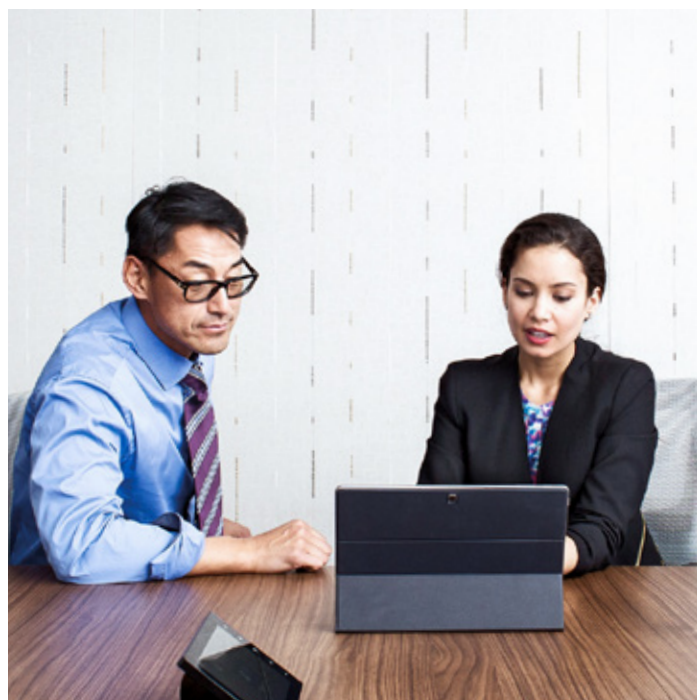


EMPOWERING — A — FUTURE READY — WORKFORCE



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Introduction



Digital technology has brought new opportunities to innovate, compete and drive economic growth. But the skills needed to make the most of those opportunities are in short supply.

Governments across the world recognize that preparing a next-generation workforce with the skills it needs is key to enabling greater opportunities and better quality of life for individuals and communities. These objectives are closely aligned with United Nations Sustainable Development Goal (SDG) #8 (which 194 countries signed on to), to “promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.”



“Thirty years ago, the importance of IT to local economies was hotly debated — were the promised productivity gains real, and were they worth the investment? Did IT create jobs or kill jobs?”

“By 15 years ago, that debate was over, as signaled by Alan Greenspan, chairman of the US Federal Reserve Board at the time, when he credited IT for the productivity boom of the 1990s. It is now accepted that IT is an integral part of any economy, local to global. In fact, it has become integral to daily life.”

– IDC White Paper, sponsored by Microsoft Canada, *How the Microsoft Ecosystem and Cloud Computing Will Create 110,000 New Jobs in Canada from 2015 to 2020*, June 2016

Transforming the way students learn, the way educators teach, and aligning to the skills employers want – and the entrepreneurial skills to create jobs – is imperative in achieving these goals. Microsoft shares these priorities with country leaders. With a keen focus on technology and extensive experience in the public sector, we work closely with government and non-governmental organizations (NGOs), schools, educators and businesses to develop the technology skills of students, empower developers and start-ups, and help today’s workers acquire the skills they need for tomorrow.

The next few chapters will speak to the skills needed for innovation, how education and programs can help provide these skills and how Microsoft and our partners help in skills development to enable job creation.

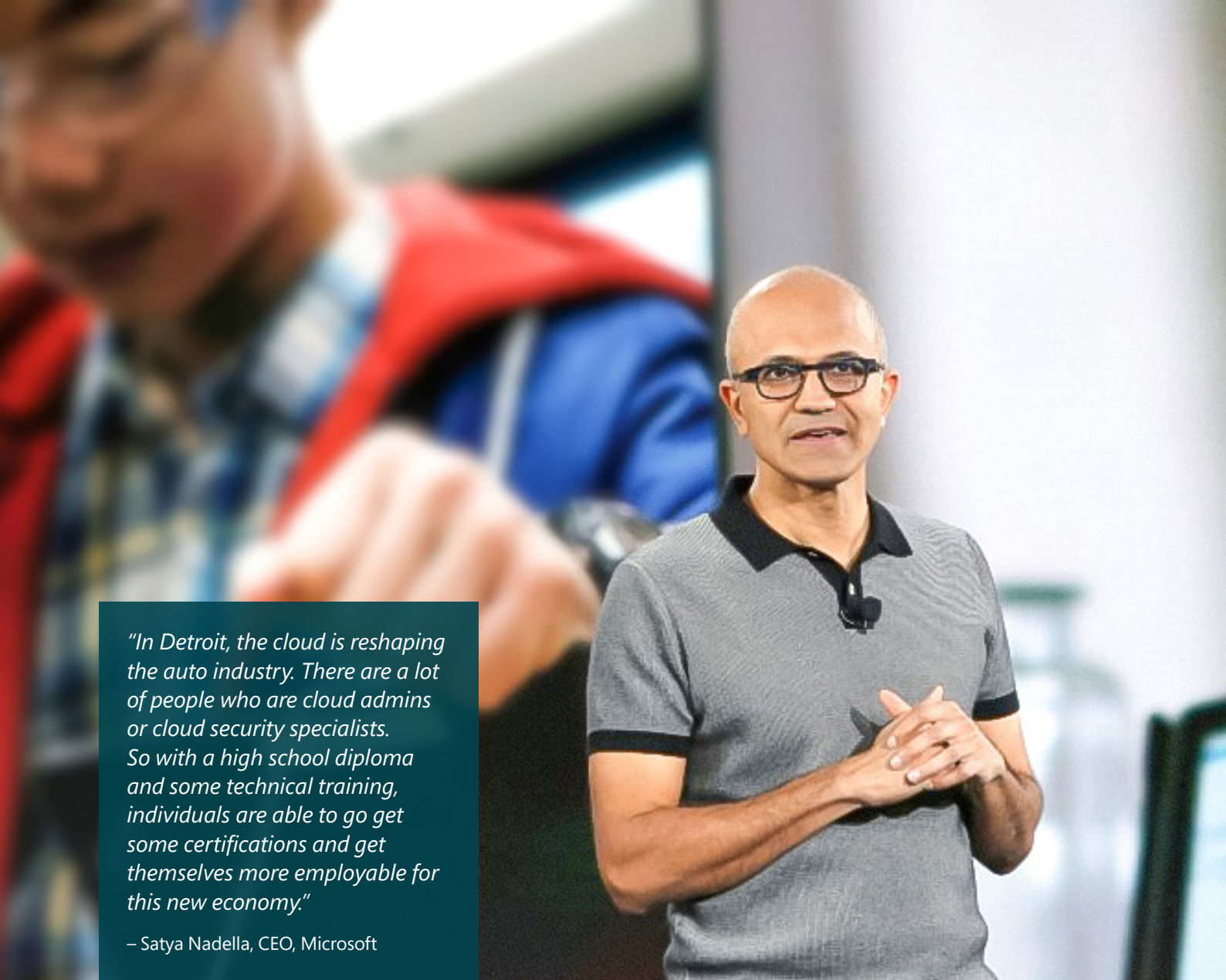
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Workforce development for economic growth



