

Members' report 3/2019

RETHINKING HIGHER EDUCATION

**STRUCTURAL TRANSFORMATIONS
ON THE HORIZON**

SUMMARY

The nature and purpose of higher education will have to be re-evaluated to accommodate societal, technological and demographic shifts, as well as more automated and fluid job markets. We will have to reconsider how higher education is organised and delivered, and the role of higher education institutions in the digital economy of the 21st century.

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FOREWORD

Pictet Asset Management has been working with the Copenhagen Institute for Futures Studies (CIFS) for over a decade to establish a deeper understanding of megatrends – the powerful secular forces that are changing the environment, society, politics, technology and the economy.

CIFS is a leading global think tank and consultancy. CIFS uses a wide range of research methods, developed over the last 40 years, which include megatrend analysis, scenario planning, risk management, innovation initiatives and strategy development.

Through our partnership with CIFS, we have devised an investment framework that incorporates CIFS' 14 megatrends. The framework – which includes trends such as Demographic Development, the Network Economy, Focus on Health, Sustainability and Technology Development – enhances our thematic equity capabilities and informs the construction and development of our thematic equities strategies such as Water, Robotics or SmartCity.

As CIFS' partner, Pictet Asset Management has access to research into areas not normally covered by the investment analyst community such as changes in societal attitudes and beliefs, the impact this has on the environment and the business sector, and the acceleration of technological development. We are proud to be associated with CIFS and would like to share some of their research with you. We have sponsored this publication and hope you find it as insightful as we do.

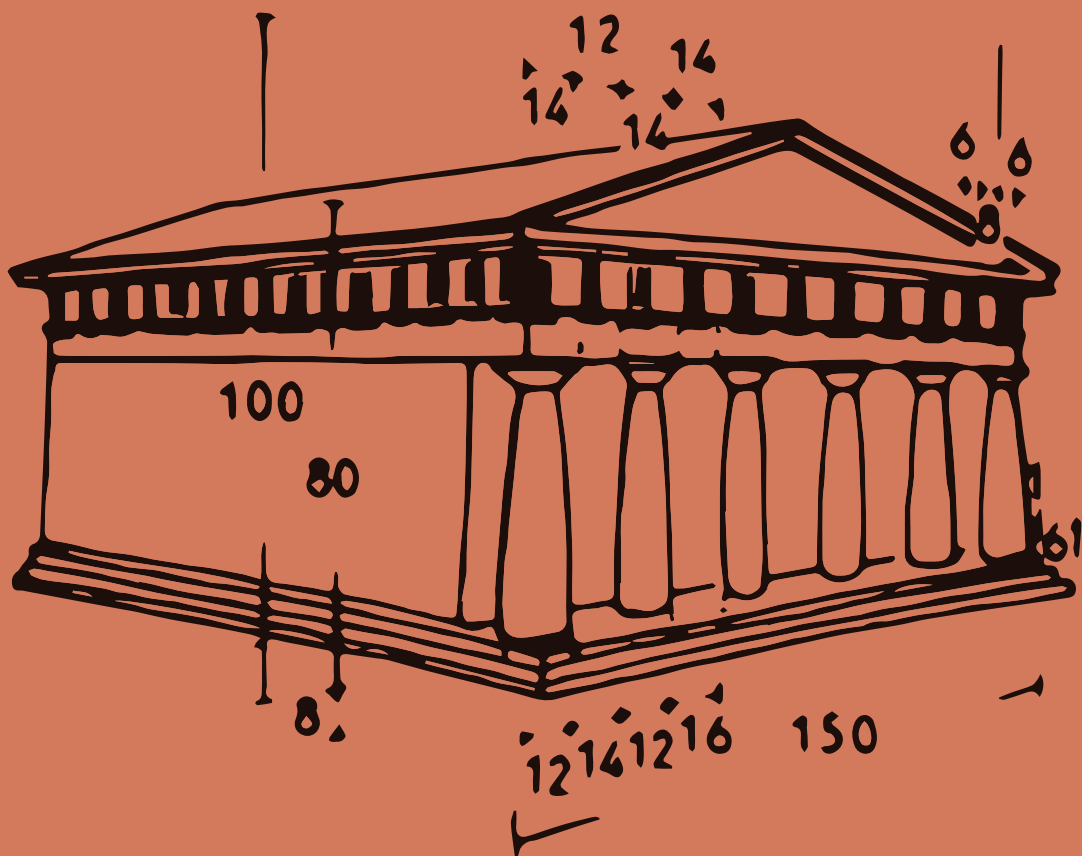
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Members' report 03/2019

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INTRODUCTION

1969 was a significant year in world history, with plenty of seminal events that would shape the future to come. It was the year of the Apollo 11 moon landing, the Woodstock festival, and the birth of ARPANET, the internet's predecessor. It was also the year Thorkil Kristensen left his position as Secretary-General of the OECD and founded the Copenhagen Institute for Futures Studies. In his day, Thorkil Kristensen was known in Denmark for his time as finance minister and his support for economic austerity, which earned him the nickname 'Thorkil Livrem' (livrem meaning *waist belt*). But he was also among the first economists to point out the need to think of knowledge as a fourth factor in production, alongside land, capital and labour. Knowledge, Kristensen said, contributes to innovation by being embodied in humans, technology and capital, and as such, the importance of knowledge for future progress and the prosperity of society cannot be understated. This statement was true back then and will arguably be even more so in the digital economy that will prevail in the decades to come.

Over the course of the 21st century, societies and job markets will undergo profound changes. With technological development as a main enabler of change, education systems will have to be re-evaluated and reinvented to accommodate rapid societal and demographic shifts, as well as more automated and fluid job markets. The world of higher education will have to not only adapt to these changes, but also proactively prepare for them. We will have to reconsider the very nature of higher education, how it is organised and delivered, and the role of higher education institutions in the digital economy of the future.

The current higher education paradigm, which is generally characterised by standardisation and conformity, will likely shift towards more flexible and innovative alternatives in contrast to traditional offerings – in terms of increasing reach, access, flexibility and quality of education, as well as transforming educational settings, approaches and delivery. A lot of new actors within higher education are emerging to shake up traditional models, while student expectations and demands are rising.

While societies and higher education systems around the world vary, they are overall impacted by many of the same developments and dynamics, although changes will manifest themselves in different ways and with different timing. The trends and developments outlined in this report relate to (i) how traditional models of higher education are challenged in the digital economy, in the context of future job markets and a growing need for lifelong learning, and (ii) how the digital transformation of education and changing student expectations transform the higher education landscape, as new actors with new business models enter the higher education sector. We have also included a food-for-thought wildcard scenario to explore how higher education might evolve in a world where most people no longer need jobs to survive and thrive but may pursue education for different reasons – the fabled ‘Post-Scarcity Society’.

The reader will quickly recognise that the underlying point of departure for the report is the future dynamics between higher education and job markets. Thus, the main focus falls on how higher education is concerned with preparing and continuously supporting individuals to participate in evolving job markets. The future of universities as research institutions that primarily exist to educate scientists and to produce ‘blue skies research’ without apparent immediate application falls outside the scope of the report. As such, looking towards a future with massive labour automation and great technological change, there is an implicit focus on more technical disciplines, where the pace of change is faster.

The reader will also quickly realise that the report is not concerned with identifying and understanding future skills needs and how these skills are best taught, even though this is clearly an essential aspect shaping the future of education. Rather, the report focuses on how trends and developments will transform the structural framework and nature of higher education models in the digital economy.

We hope you enjoy reading this report as much as we’ve enjoyed writing it!

PART 1

HIGHER EDUCATION IN THE DIGITAL ECONOMY



The digitalisation of society, changing life phases, massive labour automation and more fluid job markets are changing how we live and work. This creates a need to rethink current higher education models to align better with the 21st century digital economy. The first part of the report looks at how changing job markets, the digital transformation of higher education and the increased need for lifelong learning question the current value proposition of higher education.

Even though we are two decades into the 21st century, higher education is generally still geared to educate people to succeed in the 20th century. The traditional model of education is in many ways a relic of the industrial age, with a one-size-fits-all approach that does not meet the needs of the digital economy of today and of the future. The outdated mindset is that people should get an education early in life to be ready for a lifetime of work, with a limited amount of on-the-job training along the way. In that sense, a person's life could be regarded as discrete segments of childhood, education, work, and retirement, with little or no overlap between these segments.

The industrial-age mindset doesn't reflect a 21st century career very well. People will change jobs and even professions as many times as required by the economic cycles, the decline of certain sectors and the emergence of new industries. We will see more dynamic life phases, shifting preferences and a prolonged working life due to increasing life expectancy. It is the end of single career paths.

We must come to terms with the fact that we need to continually learn and update our skills in order to stay relevant, since the value of a particular skillset quickly declines as new knowledge is produced and new tools are developed. Education models will need to reflect this change. In a digital age, higher education has to be less about students acquiring knowledge, and more about offering an experience

that builds the capacity to live and work in a world of artificial intelligence, connected machines and job markets that are more automated, fluid and boundless.

WORK IN THE DIGITAL ECONOMY

The digital economy of the 21st century will consist increasingly of knowledge work, with more jobs requiring substantial interaction with technology and being characterised by technological disruption, labour automation, and more rapid turnover of employees moving between different jobs and even changing careers. Furthermore, the labour market will increasingly be characterised by a ‘gig economy’ with changing employment types and more ‘gigs’, i.e. project work on short-term contracts and platform-enabled freelance opportunities. These developments in the labour market will arguably have a huge impact on the nature and purpose of education.

