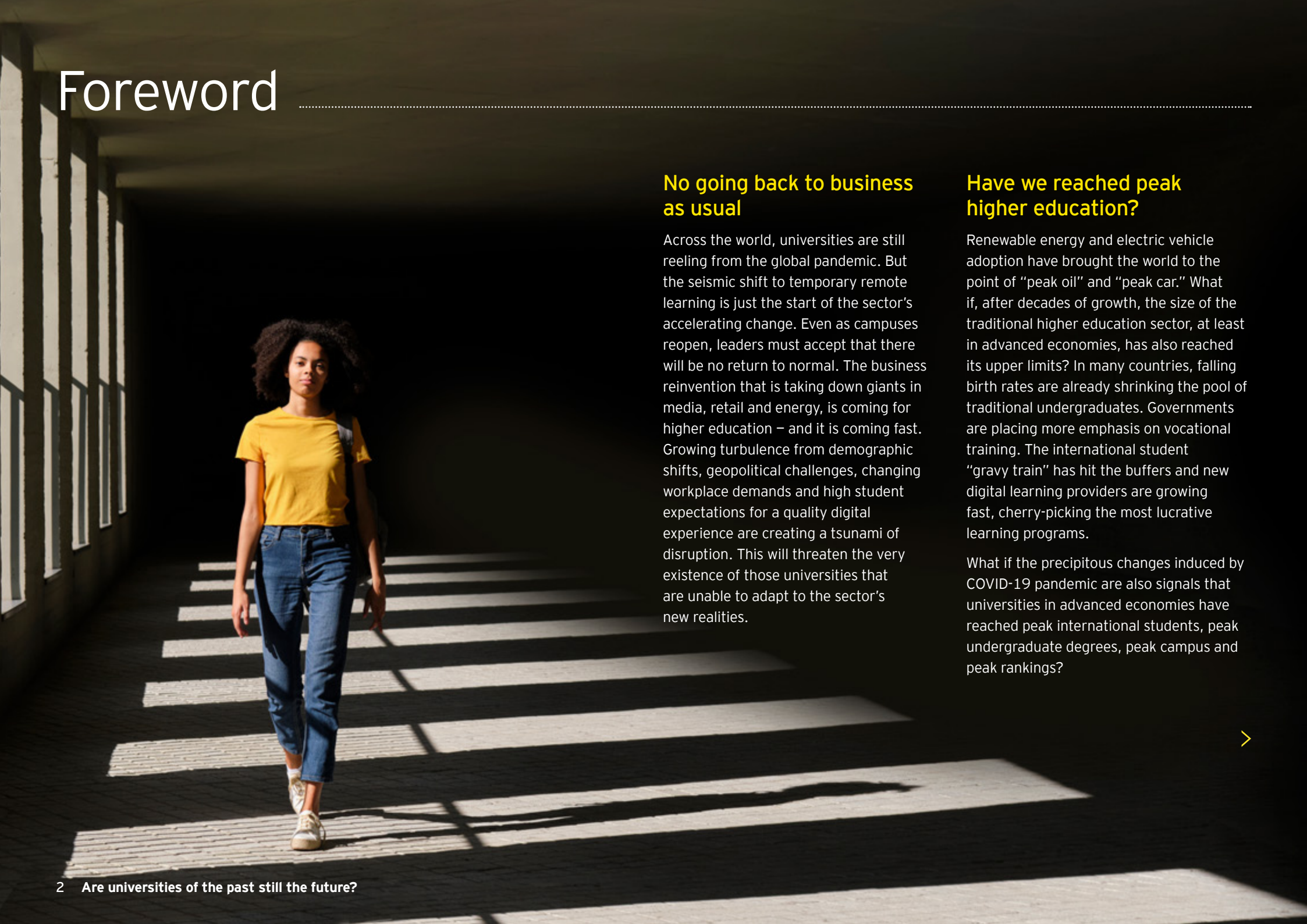
Are universities of the past still the future?

The better the question.
The better the answer.
The better the world works.

EY
Building a better working world

Foreword



No going back to business as usual

Across the world, universities are still reeling from the global pandemic. But the seismic shift to temporary remote learning is just the start of the sector's accelerating change. Even as campuses reopen, leaders must accept that there will be no return to normal. The business reinvention that is taking down giants in media, retail and energy, is coming for higher education – and it is coming fast. Growing turbulence from demographic shifts, geopolitical challenges, changing workplace demands and high student expectations for a quality digital experience are creating a tsunami of disruption. This will threaten the very existence of those universities that are unable to adapt to the sector's new realities.

Have we reached peak higher education?

Renewable energy and electric vehicle adoption have brought the world to the point of "peak oil" and "peak car." What if, after decades of growth, the size of the traditional higher education sector, at least in advanced economies, has also reached its upper limits? In many countries, falling birth rates are already shrinking the pool of traditional undergraduates. Governments are placing more emphasis on vocational training. The international student "gravy train" has hit the buffers and new digital learning providers are growing fast, cherry-picking the most lucrative learning programs.

What if the precipitous changes induced by COVID-19 pandemic are also signals that universities in advanced economies have reached peak international students, peak undergraduate degrees, peak campus and peak rankings?

How can universities survive and thrive?

If they are to innovate at the speed and scale needed to survive, universities must take a "future-back" approach, considering unthinkable future scenarios and how their operating models may need to radically transform to remain competitive. This is the best way to ensure that the priorities and actions of today will put universities on a growth trajectory for the next decade.

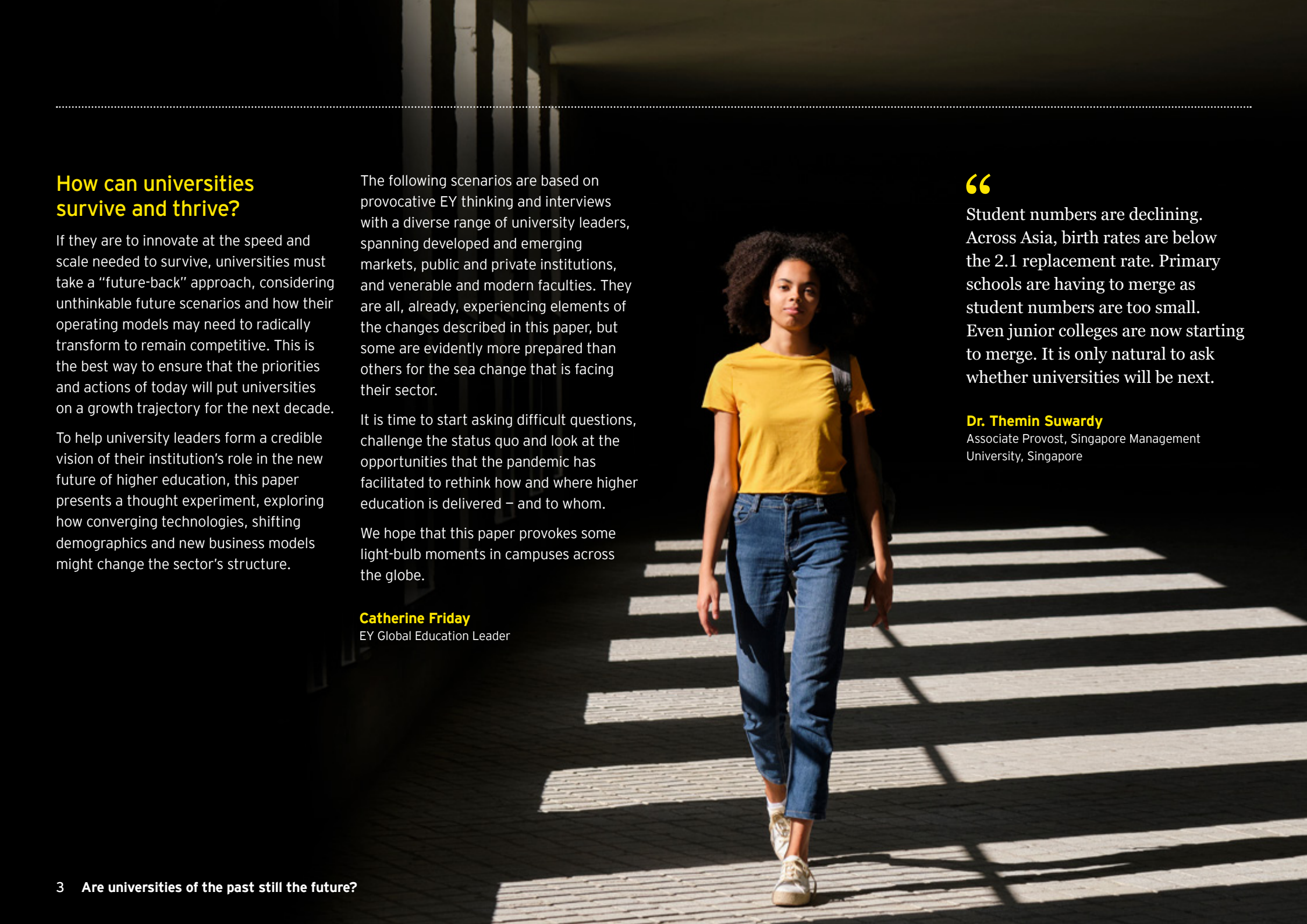
To help university leaders form a credible vision of their institution's role in the new future of higher education, this paper presents a thought experiment, exploring how converging technologies, shifting demographics and new business models might change the sector's structure.