Empowering people with future-ready digital skills is a key priority for governments around the world. With technology contributing to a globalized market, the capabilities it brings for innovation and agility can be key drivers of economic growth.

Technologies such as cloud computing, artificial intelligence (AI) and the internet of things (IoT) are transforming the way all of us work, consume and interact. This fourth industrial revolution is affecting every industry and discipline, and a growing range of digital and 'soft' or business skills is needed for jobs at every level.



“In Detroit, the cloud is reshaping the auto industry. There are a lot of people who are cloud admins or cloud security specialists. So with a high school diploma and some technical training, individuals are able to go get some certifications and get themselves more employable for this new economy.”

– Satya Nadella, CEO, Microsoft

What we’re seeing is that every career is transforming into a “tech” career. More than 50% of today’s jobs require some technology skills, and experts say that percentage will increase to 77% in less than a decade.¹ New career opportunities and vocations are emerging and existing roles are evolving to include new technologies. As some traditional jobs become automated, the people who used to do them are freed to do higher level jobs or may need to develop new skills and move into other roles. Cloud and distributed computing skills are increasingly important – in fact they’ve been top of the list for employers in France, Germany, India, Ireland, Singapore, the US and Spain for the past two years, closely followed by statistical analysis and data mining.² By 2022 there will be 6.2 million job openings in cloud-based technologies.³ Businesses also want people who are good collaborators, communicators, critical thinkers, innovators and problem solvers, and they need the technology skills that can drive digital transformation.



The challenge for country leaders is to create a skills pipeline that meets those demands.

Too often – at school, college or work – people are not gaining the skills employers want. Some 40% of employers worldwide report difficulty in filling jobs – and they say skilled trades, IT staff, engineers and technicians are among the hardest skills to find.⁴ But data from a wide range of sources shows that the skills gap is getting bigger. By 2020 Europe could face a shortage of up to 900,000 skilled ICT workers⁵, and the McKinsey Global Institute predicts a global shortfall of 85 million high- and middle-skilled workers.⁶

Countries across the world face a wide range of skills development challenges that governments are looking to tackle. In fact, there are still 3.9 billion people – many of them in developing countries – who still don't have internet access,⁷ which would be the first tech priority for any country.

Programs and solutions then need to be developed to focus on career-ready skills that employers need and recognize. Start-ups and developers need to be empowered so they can innovate and create new opportunities. And as technology advances, the skills needed to engage in the digital economy – and to succeed in a world of constant change – will need continuous development too.

Governments that invest quickly in developing the skilled workforce the world needs will do more than create an economic advantage; they will empower their populations to lead innovation and growth around the world. This is a journey of lifelong learning that is powered by three key areas of focus:

- Sparking an interest in science, technology and other future-ready skills to provide a foundation for lifelong development
- Enabling every person to develop the skills businesses want so they can get a job, start a business or become an entrepreneur
- Empowering everyone, of all ages, to continue their skills development so they can advance their careers and create new opportunities.

“ Governments that invest quickly in developing the skilled workforce the world needs will empower their populations to lead innovation and growth around the world

At Microsoft we share the ultimate aim of governments: to use technology to improve education and learning, create opportunity, and raise living standards for people through gainful employment. We work with governments, educators and policymakers around the world to help achieve that goal by connecting individuals and communities with greater opportunities for education, employment, and entrepreneurship.

¹ Bureau of Labor Statistics, US Department of Labor

² LinkedIn, 2016: [The top skills that can get you hired today and tomorrow](#)

³ US Bureau of Labor Statistics, 2013

⁴ Manpower Group: [2016/2017 Talent Shortage Survey](#)

⁵ European Commission, 2015: [Digital skills, jobs and the need to get more Europeans online](#)


⁶ McKinsey Center for Government, 2012: [Education to Employment, Designing a System that Works](#)

⁷ International Telecommunication Union: [ICT Facts & Figures 2016](#)

Sparking an interest



Education is one of the most important factors contributing to personal and country-wide economic growth. To empower people to make the most of the opportunities the digital economy offers, we need to accelerate the digital transformation in our classrooms to achieve a future-ready workforce. And we need to spark a life-long interest among learners in the skills that will help them succeed in the digital economy.



71% of all new STEM jobs are in computing...
...but only **8%** of STEM graduates are in computer science

Source: Code.org

Being able to use the technology isn't enough. We're seeing increasing demand from students, parents, teachers, governments and non-profit organizations to teach young people how to create technology that can help them become innovators and drivers of opportunity and growth. The challenges vary greatly from country to country. In some areas the first step might be to enable affordable internet access for all so they can benefit from digital resources. Ensuring every citizen has an identity that can be used for learning and certification can be a challenge in some countries. Elsewhere, with those basic needs in place, the primary focus might be on encouraging an interest in subjects that will help create a skills pipeline for the future.

Promoting diversity and inclusion

Demand for science, technology, engineering and mathematics (STEM) continues to grow, but there is a significant shortage in those skills – especially when it comes to the 'T' in STEM: technology. The skills gap is widened further by the lack of women in STEM fields, especially computer science, engineering and physics.¹ Across Europe, for example, many girls are attracted to STEM between the ages of 11 and 12. But by the time they

have reached 15-16 years old their interest in STEM has dropped off significantly – giving governments, teachers and parents only four or five years to nurture girls’ passion before many turn their backs on these areas of study.²

In order to understand how the world works – everything from a cell phone to a financial transaction – it is extremely helpful to understand the underlying concepts of computer science. Microsoft supports STEM policies and education programs globally, with a focus on student outcomes across a learning spectrum including digital literacy, productivity skills, computer science and programming, and IT skills.