As we look towards the future, increasingly complex cognitive tasks are becoming more susceptible to automation. As AI systems and robots take over more work, human workers are given new tools to perform better or even perform tasks that were not possible before, and over the coming years, human-computer interaction will improve with better voice recognition, predictive need analysis, and evaluation of results – not to mention better interfaces like augmented reality headsets, full sensory virtual environments, or even direct neural interfaces.

In 2017, a McKinsey report on automation estimated that technologies that already exist have the technical potential to automate roughly 50% of working hours globally, while the estimate for automatable working hours in Denmark is 40%. The trajectory of actual mass adoption of automation technologies is very uncertain and uptake will take decades, but automation will cause significant labour displacement and could exacerbate a growing skills and employment gap. However, while all occupations will be affected by automation, only a few can be fully automated. Occupations with a higher share of predictable job tasks are more prone to automation, and the report estimates that the automation potential of occupations within educational services currently lies at 27% – which perhaps indicates that traditional institutions are facing potential challenges from rising actors.^{1,2}

The emergence of a ‘gig economy’ is hardly a new phenomenon, as a substantial share of the global workforce assembles various income streams and works independently, rather than in structured payroll jobs. It is estimated that 20-30% of the working-age population in the US and the EU-15, or up to 162 million individuals, engage in some form of independent work.³

Independent work is rapidly evolving with new technologies and the prevalence of digital platforms that have made it possible for workers to supply their services in completely new ways. At the same time, companies and organisations are able to conceptualise and compartmentalise work as projects and even tasks rather than full-time jobs, essentially allowing for a ‘de-composition’ and ‘re-composition’ of jobs. Critics of the ‘gig economy’ point out that it will likely lead to increased polarisation in the labour market, where the most skilled and experienced workers can easily find new jobs at high pay, while the less experienced – perhaps a majority – accept low wages, unpaid internships or voluntary work in the hope of building their skills.

To date, conversations about pathways and the need for upskilling have focused on traditional full-time employment, but the developments characterising future job markets create an imperative for upskilling and reskilling in a whole new context.

INCREASED NEED FOR LIFELONG LEARNING

Lifelong learning will become an increasingly necessary and unavoidable requirement in the future of work. Given the accelerating rate at which knowledge is being created and job markets are changing, some students entering higher education today may graduate and go into jobs that did not exist when they started their higher education.

This requires individuals and companies to continuously engage in re-training and re-skilling. We might say that the longevity of higher education is diminishing, from a generation in the past to a decade or two today and quite likely a few years in the future. For individuals to remain relevant and competitive in the labour market, there will need to be stronger and more continuous connections between education and employment.

Lifelong learning challenges the current higher education paradigm where you are supposed to first educate yourself, then join the labour market. The longer you study before joining the labour market, the more of what you learn will become obsolete by the time you finish studying. Initial education (i.e. getting a degree) will likely be less important in the future labour market, while just-in-time learning – which allows learners to gain the specific skills they need whenever they need them, rather than forcing them to obtain a range of skills they *might* need – will be more important.⁴ This suggests a change in the market, with less focus on studying for degrees and more focus on lifelong learning as a permanent fixture of professional life. In turn, the shift to lifelong learning prompts employers to re-

think the importance of training and professional development strategies. More and more employers are already recognising this and taking the steps to cultivate it. Amazon recently announced that they plan to invest more than USD 700 million over the next six years to upskill 100,000 of their employees for more in-demand jobs by 2025.⁵

THE ORIGINS OF LIFELONG AND LIFEWIDE LEARNING

Lifelong learning means that learning is not limited to a specific phase in life but something that happens over the course of a lifetime. The concept of lifelong learning both recognises and encourages learning as something that is continuous and ongoing.

The idea that we should do more to foster lifelong learning first emerged in the United States in the 1960's and has since been slowly growing in importance. The first institute dedicated to lifelong learning was founded at New School University in 1962, initially to experiment with learning in retirement.

The concept of 'lifewide learning' adds another dimension to lifelong learning in that it highlights how learning does not only occur continually throughout one's life but also in various different contexts and situations, instead of being confined to the formal education setting (school, university etc.) The term 'lifewide learning' was coined in a report prepared by the Swedish National Agency for Education in 2000.

Lifelong learning has also gained traction as a strategic priority for national and international policymakers around the world, as an overarching policy response to cope with rapid technological and societal change – and it is even highlighted in the UN Sustainable Development Goals. Singapore, in particular, has been at the forefront of lifelong learning through its SkillsFuture Singapore initiative, which aims to prepare Singaporeans and the country's businesses for the digital economy. The initiative receives SGD 1 billion in annual government funding and all citizens over the age of 25 are given direct subsidies of SGD 500 for pre-approved, industry-relevant and bite-sized modular courses, while companies are subsidised

to upskill their employees. In 2018, about 465,000 Singaporeans and 12,000 enterprises had benefitted from training subsidies.⁶

DIMINISHING VALUE OF DEGREES

Higher education is generally regarded as a necessity in a competitive global job market. Conventional thinking tells us that the surest route to success in professional life lies at the end of a higher education degree, not least because research, such as that conducted by the OECD, finds a general correlation between holding a higher education degree and improved chances of employment as well as higher income.⁷ At the same time, traditional higher education has seen a general rise in enrolments across the globe.⁸

THE IMPACT OF AGE ON LEARNING

In the context of lifelong learning, it is evident that older people learn in different ways compared to their younger counterparts. As we get older, the speed at which we can process information declines. A number of theories have been offered to explain this phenomenon. Such theories point to a reduction in myelin, which slows down signals between neurons, or a depletion in dopamine. Yet, a reduction in the ability to process information quickly as we age may not be so bad. This is because as we age, we develop “crystallised intelligence” – the accumulation of knowledge over the years – which can compensate for the cognitive decline. This has positive implications when it comes to a lifetime of continuous learning – but also increases the need for different approaches to learning, as lifelong learning becomes a permanent fixture in the future.

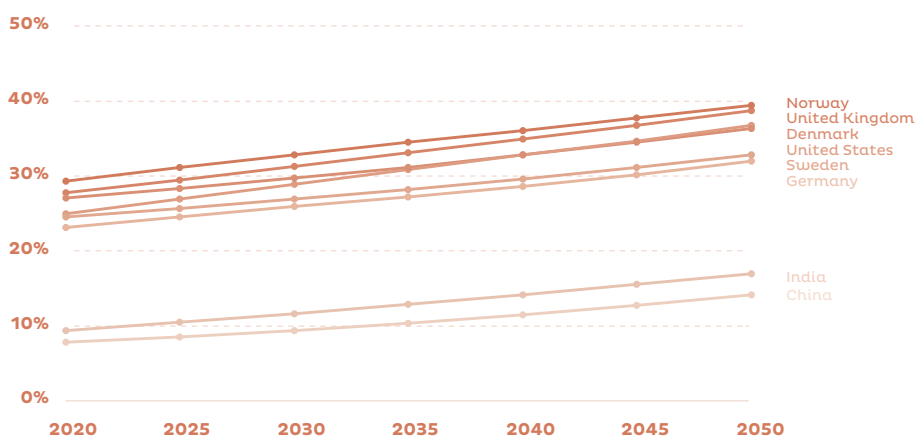
Source: The Economist (2017).

As figure 1 shows, the share of population aged 15+ educated to degree level is expected to increase steadily worldwide over the coming decades if current trends continue. However, such projections do not take into account potential changes to the contents and composition of a degree and the future need for lifelong learn-

ing. Nevertheless, it is plausible to expect that the average value of degrees will diminish as more and more citizens obtain them.

FIGURE 1: PROJECTION OF THE SHARE OF THE POPULATION 15+ EDUCATED DEGREE LEVEL BY COUNTRY

Projections are IIASA Global Education Trends (GET) estimates based on the continuation of current trends



Source: International Institute for Applied Systems Analysis (IIASA): World Population and Human Capital in the Twenty-First Century (2015)
OurWorldinData.org/tertiary-education/ • CC BY.

For companies, degrees have traditionally functioned as signalling devices that vouch for a potential employee's abilities, allowing recruiters to make inferences. To some extent, this is still the case, as many hiring leaders continue to believe that degrees are an accurate indicator of skill.⁹

However, the value of higher education is also being questioned more than ever before, not just where students face high tuition fees, but also in education systems where university is 'free', as the real cost of education is not just about money, but also about time spent. An investment in a 4-year or 5-year higher education degree

includes substantial opportunity costs during the time invested, in addition to any financial considerations. And a higher education degree alone will likely not offer the same kind of protection against unemployment in the future as it once did.

The economic cost of pursuing higher education varies significantly worldwide, from being free in around 40 countries, including the Scandinavian countries and Germany, to costing thousands of dollars in the US and the UK. In 2019, there are more than 44 million Americans paying off a collective student debt of USD 1.5 trillion, while the value of remaining loans in the UK reached GBP 105 billion in March 2018.^{10 11}

In the context of unprecedented societal shifts and a future of work characterised by automation and a ‘gig economy’, the question is whether traditional higher education is still the best way to provide people with the skills needed to compete in unpredictable job markets, and whether the opportunity costs of spending several years on study are worth the next sixty years in a career that will likely constantly change over time. For example, in a more transaction-based ‘gig economy’, it is much more important for freelancers to clearly demonstrate their proficiency at a craft through reviews, reputation scores and histories of successful jobs done, rather than holding a degree.