The following scenarios are based on provocative EY thinking and interviews with a diverse range of university leaders, spanning developed and emerging markets, public and private institutions, and venerable and modern faculties. They are all, already, experiencing elements of the changes described in this paper, but some are evidently more prepared than others for the sea change that is facing their sector.

It is time to start asking difficult questions, challenge the status quo and look at the opportunities that the pandemic has facilitated to rethink how and where higher education is delivered – and to whom.

We hope that this paper provokes some light-bulb moments in campuses across the globe.

Catherine Friday
EY Global Education Leader



"Student numbers are declining. Across Asia, birth rates are below the 2.1 replacement rate. Primary schools are having to merge as student numbers are too small. Even junior colleges are now starting to merge. It is only natural to ask whether universities will be next.

Dr. Themin Suwardy
Associate Provost, Singapore Management University, Singapore

It is time to think about the future differently

> Higher education is a very insular world and it needs transforming.

Bryan Garey
Vice President of Human Resources,
Virginia Tech, US

Digital is driving the emergence of new ecosystems for learning and knowledge creation – and setting the stage for immense innovation. Converging technologies are reinventing higher education, along with every other industry on the planet. In a world of "work from anywhere," people also want to "learn from anywhere." New education platforms are rising to meet this demand.

There is a tension in higher education between:

- The **traditionalists** (particularly in elite institutions), who look at the ever-rising prices and current demand profiles, and say that the model is secure
- The **revolutionaries**, who look at falling birth rates, pressure on affordability, the costs and benefits of digitization, and emerging new competitors, and say that the current model is under existential pressure

Revolutions have been very few in higher education. But our thesis is that, while both opinions describe parts of the higher education landscape, the revolutionaries are describing the larger portion.

Given the radically new expectations of higher education, coupled with the demographics issue, Clayton Christenson's prediction may be correct: by 2030, a quarter of universities in the US could go bankrupt, merge, restructure or close, as the sector is reinvented – with similar consolidation also likely in other countries.[1]

Survivors will need to have forged ever closer commercial relationships with industry, disrupted themselves or coalesced into new networks of alliances.

> The northeast (of the US) has the densest number of higher education institutions and the fastest population decline. It is the worst combination. We are already seeing the collapse of the smaller, less-endowed, private institutions.

Dr. Katherine Newman
Provost of University of Massachusetts Amherst and Senior Vice-Chancellor for Academic Affairs, University of Massachusetts System, US

[1] Clayton M. Christensen and Michael B. Horn, "Innovation Imperative: Change Everything," *The New York Times*, 1 November 2013. Available at: https://www.nytimes.com/2013/11/03/education/edlife/online-education-as-an-agent-of-transformation.html

The higher education sector is at a **pivotal** moment

“Many of our universities face substitution risk and will not survive exponential technological change.

Edmond Wong
EY Managing Analyst, China, EY Research Institute

As COVID-19’s systemic shock continues to play out and technology changes the game of higher education, **we challenge you to think the unthinkable**.

Imagine that failing birth rates and government pushes for vocational skills mean that the domestic demand for traditional, campus-based higher education never returns to previous levels. Imagine too that the cohort of international students, on which markets such as the UK, Singapore and Australia heavily depend, never fully bounces back – and dwindles over time, as emerging markets fast-forward their higher education evolution, using alternative digital and hybrid models.

Imagine if a technology giant introduces learning that is continual, flexible, customizable and equitable.

As higher education gets reinvented around us, we should consider how its future will challenge today’s norms. This is what this paper intends to address.

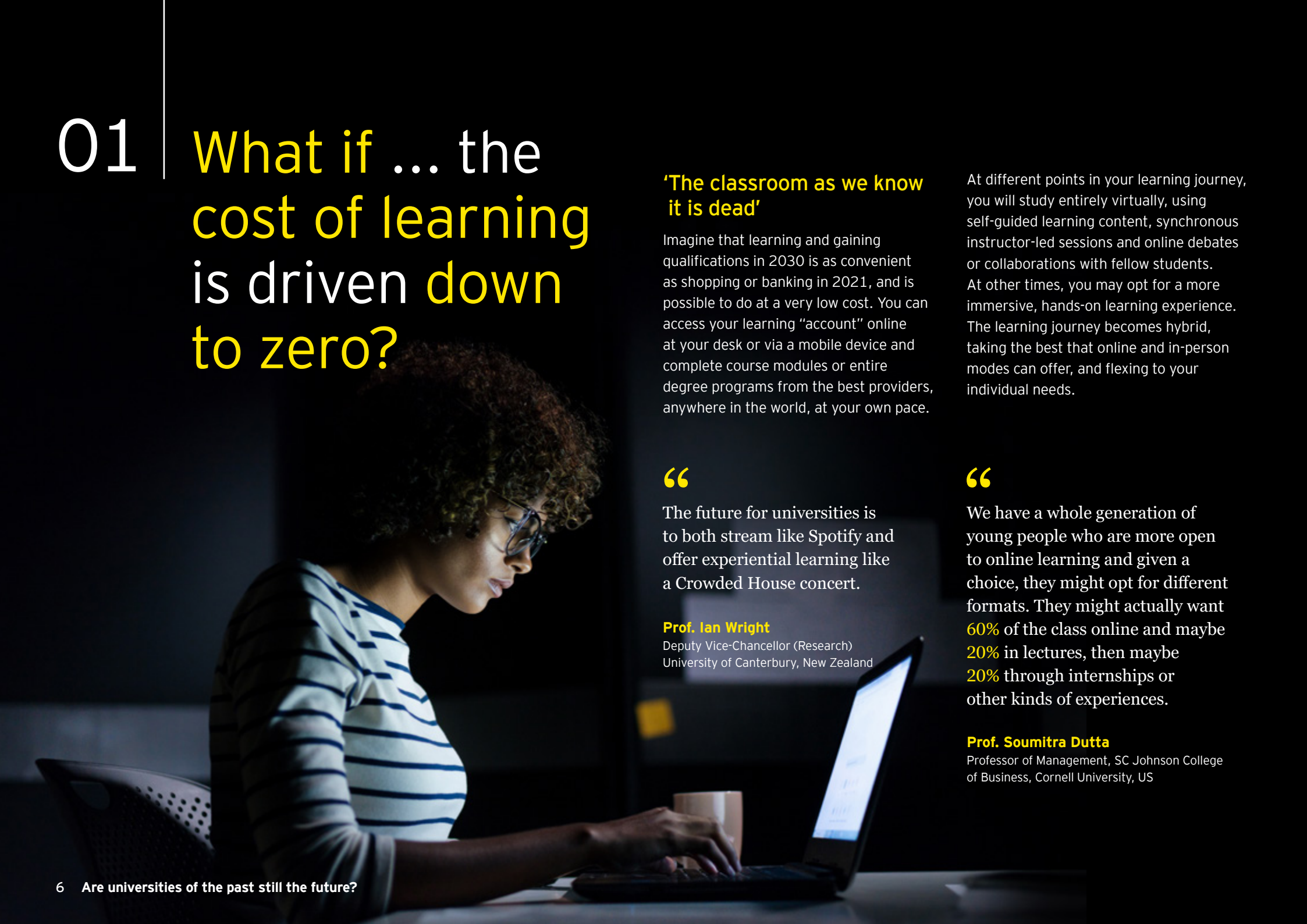
What follows below are five plausible “what if?” scenario questions that every university leader should consider to chart a course from present to future with greater confidence and clarity, looking at how a university’s role as a provider of teaching and learning might change, and the challenges and opportunities in the research sphere:

1. What if … the cost of learning is driven down to zero?
2. What if … learning journeys are entirely flexible and customizable?
3. What if … higher education providers are accountable for results?
4. What if … commercialized research pays for itself?
5. What if … technology could solve the global supply-demand mismatch?

These scenarios, which look out to 2030, are all based on clear trends, signals and technologies from today. None of them are likely to eventuate exactly as written, but we are convinced that many of their threads will be present in the higher education tapestry of the future.

We hope that they prove useful to university leaders who are envisioning a new era for higher education.

01 What if … the cost of learning is driven down to zero?



‘The classroom as we know it is dead’

Imagine that learning and gaining qualifications in 2030 is as convenient as shopping or banking in 2021, and is possible to do at a very low cost. You can access your learning “account” online at your desk or via a mobile device and complete course modules or entire degree programs from the best providers, anywhere in the world, at your own pace.

At different points in your learning journey, you will study entirely virtually, using self-guided learning content, synchronous instructor-led sessions and online debates or collaborations with fellow students. At other times, you may opt for a more immersive, hands-on learning experience. The learning journey becomes hybrid, taking the best that online and in-person modes can offer, and flexing to your individual needs.