Our global **Microsoft YouthSpark** initiative is set up to make computer science education and digital skills available to all young people, especially girls and other underrepresented groups. YouthSpark has created educational, employment and entrepreneurial opportunities for more than 300 million youth around the world. Now it is working with

From a spark to a flame

Roxana Rugina, from Romania, began teaching herself how to code before she was 10. But as is too often the case, because she is a girl, she was steered away from a career in computing. Despite having two masters’ degrees in communications, she found herself behind a desk doing odd jobs, far removed from her love of science and technology.

Roxana reconnected with her childhood passion for computing when she was accepted to a six-month intensive programming boot camp in Montreuil, France, run by a YouthSpark-funded organization called Simplon. Now she has launched a project for Simplon in her hometown of Cluj, to help young people – particularly girls – gain the digital skills they need to obtain good jobs in the digital economy.

Code your Life

The **Code your Life** initiative is part of the worldwide Microsoft YouthSpark program. It is implemented by the 21st century competence center of the Förderverein für Jugend und Sozialarbeit in Germany. Code your Life addresses girls and boys between eight and 16 years old and offers different workshops, coding sessions and formats for each age and preference. Participants learn that coding is fun and will help them in their future education, job and skills development.

Microsoft works with local ambassadors from government and NGOs to offer training sessions at schools, working with students and teachers. Code your Life is an essential part of Microsoft’s activities around events like Girls Day, Hour of Code and EU Code Week.

Global links

In a global marketplace, collaboration and learning across geographies is essential to helping educators and learners work together, share ideas and solve problems. One example is [Skype in the Classroom](#), an online community that enables teachers to inspire the next generation of global citizens through transformative learning over Skype.

During a Skype call with a sister school in Kenya, students in Pennsylvania learned that the village's unsanitary water conditions were preventing students from going to school. They partnered with students in Kansas and Greece using Skype to find solutions to provide clean drinking water for the school and for many families in the Kenyan village. The result was Project Link, a three-country student collaboration that tackled the water crisis and allowed an entire village of students to continue their education.



governments, non-profit organizations and businesses to build the capacity of teachers and trainers and provide opportunities for all youth to learn computer science.

YouthSpark inspires young people to pursue a career enabled by technology and connects them to greater opportunities. For example, the [DigiGirlz](#) program provides opportunities for middle and high school girls to learn about careers in technology. This is key to developing their talent, as research has found that when girls don't have early experience of a field they are more likely to rely on stereotyped ideas about who might be suited to it.³ Through DigiGirlz, budding STEM and computer scientists can connect with Microsoft employees and participate in hands-on computer and technology workshops.

YouthSpark also works with [Code.org](#), which was co-founded by Microsoft to help incorporate computer science education in schools and to broaden participation among girls and underrepresented minorities. Its [Hour of Code](#) campaign seeks to increase access

to computer science by breaking stereotypes and inviting students to find out what they can achieve in an hour of coding, creating anything from emojis to games and apps. This simple activity can be a critical first step to engage more students – especially girls – in the vast range of skills that are part of computer science. For example, a recent study found that among girls with no previous experience of computer science, 55% agreed that they liked the subject before the exploratory Hour of Code – but that figure increased to 75% after they completed it.⁴

Building skills to shape the world

Learning digital skills is helping young people to develop the ‘soft’ or business skills – such as collaboration, communication, critical thinking, problem solving and innovation – that will open opportunities for them. In addition, Microsoft helps prepare students for further IT studies and careers, as well as provides learning assets for adults and mid-life career changers seeking to capitalize on opportunities in the digital economy.

Microsoft has a range of programs and solutions, from inspiring young people to explore a passion for technology to helping more advancing students and adults to gain technology skills with connection to future employability and careers. No other technology company can share the breadth and depth of technical skills curriculum and offerings connected to jobs across a multitude of industries and public and private sector opportunities. We are infusing the use of technologies including Microsoft Office 365, Microsoft Azure and Minecraft to empower schools to drive collaboration, creativity, critical thinking, communication and computational thinking that leads to employability.⁵

Schlaumäuse – Children discover language

Microsoft's **Schlaumäuse – Kinder entdecken Sprache** (children discover language) initiative supports kindergartens and elementary schools in promoting early childhood language development. Its centerpiece is a free app, which supports children aged five to nine through systematic and playful learning of spoken and written German. More than 12,000 kindergartens and elementary schools in Germany use the app to interact with the program's protagonists, Lette and Lingo, and conquer the world the German language. Microsoft visits kindergartens and schools with local ambassadors from government and NGOs, to work with the children and train educators.

More than 70,000 children from refugee and migrant backgrounds have already been able to learn with the latest version of the app, which provides information in Arabic, French and English. Another 15,000 will be enabled shortly through Microsoft's work with NGOs.



For example, Microsoft's game-based learning program [Minecraft: Education Edition](#) enables educators and learners to work together in an immersive, virtual space. The program combines spatial thinking with pixel art, giving students an opportunity to work on mathematics and visual arts objectives and empowering educators to create lessons with students that draw on their experience. The new Minecraft-based tutorial, developed by Microsoft and Code.org for the 2016 Hour of Code campaign, engaged more than 15 million learners in 119 countries.

Our flagship industry-education alliance program, [Microsoft Imagine Academy](#) gives schools and educators a full curriculum for teaching technology courses that lead to entry- and middle-level skills and industry-recognized certifications in productivity, computer science, data science, and IT infrastructure. The [Microsoft Dynamics Academic Alliance](#) allows schools and educators worldwide to use [Microsoft Dynamics](#) in their curriculum, exposing students to the latest customer relationship management and enterprise resource planning technologies. For more advanced students, [Microsoft Imagine](#) provides an opportunity to connect with resources and experiences to elevate their skills using professional developers' tools and products.



