

APEC DIGITAL READINESS CHECKLIST

APEC Human Resources Development Working Group, May 2021



INTRODUCTION

COVID-19 has accelerated the digital skills gap and created more urgent reasons for all stakeholders (governments, employers, academia) to invest in digital upskilling and reskilling of the workforce, as digital skills are now a prerequisite for all workers. Under the **APEC Roadmap to Closing the Digital Skills Gap by 2030** endorsed by the APEC Human Resources Development Working Group (HRDWG) in 2019, “digital skills” is defined broadly. They include skills required for workers in areas such as data science and analytics (DSA)¹, artificial intelligence, cybersecurity, digital literacy, and for jobs that do not exist yet, using technologies that have not yet been invented.²

COVID-19 has resulted in schools shut all across the world. Globally, over 1.2 billion children are out of the classroom. As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms. For employers, the coronavirus pandemic has accelerated a trend in workplace dynamics that was already underway through automation and artificial intelligence (AI), shifting marketplaces, and changing workplace roles. For governments, COVID intensifies the need for digitization of government services and processes, along with shaping how the digital revolution affects business and society.

APEC Trade Ministers acknowledged this impact of COVID-19 on the digital economy in their statement in May 2020 pledging to “Harness the opportunities of the digital economy and technologies, through utilization of smart working solutions that enable seamless international business and cross border trade.” This includes strengthening APEC’s digital agenda with fresh perspectives and innovative means to navigate these new realities together. Further, Malaysia has prioritized its 2020 APEC host year to contributing to a “more inclusive economic participation through the digital economy”, including addressing a shortage of digitally-skilled workers, which can impact productivity growth and lead to job losses. Women are particularly vulnerable.

To help APEC governments, employers, and academia understand their levels of preparedness for jobs in the digital age and to support efforts to upskill and reskill workers amidst COVID-19, this APEC Digital Resilience Worker Readiness Checklist provides a set of options and resources for APEC member economies to draw from on a voluntary basis.

The Checklist is intended to serve as a resource for all stakeholders in APEC economies with the ability to influence, develop and implement policies and programs to close the digital skills gap – these may include labor, education, and economic officials in APEC member economies; the private sector; academia; and other stakeholders.

The Checklist is formatted in two versions: 1) a collective Checklist for economies to consider, or 2) individual stakeholder Checklists within an economy.

¹ In 2017 APEC Project DARE (Data Analytics Raising Employment) convened an Advisory Board of employers, universities, and governments from 14 economies to identify a set of industry-driven [Recommended APEC Data Science & Analytics Competencies](#) and Recommendations for Action.

² This Roadmap’s definition of digital skills is focused on digital skills specialists rather than non-specialists.

APEC DIGITAL RESILIENCE WORKER READINESS CHECKLIST

1 – Infrastructure

2 – Availability of Learning /
Training

3 – Skills/Pedagogic Models

4 – Industry and Partnerships

5 – Perceptions of Individual
Workers/Learners

6 – Resources

1 – INFRASTRUCTURE

A well-developed broadband infrastructure is foundational to providing and enhancing the connectivity of a digitally enabled workforce.

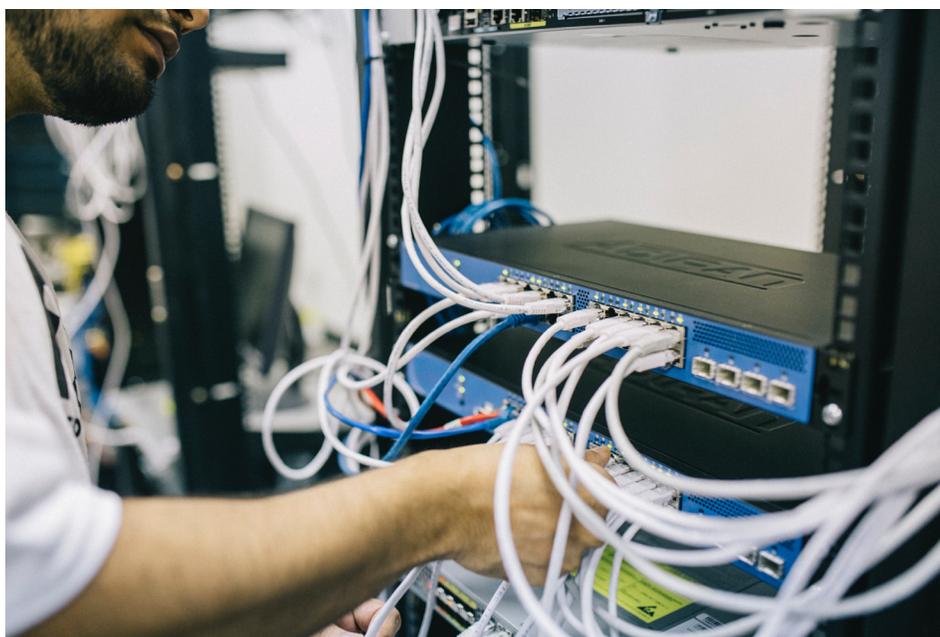
Resources: [Policy Guidance on Broadband](#)