“The future for universities is to both stream like Spotify and offer experiential learning like a Crowded House concert.

Prof. Ian Wright
Deputy Vice-Chancellor (Research)
University of Canterbury, New Zealand

“We have a whole generation of young people who are more open to online learning and given a choice, they might opt for different formats. They might actually want 60% of the class online and maybe 20% in lectures, then maybe 20% through internships or other kinds of experiences.

Prof. Soumitra Dutta
Professor of Management, SC Johnson College of Business, Cornell University, US

Sector structure in **2030**

The knowledge services sector solves for **accessibility**

Universities are just one category of a plethora of knowledge services providers, accessed via digital platforms, which have dramatically reduced the marginal costs of delivering learning, while enabling almost infinite scale and reach.

Educational technology (EdTech) providers, media companies and some forward-thinking universities offer highly engaging course content with charismatic experts, supported by high-quality video, graphics and gamified learning exercises, bringing a subject to life much better than a single professor at the front of a lecture hall. Digital content delivery is augmented by chat-based teaching support, potentially in local languages, and allows students to debate their learning with peers in real time.

> “Universities need to stop trying to write every single piece of content when there are already terabytes of great content out there that students can access.

Prof. Colin Stirling
President and Vice-Chancellor,
Flinders University, Australia

Implications for universities

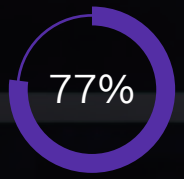
Unless they reinvent themselves, universities in 2030 risk being like public libraries in 2021: temples of knowledge that few visit because information and services have been dematerialized to screens.

In this world, it is not just that content is close to free. It is that nobody has proprietary content that is better than anyone else's. If you think that your curriculum is your unique selling proposition (USP), think again.

Clearly, universities offer a lot more than knowledge dissemination. And teaching is not just content delivery. Great teachers inspire, motivate and challenge their students. Class discussions reinforce learning and develop critical thinking and communication skills. Practical sessions provide the opportunity to apply knowledge, solve problems and work in teams. But universities need to re-examine what is the unique value offered by in-person, campus-based learning and redesign around that.

For the school-leaver, the campus can offer unique life experiences. Students learn to fend for themselves, manage their finances and engage in diverse leisure activities. They may make lifelong friends and form early professional networks with like-minded peers. However, not all learners need this from a campus, certainly not for the whole duration of their course. The workplace also offers opportunities to learn life skills, while advancing a career.

Changing attitudes and behaviors toward digital and emerging technologies present new opportunities for universities across the globe to reinvent learning delivery. The generation of students coming through are digital natives. Online is where they live, learn and socialize. Their access to digital content has changed the way they learn, with almost infinite access to information, but greater challenges to assess the quality and validity of information. Educators must adapt their methods accordingly.



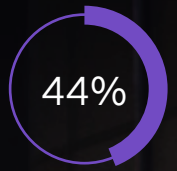
of the Gen Y and Gen Z respondents to our global survey report that the way they use technology changed during the pandemic.

This proportion is higher in emerging economies

88% in **Indonesia**
86% in **India**
85% in **Brazil**

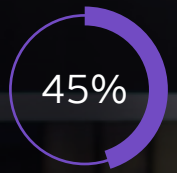
and lower in Western Europe

66% in **Scandinavia**
67% in **France**



of the Gen Y and Gen Z respondents expect it to remain changed permanently.

Source: *EY Future Consumer Index*, Oct 2021



of our global Gen Y & Gen Z respondents think that the way they study will not go back to how it was pre-pandemic.

This figure is higher in emerging economies

56% in **India**
55% in **Brazil**

and lower in Western Europe

32% in **France**
35% in **Scandinavia**

The opportunity for universities is to take the best digital content, teaching, collaborations and assessment tools, and combine it with access to the rich learning experience that a campus can provide, when it adds value for the learner. Universities should evolve into a hybrid model that delivers world-class, flexible and personalized learning, where students can toggle between on-campus, blended and purely online learning, as their needs and preferences evolve.

Winning universities must pivot early, think ahead of the market, embrace online learning platforms and create course programs to suit digital-first or hybrid learning models.

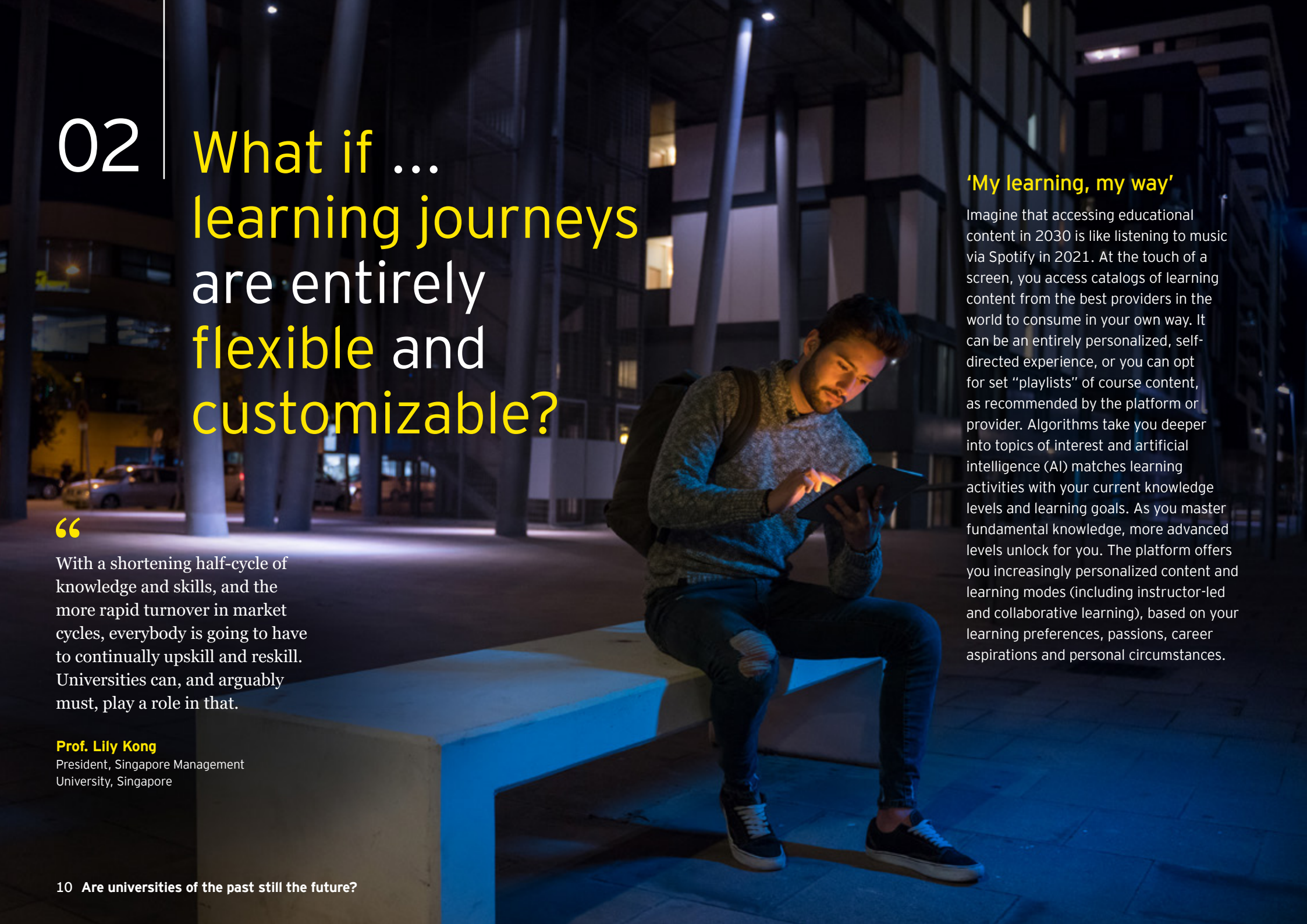
Signposts from today

- Universities are moving to make quality digital learning a part of their core offering. Some are partnering with online learning platforms, such as Coursera, EdX and Udemy, to cocreate and disseminate courses. Others are using media production companies to produce slicker, more engaging content. A few are partnering with or acquiring digital-first universities with fully formed online programs ready to go.
- The concept of the "flipped classroom" is widely accepted. Content is disseminated online, either asynchronously (recorded or self-guided) or synchronously ("live" or together in time but not place), rather than via mass in-person lectures, with learning reinforcement happening via classroom discussions rather than via self-study.
- Digital is becoming increasingly embedded in in-person content delivery. Gamification is being used to engage students in applying and testing their learning – and as a way to crowdsource solutions to scientific research problems. Digital simulations and models are allowing students to experiment cheaply and safely – or explore far-flung archaeological sites or the tissues of the human brain, from their desks.

> "Our competitive differentiation is our campus, our people and our diversity. How does digital allow this to be better, rather than driving it down to the lowest viable product and price? How does digital augment and give us superpowers?