Crucially, **Microsoft Certifications** provide globally recognized technology credentials for careers, validating expertise in Microsoft technology.

Beyond leading-edge programs connecting learners to jobs of today and the future, Microsoft also invests in helping people of all ages learn the innovation and entrepreneurial skills that are essential in a competitive and dynamic marketplace. Our Invention Cycle, provided through **Microsoft Innovation Centers** (MICs), is a framework that fosters the skills required to improve imagination, creativity, innovation and entrepreneurship. It enables budding entrepreneurs to develop a clear and reproducible pathway for progressing from ideas to actions.

Empowering 21st Century pedagogy

Driving effective change in education requires holistic reform of the education system, tackling both policy and leadership issues, as well as revisiting what takes place in the classroom itself. To empower pedagogy for the future, especially in countries where spending on education is decreasing, we need to:

- focus on approaches for effective, high quality education
- accelerate the adoption of technologies that have proven value and benefits in order to scale
- be courageous about adopting new approaches and reinvesting savings in innovation, capacity building and educational research.



Inspiration for empowerment

In 2017 Microsoft Canada hosted its fourth annual YouthSpark Live event in partnership with Kids Code Jeunesse in Mississauga, Ontario. The event is aimed at increasing access to education in computer sciences and inspiring young people to explore technology and consider careers in the tech sector. Industry professionals and entrepreneurs shared their experiences and journeys through tech in a Careers in Technology panel discussion.

The code:mobile initiative, in partnership with Microsoft Canada and Ladies Learning Code, brought hands-on, interactive technology education to an estimated 10,000 children in more than 22 cities in 2016. Ladies Learning Code believes that computer programming and other technical skills are tools of empowerment, and it is their mission to ensure that all Canadians – particularly women and youth – have access to these learning opportunities.

The Microsoft Student Partner (MSP) Program at Microsoft Canada has seen student partners sharing their passion for technology with classmates, with some great engagements at hackathons at the universities of British Columbia, Toronto and Waterloo.

These programs and activities continue to inspire young Canadians across the country to pursue a career enabled by technology by increasing access to computer science education and opportunities.

Using the 'lens' of the [Microsoft in Education Transformation Framework](#), we reviewed as an example, the challenges faced in Europe and outlined solutions and practices which can be scaled up for real impact across the continent and globally. Those challenges include basic levels of numeracy and literacy among almost a quarter of European adults; lack of opportunities for higher-level use of ICT in schools to develop skills such as collaboration, self-regulation and problem solving; a need for more teacher training; and a lack of computer resources or broadband access for students. In addition, 11% of students in Europe leave education and training early, and more than 58% of early leavers aged 18-24 are either unemployed or inactive.⁶ Improving the situation is critical to enhance their chances of employment.



Europe's education system has the potential to meet current and future challenges by following key, proven principles, integrated into a holistic education transformation strategy. We can divide this strategy into two main pillars: policy and leadership issues and 21st century teaching and learning.

The Microsoft in Education Transformation Framework helps fast-track system-wide transformation by summarizing decades of quality research. This provides a short-cut to best practice, speeding up transformation and avoiding the mistakes of the past. Microsoft also offers technology architectures and collaborative workshops to suit specific needs.

Schools with visionary success

Decades into the infusion with technology in education, it is apparent that technology by itself is not an effective solution to the systemic challenges facing education today. Evidence is growing that when digital tools are used to enable a clear vision focused on specific learning goals, progress happens – and it happens more quickly than in the past. Among individual schools and small clusters of schools, the strongest success cases are seen where a clear vision for learning defines how technology is integrated.

Anytime, anywhere learning for all is one opportunity in this new era, harnessing growing evidence about how people learn and how to engage them in learning. This new system

relies on ubiquitous technology – but it is not about the technology. To capture its potential each school and education system needs to design and implement a new vision for the future of learning; one that is specific to its context and culture. That vision might seek to create deeper learning competencies, close the equity gap, increase student voice and aspirations, or other innovative goals for the future of learning. There is no one-size-fits-all vision. But whatever the goals, digital tools and resources can enable and significantly accelerate their achievement. The key is to lead vision design with clear goals for the future of learning through three key steps: define a vision, set goals that address the current situation with a focus on reaching the next stage of progress, and refine the vision through a dynamic cycle that includes strategic planning, implementation and reflections on progress.

“ There is no one-size-fits-all vision. But whatever the goals, digital tools and resources can enable and significantly accelerate achievement

Microsoft Schools and Microsoft Showcase Schools are global communities of schools engaged in digital transformation to improve learning outcomes. Schools that are starting to consider how to transform education – and integrate technology into their classrooms, buildings and lessons – can benefit from joining the Microsoft Schools program, which focuses on leading and learning. Microsoft Showcase Schools are a global community of schools engaged in digital transformation to improve teaching and learning. They create immersive and inclusive experiences, emphasizing personalized learning for their students through one-to-one learning devices and technology such as Office 365 Education, Office Mix, Microsoft OneNote, Skype and Minecraft.

¹ University of Washington, 2016: [Why are some STEM fields more gender balanced than others?](#)

² Microsoft, 2016: [Why don't European girls like science or technology?](#)

³ University of Washington, 2016: [Why are some STEM fields more gender balanced than others?](#)

⁴ Code.org, 2017: [The Hour of Code: Impact on Attitudes Towards and Self-Efficacy with Computer Science](#)

⁵ See Appendix for a list of available programs and solutions

⁶ Eurostat, 2017: [Europe 2020 indicators – education](#)

Getting a job, getting promoted



Income inequality is growing and people are struggling to find well-paying jobs because they don't have the skills and knowledge they need. At the same time, an increasing number of technology-related jobs are going unfilled. To support economic growth, training needs to be widely available to the existing workforce as well as the workers of tomorrow, giving everyone a route into a technology career.

Routes into technology careers

Collaboration between educators and industry is essential to developing the skills people need for success. Microsoft recently consulted with data scientists and the companies that employ them to identify the core skills needed, and developed a curriculum to teach a leading [Microsoft Professional Program for Data Science](#) track. Individuals can master critical skills for data science through a combination of online courses and hands-on labs,

before putting their skills to the test in a final capstone project. Completers come out with a digitally sharable credential to add to their résumé.

