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Digital innovations in lifelong learning: a global perspective

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We invite you to be part of this change. Join our community. Together, we'll unite people and ideas in collective action to unlock opportunities to regenerate our world. Find out more at thersa.org

We define our ambitions as:

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To enable people, places, and the planet to flourish in harmony.

Our vision

A world where everyone can fulfil their potential and contribute to more resilient, rebalanced, and regenerative futures.

How we deliver our work

We do this by uniting people and ideas in collective action to unlock opportunities to regenerate our world.

About our partners



Center for
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Mastercard Center for Inclusive Growth

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EXECUTIVE SUMMARY

Chapter 1

Megatrends in the world of work are creating new opportunities and challenges for enterprises and workers alike. However, impacts and conditions to harness opportunities vary between, as well as within, countries. Emerging digital innovations and programmes are offering new solutions to individuals adapting to new jobs and ways of working, securing good work and pursuing professional or personal goals. This report explores the drivers that support, and the barriers that limit the reach and impact of digital lifelong learning innovations internationally.

In so doing, we highlight elements that are critical to building an integrated lifelong learning system with inclusivity and open access at its core. We make a range of recommendations to unleash the power of digital innovation to promote economic security, social equity and wellbeing. Achieving these goals requires the coordinated efforts of multiple stakeholders – government, corporate, international, and civil society organisations – and digital innovators themselves.

Summary of findings



Drivers

We identified three key drivers which can help digital lifelong learning innovators to scale their solutions internationally:



Recognition of the value of lifelong learning.



Technological advancement.



Government support and collaboration.

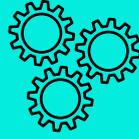


Barriers

We identified three key barriers which can limit the reach and impact of digital lifelong learning, and make it challenging for innovators to scale their solutions across borders:



Regulatory and regional differences.



Poor infrastructure.



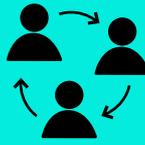
Increased competition.

The ingredients for successful and inclusive global digital innovation

Our research further highlighted three elements that are critical for integrated systems built on inclusivity and open access:



Personalisation.



Collaboration and community building.



Accessibility.

Summary of recommendations



Actions for national and local governments

Provide funding, incentives and regulatory environments that not only promote innovation and entrepreneurship in the digital lifelong learning space, but also elevate enterprises that do so in more collaborative and inclusive ways.

Act as convenors to build stronger partnerships amongst industry leaders, educational institutions, trade unions and digital innovators – for example through ministerially-chaired stakeholder groups – to discuss common challenges.

Develop a supportive policy environment for lifelong learning with a clear, long-term vision – potentially co-designed with communities of need – around the priority skills governments would like to promote, based on long-term economic policy and labour market analysis. **Ensure that policies are enabling employers and innovations to contribute.**



Actions for international and civil society organisations

Raise awareness on the benefits and implications of digital innovations in lifelong learning, including the dissemination of case studies on what works in the field, and by establishing hubs and networks for collaboration and innovation.

Build networks and facilitate partnerships which provide platforms for collaboration, exchange of knowledge and resources, promotion of mutual support, and spotlighting innovation.

Provide support, resources and guidance to promote an inclusive digital lifelong learning system. These may include funding to support the development and implementation of digital lifelong learning programmes, such as access to digital technologies, training programmes and resources that reduce barriers to access to learning and education.



Actions for businesses

Partner with digital innovators and educational institutions to develop inclusive and lifelong learning solutions, to futureproof workforces as well as co-shaping solutions to the challenges societies face.

Offer training and skills development opportunities and assess the learning needs of workers to provide enhanced learning experiences. Ensure opportunities are evaluated and that learnings are embedded into practice. Provide access to a variety of learning resources and offer flexibility to allow for employees to learn at their own pace.

Engage with policymakers to share data and case studies on skills and training. **Ensure that a wide range of voices are represented** in these, providing transparent data on skills gaps. Engage in dialogue to **promote the mutual exchange of priorities and concerns.**

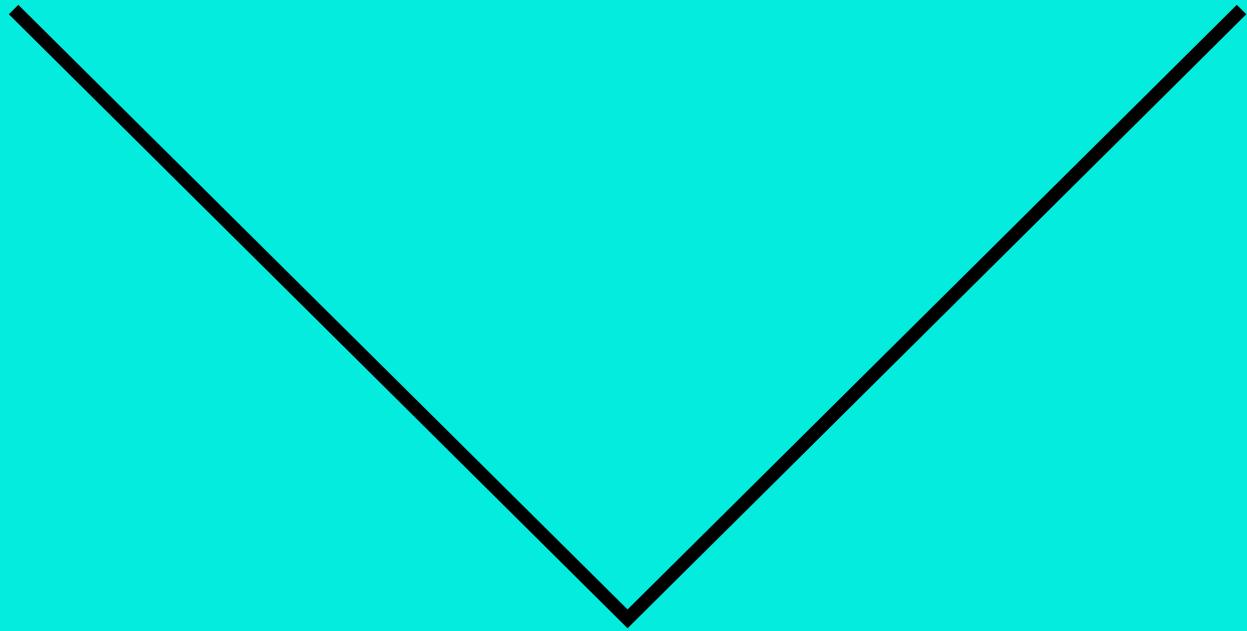


Actions for digital innovators

Develop partnerships and collaborate with local stakeholders as well as like-minded organisations to promote the exchange of capabilities and knowledge in pursuit of community building.

Localise and personalise solutions. Learning should be personalised to meet the physical and non-physical needs of individuals, taking into consideration individual learners' abilities, interests, goals and circumstances. This should include the co-design of learning innovations, by engaging with a wide range of users, and collecting users' data, prioritising the safety and rights of individuals.

Engage with policymakers to share experiences from the field while promoting the exchange of data to foster a collaborative approach and mutual support. Advocate for increased access to learning and education, perhaps by **raising awareness of local and national skills need.** Present that as an opportunity to promote the impact of your work

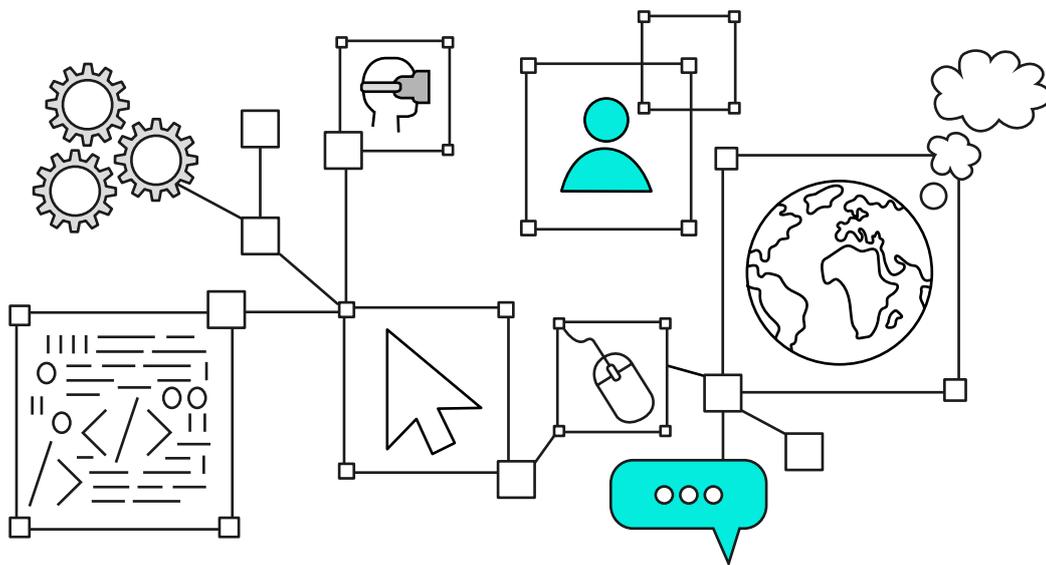


INTRODUCTION

Chapter 2

The world is facing unprecedented ecological, economic and social challenges, with new forms of uncertainties unsettling societies around the world.¹ These challenges are, and will, continue to have significant impacts on workers, businesses, economies and societies. The degree of impact will be felt differently by individuals as levels of deprivation and inequalities in human development persist.² Megatrends, including technological progress, globalisation, demographic shifts, and climate change are opening new opportunities and challenges in the world of work for enterprises and workers alike.³ For instance, recent research by the International Labour Organization (ILO)⁴ has estimated that, under 'energy sustainability' and 'circular

economy' scenarios,⁵ more than 100m jobs may be created, while 80m jobs may cease to exist. Additionally, a 2017 report by McKinsey, exploring the impact of automation on the share of employment, predicted that up to 375 million workers globally will have to switch occupation by 2030,⁶ and it now estimates 25 percent more workers may have to transition as a result of the Covid-19 pandemic, accelerating existing trends in the world of work including e-commerce, remote work, and automation.⁷ As well as changes in the share of employment and the creation or disappearance of occupations, the way we perform our jobs is also significantly changing, with recent data by LinkedIn projecting a change of 50 percent in the skill sets for jobs by 2027.⁸



1 UNDP (2022) Human Development Report 2021/2022: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World [PDF] Available at: www.hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf_1.pdf [Accessed 17 February 2023].

2 Ibid.

3 International Labour Organization (2021) Shaping skills and lifelong learning for the future of work: International Labour Conference 109th Session, 2021 [PDF] Available at: www.ilo.org/wcmsp5/groups/public/-ed_norm/-relconf/documents/meetingdocument/wcms_813696.pdf [Accessed 22 February 2023].

4 Ibid.

5 'Energy sustainability' scenario is intended as the economic transition from carbon-emitting resource of energy towards more renewable ones; while a 'circular economy' scenario is intended as a model for sustainability in resource use and consumption that supports moving away from an extract-

manufacture-use-discard model and embraces the recycling, repair, reuse, remanufacture, rental and longer durability of goods. International Labour Organization (2019) Skills for a greener future: a global view. Based on 32 country studies [PDF] Available at: www.ilo.org/wcmsp5/groups/public/-ed_emp/documents/publication/wcms_732214.pdf [Accessed 17 February 2023].