Prof. Brian P. Schmidt AC FAA FRS
Vice-Chancellor Australian National University, Australia

02 What if … learning journeys are entirely flexible and customizable?



“With a shortening half-cycle of knowledge and skills, and the more rapid turnover in market cycles, everybody is going to have to continually upskill and reskill. Universities can, and arguably must, play a role in that.

Prof. Lily Kong
President, Singapore Management University, Singapore

‘My learning, my way’

Imagine that accessing educational content in 2030 is like listening to music via Spotify in 2021. At the touch of a screen, you access catalogs of learning content from the best providers in the world to consume in your own way. It can be an entirely personalized, self-directed experience, or you can opt for set “playlists” of course content, as recommended by the platform or provider. Algorithms take you deeper into topics of interest and artificial intelligence (AI) matches learning activities with your current knowledge levels and learning goals. As you master fundamental knowledge, more advanced levels unlock for you. The platform offers you increasingly personalized content and learning modes (including instructor-led and collaborative learning), based on your learning preferences, passions, career aspirations and personal circumstances.

Sector structure in **2030**

The knowledge services sector solves for **personalization**

Universities and other providers of further and higher education offer a huge range of flexible, stackable credentials, from which students can pick and mix to create their unique portfolio of knowledge, skills and capabilities. Courses and providers share an internationally recognized accreditation framework, so that course credits can readily be transferred between programs, providers (including in different countries) and pathways (blending further and higher education).

> “I am seeing employers approach us to create programs for them, which carry our brand and theirs at the same time.

Dr. Katherine S. Newman
Provost of University of Massachusetts Amherst and Senior Vice-Chancellor for Academic Affairs, University of Massachusetts System, US

In this environment, employers can specify highly tailored requirements for particular job roles and candidates can search for providers to help them fill skills or knowledge gaps. Learners can choose additional courses from outside the standard curriculum for their program, depending on personal interests and aptitudes.

Now open to students from many countries and pathways, specialist and niche courses have sufficient scale to flourish. The endless duplication of generic courses in different locations ceases, as students gain access to the best courses, not driven solely by location. This, inevitably, leads to market consolidation.

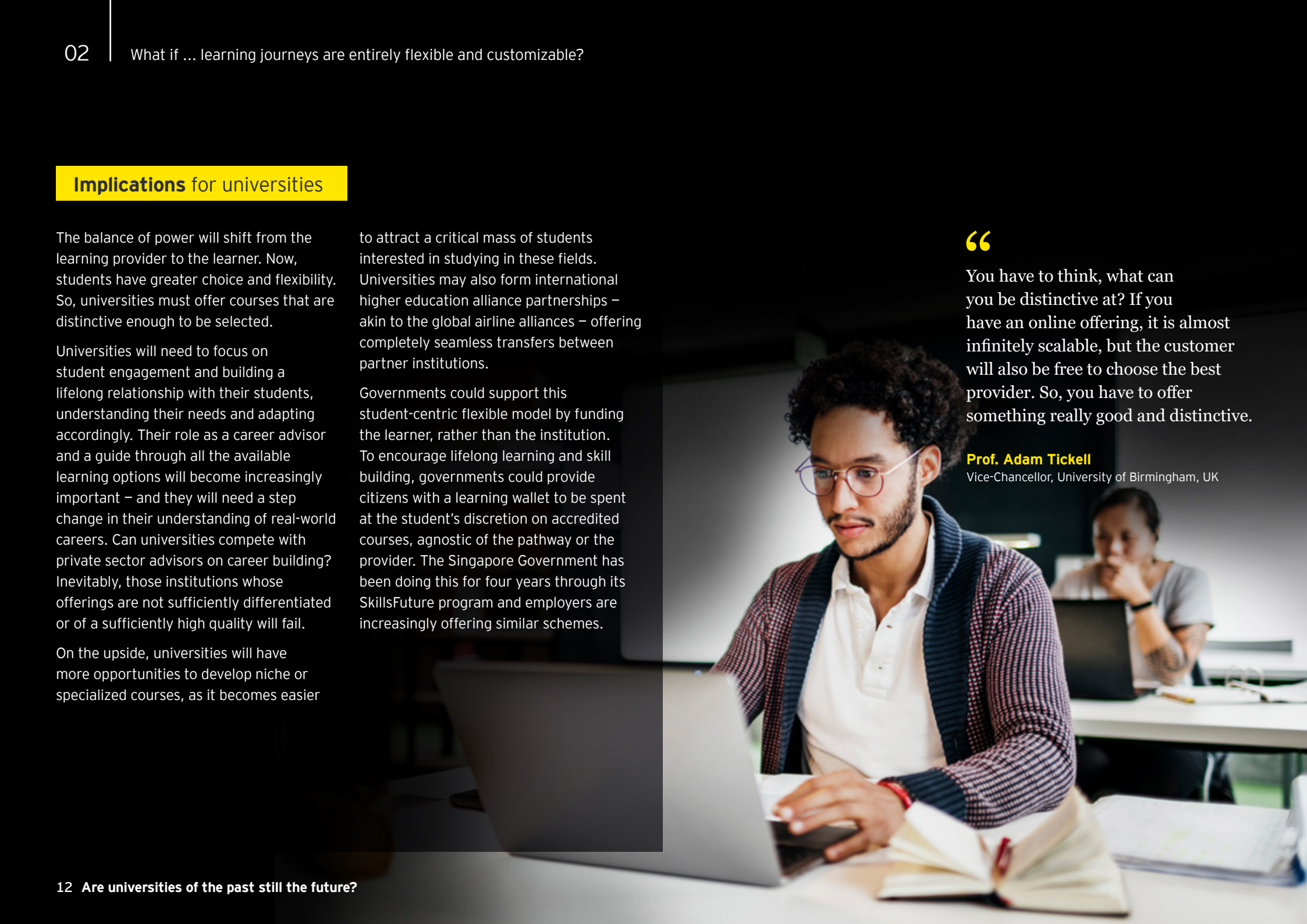
Implications for universities

The balance of power will shift from the learning provider to the learner. Now, students have greater choice and flexibility. So, universities must offer courses that are distinctive enough to be selected.

Universities will need to focus on student engagement and building a lifelong relationship with their students, understanding their needs and adapting accordingly. Their role as a career advisor and a guide through all the available learning options will become increasingly important – and they will need a step change in their understanding of real-world careers. Can universities compete with private sector advisors on career building? Inevitably, those institutions whose offerings are not sufficiently differentiated or of a sufficiently high quality will fail.

On the upside, universities will have more opportunities to develop niche or specialized courses, as it becomes easier to attract a critical mass of students interested in studying in these fields. Universities may also form international higher education alliance partnerships – akin to the global airline alliances – offering completely seamless transfers between partner institutions.

Governments could support this student-centric flexible model by funding the learner, rather than the institution. To encourage lifelong learning and skill building, governments could provide citizens with a learning wallet to be spent at the student's discretion on accredited courses, agnostic of the pathway or the provider. The Singapore Government has been doing this for four years through its SkillsFuture program and employers are increasingly offering similar schemes.



> "You have to think, what can you be distinctive at? If you have an online offering, it is almost infinitely scalable, but the customer will also be free to choose the best provider. So, you have to offer something really good and distinctive.
>
> **Prof. Adam Tickell**
> Vice-Chancellor, University of Birmingham, UK