Professional social network LinkedIn also provides opportunities for users to learn the most in-demand business, technology and creative skills from industry experts. [LinkedIn Learning](#) provides personalized recommendations based on users' profiles and the skills that are trending in their profession.¹ LinkedIn's research also provides insights into which skills are most in demand in different areas, so professionals can develop the skills that will give them the greatest opportunities for future growth.

Reskilling for future opportunities

Microsoft is committed to helping people across varied geographies and walks of life to find new career paths in the technology industry. In the US, the [Microsoft Software &](#)

Maintaining the lead

The UK's digital technology industry is growing 32% faster than the rest of its economy and Microsoft is helping to ensure the country remains a leader in next-generation technologies.

Microsoft is committed to making sure everyone in the UK has access to free, online [digital literacy training](#) so people of all ages and backgrounds have the necessary skills to thrive.

The Microsoft UK Apprenticeship Programme was launched nationally in 2010 to give promising, motivated young people a vital first step in their ICT careers.

We are also recruiting an extra 30,000 digital apprentices for our network of 25,000 UK partners, as part of a program that offers technical qualification-led training so learners can continue their development and attain the skills they need to gain a technology based role.

And we're helping to create the next generation of cloud experts in the UK through the Azure Apprentice program.

From drop-out to inspiration

When Joshua Uwadiae was expelled from school in London at the age of 15 he saw a future selling drugs and running with a local gang. Instead, Joshua enrolled in an apprenticeship program run by QA in partnership with Microsoft's Get On Initiative. The program educates young people in computer systems and contributes to Microsoft's YouthSpark initiative to help young people across the globe launch careers and improve their communities.

Joshua discovered a passion for technology and mastered soft business skills through the apprenticeship. Within five years he was making his mark as an IT manager at an international service organization. Now, equipped with vital skills and confidence in his potential, Joshua has started his own business. He also works to inspire other young people like himself to learn the skills they need to transform their lives.



The Garage Internship program

The Garage Internship program invites university students studying computer science, design and human-computer interaction, and related fields to Microsoft Vancouver for an internship like no other. This intensive program centers on building apps for Microsoft's newest and most exciting platforms and devices. The Garage is a community of interns, employees, and teams from across the company who come together to turn their passion into projects. It's also the official outlet for experimental projects from Microsoft. We use this outlet to get our intern-created apps in the hands of customers for fast feedback and continuous improvement.

A recent project, Write Ideas, came from an intern from the University of Alberta. The app gives students a pre-writing tool for their work, providing the structure and space for them to speak, type and draw their ideas. Write Ideas was launched by Garage interns in summer 2016 as an invite-only program. Since then we have learned a lot about how to make it more engaging and improve its performance for all students.

The Garage program is a safe ground focused on the bleeding edge of experimentation helping Microsoft be faster and learn by doing. The students, on the other hand, improve their tech and design skillsets and are encouraged to embrace the lean start-up model, with 90% of them returning to Microsoft to pursue full-time careers.

[Systems Academy](#) helps current and past service members direct their military experience and skills into a new civilian career in IT.

Microsoft is also helping people with refugee status and migrant populations to develop the skills they need to succeed in the digital workforce. As an example, the [Microsoft Imagine Academy](#), with Industry Recognized Certifications in partnership with Pearson Education, is creating opportunities for 20,000 refugees to gain globally-recognized industry certifications that can qualify them to pursue in-demand jobs in the technology sector. People with

MIC Jordan: empowering Syrian refugees

The Microsoft Innovation Center in Jordan (MIC Jordan) aims to foster innovation and create capacity in the local software economy that focuses on local skills and job creation, strengthening innovation and driving competitiveness. It runs numerous programs that help develop local IT skills, provide support to local start-ups and companies, and give students opportunities to create, innovate, and build successful careers in the ICT sector.

Jordan is home to many people of refugee status, most recently welcoming large numbers of people from Syria. MIC Jordan's Innovation Mindset Workshop is helping these people to create the entrepreneurial mindset that will enable them to find employment, start their own business and rebuild their lives, whether they return to Syria or find a home elsewhere.

refugee status will have access to Microsoft's technology and curriculum so they can learn or re-learn the skills they need to participate and succeed in the emerging digital economy.

Aligned with the United Nations Development Programme, World Food Programme and International Labour Organization, Microsoft is also investing in economic assessments to better understand employment opportunities and areas for refugee engagement in six countries affected by waves of Syrian refugees, including Egypt, Iraq, Jordan, Lebanon, Syria and Turkey.

And we're partnering with Mercy Corps to support the development of a 12-month program to deliver training, counselling, and psychosocial support to 10,000 refugee and migrant youth, to enhance their social and emotional wellbeing, learning and employability.

¹ Monthly fees apply

Creating jobs and opportunities



Lifelong learning is essential to develop the skills needed to create and take advantage of the opportunities enabled by the digital economy. Technology continues to evolve, and so do the industries that are being transformed through its use. Existing job roles are changing, and new skills are needed for jobs that didn't exist five years ago. Microsoft is focused on helping people around the world to upskill, reskill and develop the entrepreneurial skills they need to drive innovation and opportunity.

Skills in Microsoft Azure are in particularly high demand because they provide the scalability, security and capability organizations need to compete in the new digital economy, backed by a global ecosystem of partners and resources. But as demand for these skills continues to grow, the lack of skilled talent remains one of the biggest challenges facing large organizations and start-ups alike.

Empowering developers

Developers with the right skills are increasingly in demand, to help existing organizations move forward or to create innovative solutions. They need up-to-date skills that reflect the latest advances in technology, but they also need the support of a community to help them grow.

Microsoft's investment in this area includes support for cloud training in all aspects of Azure through MICs. Massive open online courses such as the [Microsoft Virtual Academy](#), Cloud + Enterprise University Boot Camps and the [Microsoft Professional Program](#) provide a digital certificate of completion to share on professional networking sites like LinkedIn. In the UK, the recently announced Microsoft Cloud Skills Initiative will train 500,000 people in advanced cloud technology skills in the next three years. IT professionals and developers can also learn about the latest technology developments at Microsoft's demo days.