6 McKinsey (2017) Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages [online] Available at: www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages [Accessed 10 February 2023].

7 McKinsey (2021) The future of work after COVID-19 [online] Available at: www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19 [Accessed 05 May 2021].

8 World Economic Forum (2022) Here's why the world of work urgently needs to put skills first [online] Available at: www.weforum.org/agenda/2022/03/work-skills-first/ [Accessed 10 February 2023].

Box 1: Emerging skills – Creative Switzerland

The greater adoption of technology, as well as the increasing focus on tackling challenges such as climate change by organisations, means that the skill sets for jobs are changing. The Future of Jobs Report 2020 by the World Economic Forum identified 10 key skills that employers believe will be increasingly required for the future of work, such as analytical thinking and innovation, creativity, originality and initiative.⁹

While the demand of emerging skills varies by industry – for instance, ‘analytical thinking and innovation’ has been identified as the highest skill in demand in the financial services and ‘active learning and strategies’ in the health and healthcare sector¹⁰ - other skills (eg ‘the capacity to live in harmony’¹¹) are differently prescribed depending on the purpose individuals and institutions attach to skills (eg futureproofing the workforce, unleashing human potential, or contributing to thriving people, places and planet). However, current systems of education do not fully support individuals to engage in new forms of learning and develop the emerging skills they (and society) needs. As put forth by the International Commission on the Futures of Education, education is faced with a ‘crisis of relevance’, as formal learning is not meeting the needs of individuals and their communities as well as perpetuating short-term thinking that is not conducive to a sustainable and just society.¹² This has led to a number of small and medium organisations embarking on a quest to deliver the skills of the future.

Creative Switzerland,¹³ founded by Iwona Fluda on the values of creativity, entrepreneurship and intercultural communication, is one such program. It aims to help more individuals, workers and business leaders to develop creativity and creative skills to thrive in their work and life.

“ Creativity is one of the top leadership skills of the future.
*Iwona Fluda, founder,
Creative Switzerland* ”

Initially conceived as a platform for a community of creative practice, Creativity Switzerland offers online creativity bootcamps and creative leadership programs. Its mission is to boost creativity in Switzerland and beyond, empowering local communities and establishing intercultural relationships between nations. By guiding learners through a series of creativity tasks to be completed using a range of tools, Creative Switzerland aims to unlock participants’ creative potential. The World Economic Forum identified creativity, originality and initiative as among the top emerging skills for 2025,¹⁴ enabling economies to thrive and communities to tackle climate change by promoting innovation and problem-solving.¹⁵

“ We need to have a system change here to really see and contribute to a more sustainable future and creative leadership is actually one of the tools.
*Iwona Fluda, founder,
Creative Switzerland* ”

9 World Economic Forum (2020) The Future of Jobs Report 2020 [PDF] Available at: www.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf [Accessed 17 February 2023].

10 The financial services industry holds the highest average share of workers at risk of displacement (20.8 percent) and the health and healthcare sector holds the lowest average share of workers at risk of displacement (10.8 percent). Ibid.

11 International Commission on the Futures of Education (2021) Reimagining our futures together: a new social contract for education p10-11 [online] Available at: unesdoc.unesco.org/ark:/48223/pf0000379707.locale=en [Accessed 17 February 2023].

12 Ibid.

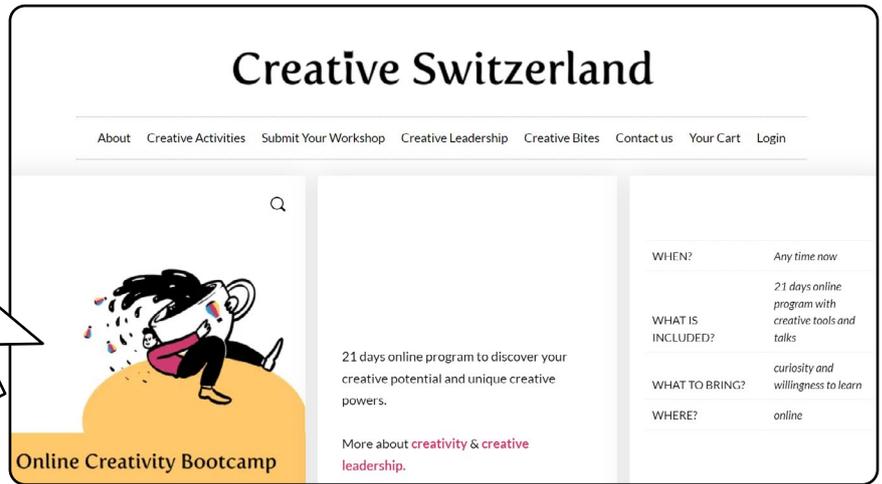
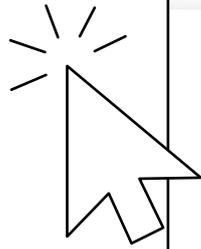
13 For more information see: www.creativeswitzerland.com/

14 World Economic Forum (2022) Here’s why the world of work urgently needs to put skills first. Op cit.

15 World Economic Forum (2019) 5 things you need to know about creativity [online] Available at: www.weforum.org/agenda/2019/04/5-things-you-need-to-know-about-creativity/ [Accessed 18 February 2023].

Figure 1:
Creative Switzerland

Source:
Creative
Switzerland
(2023)



The disruption to labour markets, as well as the acceleration of megatrends following the Covid-19 pandemic, has compounded the challenges for employment, good work¹⁶ and learning opportunities.¹⁷ These challenges are not evenly spread across societies. In high, middle and low income countries, the same groups of workers are most likely to face disruption: women, young people, members of ethnic minorities, and those with lower education attainment.¹⁸ At both global and regional levels, the share of young people not in education, employment or training (NEETs) is consistently higher for women than men. Younger and older people with low levels of education work mostly in informal employment, which comprises about nine in 10 jobs in low-income countries. The share of adults participating in training also varies between high and low income countries (compare for example the 67 percent in training in New Zealand with the 18.2 percent in Kazakhstan).¹⁹ Barriers to equal access may include physical barriers such as lack of learning infrastructure, limited accessibility for people with disabilities, and long and

unsafe journeys to training institutions; and non-physical barriers such as social discrimination, language barriers, inflexible schedules, cultural stereotypes, non-inclusive learning environments and legal hurdles.²⁰

Although middle income countries like India may see lower rates of automation, most new jobs will require a secondary education - with the fastest rate of job growth in occupations requiring an undergraduate or postgraduate degree.²¹ There is limited research on the impact on countries with the lowest incomes and least advanced economies, but the picture appears similar: workers in routine and repetitive jobs, with lower education and training, are at higher risk of job displacement; they are more likely to be poor, young, and female. A key difference is the larger proportion of rural workers, whose jobs are not at immediate risk of automation – although many of these workers already live in poverty, and may be subject to 'knock on' effects on the economies of urban areas.²²

16 RSA definition of good work: 'fair and decent with realistic scope for development and fulfilment'. Lockey, A and Wallace-Stephens, F (2020) A blueprint for good work: Eight ideas for a new social contract. [PDF] London: RSA. Available at: www.thersa.org/globalassets/reports/2020/a-new-blueprint-for-good-work.pdf

17 International Labour Organization (2022) World Employment and Social Outlook: Trends 2022 [online] Available at: www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_834081.pdf [Accessed 10 February 2023].

18 McKinsey (2021) The future of work after COVID-19. Op cit.

19 International Labour Organization (2022) Op cit.

20 Ibid.

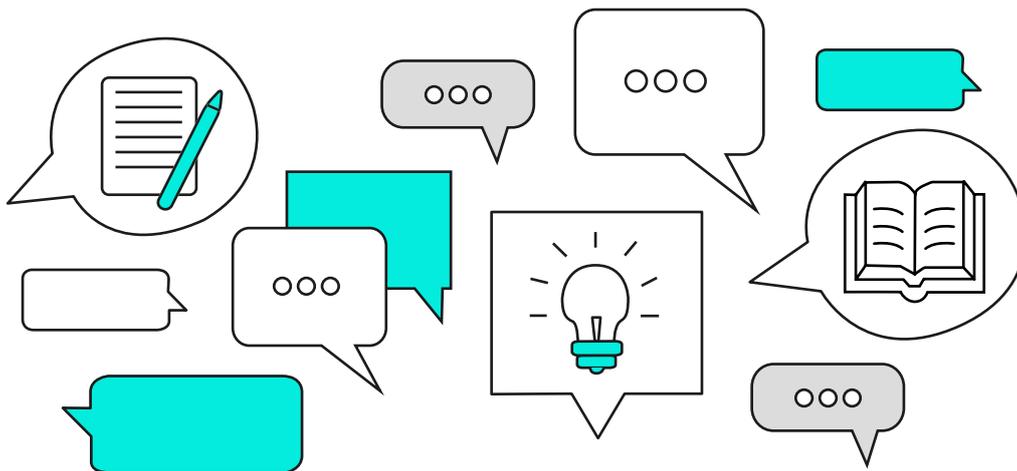
21 McKinsey (2017) Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages. Op cit.

22 Choi, J, Dutz, M, Usman, Z (2018) The Future of Work in Africa: Harnessing the Potential of Digital Technologies for All. Africa Development Forum. Washington, DC. World Bank [online] Available at: openknowledge.worldbank.org/handle/10986/32124.

The role of lifelong learning

There is already a significant body of evidence on the positive impact of lifelong learning on career outcomes, especially in a rapidly changing world of work. The World Economic Forum (WEF) found that upskilling and reskilling through lifelong learning is crucial for career success and employability in the Fourth Industrial Revolution, helping workers to stay competitive in a rapidly changing job market.²³ The Organization for Economic Co-operation and Development (OECD) found that countries with higher levels of participation in lifelong learning tend to have lower unemployment rates and higher levels of productivity, and makes the case for lifelong learning to help reduce income inequality and promote social inclusion within countries and across borders.²⁴ And as digital technology and education infrastructure have matured, online learning is no longer seen as an inferior substitute to learning in person.

The United States Department of Education found that students who took all or part of their coursework online performed better than those who took the same courses in traditional face-to-face settings, and that online learning can lead to greater flexibility and access to a wider range of courses and programmes.²⁵ Similarly, the international Society for Human Resource Management (SHRM) found that, if properly designed and delivered, online learning can be more efficient and just as effective as face-to-face learning.²⁶ Lifelong learning is vital for workers, businesses, economies and societies – and digital provides an efficient and cost-effective way to deliver it.



23 World Economic Forum (2018) The Future of Jobs Report 2018 [PDF] Available at: www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf
24 OECD (2015) Skills for Social Progress: The Power of Social and Emotional Skills, OECD Skills Studies, OECD Publishing, Paris [PDF] Available at: doi.org/10.1787/9789264226159-en.

25 Means, B et al (2009) US Department of Education. Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies [PDF] Available at: files.eric.ed.gov/fulltext/ED505824.pdf
26 Society for Human Resource Management (2022) Learning System Design: A Guide to Creating Effective Learning Initiatives [online] Available at: www.shrm.org/hr-today/trends-and-forecasting/special-reports-and-expert-views/documents/learning-system-design.pdf [Accessed 9 March 2022].

Why does digital innovation matter to lifelong learning?