Signposts from today

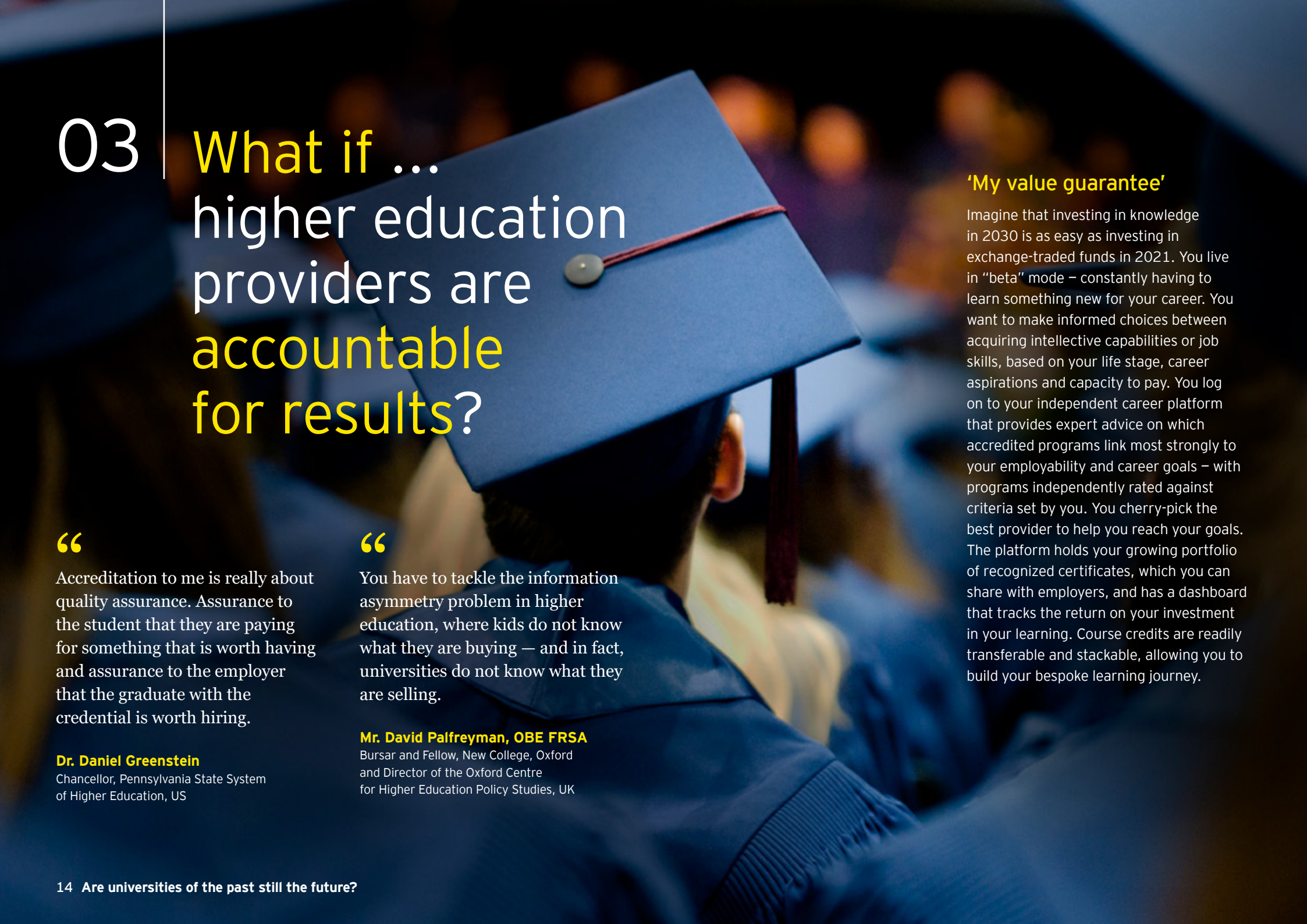
- Benchmark studies, such as the UK's Student Academic Experience Survey, show that student satisfaction is being largely ignored. The proportion of dissatisfied students is growing and the proportion of satisfied students is declining. If customer choice and switching become as easy as they are in other industries, then universities will no longer be able to ignore customer satisfaction.

> "We are seeing a huge shift toward lifelong learning, micro-credentials, just-in-time learning (JITs) and miniaturization of learning.

Dr. Themin Suwardy
Associate Provost, Singapore Management University, Singapore

- Universities around the world are cocreating bespoke programs for specific employers or to satisfy emerging workplace needs. They are reverse engineering courses to fit job descriptions and competency requirements for specific employment areas. But, just as fast, employers (including EY) are providing their own accredited training in areas of innovation because universities have been too slow to do so.
- Pathways are starting to blur. In the US, to reduce the cost of their degrees, many students are undertaking their first two years in a community college (or completing general studies while still in high school) before transferring into a more prestigious university to graduate. University leaders in both US and India told us that they expect other cost reduction strategies. For example, students may complete the first one or two years of their degree on campus for the experience, but finish online as they become more self-sufficient and potentially start to work in their field. Increasing the transferability of credits will allow more students to take advantage of these lower-cost pathways to their qualifications.
- Consolidation is occurring in the US higher education market, where there is a high degree of duplication and falling student numbers. Small, private colleges offering a general liberal arts education are unable to attract sufficient students to remain viable. They are being merged with the larger state or public universities – or even acquired by non-education sector players, for example, a health care provider acquiring a small specialist medical school.

03 What if … higher education providers are accountable for results?



“Accreditation to me is really about quality assurance. Assurance to the student that they are paying for something that is worth having and assurance to the employer that the graduate with the credential is worth hiring.

Dr. Daniel Greenstein
Chancellor, Pennsylvania State System of Higher Education, US

“You have to tackle the information asymmetry problem in higher education, where kids do not know what they are buying — and in fact, universities do not know what they are selling.

Mr. David Palfreyman, OBE FRSA
Bursar and Fellow, New College, Oxford and Director of the Oxford Centre for Higher Education Policy Studies, UK

‘My value guarantee’

Imagine that investing in knowledge in 2030 is as easy as investing in exchange-traded funds in 2021. You live in “beta” mode – constantly having to learn something new for your career. You want to make informed choices between acquiring intellective capabilities or job skills, based on your life stage, career aspirations and capacity to pay. You log on to your independent career platform that provides expert advice on which accredited programs link most strongly to your employability and career goals – with programs independently rated against criteria set by you. You cherry-pick the best provider to help you reach your goals. The platform holds your growing portfolio of recognized certificates, which you can share with employers, and has a dashboard that tracks the return on your investment in your learning. Course credits are readily transferable and stackable, allowing you to build your bespoke learning journey.

Sector structure in **2030**

The knowledge services sector solves for **accountability**

Universities have lost their monopoly on accreditation and nondegree, lifelong-learning credentials are mainstream. The knowledge services sector is governed by a common accreditation infrastructure that enables the learner to assess value for money among different providers and helps the employer to evaluate the learning portfolio of the candidate. Numerous digital learning providers, employer schemes and industry bodies compete directly with universities, or partner with them to be selected as the provider of choice at the course or the program level.

Learning providers have to declare learning inputs and outcomes, which feed into the ratings. Inputs include teacher-student ratios, and the amount, nature and quality of teaching and evaluation methods. Outcomes go beyond academic attainment and skills acquisition, covering a graduate's employability and earning potential. Rather than choosing courses based on university brands or perceived prestige, students have true clarity around the value a specific online or campus-based education provider will deliver – and potentially, have recourse if the actual experience fails to live up to its promise. Some universities even offer a student contract with guarantees around teaching inputs and learning outcomes.

> "Is it not time now to have a proper student-university contract with great clarity? I would, for instance, make universities disclose their size of seminars and hold them contractually to it.

Mr. David Palfreyman, OBE FRSA
Bursar and Fellow, New College, Oxford and Director of the Oxford Centre for Higher Education Policy Studies, UK[2]

[2] Read more of David Palfreyman's thoughts on the topic of university accountability in his recent paper: The TEF by 2020?

Implications for universities

The proliferation of degree and nondegree credentials available has led to a need for greater regulation and accreditation of providers, to help prospective students and employers evaluate the relative value of credentials. The lifelong learning sector, in particular, has no accreditation infrastructure. An increasing focus on value leads to greater transparency of learning inputs and outcomes.

Universities will no longer be able to ask governments to fund them with no questions asked – or expect students to select them on the basis of location or brand reputation alone.

Governments may introduce an element of performance-based funding, incentivizing universities to focus on quality and effectiveness of teaching and learning inputs – rebalancing the current focus on quality and quantity of research outputs. Universities could begin to reward faculty in this way. One idea for doing this – making universities own their loan books – has already been mooted in some circles in the UK.

Universities will need to focus on their demonstrable value add, leaning on data and analytics to continually measure student engagement and progress. With evidence to support what works – and what does not – faculties will make ongoing changes to course delivery, using targeted interventions to improve learning outcomes.

The pandemic has proven that it is possible to rethink assessments and course evaluations. Previously sacrosanct examinations, such as the A Levels in the UK and the Baccalaureate in France, simply did not take place, and alternative methods of assessing competence were found. Do universities also need to rethink the broad-brush grading of degrees, to provide more detailed and meaningful comparisons to employers? Using blockchain technology, learners could build an irrefutable lifelong record of learning attainment, at a much more granular and useful level.

> “By adopting some form of common standards, the students should be able to transfer their credits across programs and institutions.

Prof. Souvik Bhattacharyya
Vice-Chancellor, Birla Institute of Technology and Science, Pilani, India

Signposts from today

- Already, some online course providers provide a "pass or your money back" guarantee.
- Universities that are working with employers to develop bespoke training programs are designing new performance measures to demonstrate return on investment – not only in terms of acquisition of required workforce skills, but also in terms of impact on employee retention and progression.
- Detailed comparative metrics on the outcomes for providers and their courses are available from a mix of salary data, from the market and statistics, and from regulators or industry bodies. But these are not yet universally applied, nor promoted for the purposes of provider selection.
- Attempts to measure educational value are becoming increasingly sophisticated. In the UK, K-12 schools are measured in terms of a value-added score, based on math, reading scores and progress, which feeds into the published rankings that parents use to select schools. In the US, the National Center for Education Statistics publishes data on retention and graduation rates.
- Universities have resisted assessing value-add, claiming that the learning outcomes could not be measured. Regardless, in the UK, the Government introduced the Teaching Excellence Framework. The political need to explain the return on taxpayer investment trumped academic qualms about methodology.
- The US interviewees highlighted that some universities are using data and analytics – and even predictive analytics – to try to improve retention and overall pass rates for certain minority groups. Now, this needs to be expanded as a mainstream capability to improve the experience and outcomes of all students.
- Already, digital providers, industry bodies and employer groups are partnering with universities to develop bespoke credentials and benefit from the universities' recognized, accredited status.

