end, this book with the journeys of learners.

The journey into learning, and the plight of close to eight billion people seeking educational well-being, is what this book is about. Our prologue to the book introduced five characters – Adam, Julianne, Saki, Dann, and Gabriella – as persona to whom the analysis of this book was applied. We observed their journeys into educational well-being along the way.

It seems fitting to us that the last words should lie with them as we speculate on the endpoints of the journeys each has taken. The epilogue that follows describes what may happen once the plots of this book have played out for these five persona. Your learning journey might have similarities, or may take a different direction. We wish you well with it.

9 Epilogue: The Future for Adam, Julianne, Saki, Dann, and Gabriella

Adam was so happy when his daughter Ella felt she had built the first phase of her port-folio career with the skills she had learned and the networks she had established from completing the initial phase of her MISSG programme. The Educational-Well-Being-as-a-Service dimension of its ongoing offering was offered with learning styles that suited her preferences. They continuously took advantage of new innovative learning pedagogy and technology. All this really appealed to her enquiring mind. The new networks that emerged from updated offerings of the learning on her social learning platforms were allowing new ventures to emerge for her in the portfolio of activities. These activities were where work and pleasure were almost indistinguishable for her. She was intrigued with the tales that Adam and Leona shared of how different things had been for them and how wise she had been to take a chance with her learning and build diversity into her experience. She might not be the biggest earner or have the grandest title of her school cohort, but she genuinely felt her educational well-being, among the other things in life that were important to her, was secure, balanced, and right for her. That made Adam so happy.

Julianne was starting to feel relaxed about her life and career for the first time in a long time, now that her work generating books, blogs, and podcasts served her purpose so clearly. It had taken her a while to fully give up on the idea of being a conventional journalist. After all, it is what her first degree from Columbia had set her up for, for life. Or so she had thought back then. She was genuinely surprised and delighted to see how the Columbia Online Digital Educators, which had spun out of a traditional university environment, could deliver a specialised and personalised educational offering ideally suited to her needs and learning style. She was now able to access resources, knowledge, and experiences of others in a way that she could make sense of. She did so in her work. She applied them to stay on top of her skills needs to continuously innovate with media. She admired how Columbia had been so focused and purposeful in this venture into specialised personal learning and how successful it had been. It mirrored how she too had focused her ambitions and aspirations for the future in finding a balanced and satisfying route to her own long-term educational well-being. Her consciousness of how this was being maintained through her specific interactions with CODE are what pleased and satisfied her most.

Saki was so amazed to think back to how much had happened for her since her days at Toyota had come to an end. She was now the strongest advocate for the Japanese tourism community network she was now president of. She reflected on how successful its hybrid learning offerings were, based on trust and continuous innovation. It gave her satisfaction that these had been so effective in helping others like her transitioning into successful

cultural tourism businesses. Her new venture, Onsen Learning, had helped her fully reskill and master the continuous needs for knowledge and experience to take over the business from her father and make it thrive. She could support both herself and her sister in doing so. To be able to then lead that community learning provider, in its niche services to others like her, and for it too to flourish, was a great reassurance to her to this day. After her earlier shocks in being blindsided by the emergence of driverless electric vehicles, she was ever vigilant to new trends. But the way involvement in the networked activities of Onsen Learning led her to be continuously conscious of her levels of competence was at the heart of her feelings of educational well-being.

Dann was honoured to have started in the role of deputy vice chancellor of research at his university, after 28 years of service in various leadership and academic roles along the way. This was, for him, due recognition for his service. It showed his maturing as a leading scholar and great contributor to his discipline. Through growing his interdisciplinary research projects and activities, he had demonstrated broader relevance and value to his research-intensive university. The major initiatives in engaging his research centre with philanthropic foundations were just the sort of activity a university like his would need to grow revenue streams. This had become critical since government and student fees as a route to research funding had become so challenged. He was also pleased that the innovative new undergraduate courses and corporate education that had arisen from his research programmes had maintained student demand and generated repeat customers from industry, even at a modest level. Dann was a strong believer in the research–teaching nexus. He was pleased to be at a university with a principled commitment to it in its vision, mission, and culture. He believed the great strength in his and many universities was their history and tradition, and it was that which built its reputation. This made it easier for him to attract more high-achieving, classical researchers who would be so vital in growing the research activity, profile, and reputation further. After all that was their dominant goal. The place in the global reputation rankings was what their vice chancellor and council treasured as an outcome for the next ten years, more than any other measure. Income from developments in learning were only a means to an end of keeping the research engine well fuelled. His job now was to lead that across the whole university as it grew its place in the knowledge economy.

Gabriella was basking in the limelight that arose when, as Chief Learning Officer, her insurance company had been recognised as a pioneer in lifelong learning in the sector globally. She was now thrilled to be leading the company Learnsure that was the offshoot lifelong learning provider that formed from the venture between her insurance company, the specialist EdTech content curation provider Start1, the employment community company

PEEK, and the investment from the global tech company. As a project venture, this had transformed lifelong learning for 32,000 global insurance staff. But the principles of continuous communities, which were a hybrid approach to this need for educational well-being among global financial services professionals, had proven a winning formula. Her initiation and growth of Learnsure had been a major challenge and needed her to gain new knowledge and experience along the way from other educational providers that took a similar approach. But she was of the view that walking the talk was key in taking new approaches to the learning economy. She also felt she would not be conscious of her levels of competence to make this new venture work unless she exposed herself to learning, with feedback, among peers. She was being invited to write and give talks about her corporate and technology-based understanding of educational well-being and it suited her purpose and drive in life to be doing so. This was all a long way from the short-term contracts, poor conditions, and high rates of job turnover and dissatisfaction she had seen among the tourism sector in Barcelona in her childhood. Putting new ideas to a purpose that created better futures for many people was what she felt a learning economy was for. She was proud to be a part of it.

9 Epilogue: The Future for Adam, Julianne, Saki, Dann, and Gabriella

Notes

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