Digital innovation plays a crucial role in enabling lifelong learning by breaking down barriers, providing flexible and personalised services and learning experiences, and making education and training more accessible and cost-effective. While digitalisation presents challenges for educational systems in preparing individuals for the increasingly digital workforce, it also presents opportunities to transform the fundamentals of teaching and learning, including who is learning and teaching, the methods of learning and assessment, and the learning and assessment environment. Digital innovations and programmes emerging across the world offer new solutions to individuals and workers in adapting to new ways of working, securing good work and pursuing professional or personal goals.²⁷ They contribute to this in a number of ways: lifting barriers to accessing education; attracting learners who dropped out of formal education; providing enhanced services to learners in remote areas or learners who are underserved by formal education; and providing just-in-time learning options for experienced workers who need to adapt quickly to labour market changes.²⁸

However, the widespread disparities in digital infrastructure and digital literacy across the world highlight a significant digital divide both between and within countries. According to some estimates, only 60 percent of the world's population has access to the internet.²⁹ There are also disparities in mobile phone ownership and usage between genders, with women being 7 percent less likely to own a mobile phone and 15 percent less likely to use mobile internet.³⁰ The Digital Economy and Society Index, which provides information

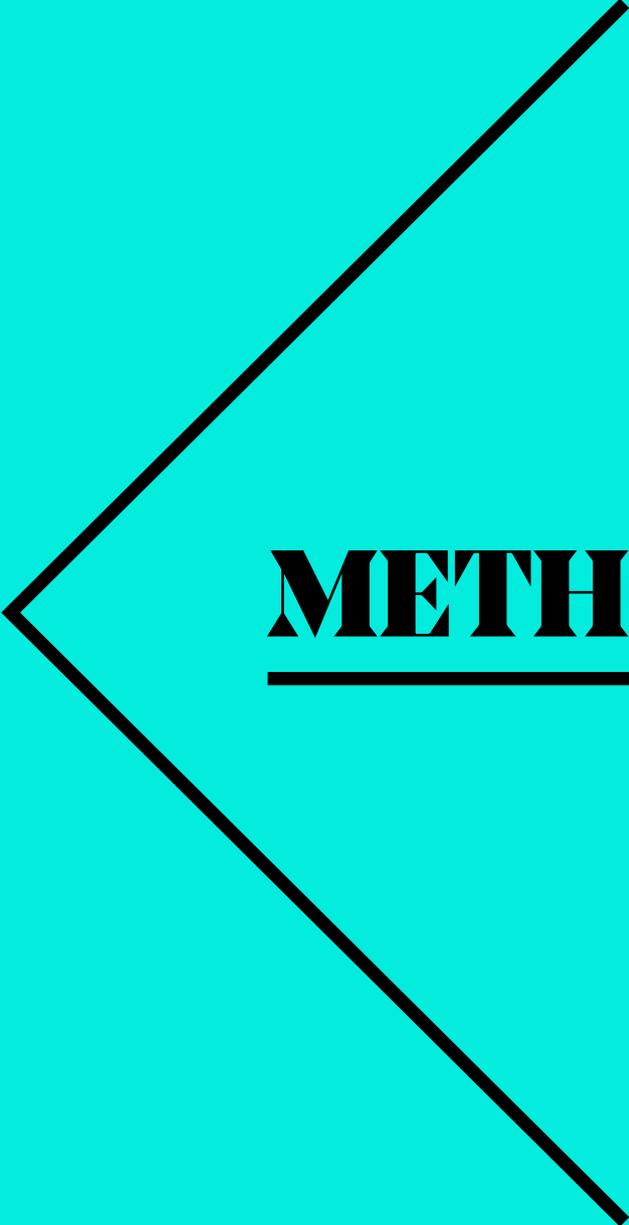
on Europe's digital advancements and tracks progress in EU countries, shows that 40 percent of adults lack basic digital skills.³¹ And studies on youth and adults from vulnerable groups such as refugees, internally displaced persons, and migrants, suggest that they experience multiple intersecting disadvantages that hinder their access to learning opportunities through the internet and digital technology.³²

These disparities in digital skills and access matter. Online learning can be particularly beneficial for individuals in medium- and low-income countries who may have limited access to traditional educational opportunities, and can also help to promote economic growth and improve job prospects for individuals in these countries.³³ Without recognising the barriers, as well as the opportunities, of using digital innovations in lifelong learning, policymakers and practitioners may further exclude 'disconnected' individuals from education, learning and the labour market. This report argues that scaling existing and emerging digital lifelong learning innovations is key to developing an ecosystem that promotes economic security, social equity, and individual wellbeing in a rapidly changing world of work. But for this vision to become a reality, key stakeholders need to act collaboratively to close the digital divide within and between countries.

|| Digital technologies can reinforce and indeed accelerate inequalities. As the world becomes more digitally dependent, it threatens to exclude those that remain disconnected.
Amina Mohammed,
*UN deputy secretary-general*³⁴

27 See, for example: RSA (nd) Innovations in Good Work directory. [online] Available at: www.thersa.org/future-of-work/global-innovations-good-work/directory [Accessed 17 February 2023].
28 International Labour Organization (2022) Op cit.
29 Ibid.
30 UNESCO Institute for Lifelong Learning (2022) Making Lifelong Learning a Reality: A Handbook [online] Available at: unesdoc.unesco.org/ark:/48223/pf0000381857 [Accessed 10 February 2023].
31 European Commission (2022) Digital Economy and Society Index (DESI) 2022 [online] Available at: digital-strategy.ec.europa.eu/en/policies/desi [Accessed 10 February 2022].

32 Ibid.
33 Omar, DA, Abu dames, ZHH (2020) The impact of e-learning on the economic development of selected developing countries for the period 2000-2017 [PDF] PalArch's Journal of Archaeology of Egypt/ Egyptology 17(5). Available at: archives.palarch.nl/index.php/jae/article/download/7372/6992/14424 [Accessed 9 March 2023].
34 UN Deputy Secretary General (2021) With Almost Half of World's Population Still Offline, Digital Divide Risks Becoming 'New Face of Inequality', Deputy Secretary-General Warns General Assembly [online] United Nations Press Release. Available at: press.un.org/en/2021/dsgsm1579.doc.htm [Accessed 10 February 2023].



METHODOLOGY

Chapter 3

This report builds on the RSA work on Scaling digital innovations in lifelong learning in the UK,³⁵ and the learnings³⁶ from a large pilot of a digital upskilling platform in France, with a small pilot in the UK in partnership with the Mastercard Center for Inclusive Growth and Bayes Impact. In making the arguments within this research and our recommendations, we draw upon the ideas, expanded with desk-based research, that emerged from a qualitative and design-led methodology.

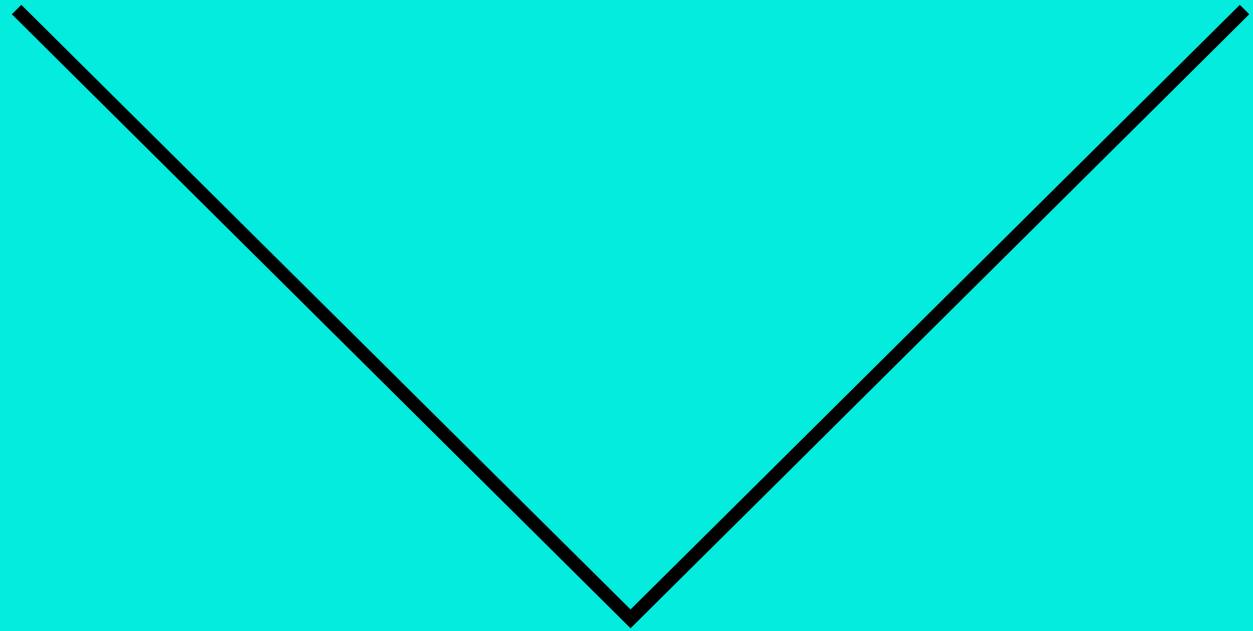
In December 2022, we launched a two week open call for stakeholders in the lifelong learning ecosystem to share their work in developing or working with digital innovations that deliver inclusive skills and lifelong learning support at scale. This includes online learning, peer learning networks, technology bootcamps, augmented reality, digital career coaching, digital credentials and skills.

We then selected six submissions, from the 90 received in total, to conduct one-hour semi-structured qualitative interviews during January 2023. These included small to medium-sized enterprises that develop and/or deliver digital programmes in lifelong learning and have worked cross-nationally (see Boxes 1-6). The interviews covered their experiences in developing their programme or organisation and reflections on priorities and investment, partners and networks, and opportunities and challenges in the lifelong learning system.

We then discussed interview findings with 13 stakeholders in a design-led workshop (January 2023) to identify the conditions and policies which foster space for digital innovation in the skills and lifelong learning space. One of the key elements of our workshop was a design-led methodology to identify potential drivers (or opportunities) for change, as well as potential levers that could reduce barriers to change. We asked participants to review an evidence-led systems map to spot energy for change, and then develop 'How might we?' questions, which were then voted on using a prioritisation matrix. The top six questions were used to generate ideas to address these questions. This design-led methodology aimed to encourage participants to generate ideas without thinking about the detail or constraints that might exist, in order to develop a picture of what the ideal solutions to some of the system challenges might look like.

35 Hall, M and Mrvic, V (2022) Scaling digital lifelong learning innovations in the UK. [PDF] London: RSA. Available at: www.thersa.org/globalassets/foundation/new-site-blocks-and-images/reports/2022/09/scaling-digital-innovations-in-lifelong-learning-in-the-uk.pdf.

36 Mrvic, V (2022) Digital lifelong learning in France: Lessons from Jobflix [PDF] London: RSA. Available at: www.thersa.org/globalassets/foundation/new-site-blocks-and-images/reports/2022/12/digital-lifelong-learning-in-france-report-final.pdf [Accessed 13 February 2023].