Access

- To what extent does your economy provide household broadband and mobile internet access?
- To what extent does your economy provide students with access to the Internet at school or at home? This could include affordable or low-income Internet services, either publicly or privately supported.
- To what extent are efforts being made to distribute Internet-enabled devices (cell phones, PCs, laptops, tablets, etc) to students who do not have access to them, especially during the move to online learning?
- To what extent does your economy support providing broadband/internet access to schools and faculty?

Coordination

- Has your economy identified a government agency to lead on the coordination of broadband access?
- Can you identify the government agencies handling:
 - Digital skills definitions
 - Worker training
 - Education programs
 - Privacy and security of information (Stored, accessed, and processed electronically) issues
 - Broadband access





2 — AVAILABILITY OF LEARNING/TRAINING

To facilitate a reduction in skills mismatches, economies can develop tools to help employers anticipate and articulate the digital skills they seek and clarify digital skills definitions.

Resources: [Global Competitiveness](#), [Education](#)

Government Resources

- To what extent does your economy spend on higher education (at the state and local level), including specifically on developing curriculum to address the digital skills gap?
- Are there government incentives for education and training providers to offer digital skills to workers or learners?
- Are there government subsidies (for example, grants to community-based organizations/educational institutions) to sponsor apprenticeships at the employer level?
- Does the majority of your population gain digital skills necessary for the digital economy in primary or secondary education?
- How is your educational system keeping updated on technological change?
- Which sectors within your economy, outside of the IT sector, are being prioritized with respect to developing a more digitally skilled workforce?
- How have your educational policies and budgets been impacted by COVID-19, including access to scholarships?

Education Content

- Are elementary, middle, and secondary schools focused on STEM education and include foundational skills such as:
 - Problem solving
 - Creativity
 - Inquiry skills
 - Math & Science Skills
 - Engineering-Design Thinking
 - Critical Thinking
 - Collaboration
- Has digital skills curriculum been integrated in all K-12 schools?
- Do your higher education institutions:
 - Require digital skills development
 - Require students take a course in digital skills development
 - Offer academic credentials related to digital skills including: data science, cyber security, cloud, and AI
- How many students graduate annually with academic credentials in digital skills?
- How many digital credentials exist to date?
- Outside of traditional higher education degrees, to what extent are (if any) micro credentials, badges, or other forms of training and education for digital skills recognized by employers as proof of a potential employee's skills during the hiring process?
- To what extent are adult learning opportunities through libraries, and community centers focused on digital literacy and workforce skills?
- To what extent are existing accredited programs teaching digital skills available online versus brick and mortar?
- To what extent are students participating in an internship, apprenticeship, or other authentic work experience or work-based learning opportunities prior to entering into the workforce?

3 — SKILLS/PEDAGOGIC MODELS

The availability of digital skills curriculum is essential throughout the lifecycle of a student’s learning to meet the ever changing demands of the labor market, regardless of levels of income.

Resources: [Skills Index](#)

Tools

- To what extent are there economy-wide skill ontologies and definitions related to digital skills?
- Are there central definitions for occupations related to digital skills; how often are these definitions updated?
- Has the government supported or accredited any diagnostic tools to understand digital fitness? Has the private sector developed any such tools?

Skills Gap Understanding

- Is there an understanding in your economy of the digital skills gap?
- Has there been an assessment of which jobs not traditionally seen as “technology jobs” today require some degree of digital literacy? Take, for instance, a mechanic—it used to be enough to know how to repair an engine, but today’s mechanics also need to understand the software and applications built into modern cars.
- What extent of the population is estimated to need digital skills for their jobs: across white collar, blue collar, low skill?
- What extent of the population will require additional training in digital skill development in order for workers to thrive in a modern workplace/economy?
- How is your economy measuring the skills gap pre- and post- implementing programmatic interventions?
- How can economies encourage/motivate employers to provide skills development opportunities in the workplace, especially now that we have seen how quickly education can be moved to online learning during the pandemic? What type of partnerships and programs work successfully?