> "When we talk to EdTech companies and certification companies, they are talking about blockchain as the way in which certification processes are going to be a lot easier.
>
> **Prof. Madan Pillutla**
> Dean, Indian School of Business (ISB), India

04 What if … commercialized research pays for itself?

> “Research is at least as important as anything else that we do. … You can’t attract great faculty unless you put a real emphasis on research, and you can’t attract grad students. For most major research universities, it’s also how we teach.

Dr Michael K. Young
Former President, Texas A&M University, US

‘Research helps to pay the bills’

Imagine that revenue from commercialized research in 2030 is sufficient to allow research to pay for itself. Universities have a clear understanding of what research lends itself to commercialization and approach this segment of research in a more sophisticated and deliberate manner. Governments proactively support opening up the higher education sector to private and overseas investment in R&D, offering financial incentives to companies funding R&D. Universities gain access to private equity capital and participate in rich innovation ecosystems, facilitated by venture studios. Commercialized innovation boosts economic growth and a city, state or country’s attractiveness, not only as a student destination but also an investment destination. Government funding focuses more on solving the major societal issues that the private sector cannot tackle alone, or on pure research to boost national competitiveness.

Sector structure in **2030**

> (Successful research commercialization) has that spill-back effect of changing the attitudes of the community about the importance and centrality of the university. There is a sense that it builds the community.

Dr. Michael K. Young
Former President, Texas A&M University, US

The knowledge services sector solves for **financial sustainability**

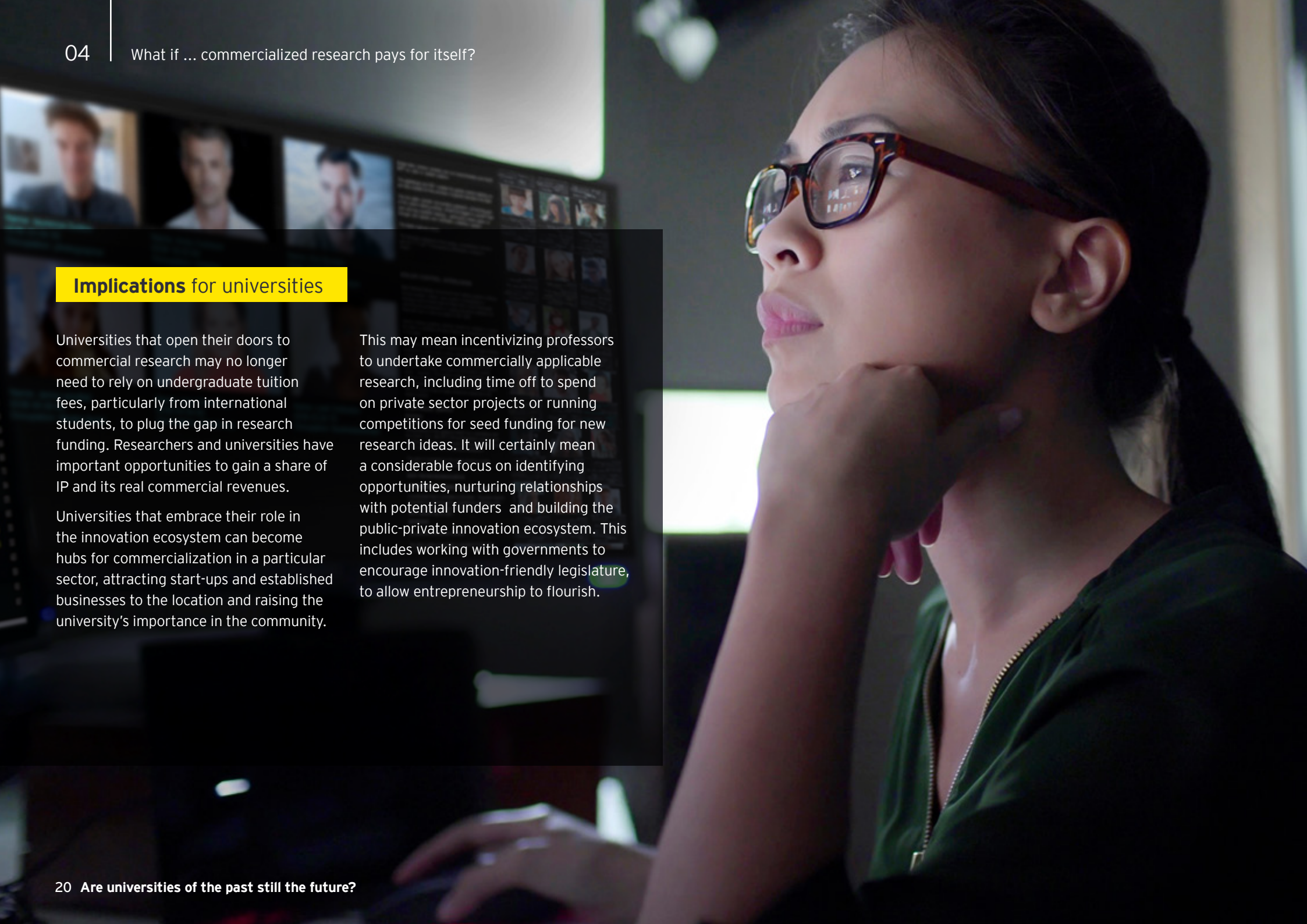
High-quality postgraduate research is fundamentally important for universities. It drives their international rankings, attracts the best students and faculty, feeds into undergraduate teaching, and is a key element of a university's contribution to society and national competitiveness.

However, research is costly and on the whole, despite being heavily funded by governments, still subsidized by undergraduate tuition fees, particularly from international students.

By 2030, the sector has, at least, partially solved this issue. University research has shifted to prioritize commercial, demand-driven research and development, creating closer collaboration between universities, industry and capital markets. Universities have repurposed their underused campus assets as commercial laboratories or business incubators. PhD students have clear career paths into industry, eventually working for companies whose commercial research they undertake, or whose start-ups they cocreate.

Commercial university research is self-funded by industry collaboration and commercialization of intellectual property High-quality, high-profile and successful research also provides an indirect boost to the university's finances, by attracting the best students and faculty, and by creating wealthy alumni, boosting endowments. It also provides a fantastic learning opportunity for students and increases their employability.

Government continues to fund noncommercial academic research that supports the national interest and supranational organizations fund international collaborations on globally important research.



Implications for universities

Universities that open their doors to commercial research may no longer need to rely on undergraduate tuition fees, particularly from international students, to plug the gap in research funding. Researchers and universities have important opportunities to gain a share of IP and its real commercial revenues.

Universities that embrace their role in the innovation ecosystem can become hubs for commercialization in a particular sector, attracting start-ups and established businesses to the location and raising the university's importance in the community.

This may mean incentivizing professors to undertake commercially applicable research, including time off to spend on private sector projects or running competitions for seed funding for new research ideas. It will certainly mean a considerable focus on identifying opportunities, nurturing relationships with potential funders and building the public-private innovation ecosystem. This includes working with governments to encourage innovation-friendly legislature, to allow entrepreneurship to flourish.

Signposts from today

- The outlook for government funding for research remains positive in countries, such as the US, due to the desire to compete with investments being made in China, as well as the recognition of the significant societal problems that need solving. Yet, every university we spoke to told us that government funding does not cover the costs. So, in the face of financial pressures, universities need to seek additional potential revenue streams.
- In Australia, the Prime Minister has recently announced the Universities Trailblazer program. It will invest AU$247m in the creation of university research hubs, incentivizing researchers to collaborate across institutions and in partnership with business, for greater commercialization. This will help Australia to address challenges of national importance, including in defense, clean energy and medical products.
- In the US, academic researchers are collaborating in entities, such as Boston's CIMIT consortium, which includes academic medical centers, universities, and a growing network of national and international affiliates who collaborate to drive health care technology commercialization.
- The University of Utah (along with Utah State University and Brigham Young University) has been instrumental in creating a hotbed of technology entrepreneurship and successful start-ups to rival Seattle or Silicon Valley. A modest initial public sector investment bore fruit. It attracted more private investment, creating a virtuous circle of success, and attracted top talent and venture capital. Economic growth in Utah has been the highest of any state – over 80% in the past 20 years.[3]

> "The (pending) 'Endless Frontiers Act', would significantly increase the size of the National Science Foundation and add an entire new directorate to it that would add a focus new to NSF on translational research.

Dr. Katherine S. Newman
Provost of University of Massachusetts Amherst and Senior Vice-Chancellor for Academic Affairs, University of Massachusetts System, US

[3] https://www.forbes.com/sites/andrewdepietro/2021/08/04/2021-us-states-by-gdp-and-which-states-have-experienced-the-biggest-growth/?sh=3148bc99846c

05 What if … technology could solve the global supply-demand mismatch?

“Of the UN Sustainable Development Goals, health and education are two where, if we deploy technology creatively, we can actually get close to at least making a dent in it. Potentially, you can reach everyone [because] … at least a large proportion of the population has a mobile phone.