A factor that may continue to propel people towards tertiary education – at least in the short run – is the so-called graduate premium. This is supposed to indicate the financial advantages of tertiary education by calculating the difference between the average earnings of someone with a degree versus someone who does not have one. The prevalent perspective is that having a degree increases income, but some are growing more sceptical of the accuracy of the premium, as generalisations tend to overlook that graduates’ success can vary according to many factors.

As university degrees become more commonplace, employers tend to increasingly demand them, regardless of whether they are actually required for a specific job. This oversaturation of degrees can lead to cases of ‘underemployment’ – graduates taking jobs for which they are overqualified. In 2018, research found that one in every four Australian graduates in certain fields was overqualified for their job. Around a third of graduates faced the same issue in the UK in 2017 and in the US.¹²

The varying situations graduates face proves that university qualifications are by no means a guarantee of success. Moreover, research shows that education level is only weakly correlated with job performance, with intelligence scores being a

much better indicator of job potential.¹³ Moreover, the changing nature of work is leading to new ways of measuring employability – such as the ‘adaptability quotient’ (AQ). AQ developed in direct response to the constantly changing demands for new skills in the workplace. When it comes to determining employees’ long-term value, AQ is gradually gaining importance as a way to assess their ability to adapt to constantly changing conditions. Traditional degrees may not be well suited to convince future employers that candidates possess new skills like this.

While the degree by and large still rules, we are slowly starting to see a move towards a reality with more focus on acquiring skills, not degrees. Several recent survey findings support this. One example is the 2016 World Innovation Summit for Education survey of more than 1,500 education experts from across the world, which indicated that 67% believed job-related knowledge to be more important than a degree to succeed in life.¹⁴ A different survey of HR leaders in the US found that nine out of ten respondents were open to hiring candidates without a four-year degree, while being much more open to accepting MOOC credentials, nano-degrees and digital badges in the place of a bachelor’s degree, suggesting a diminishing emphasis on degrees in hiring going forward.¹⁵

The shift from degree-based hiring to skills-based hiring is accelerating as emerging HR analytic technologies allow recruiters to make data-driven decisions and be more strategic about their hiring processes. Using tools such as these, employers can analyse their hiring data to find out, for example, which skill sets perform the best in certain roles, or which roles can substitute the requirement for a bachelor’s degree with a certain amount of experience. The spread of these technologies further challenges the value of higher education degrees and has the potential to produce a change in higher education institutions’ approaches to teaching and assessing learners.¹⁶

In fact, more and more companies – including prominent ones such as Google, Apple, Penguin Random House, Ernst & Young UK, and IBM – are actively shifting away from the focus on degrees.¹⁷ The former senior vice president of Google’s People Operations, Laszlo Bock, has previously said the company’s research found GPAs to be “worthless as a criteria for hiring”.¹⁸ Bock believes that employers generally only care about what candidates know, not about how they came to know it.¹⁹ Similarly, Apple CEO Tim Cook recently stated that around half of Apple’s US employees in 2018 did not have a four-year degree, mainly because of the mismatch between the skills accorded by university education and those required by the company.²⁰ Company policies are changing according to this shift in attitude. Penguin Random

House UK removed degree requirements in 2016, finding a lack of correlation between higher education and performance at work.²¹ The UK branch of Ernst & Young also removed degree requirements in favour of strengths assessments and competency tests, after analyses indicated no correlation between success in higher education and future success in professional settings.²² Meanwhile, faced with a shortage of employees in tech, companies such as IBM, GitHub and Intel are looking outside college degrees for hands-on experience through, for example, coding boot camps or vocational classes.²³ Furthermore, IBM has also introduced the term “new collar”, which refers to jobs in the fast-paced technology industry, where the right mix of in-demand skills is seen as much more important than a traditional degree.²⁴

It is apparent that much of this innovation is taking place in the tech sector, especially within companies renowned for their cutting-edge strategies. This is partly because few industries see skills needs change as quickly as in the tech sector. However, approaches currently considered unconventional and exclusive to more innovative industries will likely spread to more conventional industries and companies over time, as their merits become more apparent.

COGNITIVE ENHANCEMENT IN HIGHER EDUCATION

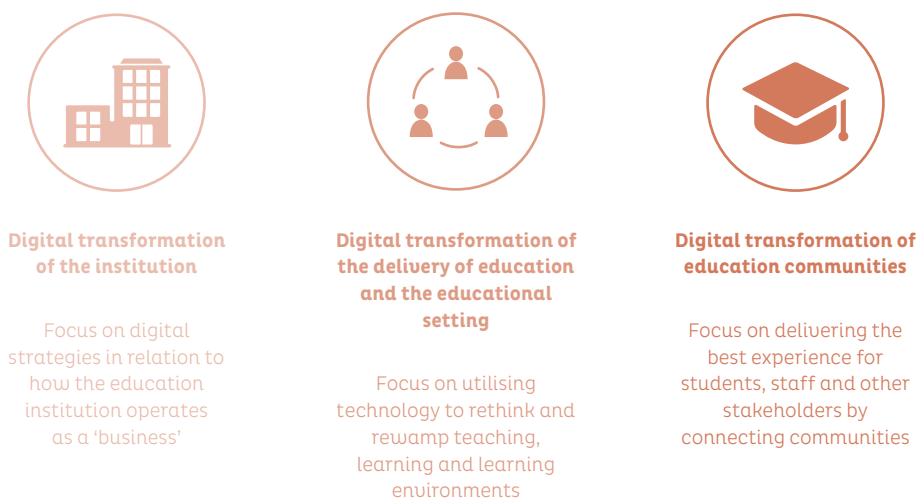
Cognitive enhancement is likely to impact higher education more in the future. Drugs for cognitive enhancement (e.g. Adderall, Ritalin, and Modafinil) have already become common fixtures in the sector, and if limited use proves to have measurable benefits with few or no negative side effects, there will be certain consequences for higher education institutions. If cognitive enhancers are developed with proven benefits, institutions may advise struggling students to use them in controlled amounts. However, this may confer unfair advantages to users, and only wealthy students may be able to afford the best. Some scientists suggest giving all students access to free neuroenhancement to level the playing field.²⁵

Non-medical cognitive enhancement using electric brain stimulation has been shown to enhance memory, learning, and even creativity, and DIY electric brain stimulation seems to be on the rise.²⁶

DIGITAL TRANSFORMATION OF HIGHER EDUCATION

The famed Harvard Business School professor Clayton Christensen (known for his bestselling book *The Innovator's Dilemma*) recently predicted that higher education as we know it today won't exist in its current form in ten years.²⁷ One of the primary reasons he gives is the digital transformation of education, which opens up opportunities for new, disruptive competitors that undermine the long-established business models of higher education. While we find Christensen's forecast a bit on the aggressive side, we agree with the trend he has identified: a convergence of forces – such as digital transformation, the capabilities of new technologies, and rapidly evolving business models – along with structural issues within higher education that are driving disruption in the sector. This provides a massive opportunity for non-traditional EdTech companies and actors from outside the education industry offering better education solutions at lower costs.

FIGURE 2: **DIGITAL TRANSFORMATION OF EDUCATION ON SEVERAL LEVELS**



Source: CIFS, based on CISCO (2016) (<https://www.cisco.com/c/dam/assets/docs/digitizing-higher-education.pdf>).

It is important to remember that the digital transformation of higher education does not just play a key role in enabling new teaching and learning environments. The global EdTech landscape will transform the way higher education institutions operate as ‘businesses’, as well as impacting the broader education communities and how students, staff, and other stakeholders connect and communicate with each other. Digital transformation will involve such diverse areas as classroom technology, testing & assessment, enrolment & admissions, badging & credentials, and career planning. New business models will develop in each of these areas (as well as many others) to drive digital transformation across the entire sector.

ONLINE ALTERNATIVES TO TRADITIONAL DEGREES

- Massive Online Open Courses (MOOCs) provide open and flexible access to online education, sometimes at no cost, and are open to unlimited numbers of people. Innovative providers include Udacity, edX, and Coursera.
- In addition to traditional course materials, such as filmed lectures and readings, many MOOCs provide interactive and adaptive courses with user forums and immediate feedback on assignments.
- Many private MOOC providers aim to bridge the gap between learning and career goals, with courses specifically focused on employment, e.g. tech courses developed in partnership with employers like Google and Mercedes-Benz.
- More and more traditional universities are also offering the chance for students to take online courses for increased flexibility.

Digital transformation also brings a host of new interfaces to knowledge and the process of learning. Textbooks and in-classroom lectures are the classic examples, having been progressively replaced as computers and the internet became common educational interfaces. With advances in technology, new interfaces are arising that can make learning easier, better, and more experimental. Augmented

reality and virtual reality are current examples of how this is happening. Augmented reality can provide location-based knowledge and guidance related to the things you look at, and virtual reality allows students from all over the world to interact in virtual learning environments to study, collaborate, and co-create.