Equity and Access

- What type of grants and subsidies or any measures leveraging private sector investment are provided by the government in direct support of providing digital skills development of all citizens?
- What efforts are being made to provide women and youth more educational opportunities to participate in the workforce and close the digital skills gap, as well as those individuals with challenges (learning/ academic, language, physical, mental)?
- To what extent are ethnic minorities accommodated in learning digital skills in their language? In addition to language and cultural differences, other challenges like learning/academic, physical and other differences are gaps to consider too. To what extent are learning/academic and physical disabilities accommodated in learning digital skills?
- Is digital literacy viewed as part of ongoing efforts to support equity, diversity, inclusion, and access to the workplace?
- Post-Covid, will Ministries of Education and digitally-based employers pursue more collaboration in order to close educational gaps and address equity and access issues such as the current collaboration between Uber and UNESCO and DiDi? (click [here](#) to read news release)

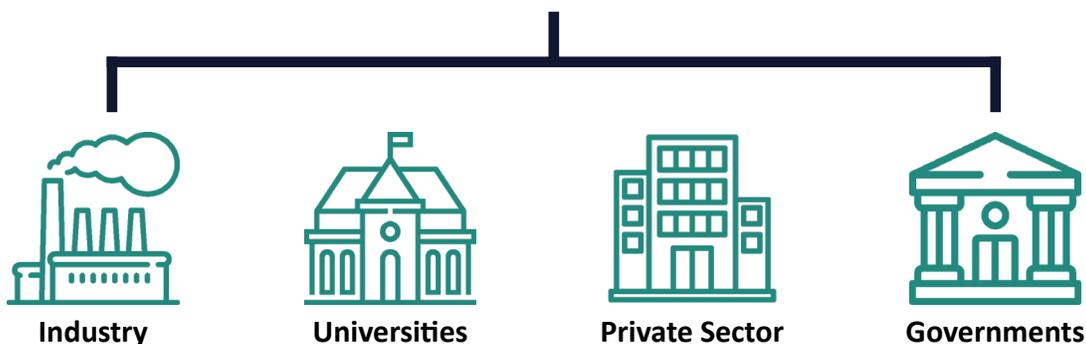
4 – INDUSTRY AND PARTNERSHIPS

Close coordination between public and private stakeholders is important to promote awareness of available resources – from data providers to training providers and career advice service providers – and to efficiently and effectively partner and work with providers.

- What is the role of the private sector in ensuring workers have digital skills in your economy?
- Does the private sector develop its own training or utilize central training for digital skills?
- How is the private sector working with the government to retrain or upskill workers with the digital skills needed?
- How does your government encourage coordination with the private sector to address common issues around digital resilience?
- Are there awareness building campaigns focused on ICT students in schools, universities, and technical and vocational education and training (TVET) centers to introduce them to the career opportunities available to them? These campaigns can include events such as job fairs and exhibitions, as well as online information portals.
- To what extent has industry partnered with academic institutions to provide curriculum and online trainers to help fill the gap?
- To what extent do corporations provide inclusive and responsible business initiatives to support workforce training and digital skills.
- To what extent do employers offer tuition reimbursement programs? Can these be used for training related to digital skills?
- How does your government differentiate what digital skills are needed based on the type of employer (e.g. large corporations vs SMEs) in digital skills development and innovation?



