Regional Youth Digital Skill Strategies

South Asia, Phase 1

The Commonwealth

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1. Executive Summary

The Fourth Industrial Revolution is still in its nascent state. But with the swift pace of change and disruption to business and society, the time to join in is now.

Gary Coleman, Global Industry and Senior Client Advisor, Deloitte Consulting

South Asia is home to the largest share of the world's youth population. More than one-fifth of South Asia's population of 1.9 billion is aged between 15 and 29 (Padder, 2021). The youth population in South Asian countries share many common challenges, such as poverty, illiteracy, social gender imbalance and a digital divide. The area is one of the world's poorest regions, having a poverty rate of 15.2 per cent (World Bank, 2020). There exists a wide digital divide in terms of access and affordability between, and within, the countries of South Asia (ESCAP 2019). Despite having the world's second largest online market, 50 per cent of India's population are without internet, as well as 59 per cent of Bangladesh and 65 per cent of Pakistan (Khasru, 2021). Only 22.2 per cent of households in Sri Lanka own a desktop or laptop computer, and in 2019 only 34 per cent had access to the internet (Development Asia 2021). The youth unemployment rate (YUR) in the South Asian region has been estimated at 18.8 per cent in 2020, which is projected to increase to 18.9 per cent in 2021 (Sudan 2021: 80).

There are now more than 3.5 billion mobile internet subscribers globally, representing 47 per cent of the world's population (Digital 2021). In South Asia, the proportion of the population connected to mobile internet has almost doubled since 2014 and currently stands at 33 per cent. More than 500 million additional people in the region have also gained mobile broadband coverage during the same period (Groupe Speciale Mobile Association GSMA, 2019).

Building a clear and concise data-driven and evidence-based policy-enabling paradigm is the key to effective economic growth and workforce development for any country. While businesses in South Asia quickly adopt new technologies, there is a risk that talent to support its implementation will not keep pace with the workforce demands by employers. There are several challenges in the IT space due to the sudden and broad uptake of new technologies for which there are insufficient skills within the contemporary workforce. According to the United Nations Conference on Trade and Development (UNCTAD) report (2019), the technology sector will see a high level of labour-skills shortage if action across global economies, including South Asia, is not taken. As all companies are essentially becoming tech companies – facilitated by advances in 5G, the Internet of Things (IoT) and other Industry 4.0 technologies – it is essential that businesses and public bodies team up to advance tech skill sets within their markets.

South Asian economies have experienced some of the fastest growth rates in the world, and they are driven by young and growing populations in the region. Sustaining such growth will become increasingly difficult unless significant investments are made to prepare South Asian youth for twenty-first-century jobs. Today, South Asia is home to the largest number of young people of any global region, with almost 50 per cent of its population of around 2 billion people below the age of 24, according to data produced by the Global Business Coalition for Education (GBC-Education), the Education Commission and UNICEF.

DICE Consortium UK, in collaboration with the Commonwealth Secretariat, was awarded the project – youth digital skills strategies gap analysis and analysis of institutional infrastructure and their needs in South Asian countries to offer digital skills.

The team lead from DICE Consortium conducted this study with the help of country leads from India,

Pakistan, Sri Lanka, Bangladesh and Maldives. These country leads engaged stakeholders from their respective countries through surveys and focus-group discussion to analyse the digital skills gap and needs of institutions to offer digital skills. However, due to the ongoing COVID-19 pandemic and lockdown restrictions it was challenging for the team to take timely responses from the stakeholders; however, the team delivered, getting maximum responses from the youth, educationalists and policy-makers of South Asian countries.

The study shows that 55 per cent of respondents believe there is a major digital skills gap among South Asian countries. To overcome this gap, 31 per cent of respondents suggest that digital competency should be developed among youth from secondary education level, and 34.5 per cent of respondents also suggest that there should be community-based projects to overcome the digital skills gap.

Responses from educational experts and policy experts show that there is a relatively high demand for all five different digital skills, i.e., digital foundation skills, communicating, handling information and content, transacting and problem solving. Communicating, closely followed by digital foundation skills, are the most in demand, with transacting being the least-favoured skill in South Asian countries.

Survey results from the youth revealed that digital training is accessible and affordable in South Asian countries for most young people, and they have relatively easy access to their digital training programmes. The exception to this is in rural areas and gender, where there is still a digital divide regarding access and gender bias towards males.

However, despite this, digital skills levels largely remain at an intermediate level because institutions delivering youth digital skills across the target countries do not have clear policies and procedures for deciding on emerging technologies. Such institutions also face the problem of budget constraints to support the digital skills development in their respective institutions. Additionally, representation from key stakeholders for the development of digital skills is very low in South Asian countries.

Key Recommendations

The report makes the following region-wide recommendations (national recommendations for each country are included in the body of the report). Section 6 of the report provides supporting data that the team has gathered to reach these recommendations, and they are included here to offer the reader an overview of the research exercise outcomes in terms of possible recommendations.

KEY RECOMMENDATION 1 The need to have clarity on where digital skills are best developed must be assessed at a national policy level and then fed into the formal education structures; 55 per cent of the educational experts believe that digital skills need to be developed across educational levels. This is likely to grow as technology becomes more embedded in the countries and region's economic futures.