Prof. Soumitra Dutta
Professor of Management, SC Johnson College of Business, Cornell University, US

‘Universities mobilize to help achieve SDG 4’

Imagine that, in 2030, a talented postgraduate engineering student in Luanda (Angola) could access the best, leading-edge teaching from the recognized leader in her field, without having to leave her hometown. Her self-accessed, remote learning is supplemented with occasional trips to her local campus for instructor-led, synchronous teaching, delivered via high-speed video link from her professor in the US, or to use the campus laboratories for group work and practical experiments. Her course fees are comparable with those of a local university degree, but she leaves with sought-after, recognized and internationally transferable credentials.

Sector structure in **2030**

The knowledge services sector solves for **equity**

In 2030, while the undergraduate student population in advanced economies has been in decline, global attention has turned to emerging economies. There, the demand for quality higher education continues to grow, as national governments strive to achieve ambitious gross enrollment rate (GER) targets. Online and hybrid learning modes help higher education institutions in emerging economies exponentially increase their capacity and reach, making higher education and skills development accessible to a greater proportion of the population, including working adults and those in remote communities.

At the same time, through partnerships with accredited local universities or digital learning platforms, 10% or 20% of the "excess" teaching capacity from advanced economies is being repurposed to develop and deliver high-quality higher education and skills development for students in emerging economies.

Some partnerships are based on Western universities codeveloping or augmenting existing courses run by the local university and delivered either fully online or in a hybrid virtual-physical mode. In other cases, the Western university takes the lead, working with a local party to help recruit students and navigate local regulations, and provide physical learning spaces and faculty, or teaching assistants to supplement online learning with local language support.

Mutually recognized course modules and transferable credits are developed to help mobility, allowing students to begin a course online or at a local campus, and then transfer to a physical campus or even overseas for a year to complete their studies.

Collaborating across the world, universities play their part in achieving the UN Sustainable Development Goal 4: inclusive and quality education, and lifelong learning opportunities for all.

Governments support education equity by investing in national technology infrastructure and ensuring that all students have access to learning devices. Investments in energy transition bring renewable energy to communities that previously lacked a consistent power supply, and reliable and sufficient bandwidth. Governments also support sector expansion by relaxing regulations for the local institutions. This includes rules around the local institutions' partners, the purpose of these partnerships and the courses offered by institutions in online or blended mode.

> "To achieve nonlinear growth, universities need to increase the amount they offer via asynchronous mode, as synchronous is hard to scale.

Prof. Amit Dhiman
Professor of Human Resource Management, Indian Institute of Management, Calcutta, India

Implications for universities

Emerging economies, such as India and China, who were previously major exporters of students to overseas universities, are rapidly developing their higher education capacity and quality. However, this development has not kept pace with the demand from the expanding middle classes. Ambitious government targets for university enrollment, such as the 50% gross enrollment rate by 2035 outlined in India's New Education Policy, are putting pressure on universities to rapidly expand their reach and their offerings, while maintaining standards of quality.

Western universities looking for new markets have a huge opportunity to partner locally and roll out the sought-after, high-quality education in these growing markets, using technology to do so at scale and at a price point that is affordable locally.

Previous attempts by Western universities to establish campuses in emerging markets have not proven sustainable. But there are real opportunities to partner with local universities or other local third parties to establish a physical (micro-hub) or virtual presence.

Existing online course content developed in the West for emerging markets tends to be in English. To truly reach the mass population in emerging countries, universities should consider developing and delivering content in local language, or at least supplementing English content with learning support in local languages.

Once again, recognized accreditation and transferability of credits from these programs will be key to gaining acceptance from students, employers, education providers and governments alike.

> "In future, most of the programs will be on a blended mode, partially online and partially campus-based, which will also bring down the cost of education substantially as we go forward.

Lt Gen. Dr Venkatesh
Vice-Chancellor of Manipal Academy of Higher Education (MAHE), India

Signposts from today

- Some universities in emerging markets have a long tradition of partnering with overseas universities, although mainly only around student exchange and collaborative research.
- Many are already partnering with online learning platforms to develop and deliver courses online, as a means to scale up and reach more of the population.
- While certain Western universities are currently seeing overseas students exiting their campuses, especially from markets, such as China, we are also seeing the emergence of new partnerships and modes of delivery into these markets. For example, the University of Massachusetts Amherst has partnered with a Boston-based company called Shorelight to deliver a UMass Amherst Master's in Electrical and Computer Engineering in Shanghai. The course content developed by UMass Amherst is delivered in English by their own faculty via interactive, synchronous classes over a high-speed video connection, with local teaching assistants on hand to provide student support and facilitate class discussions in local language. Shorelight recruits the students and provides the physical infrastructure locally.

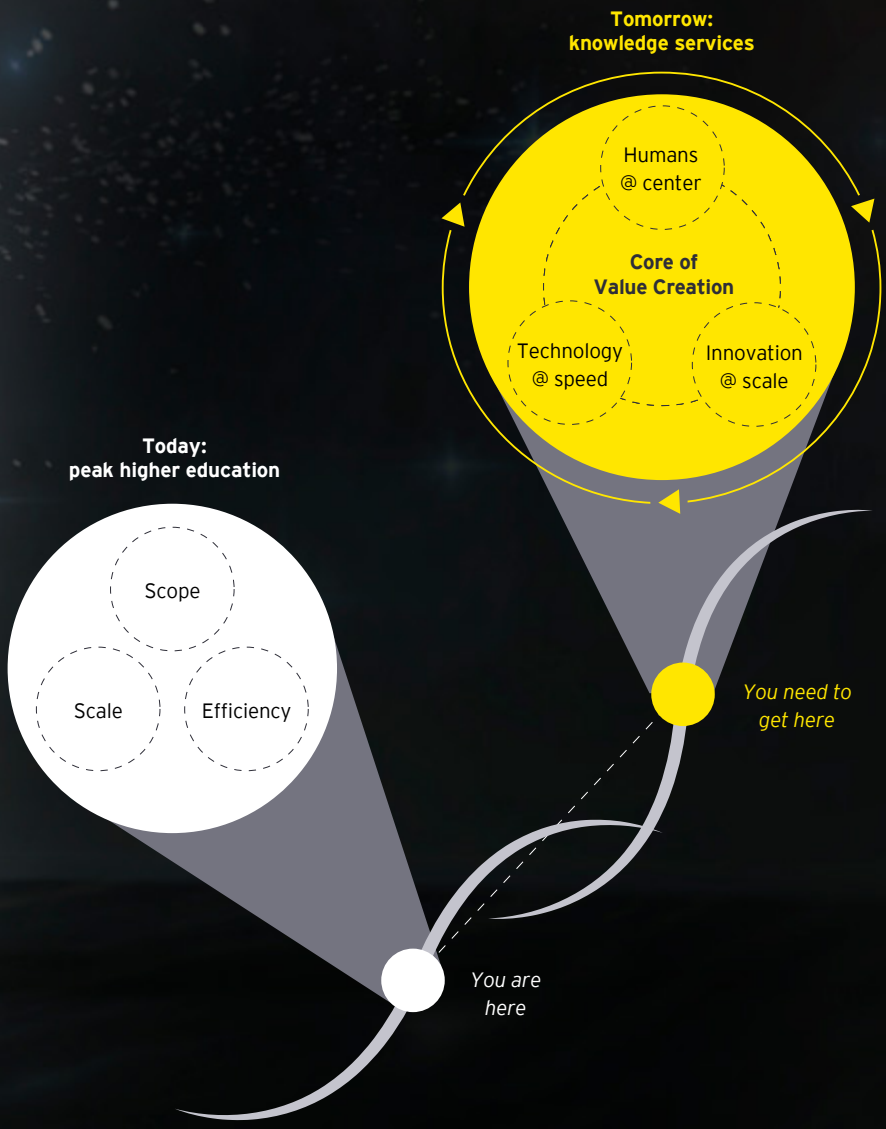
> "If you ask someone from Sloan School or Kellogg to spend seven days in India, it could be very difficult. They cannot afford that sort of time. But now, if you ask them could you have two hours per day, three days a week, it is a reality and people are doing it.
>
> **Prof. Souvik Bhattacharyya**
> Vice-Chancellor, Birla Institute of Technology and Science, Pilani, India

How to jump the S-curve

To survive and thrive in the knowledge services sector, universities must reinvent themselves by jumping the S-curve – moving from the maturity stage of "peak higher education" to the growth stage of knowledge services. However, reinvention is challenging because organizations become trapped by today's assumptions. To maintain a dynamic competitive advantage, universities need to adopt a new set of behaviors to get and stay ahead.

"Business model disruption is here. We are experiencing it. I had been skeptical it would land in my lifetime, but it is happening now.

Bruce Lines
Chief Operating Officer, The University of Adelaide, Australia



How to repeat this thought experiment to prepare for what is coming?

1

Be clear about your long-term purpose

Ask, "Why are we here?" Purpose will help you maintain relevance as you journey into an uncertain future. Is your purpose to advance lifelong education well-being, collaborate to solve global challenges, unlock knowledge and commercialize research, or something else?