DIGITAL INNOVATION IN LIFELONG LEARNING: DRIVERS AND BARRIERS

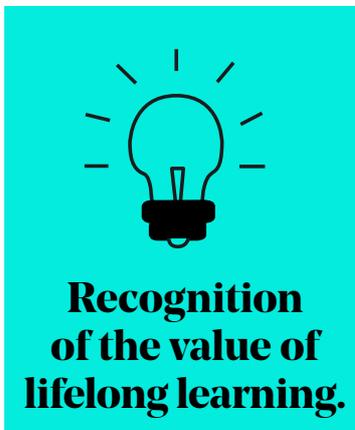
Chapter 4

4

Digital innovation in lifelong learning: drivers and barriers

Drivers

We identified three key drivers which can help digital lifelong learning innovators to scale their solutions internationally:



By leveraging these drivers, digital lifelong learning innovators can help drive the growth and impact of digital learning and skills initiatives worldwide. Each driver is explored in detail below.

Growing recognition of the value of lifelong learning

There is an increasing recognition of the value of lifelong learning from a personal and professional perspective. As the labour market becomes more global and competitive, as well as at higher risk of being disrupted, there is a growing demand

for individuals to continuously develop their skills and knowledge throughout their careers. This is driving the need for accessible, flexible and cost-effective digital lifelong learning solutions. As indicated by one of our interviewees, the e-learning

Digital innovation in lifelong learning: drivers and barriers

market is growing rapidly across the globe, having surpassed USD 315bn in 2021, and is predicted to increase at a compound annual growth of 20 percent between 2022 and 2028.

/// Digital skills, as well as skills of the future are increasingly demanded by organisations.
Workshop participant

As more individuals and organisations recognise the benefits of digital lifelong learning and digital (or hybrid) solutions, there is a growing interest by academic and non-profit institutions to focus on, and publish, research about emerging technologies, its uses, benefits and limitations and ethical implications. This in turn supports the development and scaling of digital innovations.

/// We were inspired by academic research that was published around the efficacy of bringing joy through immersive technology to children who are suffering from long term illnesses... Kabuni is now on a mission to educate with purpose to unlock the potential of every learner and elevate life... we deliver a platform and collaborate with educators to embrace immersive technology and deliver educational content in new and exciting ways, to unlock imaginations and inspire lifelong learning.
Nina Jane Patel, co-founder, Kabuni Metaverse

There is also increasing investment and support from the private sector to seed and scale digital learning initiatives, as the economic benefits are more recognised. These include reduced skills gaps, improved employment opportunities, cost-effectiveness and productivity.³⁷ For example:

- AT&T has partnered with online learning platform Udacity to offer online courses to its employees in areas such as data science, web development, and cybersecurity. To date around 5,400 employees have now completed Udacity's Nanodegree program.³⁸
- Through its Accenture Connected Learning online learning platform, Accenture has trained 80 percent of their workforce in new skills such as Blockchain, AI, machine learning, agile methodologies, and emerging industry trends.³⁹
- A research report by the US Navy on the cost-effectiveness of virtual reality training found that immersive digital learning realised USD 4.24m in avoided costs, yielding a return on investment of USD 2.96m against a USD 1.28m investment.⁴⁰

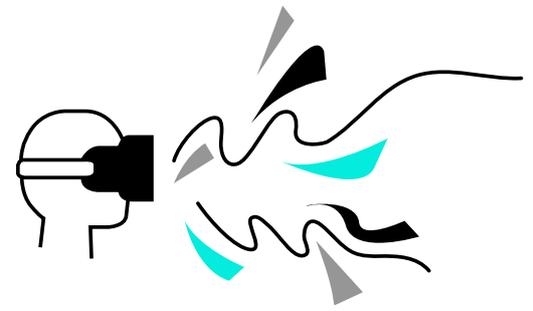
/// A number of companies now have several diversity and inclusion policies. While the implementation of these happens mostly at the hiring level, companies are now looking for solutions to support women, for example, to develop their skills and progress in their careers. Our programme provides the structure and credentials to do just that.
Interviewee

37 See, for example: CIPD (2021) Digital Learning in a Post-Covid-19 Economy [PDF] Available at: www.cipd.co.uk/Images/digital-learning-literature-review-report-2_tcm18-89290.pdf [Accessed 19 February 2023].

38 IBL News (2020) Udacity Expands Its Partnership with AT&T by Issuing a Scholarship Program for 1,000 Students [online] Available at: iblnews.org/udacity-expands-its-partnership-with-att-by-issuing-a-scholarship-program-for-1000-students/ [Accessed 9 March 2023].

39 Modgil, S (2019) How Accenture is building a future-ready workforce through continuous learning. People Matters [online] Available at: www.peoplesmatters.in/article/skilling/how-accenture-is-building-a-future-ready-workforce-through-continuous-learning-21971 [Accessed 9 March 2023].

40 Cited in CIPD (2021) Digital Learning in a Post-Covid-19 Economy [PDF] Op Cit.



Technological advancements

The rapid pace of technological innovation is driving the development of new and innovative digital learning solutions. This is making it easier for digital lifelong learning innovators to create and scale their solutions, as well as reach larger audiences.

“ The advantage of us being a small team and small company is that it can scale [with technology]. So, if we go from 10,000 users as we have today... to one million users, we don't need to buy new servers or reconfigure the [server], it'll expand by itself.
Interviewee ”

Emerging technologies support the localisation of products and services, in terms of content, language and connectivity. For instance:

“ A lot of our learning is not just the content you get, but you and I interacting in a virtual space. There's a lot of good AI now where, for example, you can write something in a text, and I will receive it already translated... [These advanced technologies] will allow to break down boundaries, [and improve] how people learn across geographies.
Interviewee ”

Emerging technologies also allow for the collection of data on learner behaviour, engagement, and performance, and use this information to personalise the learning experience and improve outcomes. For example, Khan Academy uses data to provide students with immediate, personalised feedback on their answers, and recommends videos and exercises

based on their progress and mastery of specific topics. Data can also support adaptive learning, such as the language learning platform Duolingo which uses data on a learner's performance and progress to adjust the difficulty of exercises and ensure they are practicing the right skills at the right time.

“ New and emerging technology can provide us with access to data that allows us to understand the process of learning more deeply...How can we advance our understanding of the nuances of learning difficulties and develop innovative methods to meet the needs of neurodiverse learners? If we innovate intentionally and apply new technologies within the education sector we may be able to support learners more deeply.
Interviewee ”

Finally, emerging technologies are making human-centric digital learning more sophisticated, with learners able to meet with educators or trainers in the metaverse, interact with digital assets or with the physical and digital environment at the same time.

“ It could be a location-based task... we started to implement this now with simple Google Maps integrations. So, you could do [something] like a cultural exploration of London. For example, you go to the Tower of London and when you arrive you can share what you think.
Interviewee ”

Box 3: Immersive technologies for safe and engaging learning - Kabuni Metaverse

Co-founded by futurists and global innovators Nina Jane Patel and Nimesh Patel, Kabuni Metaverse leverages exponential technology, science and data to help children and young adults engage with a range of immersive learning experiences. Kabuni is the world's first Web3 platform that provides integrated hardware, software and content solutions that will allow schools, educators, parents and brands to leverage Web3 technologies in order to elevate education. Education that creates unimaginable immersive experiences, during which they retain more of what they are taught, learn faster, and enjoy healthy mental wellness.

Kabuni is on a mission to create a safe Metaverse for education and through it, unlock the design potential in every learner, and elevate their lives. Providing an immersive ecosystem for interactive and experiential learning that will revolutionise how, what and when we learn. With a scientific approach and evidence-based methodology, all within a safe, fully immersive 3D world that adopts new, more responsible policies and protocols - defining a new standard for healthy and growth-led interactions between human beings and technology.

“ We believe it is vital to prioritise evidence-based methods to develop technology that prioritises the psychological and physiological needs of children and young people. *Nina Jane Patel, co-founder and head of research, Kabuni Metaverse* ”

Kabuni Metaverse offers curriculum and experiential learning for a balanced education where immersive classrooms are facilitated by experienced Metaverse educators. Courses are designed in collaboration with schools and educators, with the aim of complementing educators' expertise with immersive technology (through the development of impactful digital assets).

“ Technology is never going to replace educators. It's about enhancing the relationship between educators and students, by harnessing the power of emerging technologies and specifically innovating for education. Educators are superheroes, we can give them superpower. *Nina Jane Patel, co-founder and head of research, Kabuni Metaverse* ”

Kabuni offers three products - Kabuni Campus (focused on enhancing homeschooling), an enterprise model, Kabuni Space, for schools to adopt immersive technologies, and it is in the process of designing and delivering Kabuni University. This latest innovation will use micro-credentials for courses in careers that do not exist quite yet, such as Metaverse architects and AI drone ambulance operators. Taking a human-centred, systemic approach to innovation by advocating for the safe adoption of technologies, and collaborating with academic institutions, Kabuni Metaverse is offering immersive and safe learning experiences whilst exploring how to equip learners with the skills they need for the future.

Figure 3: Kabuni Metaverse



Source: Kabuni Metaverse (2023)

Government support and collaboration



Governments around the world are increasingly committed to supporting the development and implementation of digital lifelong learning solutions, and fostering collaboration between educational institutions, technology companies, and government agencies, helping to drive the development and scaling of digital lifelong learning solutions. Southeast Asia provides several notable examples, including the SkillsFuture initiative launched by the Singaporean government in 2015, which provides individuals with funding and access to a range of certified online courses and training programmes to develop their skills and knowledge in areas such as digital marketing, cybersecurity, and data analytics. And South Korea's Smart Work and Learning initiative, which has led to significant investment in the development of e-learning platforms and digital learning content, as well as improving access to high-speed internet and digital devices for learning.^{42, 43}

“ I think everybody is trying to be on digital platforms and expand these tools for people to learn. There are a lot of government initiatives eg Japan, Singapore and Indonesia where the government has set out digital platforms for people to train.
Interviewee ”

Governance of adult learning and education is also increasingly being strengthened through collaboration between different government departments, local authorities and private sector and civil society organisations.⁴⁴ For example, Jordan's plan for the Syrian crisis (2018-19) implemented a participatory approach to adult learning and education governance. It included coordination between different ministries, led by the Ministry of Education, engagement with national and international institutions and donors, and the formation of cross-sectoral committees (health, social protection, education).⁴⁵

As well as closer integration and cooperation within states, transnational partnerships can also help ensure consistency and quality. The European Union's Digital Skills and Jobs Coalition brings together governments, businesses and civil society organisations from across member states to share best practices and develop initiatives to improve digital skills among citizens.⁴⁶ The work of the Coalition supports the implementation of the 2020-30 Digital Decade strategic vision, which is also supported by individual national roadmaps and a range of multi-country projects, and measured through an overarching framework, the Digital Compass.⁴⁷

42 The goals and activities of SkillsFuture are described in detail by the Singaporean Ministry of Manpower here: www.mom.gov.sg/employment-practices/skills-training-and-development/skillsfuture

43 For more information about Smart Work and Learning see www.msit.go.kr/eng/index.do

44 UNESCO Institute for Lifelong Learning (2022) 5th global report on adult learning and education: citizenship education: empowering adults for changes [online] Available at: uil.unesco.org/adult-education/global-report/5th-global-report-adult-learning-and-education-citizenship-education [Accessed 20 February 2023].