KEY RECOMMENDATION 2 Digital skills frameworks should be further analysed and differentiated into skills development trajectories that are mapped to the different education levels. This will allow for enhanced digital skills development within educational settings.

KEY RECOMMENDATION 3 Policy-makers need to develop a deeper understanding of the nature of the digital skills gap at a national level and how developing digital skills should be clearly mapped against economic development goals so delivery can be achieved.

KEY RECOMMENDATION 4 Policy-makers must recognise as a matter of urgency that the digital skills gaps is a major impediment to effective economic growth**.** This should be supported with very clear and deliverable interventions across the educational sector to promote and support the clear demand for these skills from industry to start filling the gap.

KEY RECOMMENDATION 5 The importance to the economy of digital foundation skills must be

acknowledged and education and training delivery must reflect this at an appropriate level, where public finance will generate high return on investment. With more public finance targeted at building foundational digital skills, educational organisations will see the benefits and engage more meaningfully.

KEY RECOMMENDATION 6 National policies must be supported by suitable and coherent budgetary allocations at all educational levels for the delivery of digital skills.

KEY RECOMMENDATION 7 In the development of digital skills, educational organisations need to be given effective support for the implementation of technology adoption and the maintenance of policies and process to deliver, and they must recognise the importance of keeping the technology infrastructure current.

KEY RECOMMENDATION 8 Educational organisations should recognise the role and importance of engaging the relevant stakeholders to promote the delivery and development of youth digital skills.

KEY RECOMMENDATION 9 Educational leaders of secondary and higher education institutions should seek to make the organisational strategy vis-à-vis the delivery of digital skills more central to their operational activities; this will also promote higher engagement from educators and students.

KEY RECOMMENDATION 10 National digital policy enabling frameworks should strive to develop a blueprint for educational stakeholder engagement activities. This could include community structures, business and industry, policy-makers, etc.

KEY RECOMMENDATION 11 Policy and educational structures must seek to enhance the role played by CPD and other professional development capabilities to ensure the digital skills training being delivered is current for the industry.

KEY RECOMMENDATION 12 Educational organisations should seek to be more active in promoting engagement with staff and students, to allow them to feel they have agency in the development and delivery of digital skills interventions.

KEY RECOMMENDATION 13 Policy-makers should support and assist educational organisations to develop whole institutions' strategies for digital skills development. This is not happening, for example, in Bangladesh.

KEY RECOMMENDATION 14 National structures should aim to build suitable complementary funding frameworks that mirror the national policy aspirations and targets.

KEY RECOMMENDATION 15 National regulation should have clear plans and support for the development of stakeholder engagement (see other recommendations), supporting the aims and objectives of the national policy goals for digital skills development.

Given the diverse nature of the five countries under review, the application of digital skills policies are inevitably diverse. Some areas are being better impacted by actions on the ground, and the balance of these recommendations would have to be explore further in future research exercises. Further, these recommendations need to be assessed in terms of the constraints of time and budget and the impacts associated with COVID-19; further research and data analysis will allow for deeper insights and areas for future research activities.

2. Introduction

We must develop a comprehensive and globally shared view of how technology is affecting our lives and reshaping our economic, social, cultural, and human environments. There has never been a time of greater promise, or greater peril.

Klaus Schwab, Founder and Executive Chairman, World Economic Forum

Building a clear and concise data-driven and evidence-based policy-enabling paradigm is the key to effective economic growth and workforce development for any country. While businesses in South Asia are fast in adopting new technologies, there is a risk that talent to support its implementation won't keep pace.

'There are a number of challenges in the IT space due to the sudden and broad uptake of new technologies for which there are insufficient skills within the markets today,' says Simon Piff, Vice President of Security Practice at International Data Corporation Asia/Pacific. The technology sector will see a high level of labour-skills shortages if action is not taken in all parts of the world, including South Asia (Kantar, 2021). As all companies essentially become tech companies – facilitated by advances in 5G, the IoT and other Industry 4.0 technologies – it's essential that businesses and public bodies team up to advance tech skill sets within their markets.

South Asian economies have experienced some of the fastest growth rates in the world. They are driven by young and growing populations in the region. Sustaining growth will become increasingly difficult unless significant investments are made to prepare South Asian youth for twenty-first-century jobs. Today, South Asia is home to the largest number of young people of any global region, with almost 50 per cent of its population of around 2 billion people (UN estimate) below the age of 24, according to data produced by the Global Business Coalition for Education (GBC-Education), the Education Commission and UNICEF.

Table 2.1 Youth unemployment (percentage of total labour force age 15–24).

Country	Youth unemployment rate (%)
Bangladesh	12.1
Maldives	16.6
India	23
Pakistan	7.8
Sri Lanka	20.8

Source: International Labour Organisation modelled estimates, 2019.

The YUR in the South Asian region has been estimated at 18.8 per cent in 2020, which is projected to increase to 18.9 per cent in 2021. The YUR is also a significant problem in the five countries this report focuses on, as Table 2.1 illustrates.