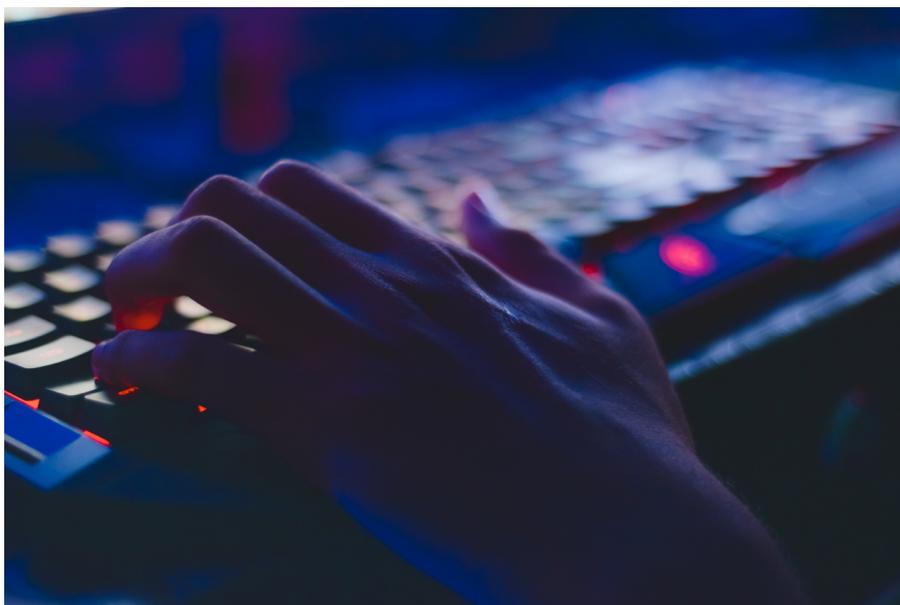
Public-Private Partnerships



5 — PERCEPTIONS OF INDIVIDUAL WORKERS/LEARNERS

In order for economies and governments to motivate their citizens to acquire the necessary digital skills to thrive in work and life, they need to understand the perceptions and expectations of individual workers and learners so that their strategy takes these factors into account. The questions posed below are based on the results of a [recent survey conducted by the Gallup organization](#). Does your economy have surveys that provide information on these types of questions?

- Does your employer provide you with the necessary technology tools for upskilling and/or training?
- Does your company offer to reimburse you for your training?
- Are you confident that higher education institutions in your economy are preparing you for the digital skills of the future?
- How well prepared do you feel to compete in the job market where skills such as critical thinking, innovation, and overall foundational digital skills are required?
- How has your academic degree and/or certifications improved your career advancement?
- Have you taken online course(s) to learn new skills to improve your value/contribution to your current or future employer?
- Are you aware of how machine learning and automation is impacting your field of study or your current job?
- What are the key barriers you face when seeking education or training over the course of your career?
 - Cost of education
 - Lack of time
 - Inability to pursue education or retraining while working
 - Difficult to compete with others who already have high demand skills
 - Unsure of what skills are needed
 - Lack of educational or training opportunities where I live
- Does your employer incorporate “learning-by-doing” methodologies and team building activities to develop digital skill sets in the workplace?