45 Ibid.

46 Detailed information on the Coalition can be found here: digital-skills-jobs.europa.eu/en/about/digital-skills-and-jobs-coalition

47 Further information on EU activities can be found here: commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

Digital innovation in lifelong learning: drivers and barriers

Although these initiatives are operating in different contexts and vary in scale and scope, they all feature the same key activities:

1 Improving access to digital learning resources through investment in digital infrastructure.

2 Developing online training programmes, working in partnership with private or third sector educational institutions and training organisations.

3 Supporting skills development for emerging jobs and sectors, for individuals looking to develop skills in areas such as coding, digital marketing, and data analysis.

As well as promoting online learning and the development of future skills, governments also have an important role to play in ensuring these skills are recognised. UNESCO's Institute for Lifelong Learning has identified a global expansion of mechanisms for the recognition, validation and accreditation of non-formal, informal and formal qualifications alike.⁴⁸ For instance, 'recognition of prior learning' was emphasised in Iceland's Adult Education Act (2010), supporting adults who have little formal education but years of work experience by validating and recognising their skills as part of a formal qualification in certified trades – with more progress being made to integrate these in higher education settings.⁴⁹

Additionally, most countries surveyed by the UNESCO Institute for Lifelong Learning reported fast transitions to forms of digital learning to ensure the continuation of adult

learning and education provision.⁵⁰ This has also been possible by the increased public and private investment in digital infrastructure. The Covid-19 pandemic in particular catalysed a number of interventions across the world to improve the digital infrastructure (eg network expansion) and improve digital services (eg e-learning).⁵¹

Despite these encouraging signs, there remain some obstacles to governments giving the best possible support to digital lifelong learning. Consistent investment is critical, but while policy commitments have generally been matched with increases in public expenditure, progress appears now to have stalled. UNESCO found that only 15 percent of countries surveyed were spending more than 4 percent of public education spending on adult learning – significantly below the target of 6 percent specified by the Belém Framework for Action in adult education.^{52, 53, 54} Good intentions and strong beginnings need to be matched with future commitments and actions.

“ There is a recognition about the skills we need to develop but not a lot of action. *Workshop participant* ”

Funding matters especially because different nations have access to very different resources. The advanced economies of Southeast Asia, Europe and North America have the money and governmental infrastructure needed to provide a good foundation for national initiatives. Unless lower income countries are provided with the support they need to do the same, differences between nations – and between the Global South and North – are likely to be exacerbated. These barriers are explored in more detail below.

48 Ibid.

49 Ibid.

50 Ibid.

51 See, for example: World Bank (2021) Global Digital Development Policy Response Database [online] Available at: www.worldbank.org/en/topic/digitaldevelopment [Accessed 20 February 2023].

52 UNESCO Institute for Lifelong Learning (2022) 5th global report on adult learning and education: citizenship education: empowering adults for changes. Op cit.

53 Ibid.

54 The Belém Framework for Action records the commitments of Member States and presents a strategic guide for the global development of adult literacy and adult education within the perspective of lifelong learning. See: UNESCO Institute for Lifelong Learning (2010) Belém Framework for Action [online] p7 Available at: uil.unesco.org/adult-education/confintea/belem-framework-action [Accessed 20 February 2023].

Barriers

We identified three key barriers which can limit the reach and impact of digital lifelong learning and make it challenging for innovators to scale their solutions across borders:



Regulatory and regional differences

Different regions have different values and beliefs about education and emerging technologies. These are often reflected in government policies and regulations, which in turn impact the development, implementation of, and investment in digital lifelong learning initiatives. There is great divergence in terms of public spending on lifelong learning. The UNESCO Institute for Lifelong Learning observed 22 countries spending about 4 percent or more, 28 spending less than 0.4 percent, and more than 40 countries reporting uncertainty over their own data.⁵⁵

By region, the highest number of countries reporting increased spending in adult learning and education was in Asia Pacific (43 percent), with the lowest proportion reporting an increase in the Arab States (25 percent). Of respondent countries in Europe and North America, 68 percent declared spendings to remain unchanged since 2018, whereas in all other regions unchanged spendings were reported by 43-52 percent of countries. The region with the lowest report on decreased spending was Europe and North America (0 percent).⁵⁶

⁵⁵ UNESCO Institute for Lifelong Learning (2022) 5th global report on adult learning and education: citizenship education: empowering adults for changes. Op cit.

⁵⁶ Ibid.

Digital innovation in lifelong learning: drivers and barriers

This can create barriers for digital lifelong learning innovators, as well as widening global inequalities, and limit the reach and impact of digital programmes. For instance, some interviewees highlighted scepticism by governments and people about the adoption of emerging technologies, particularly within the education sector, limiting investment and opportunities for digital innovators to operate in an integrated system:

Traditionalists fear technology in education... But there is no denying that we are on the cusp of the Fourth Industrial Revolution, it is imperative to innovate and develop technology that's appropriate [for children and young adults] to deliver innovation that is fit for purpose, to elevate and enhance education.
Interviewee

At the moment, people think that the metaverse is a buzzword, but they are underestimating the potential of the technology. Think back to 1993 (pre-internet) and evaluate how much it has changed the role of education, and how people access and disseminate information... We are at the edge of digital transformation at the same level as the introduction of the internet.
Interviewee

Interviewees also observed scepticism regarding emerging skills, or skills of the future, such as creativity, which discourages a culture for change, as put forth by one of our interviewees:

There is [a] visible resistance towards something new because many things have worked pretty well in many very well-developed countries for many decades now which automatically can cause them analysis-paralysis. When we consider emerging economies, we see slightly different perspectives. In countries where (often) the basic needs can't be covered sustainably, and poverty is written with capital letters, creativity and creative skills are not a choice, they are an imperative of daily existence and important tools to re-establish the economy, in particular these days, after the Covid-19 pandemic.
Interviewee

As digital programmes collect and store large amounts of personal data, there are concerns around privacy and security that vary between regions. Currently, there is not a comprehensive international framework for online data protection, with governments pursuing legislations that are often removed from the rights and needs of the individuals.⁵⁷ As an example, Human Rights Watch, alongside other civil society organisations, has called out the Indian government for failing to protect people's privacy while enabling unchecked state surveillance in the latest proposal of the Digital Personal Data Protection Bill, 2022 - particularly undermining the rights to privacy and safety of children who had been subject to harassment and cyber-bullying with the increased adoption of digital learning in schools.⁵⁸ This can create further barriers for digital lifelong learning innovators: trust is critically important to the adoption of digital technologies, whether the trust of users and other stakeholders in online security and how their data will be handled, or the trust

⁵⁷ See, for example: Ben-Hassine, H (nd) Government Policy for the Internet Must Be Rights-Based and User-Centred. UN Chronicles [online] Available at: www.un.org/en/chronicle/article/government-policy-internet-must-be-rights-based-and-user-centred [Accessed 20 February 2023].

⁵⁸ See, for example: Human Rights Watch (2022) India: Data Protection Bill Fosters State Surveillance: Draft Law Fails to Protect Privacy, Rights of Children [online] Available at: www.hrw.org/news/2022/12/23/india-data-protection-bill-fosters-state-surveillance [Accessed 24 February 2023].

Digital innovation in lifelong learning: drivers and barriers

needed for effective collaboration between private and public entities. For instance, one of our interviewees emphasised the importance of prioritising the safety of people in the metaverse and digital space:

Everything drops back onto how we regulate and hold people accountable in our digital spaces. The UK Online Safety Bill, for instance, while it has vital aspects that could create some levels of change regarding current big tech and social media platforms, fails to future-proof regulation as we move towards the three-dimensional metaverse - a digital world in which we are fully immersed, present and embodied. Effective change is on pause until there is some sort of progress.
Interviewee

There is a lack of confidence in tech by some learning providers.
Workshop participant

Additionally, countries have widely varying education systems, policies, and regulations, which affects individuals' needs, skills levels, support infrastructure and accreditation. This can create challenges for digital lifelong learning innovators looking to scale their solutions or collaborate across borders. One of our interviewees referred to the importance of developing digital literacy and skills from an early age, in order to more easily engage with digital tools and learning at an older age:

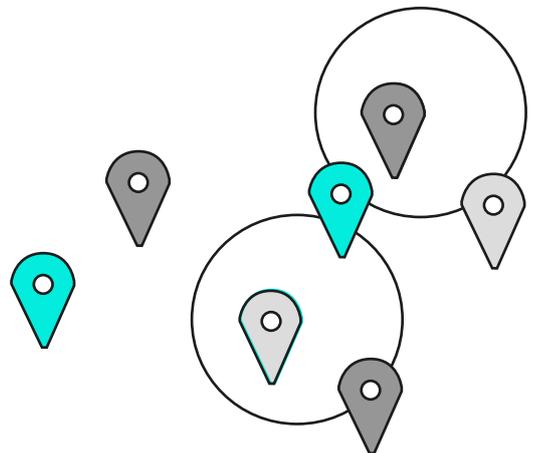
Estonia has a higher ratio of data scientists per capita than any other country in the world because their entire school system... is computerised! This means that students are exposed to things like big data, machine learning, [and] coding from high school.
Interviewee

If [people] haven't engaged with technology within primary or secondary education, then the gap of knowledge is going to be significant [when they enter a workforce]... A significant section of people will be left out from developing skills if they haven't experienced it at a younger age.
Interviewee

Finally, some of our research participants emphasised the importance of micro-credentials to enable learners' learning and skills 'credits' to be recognised and transferred to the labour and academic sector. Recent research by the RSA has highlighted the importance of micro-credentials in building learner identity and confidence, support equity and improve progression.⁵⁹ While digital innovators are developing new and engaging ways of learning, barriers emerge to scaling and collaborating as the micro-credentials concept has not taken off as it was expected or hoped.

One thing that is creating more opportunities for digital innovators in lifelong learning, but has not taken off as much as it could have, is on digital credentialing.
Interviewee

Whether because of regulatory, language, values or systemic differences, the localisation of products and services may be even more challenging for smaller digital innovators due to resource and time capacity.



⁵⁹ Kenyon, T, Breeze H, and O'Doherty, A (2022) Rebalancing adult learning [online] London: The RSA. Available at: www.thersa.org/reports/rebalancing-adult-learning-report-rsa-ufi [Accessed 20 February 2022]

Infrastructure

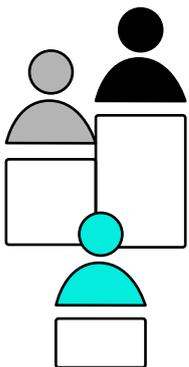
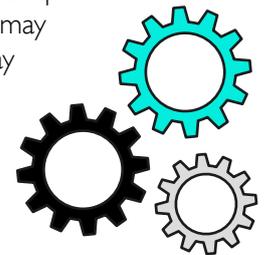
Adequate infrastructure, including access to technology and internet connectivity, is essential for the widespread adoption and success of digital lifelong learning initiatives. But in some countries there is limited access to technology and the internet. As outlined in the previous section, despite interventions across countries in developing and expanding digital infrastructure and digital services, only 60 percent of the world's population has access to the internet.⁶⁰ This poses challenges for digital innovators in localising their services and ensuring an inclusive approach to lifelong learning.

Half of the world population is disconnected or poorly connected to the internet.
Interviewee

It is not only infrastructure which creates difficulties around access to the digital products or services offer, but also how products are adapted to digital infrastructure.