Developers in health, education and government industries need to know they have the skills to transition their offerings to the cloud in a secure, scalable way. Microsoft partners can develop those skills by attending free [DevCamp](#) events which provide instructor-led



Healthcare without walls

Health tech start-up RingMD, hosted in the Microsoft Cloud, is giving millions of people access to healthcare by connecting patients to doctors around the world. This start-up was founded by young entrepreneur Justin Fulcher, who was traveling across Southeast Asia when he saw a man drinking water from the ground in Jakarta, oblivious to the dangers that the water might pose. Justin only had a smartphone with him. It gave him the idea to start a company that connected doctors to anyone with a smartphone, so they could receive proper medical advice via a mobile device. Now, instead of having to travel to appointments, patients simply sign up to the RingMD platform for consultations via video link. Conditions that do not require a physical examination can be remotely diagnosed and treated. Patients can also wear a device on their wrist which instantly transmits their pulse, blood pressure and other vital signs to their doctor, who can use the data to help them make more informed decisions about their health.

training, lectures and hands-on labs to help them set up development environments and build solutions using the Azure and Office 365 platforms.

With Azure skills in place, developers are ready to deliver the expertise and innovation that organizations want. Microsoft's partner ecosystem provides continuing support in helping to put developers, start-ups and SMEs in front of the organizations that need their skills so they can identify opportunities to expand and, in turn, create jobs for others.

Empowering start-ups

Many people don't simply want to find a job; they want to create opportunities, lead through innovation and change the world for the better – but they don't necessarily know how to do it. Developing next-generation skills is about empowering those people to make their vision a reality.

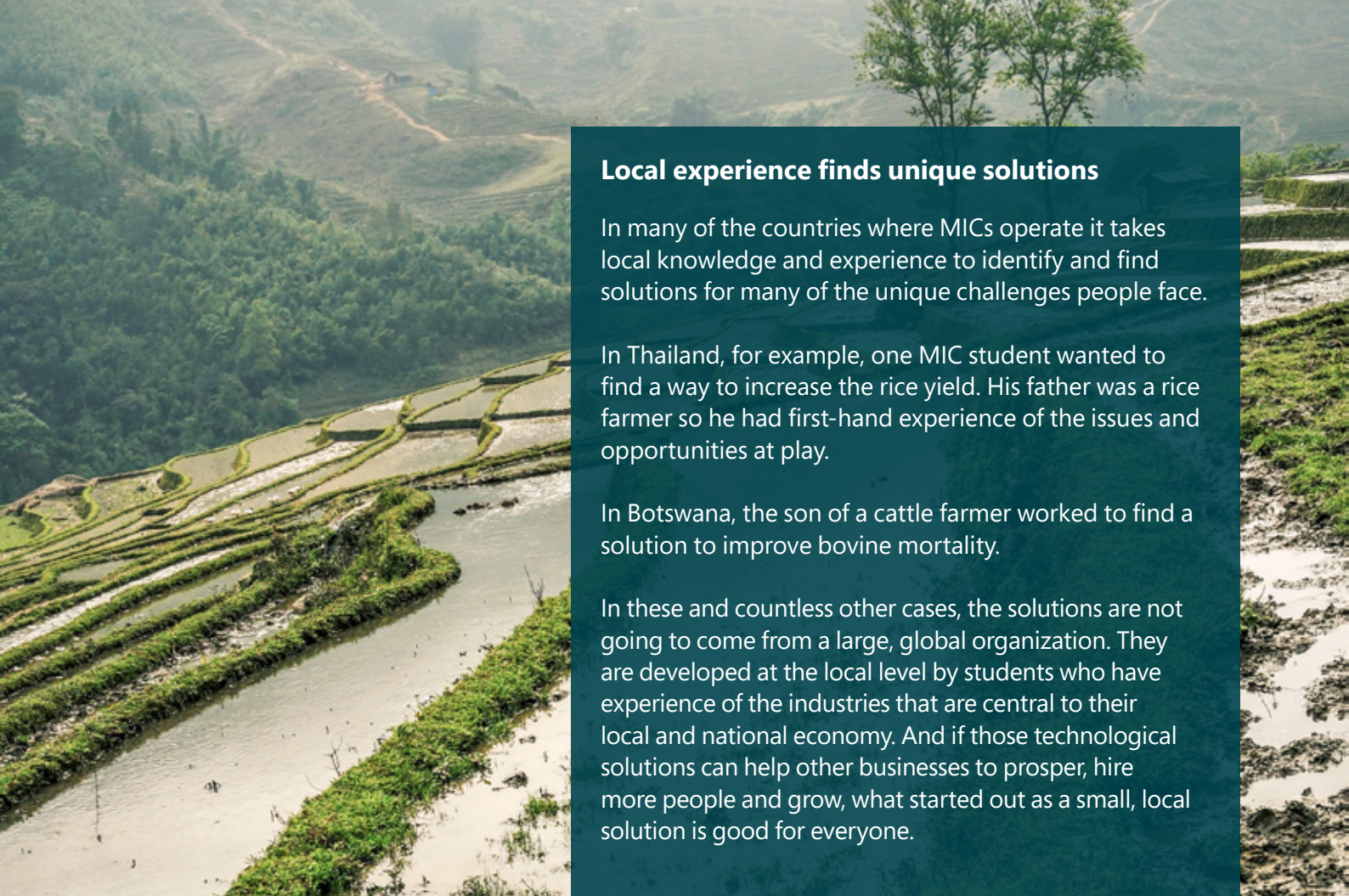
Partnering for growth

Microsoft partnered with acceleration hub Growth Africa to launch the *#Insiders4Good* East Africa Fellowship, which supports emerging entrepreneurs who have innovative social business ideas with the potential to improve their communities. *#Insiders4Good* is a global community of people using technology to create meaningful programs and projects for social change through entrepreneurship. Fellows receive a suite of Microsoft hardware and software and mentorship from local and international leaders to help them test the viability of their ideas and develop a sustainable business model.

Affordable access

Equitable access to education and meaningful opportunities is high on national agendas around the world. Around 3.9 billion people – many of them in developing countries – are not connected to the internet so they cannot regularly access the resources and opportunities of the digital economy.