Advances in artificial intelligence allow for much deeper personalisation and adaptive learning, through the delivery of custom learning experiences that address unique needs through just-in-time feedback and individualised pathways and resources (rather than providing a one-size-fits-all learning experience). In the future, each student may even have a personal AI mentor that monitors the student's progress in various subjects, evaluates homework, offers help when the student is stuck, facilitates contact with educators and fellow students, and suggests which subjects to study next based on the student's abilities, interests, and goals. This may be relevant both in intense educational situations like attending university and in lifelong learning settings, where the AI might keep its user updated on relevant new learning opportunities related to the work the user does or wants to do.

It is also possible that we in the future may be able to interact directly with AI through brain-computer interfaces like Elon Musk's Neuralink, though it is uncertain what (if any) advantages this will provide in learning situations – unless it eventually becomes possible to install knowledge and skills directly in the brain as neural patterns (though this lies beyond the current scope of Neuralink, although it is aspirational).²⁹

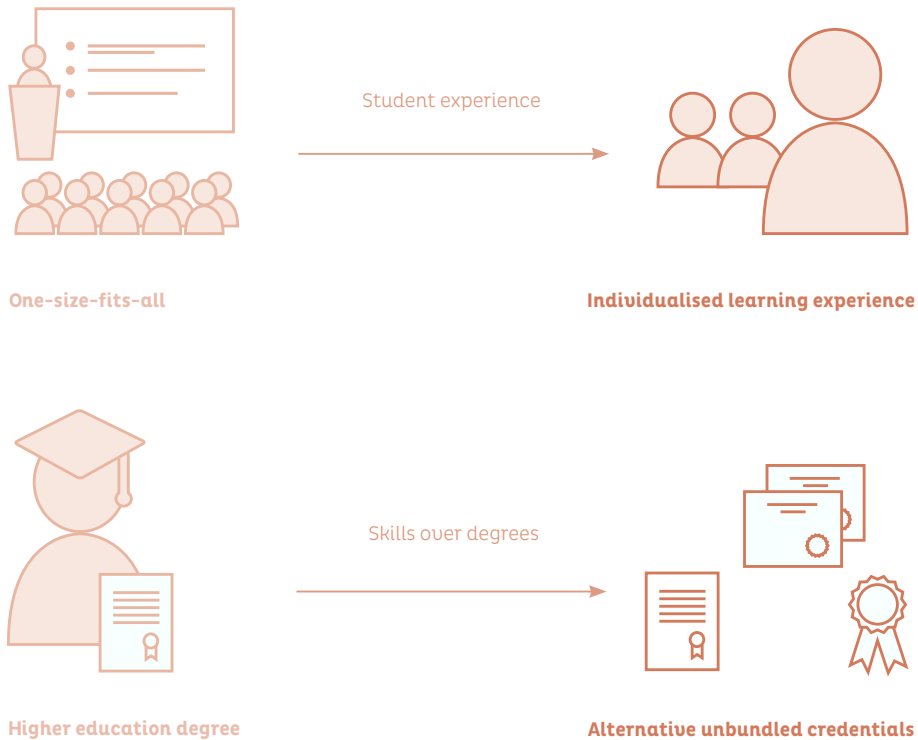
These innovations would doubtless transform the face of education as we know it. We are already taking steps in this direction, with more and more higher education institutions and new actors embracing the potential of online education and shifting away from traditional interfaces. Nevertheless, it is important to remember that even though digitisation is set to revolutionise the education sector, it is unlikely that we will see online education taking over anytime soon – rather, it will serve to complement and enhance traditional education.

In conclusion, technological innovation is already facilitating shifts in different stages of higher education (see figure 3). This is driving a shift towards much more individualised learning experiences, where students can customise most facets of their education thanks to the emergence of online learning tools, alternative course providers, and adaptive learning. In a lifelong learning context, we are seeing digital transformation accelerating the shift towards a “skills over

degrees” paradigm, where the individual can pursue new skills as personal preferences and job demands shift.

The digital transformation of higher education has the potential to propel current education systems towards more future-oriented strategies that align better with the rapidly changing structures in society and in job markets.

FIGURE 3: **SHIFTS IN THE HIGHER EDUCATION PARADIGM**



Source: CIFS (2019).

PART 2

A TRANSFORMED HIGHER EDUCATION LANDSCAPE



New players are entering the higher education landscape, enabled by new technologies to better meet the evolving expectations from a changing student population. This part of the report looks at how students increasingly become consumers of the higher education experience, the case for unbundling higher education to promote flexibility and individualisation, and how new business models are transforming the current higher education landscape.

New technologies, shifting demographics, changing life phases and evolving business models are upending traditional higher education and highlighting the need for lifelong learning. Adding to this are the tech-savviness and increasing expectations of digitally-native student-consumers, who expect to be able to pick and choose what they want, and exercise choice by going elsewhere if their expectations are not met.

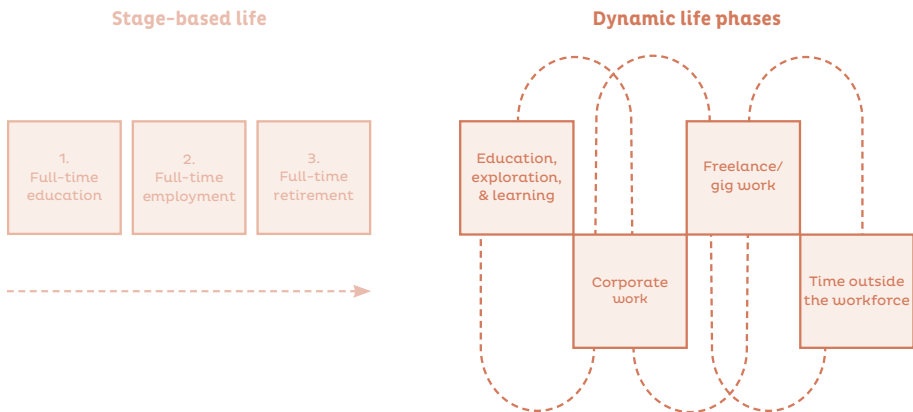
While this chapter should not be read as a death sentence to traditional institutions in higher education, the agility and adaptability of established players and long-prevailing business models will inevitably be tested as new actors shake up traditional higher education models.

EVOLVING STUDENT EXPECTATIONS

Like in any other industry, the changing demands of consumers (in this case, students and lifelong learners) is a driver of change in the education sector. Student demographics are changing, and our lives are generally much more individualised than before. Higher education learners who would previously be considered ‘non-traditional’ are becoming the new norm. Several characteristics fall under the label of ‘non-traditional’, including delaying tertiary enrolment, working full time while studying, studying with dependents, or not completing a standard high school diploma.¹ As a result, there are new expectations for higher education and lifelong learning that fit different lifestyles and preferences.

Overall, we are seeing a shift away from a traditional stage-based life towards more dynamic and fluid life phases (see figure 4), which has implications for career patterns as well as for higher education. In a more dynamic life cycle, people might decide to switch between education, corporate work, freelance work in the gig economy, and time completely outside the workforce to continuously accommodate evolving circumstances in a longer and much more fluid career. This, again, strongly points to the importance of lifelong learning.²

FIGURE 4: TOWARDS MORE FLUID AND DYNAMIC LIFE PHASES



Source: CIFS based on Gratton and Scott (2016).

Younger generations entering higher education in the coming years will have different preferences and expectations compared to previous generations. A recent American survey on younger generations' (popularly labelled Generation Z) expectations for higher education points out some interesting trends. As digital natives, they have always had technology fully integrated into most aspects of their lives, so why would they expect anything else when it comes to their education experience? They expect to seamlessly connect academic and personal experiences using

the same tools, and also expect on-demand services to be available at any time, with low barriers to access. Younger generations don't think that learning should be confined to the classroom; rather, they have a desire to study in multiple modes, switching seamlessly between classroom, blended and online learning to suit individual needs and preferences. Also, these learners tend to be more career-focused earlier on in university life, as access to unlimited new information has created a more self-reliant and career-driven generation.^{3 4}

Even more interestingly, while the vast majority still believe a degree is valuable, 75% of Gen Z'ers in the US think that there are other ways of getting a good education than going to college, and question if a four- or five-year degree will sustain them for a prolonged career in a high-flux world. Their learning paths are less defined by traditional educational structures.⁵

STUDENT-CONSUMERS OF THE HIGHER EDUCATION EXPERIENCE

Students and lifelong learners are, in a way, consumers and customers. They evaluate and compare options, and are looking at an increasingly diverse array of education providers to fulfil their demands of deeper levels of customisation and seamlessness tailored to fit their unique needs and preferences – just like in most other aspects of their lives. Consequently, students are increasingly adopting a consumer's mindset when approaching education, “shopping” for an education experience that offers a flexible, seamless and personalised experience.

CIFS has previously described how trends like instant gratification and liquid expectations are generally shaping consumer expectations.⁶ Instant gratification consumerism tells the story that the digital world has significantly reduced the patience of the consumer, who expects access to services instantly, on-demand and in a seamless manner. At the same time, consumers' expectations of convenience have become liquid: positive experiences with any service raise the bar for future experiences of other services, including in categories previously thought to be unrelated. The era of instant gratification and liquid expectations is impacting higher education as well. The consumer's experience of education is no longer measured exclusively against competitors in the education sector. If Amazon, Netflix and Uber can offer personalised services, why does it have to be practically impossible to design your own learning pathway that fits your needs, preferences and budget, the student-consumer might ask. This creates a dilemma, as education and learning have always been more given to 'slow' gratification, based on the assumption that schooling takes a certain amount of time. However, this rooted premise might conflict with rapidly emerging alternative approaches to education.