We're working in pretty difficult contexts... We've even tried to optimise this to make it as light as possible, because we are working in places where the bandwidth is not great, it's unreliable. So that's also a challenge for us.
Interviewee

Additionally, poor digital infrastructure poses challenges to creating a support system around learners, as some digital lifelong learning programs require facilitation where stakeholders, for example service providers, trainers, teachers, may need support and/or training and may struggle to access adequate support.



Competition

For a long time many private and public institutions have advocated for competition in different industries with the aim of driving growth, productivity and innovation. However, a more collaborative model is now steadily gaining traction.⁶¹ Research participants highlighted increased competition in the education and digital learning sector, where formal and non-formal (digital) learning providers are competing against each other to 'survive'. They emphasised some of the challenges with a competitive model: funding – small (non-formal) organisations competing against large (formal) learning institutions to access private and public funding and investment are disadvantaged due to limited capacity and resources to build partnerships or prove impact; service quality to users – competition often leads to 'duplicated' services that can be less

robust for the needs of the users; and lack of integration – competition may discourage institutions from working together to co-design solutions due to less opportunities and platforms to do so.

I think now, all the organisations eg universities or public institutes, or even private companies, are providing additional platforms. In many cases they are trying to achieve the same thing in a different manner. This can be good, but sometimes I feel there needs to be stronger collaboration to provide more robust programmes.
Interviewee

We need to move away from a competitive model towards collaboration.
Workshop participant

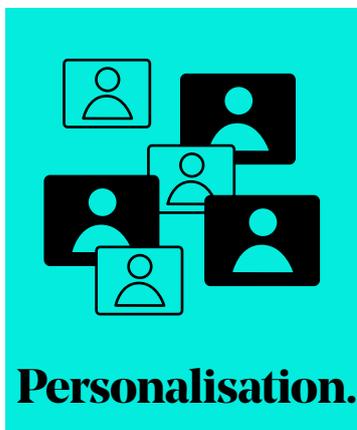
60 International Labour Organization (2022) Op cit.

61 World Economic Forum (2023) Competition vs collaboration: rethinking how businesses innovate and grow [online] Available at: www.weforum.org/agenda/2023/01/competition-vs-collaboration-ey-innovation-wef23/

The ingredients for successful and inclusive global digital innovation

If digital innovations are to deliver on their promise, they need to be scaled and integrated within a wider system that is accessible to all learners.

Several interviewees emphasised that scaling innovation is a challenge in itself. The journey between a successful pilot and a successful programme at scale is uncertain and lacks established practices, especially when working cross-nationally, as observed in the humanitarian sector.⁶² Investment, a strong sustainable business model and demonstrable impact are key ingredients for success for any product or service. Our research highlighted three elements that are critical for integrated systems built of inclusivity and open access:



⁶² McClure, D and Gray, I (2014) Scaling: Innovation's Missing Middle [PDF] Available at: www.thoughtworks.com/content/dam/thoughtworks/documents/blog/digital-innovation/blg_topic_scaling_innovations_missing_middle_03.pdf [Accessed 20 February 2023].

Personalisation

To support diverse learning needs it is important to offer personalised learning experiences that consider individual learners' abilities, interests, goals and circumstances. The UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development, in its recent report, stated that "receiving a personalised learning experience is an entitlement and a human right for every learner" as internal factors and context are great contributors of differences in learning processes.⁶³ Personalisation is particularly important for engagement, motivation, and accessibility resulting in improved learning and participation outcomes, as well as learners' agency.⁶⁴ This includes adapting content and teaching methods to different learning styles, providing feedback and support, offering flexible learning paths that allow individuals to progress at their own pace, and enhancing human-centric approaches to digital learning.

While personalisation may involve the collection of a high volume of data from individuals, posing risks to their rights, particularly in contexts where digital legislation is not user- and rights-centred, emerging technologies and designs of digital learning are creating forms of personalisation and contextualisation where learning journeys can be co-designed by stakeholders including employers, employees, educators, learners (see, for example, Box 5).

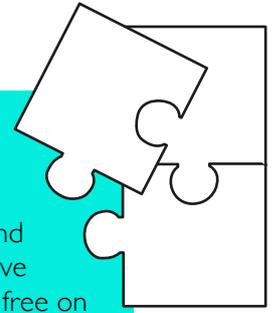
Especially in the education and learning sector it's not a 'one size fits all', it needs to be tailored, it needs to be adapted.
Interviewee

We need asynchronous learning in the formats that fit with people's lives.
Workshop participant



63 UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (2022) Reimagining Education: The International Science and Evidence Based Education Assessment [PDF] p3. Available at: www.fenews.co.uk/wp-content/uploads/2022/03/Reimagining-Education-THE-INTERNATIONAL-SCIENCE-AND-EVIDENCE-BASED-EDUCATION-ASSESSMENT-2022.pdf [Accessed 23 February 2023].

64 Ibid.



Box 4: Human-connected, game-based online learning – Gamoteca

Founded by Atish Gonsalves in coordination with the United Nations to provide crisis response training that simulate real-life environments, Gamoteca delivers human-connected, game-based online learning experiences to a range of learners in the private, non-profit and academic sectors. From serious games to gamification and human connection and learning, Gamoteca is bringing a combination of knowledge about practice, collaboration and feedback to people's learning journeys.

“ Gamoteca came from this vision of 'let's try to make learning that allows people to practice skills under stress', but it's the role of gamification, which is about human connection and practice-based learning.
Atish Gonsalves, founder, Gamoteca ”

Concerns have been raised over the years regarding the potential lack of human or social interaction if technology is increasingly adopted in learning.⁶⁵ Gamoteca answers these concerns by embedding human connection and feedback in the learning experience, for example through role plays, simulations and serious games,⁶⁶ job coaching and mentoring, collaboration, and feedback. For instance, a course on the Gamoteca mobile app, 'I'm here for the interview', allows users to prepare for a job interview with another user looking to practice their interviewing skills without needing to negotiate the time in their schedules to meet in real time. The interview partner can draft a question by text or video at a set time and the user can answer it at their own pace and share for feedback. Most importantly, users can send feedback to the software developers who regularly

iterate the design for interaction and experience. While several immersive learning journeys can be found for free on the mobile application, eg public speaking, Gamoteca operates as a democratised learning platform where organisations or individuals can create human-to-human, collaborative learning experiences that fit their purpose and context with the support of templates and facilitation from the team.

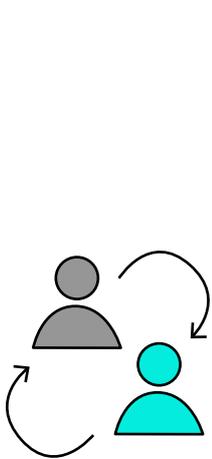
Working with several organisations in the humanitarian sector, Gamoteca identified practice, peer feedback and interaction as key elements to the acquisition and development of skills. For instance, Gamoteca supported the Norwegian Refugee Council (NRC) in implementing a coaching tool for their 'Transition to Employment' project in Jordan, when face-to-face coaching was no longer feasible during the Covid-19 pandemic. The coaching format and learning journey, created by the NRC team, allowed the coaches and job seekers to stay connected and interact with each other through the coaching experience. Gamoteca not only assisted NRC to continue to deliver support to economically vulnerable populations in Jordan at the time, the format used was effective in keeping all 300 participants enrolled and engaged in the project.

As the labour market is rapidly changing with existing and emerging skills becoming more relevant to the workforce, immersive learning experiences to practice these skills will become more and more needed. Not only does Gamoteca bring more human connection to the digital learning experience, it also enables stakeholders to collaborate in designing a learning journey that is fit for the individuals and context.

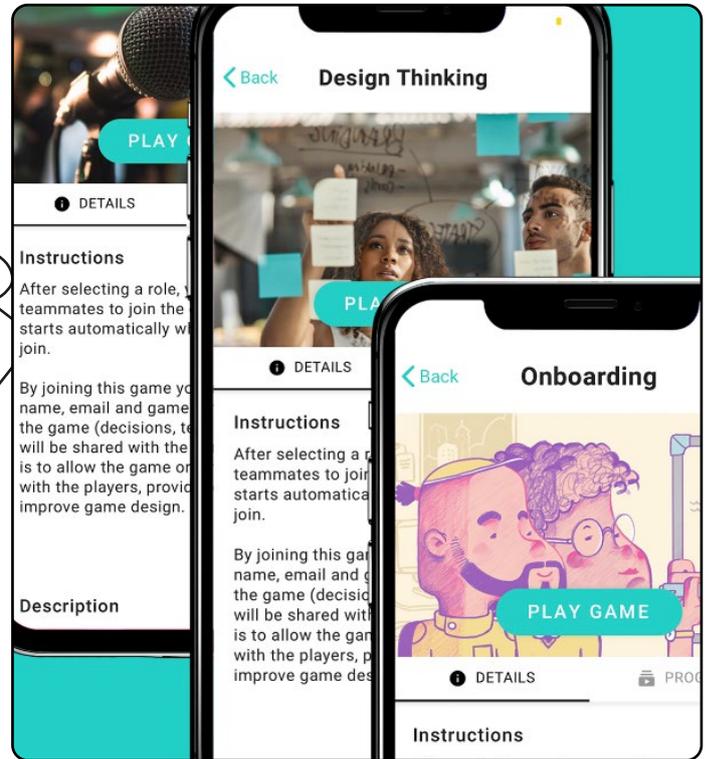
65 See, for example: CIPD (2021) Digital Learning in a Post-Covid-19 Economy. Op cit.

66 Serious game is defined as 'educational application, whose initial intention is to combine, coherently and at the same time, serious aspects, in a non-exhaustive and non-exclusive way, teaching, learning, communication, or even information with the fun aspects of video games'. ScienceDirect (nd) Serious Games [online] Available at: www.sciencedirect.com/topics/engineering/serious-games [Accessed 23 February 2023].

Figure 4: Gamoteca



Source:
Gamoteca (2023)



Collaboration and community building

Encouraging collaboration and community building among learners as well as learning providers, digital innovators and other stakeholders can help create a supportive and inclusive lifelong learning environment. This can include providing opportunities for learners to connect with one another; leveraging existing platforms to connect users with experts in the field; leveraging networks to engage with other innovators to share resources and experiences; connecting with local and national stakeholders to co-create content and learning activities that are fit for purpose and context. Fostering collaboration and community building can support the establishment of a safe and inclusive space for learners to engage with one another and help build a sense of belonging, as well as a space that is conducive to innovation. Additionally, collaboration can reduce the duplication of services and innovations, and activate assets in learning communities to maximise impact.

“ We, most of the time, work through local implementers. They can be local NGOs, civil society organisations, or they can be communities or they can be institutions, governments etc. But the idea is that there are lots of people who really know the local context well, who are the experts, who have the trust of their community... They are the ones who are there and those who will remain there, and so if we can rather bring our expertise to either help them reach people that they are not reaching yet or help them enhance the quality of the services, then it’s even more people who become ambassadors of this mandate that we have.”
Interviewee

“ There is an important need for collaboration to strengthen infrastructure.”
Workshop participant

Among many international examples, the Flipped Learning Network functions as an online community and hub where educators across the world can share and access resources, tips, tools, and more.