6 — RESOURCES

Organization	Policy Guidance on Broadband
APEC	<ul style="list-style-type: none"> APEC Digital Economy Working Group: The 2017 Internet and Digital Economy Roadmap formally recognizes the role of the Internet Economy in promoting innovative development and increasing economic participation. 11 key focus areas are identified, including “Achievement of universal broadband access” Click here for the PDF. APEC Telecommunications and Information Working Group: The 2008 TEL Bangkok Declaration set target of universal broadband access by 2015 The 2010 TEL Okinawa Declaration set the goal of access to next-generation high-speed broadband by 2020 2011 report: “Enhancing broadband development and internet usages for improving networks and services in APEC member economies”
ASEAN	<ul style="list-style-type: none"> The ASEAN ICT Masterplan 2020, issued in 2015 and to be implemented through 2020, proposes initiatives that (a) improve access and connectivity, (b) manage disaster threats, and (c) promote cloud computing. ASEAN Digital Ministers are currently providing guidance on the next five-year master plan, the ASEAN Digital Masterplan 2025.
OECD	<ul style="list-style-type: none"> Broadband Policies for Latin America and the Caribbean is a toolkit that “offers[s] public authorities an overview of the policies, regulatory practices and options that can maximise the potential of broadband as a driver of economic and social development.” A Paper from 2016 provides guidance on areas including: strategies to encourage investment, competition, and use of broadband access services; on spectrum planning, management, licensing, assignment, and valuation; best practices on ensuring that broadband is as widespread as possible; best practices for increasing affordability of broadband services and digital inclusion.
World Bank	<p>The World Bank has a work stream focused on affordable broadband access and has established two goals to help address that goal: (1) Position at least 35 land-locked, fragile and small-island countries to develop affordable broadband Internet service for all residents by 2020; and (2) Provide technical assistance to create national and regional frameworks enabling private and public-private investment in broadband service and design investment-ready projects.</p> <ul style="list-style-type: none"> The 2012 Broadband Strategies Handbook looks at how broadband is defined, why it is important, and how its development can be encouraged 2010 report Building Broadband: Strategies and policies for the developing world
ITU	<ul style="list-style-type: none"> Commission for Sustainable Development was formed in 2010 as a top-level advocacy body to promote broadband as an accelerator of global development. The above Commission participated in a Working Group on Broadband for All from 2018 to 2019, in coordination with the World Bank, the African Union, and others. The group produced the report Connecting Africa through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2020. Current working groups include the Working Group on the Common Bid for School Connectivity
UNDP	<ul style="list-style-type: none"> United Nations Development Program: 2019 Human Development Index Ranking: Life expectancy at birth, expected years of schooling, mean years of schooling, gross national income (GNI) per capita
United States	<ul style="list-style-type: none"> Census /ACS / Computer & Internet Use: https://www.census.gov/programs-surveys/acs/guidance/subjects.html BLS survey data: https://www.bls.gov/ors/ and reports using data collected Assessing the Impact of New Technologies on the Labor Market: https://www.bls.gov/bls/congressional-reports/assessing-the-impact-of-new-technologies-on-the-labor-market.htm
Organization	Global Competitiveness
Dynata	<ul style="list-style-type: none"> Global Consumer Trends: COVID-19. In times of unprecedented change, what do brands and agencies need to know to stay ahead of consumer trends and meet their emerging wants and needs? Dynata’s Global Consumer Trends COVID-19 Edition reports will continue to uncover those insights to help you to better understand and react to these changes as we combat the COVID-19 pandemic, together.
WEF	<ul style="list-style-type: none"> World Economic Forum: Global Competitiveness Report 2019: The index is an annual yardstick for policy-makers to look beyond short-term and reactionary measures and to instead assess their progress against the full set of factors that determine productivity. These are organized into 12 pillars: Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labour market; Financial system; Market size; Business dynamism; and Innovation capability
Organization	Education
BHEF	<ul style="list-style-type: none"> Creating Purposeful Partnerships: Business and Higher Education Working Together to Build Regional Talent Ecosystems for the Digital Economy: This report offers insights into business-led regional talent ecosystems that facilitate access, alignment, and development of a prepared workforce with the skills necessary for companies’ long-term success. The findings of this report serve as a playbook for CEOs and their executive teams for establishing purposeful and strategic partnerships with higher education leaders to meet the need for diverse digital-skills talent.