THE CASE FOR UNBUNDLING EDUCATION

The concept of unbundling is perhaps easiest explained with the analogy of how iTunes, followed by Spotify, unbundled the music album. Previously, you had to buy an entire album – including the tracks you didn’t like – to listen to the one track you really liked. Facilitated by digital distribution, it was suddenly possible to access music in the form of individual tracks as opposed to buying an entire album. The move towards unbundling has gained momentum across several industries like media, travel, banking and insurance, just to name a few.⁷

Similarly, bundling in education means that students must “consume” services they do not want or find valuable, in order to get access to the services they actually do want. Education offerings today largely come in the form of somewhat standardised bundles, with learning wrapped in structured degree programs. ‘One-size-fits-all’-packages, if you will. In theory, the unbundling of education allows learners to pursue flexible learning pathways by taking courses from different fields and from any provider, and designing their own curriculum across fields and platforms, with ongoing curriculum revisions according to changing needs and desires. When and where they want it, without the cost and conformity of a full degree program.⁸ The early days of such unbundling may be underway in higher education, and this shift toward the more flexible ‘Education-as-a-Service’ (EaaS) approach is something we will likely see happen more and more over the coming years, as the traditional, highly bundled education delivery model faces several problems.

The case for an unbundled education is supported by the following dynamics:⁹

- **Demand for individualised services:** Unbundling reflects and promotes the broader individualisation of society by empowering learners through greater flexibility, taking into account differences in individual goals, personal preferences, varying lifestyles and more fluid and boundless career trajectories. One of the important promises of an unbundled higher education environment is that of flexible pathways.
- **Skills mismatch & employability:** Structural shifts in society and in jobs are fuelling the debate on whether there is an increasing skills gap between companies’ needs and employees’ skills, and whether conventional education systems are sufficiently equipping learners to meet the changing needs of contemporary and future economies. Closely linked with the demand for individualised services, an unbundled system empowers learners to piece together a

mix of different competencies, skills and areas of knowledge valued in today's workplaces, while also allowing flexible provision for those in jobs and for those who want to take different learning and career pathways.

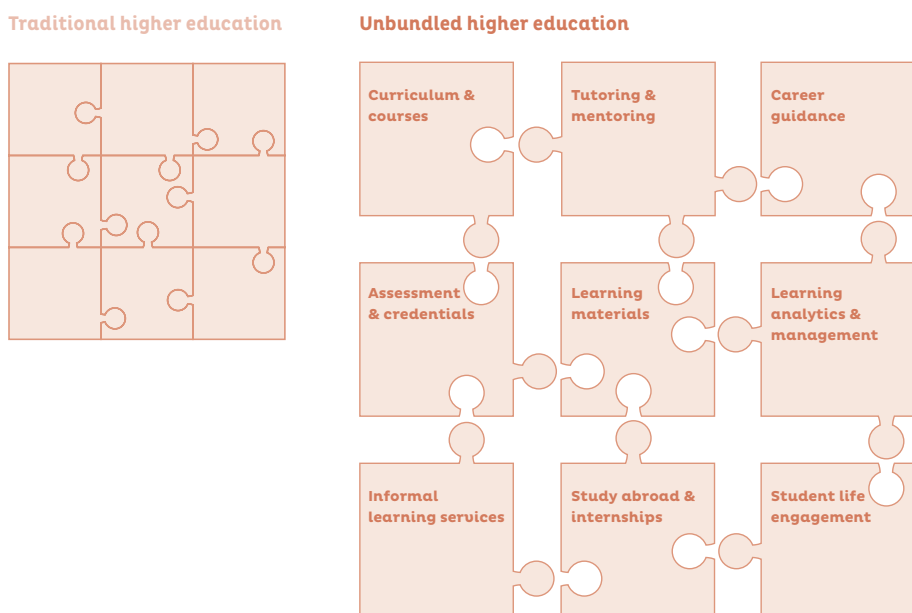
- **Affordability & access:** In many parts of the world, the high cost and resulting debt associated with attaining a degree is unsustainable, especially with students becoming less convinced they are getting an attractive value-for-money proposition. Even in countries with free higher education, the opportunity cost of 'sacrificing' time and resources to obtain a university degree – instead of an earlier entry into the labour market and subsequent on-the-job learning – may not be worth it. Unbundling can offer opportunities for more reasonable, flexible, and affordable access to higher education.
- **Efficiency in education provision:** Higher education institutions in both Europe and the US are facing difficulties in terms of financing. A recent European University Association analysis reports that most EU countries face increasing challenges in financing rising student enrolment in higher education via public funding.¹⁰ At the same time, US universities are encountering volatile endowment earnings and increasing closure or consolidation in the sector.¹¹ Unbundling could lead to efficiency gains for education providers, for example through leaner organisational structures, simplification of provision and rapid scalability, hence reducing operating costs.

By all means, unbundled models cannot deliver all of what a traditional higher education experience does, but they can provide affordable, flexible, and customisable education and career opportunities. As illustrated by figure 5, unbundling of higher education is not just about patchworking curricula and courses. It applies to most components encompassed by the traditional higher education bundle, such as career guidance services, learner support and learning analytics. Equally important, the traditional, bundled higher education experience and alternative unbundled – or modular – options are not mutually exclusive and the two approaches will likely co-exist in new combinations.

Advocates for both unbundled and bundled education make strong cases. From a pedagogical point of view, a main criticism of an unbundled system is that it arguably results in much less coherent and more fragmented learning pathways for students and that it may not provide sufficient learner support. Unbundled learning places a lot of responsibility on learners to determine what they need from their education, and for many learners it will be very challenging to put to-

gether a coherent curricular plan. Research also shows that fragmentation of the learning environment and learning support has a negative impact on learning.¹² However, as new needs emerge in the market, we could see new services develop within ‘learning experience curation’, offering learning and curricular support to those in an unbundled system. Higher education institutions themselves could potentially expand to become curators and facilitators of learning experiences. Or even better, AI-driven learning and curricular support services, that are able to anticipate learners’ needs and preferences, could provide relevant recommendations to optimise outcomes and career prospects, and enhance existing on-the-job capabilities.

FIGURE 5: **UNBUNDLING HIGHER EDUCATION**



Source: CIFS (2019).

At the same time, proponents of a traditional bundled system make a strong argument that the disruption of universities could be harmful, as they have an important societal role to play by educating politically-savvy citizens as well as supporting scientific and technological research agendas separate from the near-term profit motive of most corporations. The thought of universities potentially being disrupted by digital giants such as Facebook, Google and Amazon might be more frightening in this context.

CHANGING BUSINESS MODELS IN HIGHER EDUCATION

Even though the pace of change in the education sector is generally slower than in other, more profit-driven sectors, business model innovation is becoming ever more prevalent. Higher education institutions face increased mobility of students in a much more globalised and intensely competitive landscape, wherein nation states are ramping up their efforts to have world-class universities, and long-established business models are being challenged by technological disruption and new entrants. In response, more and more traditional education providers are experimenting with changes to their business models.

As an example, look to Harvard Business School (HBS), whose online platform served more than 33,000 students from across the world in 2018.¹³ Back in 2010, Nitin Nohria, the Dean of HBS, boldly claimed that the school would never enter the arena of online education in his lifetime. But only four years later in 2014, HBS launched their online platform HBX, which Nitin Nohria endorsed as one of the most important initiatives at HBS.¹⁴

Today, traditional higher education institutions are beginning to unbundle themselves to some degree, as seen in how many of universities across the world now offer online courses and degrees. However, such business model innovation merely occurs ‘at the margin’ of the core business model. The question is if it is enough to withstand the intensified competition, and whether traditional education providers can adapt fast enough with their current degree of innovation.

A growing market for lifelong learning opens up opportunities for traditional higher education providers to expand their existing business models. Historically, the core service of most universities have been to provide students with a linear, front-loaded education with a defined start and finish, designed to help students get their first job after graduation. But with the growing need for lifelong learning, continuous learning must be fully integrated into a higher education ecosystem rather than being regarded as a separate and distinct operation. This will

inevitably force higher education institutions to expand their role and educational offerings.

Higher education institutions hold the potential to become the heart of lifelong learning ecosystems through strategic partnerships and new forms of collaboration across the public and private spheres. In some cases, new forms of collaboration mean marriage of unequal partners, like education start-ups and service-specialised companies, for example within recruiting & career planning services, labour market insights, mobility services, recreational services, etc. Collaboration is also no longer tied at local or regional levels, but is accessible globally through technological means. Though collaboration has a long history in higher education, the current nature of competition commercialises higher education to an unprecedented extent, asking for a deeper kind of collaboration.

For example, traditional education providers are combining their resources with those of online learning platforms to widen their offerings. Stanford University has partnered with Khan Academy to provide so-called ‘flipped classroom’ courses, where online resources allow students more time within the class to explore their topics of interest. Other traditional institutions are also focusing more on competency-based degrees, which rely less on traditional measurements of success (e.g. number of hours of study completed) and allow students to work at their own pace.¹⁵

Regardless of these promising innovations, higher education structures have generally been predisposed to incremental innovation, which serves to improve on what is already there, rather than radical innovation.¹⁶ To adapt to changing circumstances, established institutions may have to alter their approach – if not to outdo, then to at least match the new entrants affecting the education sector.