Box 5: Asian Productivity Organization digital learning programme

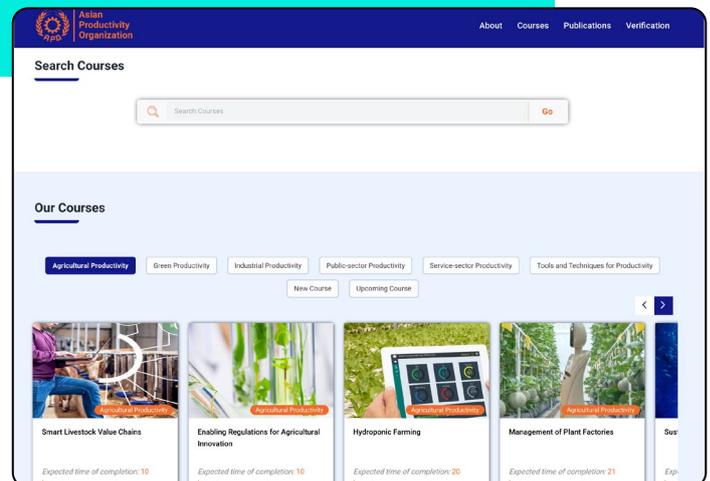
The Asian Productivity Organization (APO) was established in 1961 as a regional intergovernmental organisation and comprises 21 member economies. It is nonpolitical, nonprofit, and nondiscriminatory, established to contribute to the sustainable socioeconomic development of its members through productivity enhancement.

The APO launched its digital learning programme with the aim of meeting the increasing need for training and skill development to enable the quick adoption of emerging technologies, and the sustainable development of member economies. The APO runs two platforms, one for 'multi-country' projects and one for 'in-country' projects. In both cases the APO acts as an institution builder by strengthening the ability of national institutions to promote productivity, provide training and offer capacity building.

Through a combination of face-to-face courses, online and e-courses, the APO is fostering collaboration between member economies and encouraging the exchange of knowledge between government officials, experts and practitioners in the field.

Figure 5: Asian Productivity Organization

Source: Asian Productivity Organization (2023)



Accessibility

Ensuring that digital lifelong learning opportunities are accessible to all individuals, regardless of their socio-economic status, age, gender, or location, is essential for inclusive learning. This means taking into consideration factors such as language, technology and digital literacy, and creating digital learning resources that can be accessed through different devices and networks. All our interviewees spoke about the importance of localisation and ensuring that learning is accessible, as well as relevant. Localising products and services that are tailored to the needs and cultural context of communities is essential for fostering community building, ensuring engagement, motivation and participation so that no communities are left behind. Some of our interviewees and workshop participants, however, emphasised the importance of local organisations and stakeholders in facilitating the accessibility of the products to learners. While products can be localised by adapting languages, software and content, or providing alternative formats, human facilitation is a crucial element that needs to be nurtured and supported to make lifelong learning available to all. Stakeholders that are involved in the facilitation of products and services should be supported, and contribute to, the design and evaluation of the processes of developing and implementing the initiatives.

“ We need to provide a significant amount of care to bring educators along with us on this journey, because it’s all well and good creating a product (the technology, hardware and software) and unless the educators are supported and provided the resources, training and capacity to understand, access and feel at ease in delivering and working with the technology, it’s just going to sit on a desk, or in a cupboard, and gather dust.”
Interviewee

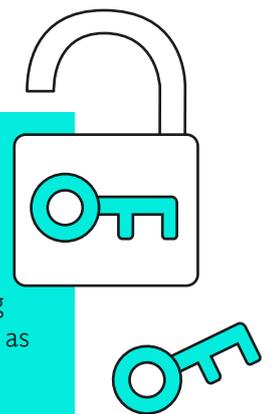
“ I think technology can really play a key role in overcoming local obstacles. But we see that in interaction with human facilitation. I think we’re really careful in taking into account the local context, the digital uses, and are very aware of the connectivity challenges.”
Interviewee

“ Platforms are used best when learning is supported by in-person mentors.”
Workshop participant

Box 6: Asynchronous internet learning solutions – Bibliothèques Sans Frontières (Libraries Without Borders)

Founded in 2007 by Patrick Weil and Jérémy Lachal, Libraries Without Borders (LWB)⁶⁷ is on a mission to improve the sense of agency of vulnerable populations by promoting access to, and accessibility of, knowledge. Working in over 50 countries and 25 languages, LWB provides access to resources that connect individuals to books and digital knowledge repositories,

expanding the reach of libraries, training facilitators in post-emergency situations as well as addressing the needs of under-resourced communities. By developing innovative methodologies and tools, LWB is reshaping the format and mission of libraries, as well as the way in which they are perceived and used by the most vulnerable populations.



⁶⁷ For more information see: www.librarieswithoutborders.org/

Digital innovation in lifelong learning: drivers and barriers

LWB was founded with the premise that the dynamic of cultural support from developed countries to least-developed ones needed rethinking. Aid may supply products such as books that are unwanted, and which tend to be irrelevant and even disruptive for the communities in receipt of aid. From working with librarians in an emergency context to curating or co-designing content that is fit for the context and community building, LWB has now expanded its tools and content while maintaining its valuable model of co-designing solutions that work for and with communities.

“ We believe that access to knowledge is one of the key factors of social inequalities today. So, we’re trying to promote access to information, education and cultural resources, so that communities have the means to create their own solutions while they face the challenges that they’re facing in their everyday lives.

Muy-Cheng Peich, director of resources, education and training, Libraries Without Borders

LWB’s three pillars of action include: tools to reduce inequality of access to education and information; resources and services to strengthen the capacities of people in vulnerable situations; and, facilitators who make the library a space for development and innovation.

Working in partnership with local organisations, LWB has been delivering tools such as the Ideas Box – a durable mobile multimedia centre and learning kit

that can be used in a school, a library, or a community centre, complete with a satellite connection, tablets, computers, cameras, books, and arts and crafts supplies. Similarly, LWB has developed the Ideas Cube – an ultra-portable and autonomous digital library, that helps individuals access thousands of educational and training resources. When connected to the internet, the Ideas Cube updates and shares all locally created content in the cloud. Additionally, LWB has more recently developed Kajou, a social enterprise technology that distributes digital content offline to disconnected people. The Kajou app connects users to Wikipedia in their native language, health literacy and nutrition information, audiobooks, educational materials, news, online courses, and more. This content is made available through either the Kajou card (an SD card for smartphones) or the Kajou Boss (a battery-operated server allowing up to 20 simultaneous users and 10 hours of battery life).

“ Half of the world’s population is disconnected or poorly connected to the internet. That’s why we’ve been working a lot on what we call offline internet solutions. Solutions that are not really offline solutions, but rather asynchronous internet in the sense that we take content from the internet, we make it available on the local server that creates a local Wi-Fi hotspot, people connect to it, and everything is local. We want to create solutions that fit the local context.

Muy-Cheng Peich, director of resources, education and training, Libraries Without Borders

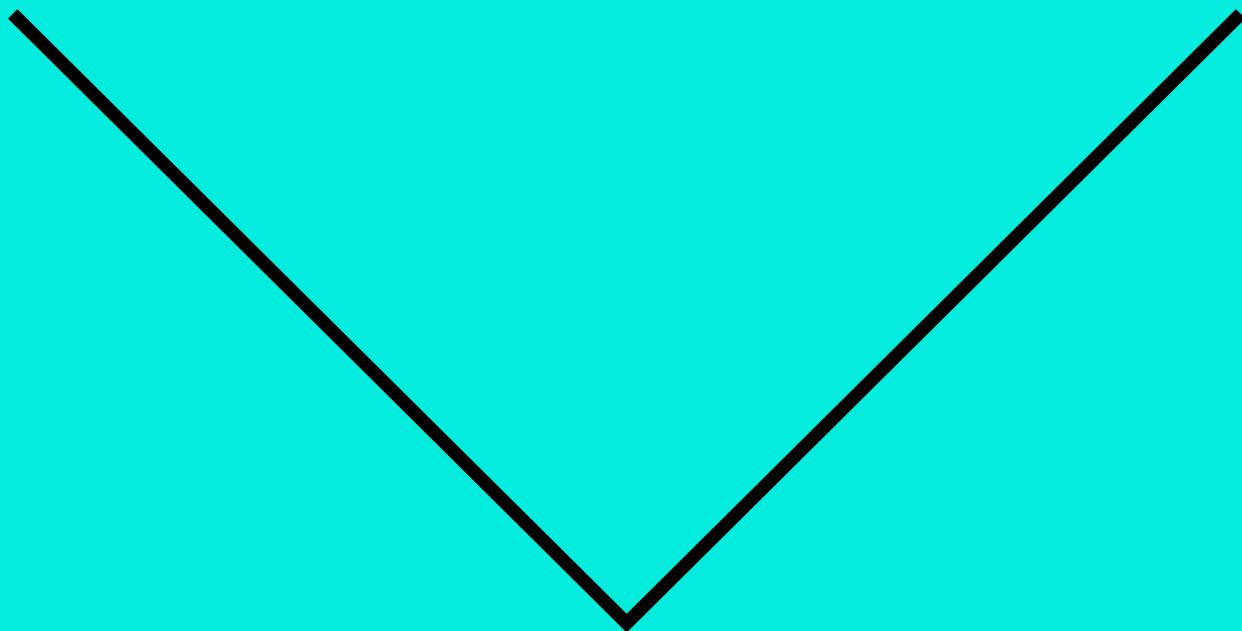


Figure 6: Libraries Without Borders Ideas Cube

Source: Libraries Without Borders (2023)

FROM LEARNINGS TO ACTION

Chapter 5



It is hard to overstate the opportunities and potential benefits of digital innovation in lifelong learning. Properly designed and deployed, digital technology can maximise the relevance, responsiveness, scalability and cost-efficiency of adult learning. It can help individuals, businesses and economies to adapt even as the pace of disruption and change continues to accelerate. But these benefits do not come free. To have impact at scale, digital innovations must be integrated with a wider system in service of inclusive skills and lifelong learning, whether local, national, regional or international.

Above all, and as emphasised by many of our interviewees, governments have a critical role in influencing change at scale through public policies and the provision of funding and resources, as well as encouraging private investment. In turn, the private sector can provide the necessary technology, resources and funding to support an inclusive digital lifelong learning system. Private companies can also play a role in developing and implementing digital learning programmes and initiatives, encouraging further growth and innovation, whether through tech companies developing new educational technology products and services, or educational organisations providing teacher training and support for the integration of technology in the classroom.

It's also not only about companies, foundations giving funding to non-profits, but about aligning objectives, and being able to co-create work hand-in-hand with the private sector to be able to build solutions that have a systemic impact... especially in terms of lifelong learning and employability, I think there's a role to play for the private sector in terms of social impact and fighting social inequalities.

Interviewee

Finally, education systems can support the scaling and integration of digital lifelong learning through the integrations of technology and digital tools in classrooms, teacher training programmes, curriculum design, and in the direction and publication of research.

If we want to transform the opportunities for women, as well as anyone, in the tech sector, they've got to be exposed to [technology, cloud computing, coding...] at a much earlier age in education.

Interviewee

But these actors cannot work in isolation. An inclusive and integrated skills and lifelong learning ecosystem, in which the power of digital innovation can be unleashed to promote economic security, will require the active involvement of all stakeholders in the public, private and third sectors. There is an urgent need to move away from a model that systemically enables competition, towards a collaborative one. Based on what we've learned, we're making recommendations, not just for governments, but for all of the different organisations who need to play a part. By working together, we can ensure that the benefits of digital innovation in lifelong learning are available to everyone who needs them, no matter where in the world they live.