Strada	<ul style="list-style-type: none"> • Public Viewpoint: COVID-19 Work and Education Survey: After weeks of impact to Americans’ emotional and economic well-being because of COVID-19, many are beginning to consider what will come next in their lives. For millions of them, those plans include decisions about education and training. But what is happening to their current education and future plans? Where and when do they expect to enroll? What kind of programs do they want? And where are they turning for advice on their choices? Responses from more than 8,000 adults now are included in this survey, updated weekly and designed to track the impact of the pandemic on American lives, work, and education. Its intent is to provide insights to the education and training providers, policymakers, employers, and individual Americans who are navigating the crisis. Public Viewpoint is led by Strada Consumer
American Council on Education	<ul style="list-style-type: none"> • Leaders Respond: COVID-19 on Campus: ACE’s Pulse Point surveys gather the insights of college and university leaders through a brief set of questions designed to get their take on the decisions, issues, and challenges they face. ACE will field Pulse Point surveys once a month until April 2021 to gauge COVID-19’s current and future impact on institutions and their students, faculty, staff, and surrounding communities.
DOL	<ul style="list-style-type: none"> • Possible resources (by country) can be used in defining digital learning and understanding/promoting digital learning across K-12+: <ul style="list-style-type: none"> • https://nces.ed.gov/pubs2017/2017098/intro.asp • https://digitalllearningday.org/ • https://www.schoolology.com/blog/digital-learning • https://library.educause.edu/topics/teaching-and-learning/digital-learning
OECD	<ul style="list-style-type: none"> • PISA 2018 Report PISA (The Programme for International Student Assessment) is not only the world’s most comprehensive and reliable indicator of students’ capabilities, it is also a powerful tool that countries and economies can use to fine-tune their education policies. Over the past two decades, PISA has become the world’s premier yardstick for comparing quality, equity and efficiency in learning outcomes across countries, and an influential force for education reform. It has helped policy makers lower the cost of political action by backing difficult decisions with evidence – but it has also raised the political cost of inaction by exposing areas where policy and practice have been unsatisfactory. • PIAAC: https://www.oecd.org/skills/piaac/ - this is a program of assessment and analysis of adult skills. The Survey measures adults’ proficiency in key information-processing skills - literacy, numeracy and problem solving - and gathers information and data on how adults use their skills at home, at work and in the wider community. This international survey is conducted in over 40 countries/economies and measures the key cognitive and workplace skills needed for individuals to participate in society and for economies to prosper. <ul style="list-style-type: none"> • OECD: https://www.oecd.org/skills/piaac/ • Dept of Ed: https://nces.ed.gov/surveys/piaac/ • Research using PIAAC Gateway: http://piaacgateway.com/what-is-piaacupdated, along with AIR: https://www.air.org/project/program-international-assessment-adult-competencies-piaac
UNESCO	<ul style="list-style-type: none"> • The UNESCO Institute for Statistics (UIS) is the official and trusted source of internationally-comparable data on education, science, culture and communication. As the official statistical agency of UNESCO, the UIS produces a wide range of state-of-the-art databases to fuel the policies and investments needed to transform lives and propel the world towards its development goals. The UIS provides free access to data for all UNESCO countries and regional groupings from 1970 to the most recent year available. The UIS encourages developers and researchers to build websites and applications that make rich use of UIS dissemination data. In addition to a powerful standards-based API, the UIS supports a data browser and a bulk data download service (BDDS).
MOE, Taipei	<ul style="list-style-type: none"> • Ministry of Education, Chinese Taipei: Education Statistics, Guidelines for Technical and Vocational Education Policies
Census and Statistics Dept: Hong Kong, China	<ul style="list-style-type: none"> • Hong Kong, China Annual Digest of Statistics 2019 Edition: Education
WEF	<ul style="list-style-type: none"> • Schools of the Future: Defining New Models of Education for the Fourth Industrial Revolution: “Schools of the Future: Defining New Models of Education for the Fourth Industrial Revolution” outlines a new framework for defining quality education in the new economic and social context and shares key features of 16 schools, systems and programmes pioneering the future of education. These examples may serve as inspiration for driving holistic and transformative action on this important agenda. This paper is the result of a widely consultative process with educators, policy and business leaders, education technology developers and experts curated by the Platform for Shaping the Future of the New Economy and Society. • ASEAN Youth Technology, Skills and the Future of Work: Based on a survey of 56,000 youths aged 15-35 years old from six countries in the South-East Asia region (ASEAN), this report analyses the views of young ASEAN citizens on future of work, skills and technology. The survey finds that ASEAN youths are highly aware of potential disruption and challenges brought by the Fourth Industrial Revolution to the local labour markets, and they are aware they must constantly upgrade their skills. It also details their skills gap, their future career aspirations and their preferences on skills training. The survey was conducted in partnership with Sea.
Organization	Skills Index
Chinese Education & Society	<ul style="list-style-type: none"> • Analysis of Employment Trends for Chinese College Graduates from 2003 to 2017: This article utilizes data from eight surveys of national samples of college graduates conducted by the Institute of Economics of Education at Peking University in 2003, 2005, 2007, 2009, 2011, 2013, 2015, and 2017 to conduct a trend analysis on employment status and job-seeking status among graduates, summarizing 12 overarching employment characteristics and changing trends for graduates since the expansion of admissions at institutions of higher education in China, and proposing corresponding policy recommendations.
Coursera	<ul style="list-style-type: none"> • The Coursera Global Skills Index unites Coursera’s deep expertise in data and education to highlight the world’s top trending career skills. The first edition of the GSI ranks 60 countries and 10 industries across Business, Technology, and Data Science.