NEW ACTORS WITH NEW BUSINESS MODELS

The competitive landscape of the higher education sector will likely change significantly over the next 10 to 20 years. Like many other industries have done in the past, the education sector is moving away from a state where established market actors are primarily competing against players within their own sector. Investors are ploughing more money than ever into EdTech start-ups; total venture capital investments amounted to USD 8 billion in 2018 and the global EdTech market is expected to reach USD 342 billion by 2025.¹⁷ At the same time, businesses far from the world of education are venturing into the education and training sector – many of them potentially very disruptive digital players.

While new technologies and digitisation are often the trigger or enabler for new business models, business model innovation in the education and training sector is taking different shapes and forms. So, who are the new actors changing the higher education landscape?

Imagine tech giants like Google, Microsoft, or Amazon offering inexpensive, personalised, data-driven online education, maybe on a subscription plan, like a “Netflix for education”, with AI providing individualised help, tracking progress, and evaluating assignments. This might very well be the case in a not too distant future. Not only because we’ve already seen tech giants’ platform-based ecosystems disrupting other industries, but also because these players are already venturing into the education sector – especially into professional training, which is a very lucrative market.

Take for example LinkedIn (owned by Microsoft), which is evolving into an end-to-end learning experience platform. They are able to identify skills sought by companies through analysis of job offers against short-staffed sectors, while also targeting potential learners through LinkedIn Learning – their online learning platform that offers courses for people in any stage of their careers.¹⁸ Recently, the company announced Skills Insights, a set of tools that lets companies examine their skills and promote courses based on known skills gaps.¹⁹

Google runs Grow with Google, which provides training with the aim of helping people find jobs and develop their careers, as digital skills will be required in virtually all job types in the future. They’ve even manifested their presence physically with learning hubs in selected cities across the world – including Copenhagen. Today, Grow with Google has trained 5 million people in Europe and 5 million people across Africa and the Middle East, with the ambition to train another 10 million people in Africa by 2022.²⁰ The company also has the Google.org work initiative to help prepare for the future of work through funding and research.

Amazon is also making great strides in the education and training sector. Besides their many activities under the Amazon Education umbrella, they have recently recruited Candace Thille, a pioneer in learning science, cognitive science, and open education at Stanford University, to be the new Director of Learning Science and Engineering. While Thille is officially working to scale and innovate workplace learning within Amazon, spectators are speculating whether the real reason for hiring a higher education expert in learning science and open educational delivery has implications far beyond the current aims of the company.²¹

An EdTech disruptor in the education sector is the company Degreed, launched in 2012. It aims to upend the premise that an individual's skill level is mostly defined by the credentials they have obtained. The company's online lifelong learning platform makes it possible for individuals to get a much more accurate way of assessing their actual skills expertise. It works by asking users to submit evidence proving they possess a specific skill, regardless of where and how they learned it. It doesn't matter if a specific skill has been obtained through voluntary work or by reading about a topic of interest in their spare time. After evidence has been submitted, a process involving expert assessments and machine learning delivers a final ranking of the certified skills.²² This approach acknowledges that learning takes place in most aspects of life and provides an alternative way of certifying one's skills in the future.

ÉCOLE 42

The 42 programme may be a more futuristic prototype for higher education. Started in France as École 42 and eventually extending to the US, the school teaches college-level software engineering. It has no classes or teachers, rather opting for project-based learning, peer-to-peer correction and gamification. Students don't need previous qualifications or experience to enrol; rather, they go through an intense coding session that lasts four weeks, after which full-time students are admitted. Students are given a range of projects that can take anywhere between 48 hours to 6 months and are corrected by peers. The programme duration is personalised; students advance at their own pace, depending on their personal requirements and learning preferences. The course is expected to take 3-5 years, and there is no tuition fee.²⁸

An example of how a company from a different sector is growing its ecosystem to include education is WeWork – recently re-branded as WeCompany. Besides the core offering of on-demand office spaces, WeCompany offerings now include WeLive (flexible modern-day living options) and WeGrow, an educational initiative. WeGrow is a “conscious entrepreneurial school” forgoing the traditional classroom for modular classrooms, mentorship programs and time spent outside the

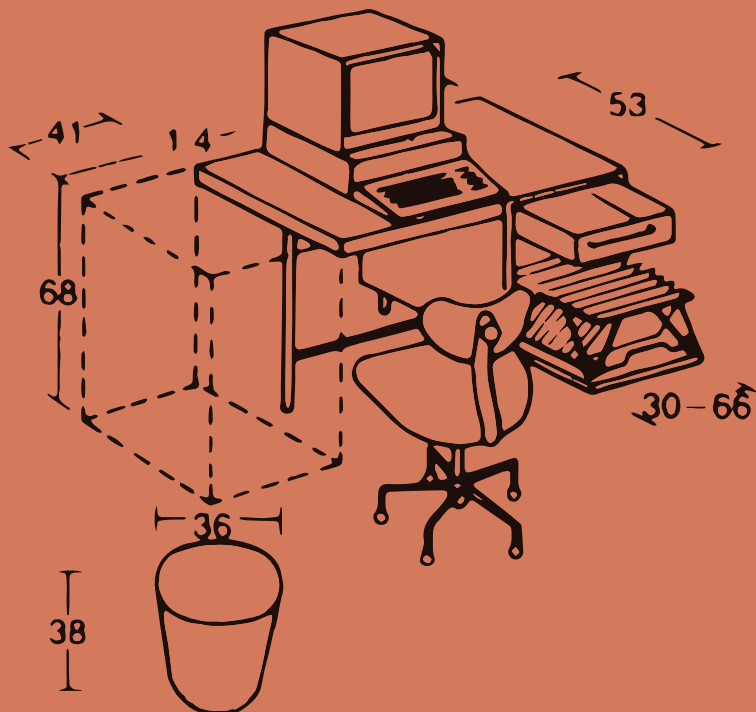
classroom. To harvest synergies with WeWork, the school utilizes WeWork's network of entrepreneurs, freelancers and experts as mentors, allowing learners to develop in their fields of interest.²³ While the school is currently open to children in nursery through fifth grade, its fluid structure is one that could be adapted to higher education.

A key innovation challenging higher education business models involves new forms of credentials, which is linked to the unbundling trend discussed earlier. Udacity, a pioneering online education provider, offers nanodegrees focused on future tech jobs in partnership with companies like Google, Amazon and IBM. Nanodegrees are completed online, focused on cultivating skills desired in the job market, and supported by a one-on-one mentor and custom learning plans. Learners are encouraged to consider their personal goals – whether that is attaining a particular job or learning a set of skills – and choose a path accordingly.²⁴ At the time of writing, Udacity is offering nanodegrees for occupations such as AI Product Manager, Blockchain Developer, Machine Learning Engineer, as well as the more futuristic Flying Car and Autonomous Flight Engineer.²⁵ Other actors innovating in the online learning space include Coursera, EdX and Khan Academy, among others.

Finally, outcome-based and income-sharing agreements are other developments creating new business models in countries that currently have high tuition cost. Under such agreements, learners pay no up-front fee for tuition. Instead, after their salary hits a certain threshold, they pay a portion of the salary for a set period of time. Essentially, this shifts risk away from the student, while incentivising the education provider to think about employability. Even in countries where higher education is free, such models could play an increasing role in a lifelong learning context, where people might pursue learning opportunities outside the traditional education system. A good example of this is Lambda School (an online tech school where students can learn to code in only 9 months), which utilises this new incentive structure by allowing learners to not pay any tuition fees until after they complete the program and are hired into a job paying at least USD 50,000 a year. Payments are monthly and depend on income. The agreement is terminated either with 24 payments, after USD 30,000 has been paid, or if five years pass since graduation and the salary threshold is still not met, even if learners have not paid.²⁶ Lambda School has recently started to accept applications from students based in select countries in Africa, and is also considering entry into India.²⁷ Kenzie Academy and Make School are two other platforms operating on similar business models.

PART 3 - WILDCARD SCENARIO

EDUCATION IN A POST- SCARCITY SOCIETY



A future with extreme societal change would naturally also bring about major transformations to higher education. This fictional wildcard scenario imagines a post-scarcity society - one where everyone can afford the basic necessities of life - and what education in such a society might look like.

With the expectation of massive technological advances in the coming decades, a scenario often crops up that some see as an unlikely wildcard, and others see as an inevitable evolution of current trends: that of a *post-scarcity society*, in which technology has accorded all people access to the necessary resources and opportunities to live decent and dignified lives.

Even though the most likely scenario for society and education 50 years from now may be one that still resembles our current model (though the exact nature of this model may change profoundly), a post-scarcity scenario is realistic enough to be worth discussing. Better access to basic necessities could lead to a fundamental shift in the nature and purpose of education, with education increasingly becoming a quest for meaning and fulfilment rather than a prerequisite for labour market participation.

CHARACTERISTICS OF A POST-SCARCITY SOCIETY

A post-scarcity society is one where every citizen can easily afford all the necessities of life. Massive labour market automation and plenty of cheap energy and raw materials – thanks to technological advances – make products and services basically free. It's a society of abundance.