Microsoft's *Affordable Access Initiative* partners with local internet provider entrepreneurs to make that connectivity possible using TV white space – the unused bandwidth between television channels. The initiative currently supports 26 projects in 11 countries that are helping to get consumers, businesses, schools, community centers and police stations online for the first time. For example, in Jamaica Microsoft has partnered with USAID, the Jamaican Government's Universal Service Fund and mobile operator FLOW to connect more than 30 rural schools, community centers, healthcare clinics and police stations, enabling access to content and cloud-based applications and services. And recently in the US we made a *commitment* to help connect rural America to new opportunities as well as provide digital skills training.



Local experience finds unique solutions

In many of the countries where MICs operate it takes local knowledge and experience to identify and find solutions for many of the unique challenges people face.

In Thailand, for example, one MIC student wanted to find a way to increase the rice yield. His father was a rice farmer so he had first-hand experience of the issues and opportunities at play.

In Botswana, the son of a cattle farmer worked to find a solution to improve bovine mortality.

In these and countless other cases, the solutions are not going to come from a large, global organization. They are developed at the local level by students who have experience of the industries that are central to their local and national economy. And if those technological solutions can help other businesses to prosper, hire more people and grow, what started out as a small, local solution is good for everyone.

Start-ups are the engines of innovation – they challenge the status quo, disrupt stagnant industries and bring new services to customers to help solve problems. At Microsoft we look for companies that are building global solutions and help them go to market, scale up and become successful world-class companies. Our goal is to take companies from entrepreneurship to enterprise.

For more than a decade Microsoft has focused on the worldwide development of local innovation ecosystems and partnered with a variety of NGOs, universities, government, and private companies to establish a global network of more than 100 MICs. These community-focused centers provide a hub of world-class resources and support including student training, job enablement, start-up incubation and engagement in projects that help companies and governments solve local challenges. The MICs and their programs form the heart of the 'local software economy' that is vital to economic growth and productivity for cities and nations, as a collaborative venture between developers and industry. They are uniquely positioned to help governments achieve their goals of growing SMEs through entrepreneurial ecosystem development, helping local and regional governments become 'Silicon Valleys of the Future'.



AI and Microsoft Canada

To create more opportunities for future generations and equip them with future technologies, Microsoft Canada is dedicated to making AI more accessible and valuable to everyone and ultimately enabling new ways to solve some of society's toughest challenges. AI is a catalyst for digital transformation and Microsoft Canada is supporting the entire innovation lifecycle. We are investing in the ideation and research phase at the University of Montreal (\$6 million research grant) and McGill (\$1 million research grant), and we help bring those ideas to market by working with Element AI to accelerate entrepreneurial uses of the innovations. As these Canadian innovations gain success we help them reach a wider audience, as illustrated by our acquisition of deep-learning start-up Maluuba.

The **Microsoft Accelerator** program works with start-ups around the world that are looking to go beyond the development of their product, to grow and scale successful and sustainable businesses. Accelerators in start-up hubs around the world – including Bangalore, Beijing, Berlin, London, Seattle, Shanghai and Tel Aviv – empower entrepreneurs with the tools, resources, connections, knowledge and expertise they need. During and after these four-month, tailor-made programs we serve as a strategic partner for start-ups and provide unparalleled routes to market by connecting them with our global network of customers, partners, VCs, business mentors and technical experts.

Entrepreneurs shape our future, and start-ups are often solving problems at the edge of what is possible with technology. They might be harnessing AI to enable inclusive growth and positive impact on society, or using big data and analytics to enable deep insight that will support the solution to a problem. That's why **Microsoft Ventures** partners with visionary entrepreneurs looking to drive digital transformation, to help them make their vision a reality.

Unlocking our digital future



Governments and country leaders face a spectrum of challenges as they tackle the United Nations Sustainable Development Goals relating to education and economic growth. For some, affordable internet access is the priority, while elsewhere the focus is on inspiring more girls and minority groups to develop the future-ready digital skills that businesses want, or helping refugees to reskill for a better future. Data and cloud computing are at the center of a digital revolution that is changing the role of the workforce, and technology skills combined with collaborative, critical and creative thinking are the building blocks for personal and economic growth.



Microsoft shares the commitment to empower individuals and communities by unlocking the potential of students, educators, developers and entrepreneurs to thrive in a global, digital marketplace. Through ongoing investments in research, programs and technologies we have developed a deep understanding of the issues and opportunities at play. And we've applied that knowledge to help students, teachers, today's workers and tomorrow's entrepreneurs develop the skills and ideas that can change the future of their communities.

We're working with governments, educators, policymakers and other organizations around the world, providing our insights, technology expertise, innovation and vast industry experience to help them develop a future-ready workforce that can support future, sustainable economic growth and opportunity for all.

We invite you to review the Appendix for more resources and visit www.microsoft.com/empowering-countries to learn about our work with governments and country leaders to unlock our digital future.

#MSFTempowers

Appendix

The following Microsoft programs and solutions enable 21st-century skills development for young people, more advancing students and adults.

DevCamps

DevCamps are two days of 300-level instructor-led training on how to build solutions using the Azure and Office 365 platforms. Other topics include modern cloud apps, DevOps, Infrastructure as Code, and the Docker platform. All labs support .NET, Java, and Node.js, so developers can use their favorite programming language.

Hacking STEM

Hacking STEM provides hands-on experience with maker space and Microsoft Excel. STEM lessons and hands-on activities are introduced regularly for teachers to build affordable scientific instruments and visualize data across space, earth, life and physical sciences curricula with students. Lesson plans are written by teachers to enrich STEM classes with activities and assessments aligned to middle school/secondary school level standards.

Helping Veterans Find Tech Careers

U.S. military service members transitioning to civilian life find themselves challenged to translate their military skills and accomplishments into terms that employers can understand, and to identify the careers that will help them support their families and build a rewarding future. Microsoft is aiming to bridge that gap: to add a layer of technical training that brings transitioning service members into employer networks and civilian careers through the [Microsoft Software & Systems Academy](#) (MSSA)

Microsoft Dynamics Academic Alliance

The Microsoft Dynamics Academic Alliance (DynAA) aligns with educational institutions worldwide allowing schools and educators to use Microsoft Dynamics in their curriculum, exposing students to the latest customer relationship management and enterprise resource planning technologies to give them a competitive advantage for the job market globally.