DigComp 2.1	<ul style="list-style-type: none"> The Digital Competence Framework for Citizens. With eight proficiency levels and examples of use. The European Digital Competence Framework for Citizens, also known as DigComp, offers a tool to improve citizens' digital competence. First published in 2013, DigComp has become a reference for the development and strategic planning of digital competence initiatives both at European and Member State level. In June 2016 JRC published DigComp 2.0, updating the terminology and conceptual model, as well as showcasing examples of its implementation at the European, national and regional level. The current version is labelled DigComp 2.1 and it focuses on expanding the initial three proficiency levels to a more fine-grained eight level description as well as providing examples of use for these eight levels.
Organization	Job Market
APRU	Transformation of Work in the Asia-Pacific in the 21st Century <ul style="list-style-type: none"> https://apru.org/resource/transformation-of-work-in-asia-pacific-in-the-21st-century/
BHEF	<ul style="list-style-type: none"> The Quant Crunch: How the Demand for Data Science Skills Is Disrupting the Job Market: This report is the result of a research partnership between Burning Glass Technologies, BHEF, and IBM, motivated by the need to close the data science and analytics skills gap through data driven insights and increased collaboration between higher education and industry. It defines the data science and analytics (DSA) landscape, presents research findings about the skill gap, adds context to the DSA jobs and skills that are disrupters, and offers recommendations to alleviate the DSA talent shortage.
BHEF & PwC	<ul style="list-style-type: none"> Reskilling – A solution for the digital skills gap: Co-authored by BHEF and PwC, this paper lays out the challenges and opportunities around reskilling—equipping current employees with new skills. Both BHEF and PwC believe this strategy can help solve the disconnect between the supply of talent and the demand for digital skills while increasing diversity in the digital workforce. As a launchpad for further discussion, engagement, and impact, this paper shares trends and some insights from the internal digital reskilling strategy at PwC.
MGI	<ul style="list-style-type: none"> Jobs lost, jobs gained: Workforce transitions in a time of automation, assesses the number and types of jobs that might be created under different scenarios through 2030 and compares that to the jobs that could be lost to automation. The results reveal potential shifts in occupations in the years ahead, with important implications for workforce skills and wages. Research focuses on China, Germany, India, Japan, Mexico, and the United States.
NAP.edu	<ul style="list-style-type: none"> https://www.nap.edu/read/4812/chapter/3 - Chapter on technology and the changing workplace cited from Research Recommendations to Facilitate Distributed Work, published by the National Academy Press.
WEF	<ul style="list-style-type: none"> Jobs of Tomorrow: Mapping Opportunity in the New Economy: Through new data sources, we can gain unprecedented insights into emerging opportunities for employment in the global economy, and granular understanding of the skill sets needed by professionals. This new data reveals that 96 jobs across seven professional clusters are fast emerging in tandem reflecting “digital” and “human” factors driving growth in the professions of tomorrow. The jobs of the future are set to grow by 51% in the horizon up to 2020 and we project they will present 6.1 million job opportunities globally. These reflect the adoption of new technologies—giving rise to greater demand for Green Economy jobs, roles at the forefront of the Data and AI economy as well as new roles in Engineering, Cloud Computing, and Product Development. Reskilling Revolution Platform: The Reskilling Revolution Platform to provide better jobs, education, and skills to 1 billion people in the next 10 years. This initiative will contribute to future-proofing countries, companies, and workforces in order to build a fairer, more inclusive world that will deliver benefits to the economy and society for generations to come.
SHRM	<ul style="list-style-type: none"> The Global Skills Shortage: Bridging the Talent Gap with Education, Training and Sourcing.
Organization	Technology
APRU	<ul style="list-style-type: none"> Policy Insight Brief I – Four Abilities for Governments to Leverage AI for Social Good - https://apru.org/wp-content/uploads/2020/12/APRU-Policy-Insights-Brief-1- final-approved.pdf Policy Insight Brief II – Seven Challenges to Govern AI - https://apru.org/resource/the-ai-for-social-good-summit-policy-insights-brief-ii-seven-challenges-to-govern-ai/
Burning Glass Technologies	<ul style="list-style-type: none"> Beyond Tech: https://www.burning-glass.com/wp-content/uploads/BGT_Oracle_BeyondTech_v7.pdf No Longer Optional: Employer Demand for Digital Skills (UK): https://www.burning-glass.com/wp-content/uploads/no-longer-optional-report.pdf Dynamics of data science skills: https://www.burning-glass.com/wp-content/uploads/dynamics-of-data-science-skills-report.pdf The New Foundational Skills of the Digital Economy: https://www.burning-glass.com/wp-content/uploads/New_Foundational_Skills.pdf
BHEF	<ul style="list-style-type: none"> Invest to Improve: The Cybersecurity Talent Deficit: This report provides recommendations for cybersecurity stakeholders—employers, government agencies, and higher education institutions—to enable regional partnerships to meet today's cybersecurity skills needs. This report combines data from a 2017 Gallup survey of business executives and higher education leaders with jobs analyses from Burning Glass Technologies, as well as, for the first time, detailed student demographic and wage data—following them from their college studies to the cybersecurity profession. The findings of this report document the need to develop new approaches to nurture cybersecurity talent in an era in which employers from all sectors must protect their information and systems from extraordinary levels of risk.
BHEF & PwC	<ul style="list-style-type: none"> Investing in America's Data Science and Analytics Talent: This joint report from BHEF and PwC provides groundbreaking data science and analytics market intelligence informed by a Burning Glass Technologies workforce analysis and real-time survey data of business and higher education leaders from Gallup. The findings of this report document the emergence of the hybrid economy, in which companies in all sectors have become increasingly digital-intensive organizations. It also recommends eight actions for change to put the supply of skills in balance with the demand.