Recommendations for an integrated approach to lifelong learning



National and local government

- Provide funding, incentives and regulatory environments that not only promote innovation and entrepreneurship in the digital lifelong learning space, but elevate enterprises that do so in more collaborative and inclusive ways specifically. This can support the reduction of skills gaps, skills and labour market inequalities, while promoting growth that is inclusive for economic security, social equity and individual wellbeing. This means prioritising investment in the common digital infrastructure on which both innovators and users rely for access to products. But also pursuing market-shaping activities that reward enterprises building products for underserved communities and those promoting collaboration and scaling amongst innovators.

Governments themselves have a powerful role in scaling too, for example through procuring products at scale for national education or training schemes, or setting guidelines for schools, colleges and universities' digital provision. They should use these powers wisely, **ensuring that inclusivity and collaboration are core to specifications for such large and competitive contracts as well as encouraging the co-development of solutions with stakeholders.**

Other ideas could include the **setting of experimental spaces for lifelong learning innovation**; and challenge prizes to support lifelong learning that allow for agile iteration.

- Use their role as convenors to build stronger partnerships creating communities amongst industry leaders, educational institutions, trade unions and digital innovators – for example through ministerially chaired stakeholder groups - to discuss common challenges and work collaboratively on solutions that meet each party's respective needs and **ensuring a representation of voices with lived experience are included.** These could result in, for example, a co-produced 'operational playbook' to set common guidelines for governments and employers to work with social innovators, and advise innovators in turn to know how to comply and collaborate with government and employers at various levels.

Such communities could also provide an opportunity for governments to **shape the market in sharing priority skills gaps**, based on labour market analysis, that they would like innovators to prioritise, and for the network of employers and enterprises to provide feedback on how policies and regulation could be reshaped to support them.

- Develop a supportive policy environment for lifelong learning. This means providing a clear, long-term vision – perhaps co-designed with communities of need – around the priority skills governments would like to promote, based on long-term economic policy and labour market analysis, and creating enabling policies for employers and innovations to contribute. In practice, this means considering: tax and other incentives for employers who invest in compatible training; developing evidence-led and locally-based skills taxonomies to guide employers and enterprises in a practical and local way; and more generally, promote a shift in mindset away from conceptualising 'education' as taking place in traditional locations, and promoting languages and policies that place lifelong learning throughout life and in workplaces and communities on an equal footing with schools, colleges and universities.

More specifically, this will mean **ensuring learning can be transferred between sectors and employers by government promoting micro-credentials and digital badges for completed learning**, helping these to be integrated into more traditional sectors and across countries, and embedding the infrastructure for Individual Learning Accounts and Skills Passports.



International and civil society organisations

- **Use their role as advocates** to raise awareness of the benefits and implications of digital innovations in lifelong learning, including the dissemination of case studies on what works in the field, and hubs and networks for collaboration and innovation.

Identify and mobilise a coalition of organisations that hold a vision for an inclusive lifelong learning system to create upward pressure on governments and businesses. This should include the advocacy for policies that support digital innovations in lifelong learning, digital inclusion, and digital rights. This would include a focus on funding, regulation and incentives that encourage the safe adoption of digital technologies in education and learning while centring these on accessibility, inclusion, and personalisation.

- **Use their roles as convenors to build networks and facilitate partnerships.** Provide platforms for **collaboration**, exchange of knowledge and resources, promotion of mutual support and spotlight of pockets of innovation. Financial and non-financial incentives should be provided to **maximise the accessibility of networks to smaller enterprises.** Facilitate partnerships between stakeholders in the field as well as between sectors. This should include the provision of access to like-minded organisations by introductions, and access to expertise and capabilities eg workshops and resources. Additionally, **mentorship programmes** should be offered to digital innovators to be able to manage partnerships effectively when limited by time, finances or capacity.

- **Provide support and resources** to promote an inclusive digital lifelong learning system. These may include funding to support the development and implementation of digital lifelong learning programmes, such as access to digital technologies, training programmes and resources that reduce barriers to access to learning and education. **Organisations should continue to provide policy guidance** regarding lifelong learning, digital innovation, digital public services, digital rights and online safety, promoting participatory approaches to policy development. Organisations should also focus on **capacity building** for all stakeholders in the system by disseminating knowledge (eg best practices, research findings) and providing mentorships programmes to digital innovators, particularly small enterprises.



Businesses

- **Partner with digital innovators and educational institutions** to develop inclusive and lifelong learning solutions, to futureproof your workforce as well as co-shaping solutions to the challenges societies face. This should include the provision of access to internal capabilities for digital innovators to develop team's capacities, skills and networks; and, the promotion of digital innovations on internal and external channels fostering collaboration and facilitating further partnerships. Additionally, **use their role as investors to promote participatory research and evaluation** for the adoption of emerging technologies in training and skills development opportunities, ensuring these are shared with stakeholders in the system to provide as well as tap into opportunities for improvement.

- **Offer training and skills development opportunities.** Assess the learning needs of workers to provide enhanced learning experiences. **Ensure opportunities are evaluated and that learnings are embedded into practice.** Provide access to a variety of learning resources and offer flexibility to allow for employees to learn at their own pace. Businesses should work with digital innovators to pilot training and learning products and promote the mutual exchange of data and co-designing of solutions.

- **Engage with policymakers** to share data and case studies on skills and training. Ensure that a wide range of voices are represented in these, providing transparent data on skills gaps. **Engage in dialogue to promote the mutual exchange of priorities and concerns.** Advocate for policies that support lifelong learning and **promote inclusivity**, including funding for training programs, tax incentives and initiatives to increase access to digital learning resources.



Digital innovators

- **Develop partnerships and collaborate** with local stakeholders as well as like-minded organisations to promote the exchange of capabilities and knowledge in pursuit of community building. **Local stakeholders should be embedded in processes of delivery as well as design and development.** Share resources and experiences to promote a **community of practice** and, where possible, identify duplication of work. Partnerships can be developed by attending and engaging in existing local networks, conferences, and reaching out to local authorities that are focused on the delivery of skills and lifelong learning.
- **Localise and personalise solutions.** Learning should be personalised to meet the physical and non-physical needs of individuals, taking into consideration individual learners' abilities, interests, goals and circumstances. This should include the co-design of learning innovations, by engaging with a wide range of users and collecting users' data, prioritising the safety and rights of individuals. Learning solutions should also be contextualised to meet the short-term needs and the long-term visions of communities. The localisation of products and services should include language, content and the process of implementation.
- **Engage with policymakers to share experiences from the field.** Promote the exchange of data to foster a collaborative approach as well as promoting mutual support. Advocate for increased access to learning and education, perhaps by **raising awareness of local and national skills need** and present that as an opportunity to promote the impact of your work.

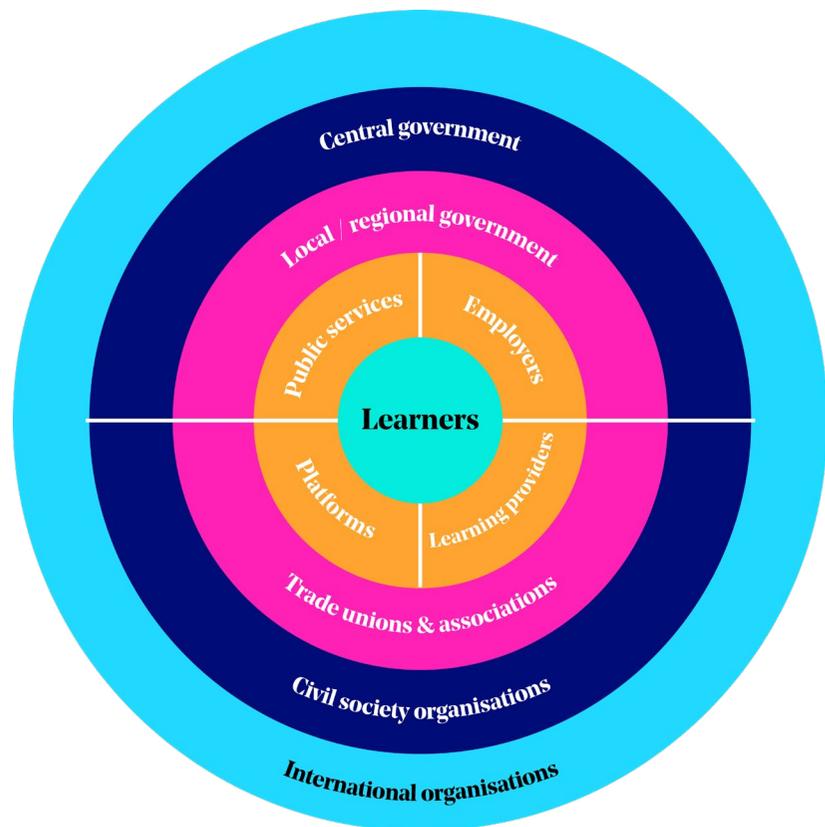
Additionally, **ensure the evaluation of impact and process of delivery.** This may include partnering with, for example, educational institutions and business to tap into and expand external capabilities. Ensure that models of evaluation are participatory and that a representation of voices are included in the data collected. Where possible, **promote impact** by both quantitative and qualitative means. Share stories, where possible, of users and other stakeholders to promote what works in practice.

APPENDIX

Chapter 6

Appendix

Figure 7: Stakeholder map



Public services

Learners engage directly with public services supporting them to access, for example, careers advice and training opportunities. These can be online, eg National Careers Service, UK, or in-person touch points, eg government funded employment agencies, or more informally through, for example, housing associations and community spaces.



Platforms

- Online learning.
- Peer learning networks.
- Technology bootcamps.
- Augmented learning.
- Digital career coaching.
- Digital credentials and skills profiles.



Employers

A key element of lifelong learning is training provided or funded by employers to enable their workforce to upskill or reskill. Employers, therefore, have a considerable impact on the lifelong learning ecosystem and the opportunities available to in-work learners.



Learning providers

Learning providers deliver educational and vocational training courses. Understanding the options available to learners, the skills courses that will help them to develop, and practical issues such as cost and time commitment, is important to help learners navigate their lifelong learning journey.



Local and regional government

Local and regional governments play a key role in shaping lifelong learning opportunities and creating access points in their localities.



Trade unions and associations

Trade unions, sector bodies and associations play a key role in representing different parts of the ecosystem. For example, citizens can join a union to represent them on work related issues such as lifelong learning



Civil society organisations

Many thinktanks and research organisations have a focus on lifelong learning and play a key role in delivering research and advocating for change. Networks provide opportunities for innovators to collaborate. For example:

- Universities Association for Lifelong Learning (UALL) international network.
- EDEN Digital Learning Europe.
- Lifelong Learning Platform (LLLp).
- AfriLabs.
- UNESCO Institute for Lifelong Learning.



Central government

National policies for lifelong learning are driven by different parts of government; these include ministries of education, economic development, skills and employment.



International organisations

International organisations such as the European Union (EU), OCED, the World Bank and UNESCO are key system actors and catalysts for the fulfilment of the objectives of lifelong learning across many countries.

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