Microsoft Imagine Academy

By joining the flagship industry-education alliance program, [Microsoft Imagine Academy](#) (MSIA), schools and educators gain a full curriculum for teaching technology courses that lead to industry-recognized certifications in productivity (Microsoft Office and other software tools); computer science (preparing students for college and career roles in software and app development); and IT infrastructure, which provides the core technical skills required to build a sustainable technology career managing infrastructure for cloud, clients, devices databases and Office 365.

Microsoft Imagine

For more advanced students, [Microsoft Imagine](#) provides an opportunity to connect with the resources and experiences to elevate their skills using the developer tools and products used by professional developers. The program, which includes competitions for varied levels and interests, helps students to develop their ideas and bring them to life – using the future-ready skills and tools that will create opportunities for them in the world of work.

Microsoft Certifications

We have brand new certification paths to reflect today's cloud-focused jobs, helping you to get hired, get ahead, be productive faster, and to receive the recognition you deserve. Why get certified? [Microsoft Certifications](#) give you a professional edge by providing globally recognized industry endorsed evidence of skills mastery, demonstrating your abilities and willingness to embrace new technologies.

Microsoft Innovation Centers

[Microsoft Innovation Centers](#) (MICs) are local hubs that provide resources and support for students and entrepreneurs, helping to accelerate the creation of new companies, jobs, and growth of the local ecosystem. MICs operate in over 100 locations worldwide, embodying partnership with local government, universities and industry partners.

Microsoft Professional Program

The Microsoft Professional Program (MPP) includes a leading Data Science curriculum offered in a massive open online course (MOOC) environment leveraging an open Azure platform. It teaches functional and technical skills students need to be successful in careers such as data analyst, business intelligence and data scientist. The curriculum includes online courses, hands-on labs, and concludes with a capstone project. Individuals completing the full series of courses can earn a digitally sharable credential that confirms mastery of these critical skills.

Microsoft Schools programs

[Microsoft Schools](#) and [Microsoft Showcase Schools](#) are schools engaged in digital transformation to improve learning outcomes.

Microsoft Schools are focused on leading and learning. Schools which are working to consider how to transform education and integrate technology into their classrooms, building and lessons would benefit from joining the Microsoft Schools program. These schools may be just starting to explore Microsoft solutions, programs or devices in small ways but have signaled an intent to do more and be more. By registering and joining the Microsoft Schools program, schools receive the following benefits:

- Recognition and promotion via social media and other Microsoft channels
- Inclusion in an exclusive global online professional community for the entire leadership team of the school
- Access to partner product trials and Microsoft early adoption opportunities and pilots
- Opportunities to share their expertise with world-renowned educators and specialists to scale their innovations
- Consulting opportunities within the Microsoft in Education ecosystem
- Eligibility to join invitation-only special events from Microsoft
- Support to share success stories using Microsoft solutions with peers and policymakers
- Support to host tours and events from local and international visitors, and Microsoft executive and field teams to view Microsoft solutions in action
- Promotional materials including digital signage, signatures, and other resources
- Support for the work of their Microsoft Innovative Expert Educators

Microsoft Showcase Schools are a global community of schools engaged in digital transformation to improve teaching and learning. Showcase Schools create immersive and inclusive experiences that inspire lifelong learning, stimulating development of essential life skills so students are empowered to achieve more. Showcase School leadership teams are part of a professional community that amplifies the use of technology to drive school-wide transformation and efficiencies. Microsoft Showcase Schools emphasize personalized learning for their students through 1:1 learning devices and learning with current technology such as Office 365 Education, Office Mix, OneNote, Skype, Minecraft, and more.

Microsoft Student Partner Program

Microsoft Student Partners (MSPs) are on-campus student leaders with a passion for sharing technology with their classmates. MSPs gain leadership experiences, build career skills, and get exclusive access to the most innovative Microsoft people and technologies. They might find themselves leading a hackathon, mentoring computer science students or unlocking the next great idea with their team.

Microsoft Virtual Academy

The Microsoft Virtual Academy (MVA) portal and curriculum access provides free, self-paced online training for developers, IT pros, data pros and students to get started or boost skills for the workplace on the latest Microsoft technologies. The curriculum is comprised of videos and assessments led by industry experts.

Minecraft: Education Edition

Collaborative, creative learning is being enabled in classrooms across the world by Microsoft's leading game-based learning program [Minecraft: Education Edition](#). The program enables educators and learners to work together and create learning opportunities in an immersive, virtual space. By combining spatial thinking with pixel art, the program gives students an opportunity to work on mathematics and visual arts objectives and empowers educators to create lessons with students that draw on their experience. The new Minecraft-based tutorial, developed by Microsoft and Code.org for the 2016 Hour of Code campaign, engaged more than 15 million learners in 119 countries.

MOC On-Demand

Microsoft Official Courses (MOC) On-Demand is a blend of video, text, hands-on labs and knowledge checks to help build Microsoft technology skills. The classic textbooks have been digitized for professionals or students in advanced technology skills programs pursuing new skills and credentials such as the Microsoft Certified Professional (MCP). The MOC On-Demand award-winning curriculum is available through a Microsoft Learning Partner or to education institutions as part of membership in the Microsoft Imagine Academy program.

STEM EDU apps

A host of STEM-related education apps are available through the [Windows 10 Store](#) and [Windows 10 Store for business](#) and then managed via [Microsoft Intune](#) and the [Set Up School PCs](#) app. These apps include LEGO Education WeDo 2.0, Arduino IDE and the Virtual Robotics Toolkit, and each leverages, showcases and differentiates the strengths of Windows 10.

Microsoft also developed the programming environment and two popular, easy-to-use code editors for the [BBC micro:bit](#), a pocket-sized computer that introduces children to coding and lets them open up a whole new digital world for themselves. Microsoft Education is working closely with BBC micro:bit and the British Army to inspire UK school pupils through the "[Race for the Line](#)" [BBC micro:bit Model Rocket Car Competition](#) which will reach an estimated 112,000 students at 4,000 schools across the UK.