Some 'luxury' products and services may still be scarce and thus more difficult to obtain, and there may also be strong economic polarisation in a post-scarcity society, but the crucial characteristic is that no one lacks anything vital to their well-being, and everyone has access to most opportunities through a universal basic

income and/or a universal basic assets system that includes free food, lodging, media, education, public transport, and other fundamental needs. A post-scarcity society is not necessarily a sustainable society. It may be financed by forwarding the bill to future generations, for example by ignoring unsustainable resource and energy use and long-term climate change; but it is equally possible to imagine a sustainable post-scarcity economy.

To make a post-scarcity society possible, several advances are required:

- The manufacture of products and provision of services must be mostly automated and based on raw materials that are plentiful or recyclable.
- Energy must be cheap and preferably sustainable, e.g. based on renewable sources.
- The alarming threat of climate change and the consequences associated with it need to be managed/mitigated.
- Artificial intelligence must be advanced enough to handle the basic cognitive tasks necessary to keep an advanced society running, including the administration and operation of infrastructure, healthcare, transport, and education.
- People aren't required to work to justify their existence. However, post-scarcity does not mean post-work, as the quest for personal fulfilment might still compel many to work.
- The benefits of the above advances are made available to all. While some may have access to far more wealth and opportunities than others, no one lacks anything essential.

While we are nowhere near a post-scarcity society today, none of the advances listed above seem unsurmountable over a timeframe of five decades. Robots and technology such as additive manufacturing (3D-printing) are making their entry into an increasing number of industries, and AI is becoming capable of handling tasks previously requiring highly skilled human labour. The World Economic Forum even forecast that machines will be doing 52% of work tasks by 2025 compared to 29% today¹ – reducing human labour needs by a third in just 7 years. At the same time, the costs of solar power, wind power and lithium-ion battery storage have dropped significantly in recent years, and there is little to suggest that the price of

energy will not continue to decline in the future as current energy technologies continue to improve and new solutions emerge.²

The greatest barrier to the emergence of a post-scarcity society may well be political and cultural rather than practical and technological: will we accept a society where most people don't work, but still reap the fruits of labour? Will we see increasing economic polarisation due to the emergence of a 'winner-takes-all' economy, despite universal basic income? Will individuals still want to work out of a need for fulfilment, even though their livelihoods don't depend on it? Questions like these will influence both the nature and purpose of higher education in a post-scarcity society.

POST-SCARCITY EDUCATION

Needless to say, higher education in a post-scarcity society will look very different from today. Technology will have played a major role in increasing reach, access and quality in education across the globe. The level of automation and digitisation of education in a post-scarcity society means that it costs very little to provide a universal basic education to all. Equally important is the fact that most people pursue a basic level of formalised higher education, which is freely available to all. Formalised basic level higher education is largely a national affair, but besides that, the education market is completely globalised.

Individuals are able to freely join completely individualised online educational experiences powered by AI, which take into account the individuals' personal interests, aspirations, weaknesses, cultural backgrounds, etc. AI-driven automated translation has removed most language barriers, but cultural ones remain. However, not all aspects of higher education can be completely automated, and traditional face-to-face learning has become a premium luxury only available to a select few. For example, students who have shown exceptional talent and dedication in online courses and virtual labs may be invited to physical elite research institutions for further specialised, supervised education and real experimental science and innovation.

While everyone has access to some level of formalised higher education, informal and self-directed learning has generally come to the forefront. Especially lifelong learning takes place in a flexible and informal setting. With the high level of connectedness in society, virtually simulated learning environments allow interactive and immersive learning experiences in almost all aspects of life, whether it is through virtual experimental labs, true-to-life interactive visits to historic settings

or exotic environments, or something else entirely. Neuroscientists have found a way to amplify learning using brain-computer interfaces, and as a potential game changer, they claim they are not far from new major breakthroughs that could make it possible to feed knowledge directly into people's brains to teach new skills in an instant. We have fully entered a 'ubiquitous learning' paradigm - an *anytime, anywhere* learning environment supported by technology.

THE PURPOSE OF EDUCATION IN A POST-SCARCITY SOCIETY

In our post-scarcity scenario, artificial intelligence handles many of the tasks that are integral to fields such as law, economics, medicine, architecture, engineering, education, and design. However, highly skilled professionals are still needed to advance knowledge and science, though even here, AI plays a greater role, for example in running virtual test environments. As artificial intelligence and automation have taken over most traditional jobs, people are generally no longer pursuing education to be able to compete in job markets. With participation in the labour market no longer being the main motivation to pursue higher education, the role of higher education institutions has shifted fundamentally.

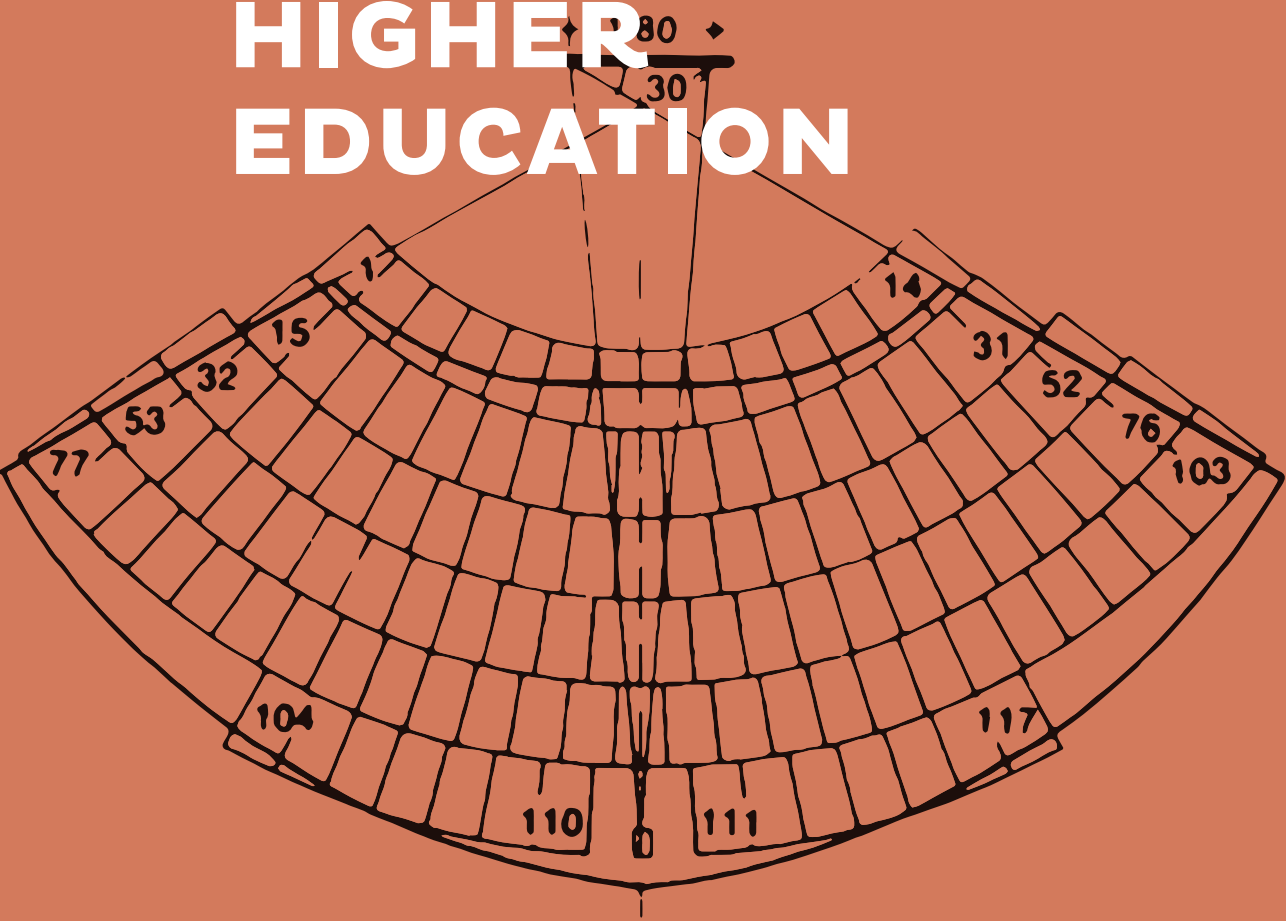
Overall, there is less need for formalised university education, and universities have reverted to their previous role as institutions dedicated to advanced research. Citizens of the post-scarcity society choose to pursue higher education in different settings for various reasons, but mainly in an effort to live a meaningful life. After all, even in a society where material needs have been largely eliminated, humans will likely still seek the joy that comes from learning new things or acquiring new skills, and for many people, the quest for personal fulfilment still compels them to carry out work they find meaningful.

Citizens of the post-scarcity society are encouraged to pursue higher education with the aim of learning essential life skills – skills one needs to make the most out of life. Futures literacy has emerged as a central life skill for individuals to better understand the role the future plays in the present, and to nurture the ability to respond and adapt effectively to changing circumstances. Climate literacy skills remain essential in the continuing effort to address the consequences of global climate change.

Interest in past times, when individual ability mattered more, has grown. History, including counterfactual history, has become a popular pastime and field of education. Fields like philosophy and psychology have also seen a renaissance in a world where living is easy but finding the meaning of life is hard.