2

Think "future-back" to set your reinvention agenda

Ask, "How will my institution be relevant in one or two decades?" Use scenarios beyond the "What if?" questions in this paper to define the choices you need to make today. What if the sector consolidates via mergers? What if universities form global partnerships such as the airline sector? What if universities become digital platforms? Engage with your broader ecosystem, including technology and consulting partners to think differently about the future.

3

Build new value with new capabilities

Ask, "How can we create long-term sustainable value for all our stakeholders?" Your historical value came from scale, scope and efficiency. Tomorrow, value will come from a new set of dynamic behaviors: putting humans at the center, driving innovation at scale and deploying technology at speed. Leapfrog your competitors with reinvention and a digital-first mindset. Address a customer need – flexibility, personalization or a job guarantee for graduates. Innovate your learning model and industry partnerships to enable this. Deliver it with AI-driven personalization and digital credentialing. Scale it up. To build this competency, go outside your sector to find leadership talent from other industries living with reinvention, such as retail, media or financial services. Accelerate your development through partnerships, acquisitions or hiring new capabilities.

4

Invest across the three time horizons

Ask, "how can we manage for today and change for tomorrow?" Balance your reinvention agenda, so that you keep thinking about exponential change.

> "Those that figure out how to capture multiple markets and do multiple things with the technology are going to thrive and grow, and it is going to be at the expense of other schools.

Dr. Michael K. Young
Former President, Texas A&M University, US

Horizon now

Investment: 50%

Focus: strengthen the core business models and operations of the university of today. For example, protect sensitive information with cybersecurity, or use data and analytics to track and improve outcomes and efficiency.

Horizon next

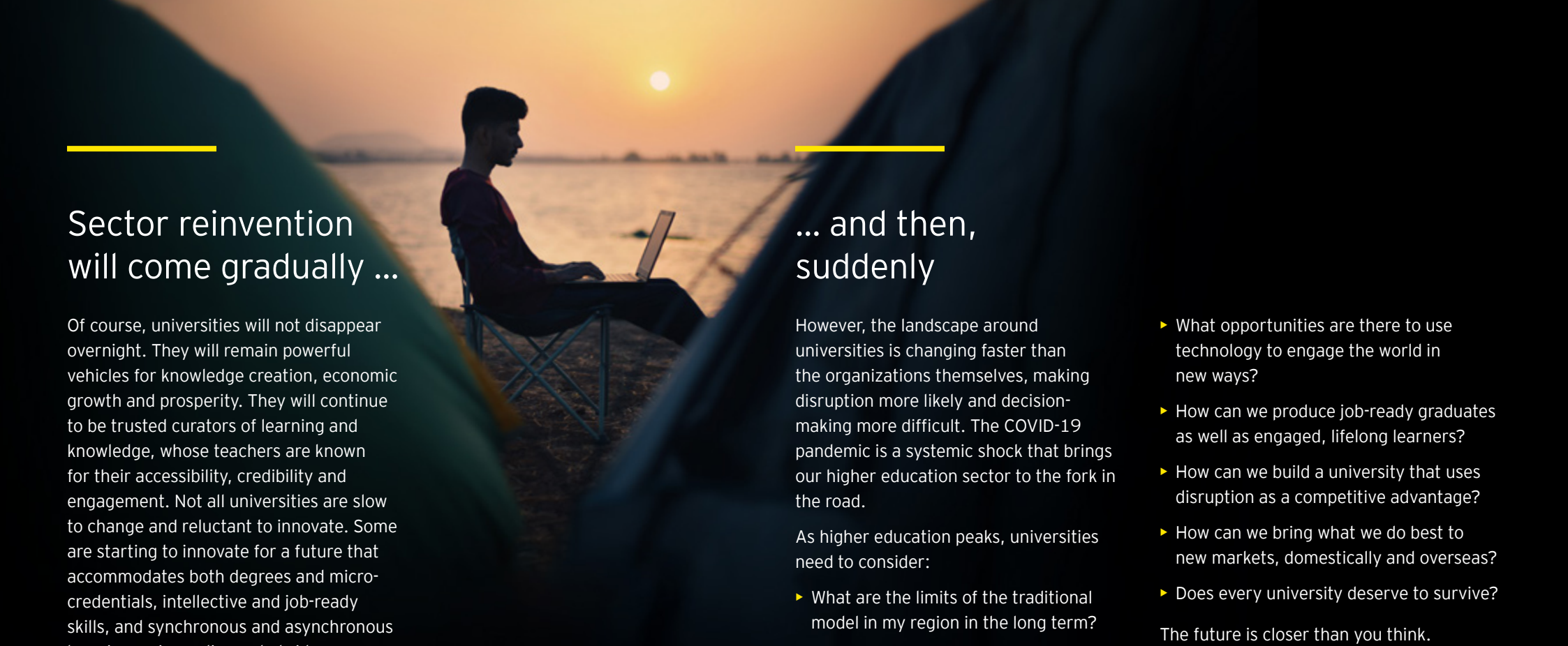
Investment: 40%

Focus: build the new business models and technologies for the university of tomorrow. For example, develop a next-generation digital learning ecosystem to deliver customized, "on demand" learning and build partnerships with industry or in new geographic markets.

Horizon beyond

Investment: 10%

Focus: make big bets to reinvent yourself and your industry. For example, build an intelligent campus using internet of things (IoT) and AI, and create a research as a service marketplace.



Sector reinvention will come gradually …

Of course, universities will not disappear overnight. They will remain powerful vehicles for knowledge creation, economic growth and prosperity. They will continue to be trusted curators of learning and knowledge, whose teachers are known for their accessibility, credibility and engagement. Not all universities are slow to change and reluctant to innovate. Some are starting to innovate for a future that accommodates both degrees and micro-credentials, intellective and job-ready skills, and synchronous and asynchronous learning, using online or hybrid delivery models.

Additionally, not all students will pursue alternatives to universities. Many will still want a coming-of-age experience before starting their professional lives. For this cohort, universities will continue to provide transformative experiences that go beyond acquiring a catalog of knowledge and skills.

… and then, suddenly

However, the landscape around universities is changing faster than the organizations themselves, making disruption more likely and decision-making more difficult. The COVID-19 pandemic is a systemic shock that brings our higher education sector to the fork in the road.

As higher education peaks, universities need to consider:

- What are the limits of the traditional model in my region in the long term?
- Can I keep winning enough of this traditional market to stay relevant or will my institution be one of the losers?
- What opportunities are there to use technology to engage the world in new ways?
- How can we produce job-ready graduates as well as engaged, lifelong learners?
- How can we build a university that uses disruption as a competitive advantage?
- How can we bring what we do best to new markets, domestically and overseas?
- Does every university deserve to survive?

The future is closer than you think. To remain relevant, universities must reinvent themselves. Change must start now – before it is too late.

> “The quality of life we have today is the product of the research and the learning of prior generations. What does this moment in history demand of our education and research institutions, in order to deliver the technological, scientific and cultural advances humankind — and the planet — need for tomorrow?

Catherine Friday
EY Global Education Leader

The EY organization can **help**

The future is uncertain, but the path does not need to be. Take two simple steps:

1 Self-diagnose your digital readiness

Some universities are accelerating digital innovation. Others are still in the planning stages. Use our self-diagnostic tool (adjacent page) to assess the readiness of your university to deploy technology at speed, as you reinvent your university for a knowledge services future.

2 Conduct your own thought experiment

Contact EY leaders to facilitate a virtual "future-back" strategic workshop with your leadership team, using exercises grounded in scenario planning to envision an unconstrained future.

Self-diagnostic tool: how well are you deploying technology at speed?

New technologies are emerging that present opportunities for knowledge services players to reinvent business models and drive significant efficiency in operating models. Organizations can seize significant advantage over competitors, by being more prepared and adept at leveraging these technologies.

Use this list to diagnose the readiness of your university to deploy technology at speed, as you reinvent for the knowledge services future.

Rank your institution on how well you are equipped (use a five-point scale: five equals excellent, four equals good, three equals average, two equals poor and one equals no action).

1. Can you convert your traditional learning management system into a next-generation digital learning ecosystem that provides adaptive or personalized learning opportunities for individual students?
2. Can you implement a career platform that connects students to industry, and provides career advice, planning and placements?
3. Can you enable informed executive decision-making via a unified data platform that provides a 360-degree view of students, staff, faculty and operations?
4. Can you use learning analytics to predict student performance challenges and provide targeted improvements to courses?
5. Can you create smart processes and workflows using intelligent automation to digitally schedule classes, and interact with students, staff and faculty, in a timely and personalized way?
6. Can you exploit AI and machine learning to assist teaching and support activities, ranging from grading and tutoring to performance monitoring?
7. Can you leverage digital credentialing technology to authenticate skills and knowledge to help students publish their achievements for their professional lives?
8. Can you use cybersecurity to protect all sensitive and personal information in the university ecosystem, as your institution becomes more digital?

If the answers to any of these questions cause concern, it might be time to accelerate technology and digital innovation to meet the rapidly changing expectations of your learners, partners and ecosystems.

Talk to us about your options.

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