WEF	<ul style="list-style-type: none"> • Unlocking Technology for the Global Goals: The Fourth Industrial Revolution (4IR) is still in its early years yet it is already changing the way we work, live and interact. As 4IR technologies become faster, smarter, and more widely applied, the pace of transformation will only accelerate.... In this report, developed in collaboration with PwC, we showcase the significant opportunity to harness new technologies for the Global Goals. Through analysis of over 300 technology applications, the report explores; 1) the extent to which this opportunity is being realized, 2) the barriers to scaling these applications, and 3) the enabling framework for unlocking this opportunity. • The Cybersecurity Guide for Leaders in Today's Digital World: The Cybersecurity Guide for Leaders in Today's Digital World was developed by the World Economic Forum Centre for Cybersecurity and several of its partners to assist the growing number of C-suite executives responsible for setting and implementing the strategy and governance of cybersecurity and resilience in their organization. The guide bridges the gap between leaders with and without technical backgrounds. Following almost one year of research, it outlines 10 tenets that describe how cyber resilience in the digital age can be formed through effective leadership and design. • Data Science in the New Economy: A new race for talent in the Fourth Industrial Revolution: This Report focuses on data science, among the most competitive skills of the Fourth Industrial Revolution, in collaboration with Burning Glass Technologies, LinkedIn and Coursera to shed light on how data science talent is being developed and deployed across today's labour market.
Organization	Economy
DESI	<ul style="list-style-type: none"> • The Digital Economy and Society Index (DESI): The Digital Economy and Society Index (DESI) is a composite index that summarizes relevant indicators on Europe's digital performance and tracks the evolution of EU member states in digital competitiveness.
EU Commission	<ul style="list-style-type: none"> • EU Science Hub: Learning and Skills for the Digital Era: Learning and skills are key contributors to society and the economy. As modern societies and economies are changing due to, amongst others, globalization and technological progress, a fundamental transformation of education and training (E&T) throughout Europe is required to deliver the knowledge and skills needed for growth, employment and participation in society. This forms an important part of the Europe 2020 agenda and its various flagships and policy initiatives.
Organization	Case Studies
Microsoft	<ul style="list-style-type: none"> • Microsoft launched an initiative to help 25 million people worldwide acquire the digital skills needed in a COVID-19 economy. This initiative will bring together every part of the company, combining existing and new resources from LinkedIn, GitHub, and Microsoft.
Digital US	<ul style="list-style-type: none"> • Digital US is a national coalition in the United States working to ensure that all of US has technology skills and digital resilience to thrive in work and life Digital US works with partners to drive awareness, develop resilience, and design equitable ecosystems.
Oracle Academy	<ul style="list-style-type: none"> • Oracle Academy advances computing education around the world to increase knowledge, innovation, skills development, and diversity in technology fields. The program engages with thousands of educational institutions and educators in more than 120 countries, helping millions of students become college and career ready. The Oracle Academy program is available free to any recognised education institution and offers curriculum and educational resources, training and professional development for educators, and certifications.
Google and Asia Foundation	<ul style="list-style-type: none"> • Association of Southeast Asian Nations (ASEAN), in partnership with Asia Foundation, and backed by Google.org, the project, dubbed Go Digital ASEAN, aims to equip micro and small-medium enterprises (MSMEs) across member states with the critical digital skills and knowledge to help bridge a 'digital gap' and turbo-charge economic recovery.
Uber	<ul style="list-style-type: none"> • Uber joins UNESCO's Global Education Coalition to protect the right to education during the pandemic. Uber offers free rides to teachers and families in need and enables the delivery of meals to school kids hardest hit by the pandemic.
DiDi	<ul style="list-style-type: none"> • DiDi Engine, a Digital Innovators Initiative aiming to train young technology talents, builds R&D capacities and develop "AI for Social Good" projects in DiDi's expanding international markets.