CONCLUSION:

PERSPECTIVES ON A FUTURE- PROOFED HIGHER EDUCATION



As this report has aimed to illustrate, higher education today finds itself in a society in flux. The way people live and work is changing, and expectations of different products and services – including those offered by higher education institutions – are also evolving rapidly. Structural changes to higher education systems seem inevitable as new actors with innovative alternatives that shake up conventional models emerge. The challenges posed by these developments are outlined in the preceding chapters.

Looking toward the future, the million-dollar question is what ‘future-proofed’ higher education systems will look like in a world of rapid societal and demographic changes, with a more automated and fluid job market. The large, established higher education institutions must evaluate what their roles have been in society thus far – and what they could grow to be in the future. Stemming from the bases covered in this report, there are at least three major developments that need to be taken into consideration in the effort to ‘future-proof’ higher education systems.

1: HIGHER EDUCATION SYSTEMS ARE STRUCTURALLY CHALLENGED

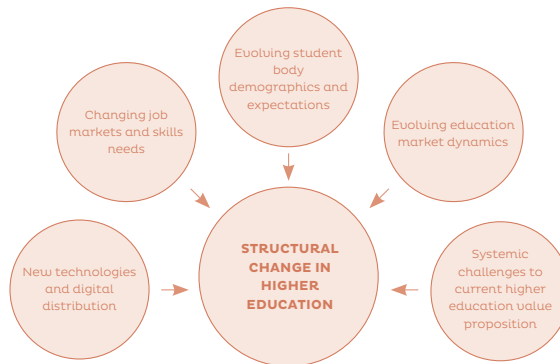
With technological advances among the most important drivers of change in the education sector, it has become difficult for incumbents to keep up. Digital transformation is structurally altering not only learning environments and the delivery of education by allowing much more individualised services but is also impacting the way higher education institutions operate as businesses. This transformation opens up completely new, more flexible ways of organising, delivering and pursuing education.

Evolving expectations mean that students and lifelong learners increasingly adopt a consumer-minded approach, as they shop around for educational services that best fit their individual needs. This also means that people are becoming less convinced of the value of higher education as it exists today. If higher education is

to prepare graduates for life in a changing society, educational models need to be re-structured to reflect the 21st century mindset and the digital economy. This entails being mindful of rapid changes in job markets, new working patterns and career pathways, and the perceived value of degrees for both students and employers, among other things.

Traditional degrees are unlikely to lose their significance in the near-term. Several of the companies that can afford to look past university degrees when choosing their candidates are well-established in their fields and often also require specific technical skills that alternative, more specialised courses may be more suited to give candidates. Other employers may be less inclined to move away from an indicator of skill that has proven to work overall in the past.

FIGURE 6: **DRIVERS OF STRUCTURAL CHANGE IN HIGHER EDUCATION**



Source: CIFS (2019).

However, it is reasonable to assume that in the foreseeable future, most graduates will attempt to join the labour market after their studies – and current structures are arguably inadequate to prepare people for life in a changing society. For traditional higher education to maintain its value, its rigid and conventional framework needs to become more compromising to reflect the kind of careers people will encounter in the future. This includes complementing opportunities for life-

long learning and unbundling of education. Otherwise, traditional education providers may find it difficult to stay ahead of new actors, who are rapidly rising with alternative business models.

2: NEW BUSINESS MODELS ARE TRANSFORMING THE HIGHER EDUCATION LANDSCAPE

New actors and business models are also integral to the changes in the higher education sector. The education landscape is bound to change significantly over the coming decades, and a 'future-proofed' higher education landscape will invariably include disruptive new entrants, competing and collaborating with the traditional actors. How traditional institutions respond and grow with these external changes is just as important in preserving the future of education as the steps taken internally.

The status quo in the higher education market is not only challenged by the developments in EdTech business models, but also by businesses outside the traditional world of education – among these, digital giants like Google, Amazon and Microsoft. What these new actors have in common is that they are able to utilise technology and data to better meet the evolving expectations of students and lifelong learners in flexible and seamless ways.

Business model innovation is not confined to the provision of higher education, but also expands to assessing skills levels in more flexible ways in a lifelong learning context, and the development and application of new outcome-based and income-sharing financing models.

3: THE ROLE OF FLEXIBLE LIFELONG LEARNING GROWS

As the demand for re-skilling continues to grow, existing education systems, characterised as they are by rigidity, become increasingly unviable. The tendency to study in higher education for 3-5 years before entering the labour market for a 50-60-year career cannot sustain the rapidly developing and changing demands in skills. The idea of lifelong learning, on the other hand, represents a shift that has been underway for a while, where skills acquisition is continuous and self-directed throughout life.

As the shelf-life of initial higher education is shortening, the importance of flexible lifelong learning is greater than ever. This suggests a change in the market, with less focus on studying for degrees and more focus on skills-based lifelong learning, through a *just-in-time* approach – the ability to quickly learn new skills

when the need arises and knowing where to find information, judge its relevance, and synthesise it, rather than learning a wide array of things that you *might* need later in life.

In a lifelong learning context, flexibility and on-demand formats become pivotal, and this will drive the need for greater unbundling of education. In order to be able to support flexible and individual lifelong learning pathways, universities will arguably have to unbundle their services even more, while ensuring greater coherence and transferability with alternative, likely unbundled, educational offerings. But with greater unbundling comes an increased need for knowledge management and curation. This opens up for a transformed role of higher education institutions, which could expand into being curators and validators of experiences and competencies rather than deliverers of the whole degree.

An emerging lifelong learning market opens up new business opportunities for traditional players. However, as lifelong learning and corporate training, and potential services related to them, constitute a massive and growing market, they are also attracting a tough and competitive crowd.

CLOSING THOUGHTS

The importance of futures literacy

In a future characterised by profound shifts in societies and job markets, *futures literacy* is emerging as an essential new life skill to enable individuals to succeed and thrive, and to deal effectively with the challenges of an ever-changing world.

The concept of futures literacy is slowly starting to gain traction after it was introduced by Prof. Riel Miller from UNESCO some years ago. He defines futures literacy as a capability that offers insights into how we approach unforeseeable challenges by using the future to innovate the present. In other words, futures literacy allows people to be mindful of the future when making decisions in the present. Futures literacy has the potential to support people to embrace complexity, offering new strategies with which to respond to the challenges of the 21st century. The better people are at imagining the future as an opportunity space rather than as something threatening, the less reason there is to fear the future, and the more willingness there is to take risks in order to harness future opportunities.

The purpose of higher education

The aims of higher education change over time. Traditionally, the overall mission of higher education institutions is to educate new generations to become respon-

sible, well-rounded citizens who contribute to society, while also preparing them for working life. But as society continuously evolves, higher education will have to change accordingly to reflect it. This mission definitely still applies, as it also expands into lifelong learning. To meet the rapidly changing demands of the workplace of the future, we first have to acknowledge that educational pathways of the future will be better served by alternative educational models – those with less focus on academics and more focus on skills-based learning, that do not necessarily add up to four or five years, and that involve new actors. Even if this makes us feel uncomfortable at first.

But what if fundamental societal changes lead to an equally fundamental change in the purpose of education altogether? The main motivations for most people in pursuing higher education today include wanting to pursue a particular career, getting a good job or finding a better one. But already today, not everyone pursues higher education with expectations of boosting employability. The most fortunate people have moved beyond a simple quest for ‘survival’, onto a quest for fulfilment, with more and more people pursuing education not just for labour market participation, but equally out of personal interest and passion for a subject. In a potentially more democratised post-scarcity world with widespread access to life necessities (e.g. through universal basic income), we might see a fundamental shift in the purpose of education.

In 2017, CIFS conducted a Delphi Study in which 200 experts from various fields and industries participated. Included in the study were a series of questions concerning the future of education. Participants were asked what they believed the main motivation for people to pursue education five decades from now would be. As a response to the fact that a massive amount of traditional jobs are at risk, workforce participation (31%) is still believed to be a main motive to pursue education in the future, to be able to compete in changed job markets. However, the quest to create a meaningful life (31%) was ranked equally as high. Additionally, a significant share (24%) of the experts indicated building resilience (the ability to respond and adapt effectively to changing circumstances) – much in line with building futures literacy – as the main motivation, as we are generally educating for a future that we cannot conceive. When asked about what would be the key measure of a nation’s success five decades from now, an overwhelmingly large share of the experts believed that personal wellbeing and quality of life (39%) will have surpassed GDP (14%), which essentially supports the argument that the main purpose of education might partly begin to shift away from preparing people to take part in the economy, and more towards personal fulfilment.

COPENHAGEN INSTITUTE FOR FUTURES STUDIES is an international, apolitical and not-for-profit think tank that has advised governments, multinationals, public and intergovernmental bodies all over the world about the future since 1970 through a membership network, strategic consultancy, seminars, workshops, presentations and publications.

The Institute identifies and analyses the trends and driving forces that shape the world, and works with scenario planning that can be used in strategy development and other change processes. The Institute is therefore both a think tank and a strategic adviser for public and private enterprises that wish to know more about the future before they make important decisions. The objective of the Copenhagen Institute for Futures Studies is to strengthen the basis for decision-making in public and private organisations by creating awareness of the future and highlighting its importance to the present.

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More information can be found at assetmanagement.pictet

At 30th September 2019