High youth unemployment levels in South Asia have been partially due to a lack of appropriate skills developed through technical and vocational education and training (TVET). In South Asian countries, skills for work have been largely provided at secondary and tertiary levels through TVET programmes alongside nonformal training programmes in public and private institutions, including by employers. However, the skills mismatches are huge in the context of new technological changes and innovations, and the current efforts underway to fill the skills gap in the biggest South Asian economies are grossly insufficient. Only 47 per cent of Indian, 40 per cent of Pakistani and 55 per cent of Bangladeshi youths will currently have the skills required by 2030.

3. Regional Youth Digital Skills Strategies – South Asia Overview

Rapid technological progress provides immense opportunity for developing South Asian economies (Bingqin & Piachaud, 2019) to grow faster and attain higher income levels due to higher productivity growth driven by employing more workers through increasing skills complementary to technology, including digital, high-level cognitive and soft skills (Bertani et al., 2020; Sima et al., 2020). However, the existing skills gap may constrain technology adoption and the creation of new jobs (Prettner & Strulik, 2020).

In addition to digital skills the population needs internet access to develop those skills. Internet access has grown considerably across South East Asia but, as Table 3.1 shows, it still varies considerably between countries. In addition, within countries access is still very variable, for example in rural areas.

To keep pace with technological change, the number of workers with digital skills in these countries will need to increase by over five-fold from approximately 149 million workers today to 819 million workers in 2025 (Amazon Web Report AWS, 2021).

Therefore, there must be a focus on digital access and digital skills training to meet these gaps. Further, as described below, we can identify the nature of the skills that need to be developed.

As an example of acceptance of these findings, it is reported in the *Hindustani Times* that seven higher education institutes in India are partnering with Amazon Web Services to offer undergraduate degrees and postgraduate diploma programmes designed to address India's growing requirement for skills in cloud architecture, data analytics, cybersecurity, machine learning and software development (Hindustani Times, 2021).

It is clear that technological advances have impacted all spheres of human communities, not least the job market, with concomitant effects on employment and career development (O'Donnell & Raja, 2017). According to O'Donnell & Raja, digital jobs fall into two categories:

- jobs within the IT or digital industries
- digital society jobs.

For example, a digital industry job would incorporate many different roles, from computer programmer to big data analyst or app developer, where ICT forms the backbone of the person's role and responsibilities. However, in the case of digital society

Table 3.1 Internet access in Commonwealth South Asia[1].

Countries	Population (2021 est.)	Internet users (Year 2000)	Internet users 30 June 2021	Penetration % of population
India	1,393,409,038	5,000,000	755,820,000	54.2 %
Maldives	543,617	6,000	401,600	73.9 %
Pakistan	225,199,937	133,900	100,679,752	44.7 %
Sri Lanka	21,497,310	121,500	7,968,000	37.1 %
Bangladesh	166,303,498	100,000	117,310,000	70.5 %

Source: Internetworldstats.com, 2021.

[1]Note secondary data varies within a 2–3% range on average.

roles, the application of ICT improves efficiency and effectiveness (O'Donnell & Raja, 2017).

According to Pande and Anil (2018), South Asia has the potential to become a hub of innovation in the Fourth Industrial Revolution (4IR), with its young population well connected to new global technological developments, opportunities created by the growth of 4IR technologies and a large, educated labour market. The rise of emerging technologies like artificial intelligence (AI), blockchain and autonomous vehicles present interesting opportunities to tackle some of the large-scale systemic challenges in South Asia. However, a lack of understanding of the technologies, unreliable existing systems and the fear of the negative effects of these technologies are stifling their adoption (Pande and Anil 2018).

> *Today, manufacturing is changing faster than ever before and the drivers for this include globalization, individualization, time to market and sustainability.*
>
> **Brian Holliday, Managing Director, Digital Factory**

The 4IR is heralding a new era and, as the UNCTAD 2021 report observes:

> [R]ecent developments in frontier technologies, including artificial intelligence, robotics and biotechnology, have shown tremendous potential for sustainable development. Yet, they also risk increasing inequality by exacerbating and creating new digital divides between the technology haves and have-nots. The COVID-19 pandemic has further exposed this dichotomy. Technology has been a critical tool for addressing the spread of the disease, but not everyone has equal access to the benefits. (UNCTAD, 2021: iv)

During the Coronavirus Disease 2019 (COVID-19) pandemic digital technology adoption grew dramatically around the world, and this trend continues with South Asia's embrace of digitisation and will help to shape the region's future economy (Khasru, 2021).

The transition to remote work and education has sparked an extraordinary growth in internet usage, with even smaller countries like Nepal seeing an increase of nearly 11 per cent in broadband internet users.

COVID-19 hastened the launch of India's National Digital Health Mission, which aims to improve the accessibility and efficiency of healthcare services by providing each citizen with a unique health identification.

The pandemic has increased South Asia's adoption of e-commerce, which has been aided by using digital payment systems.

Bangladesh alone saw a 70–80 per cent surge in internet sales in 2020, bringing in $708.46 million in income.

These frontier technologies are likely to affect employment, the job market and labour absorption.

> All countries will need to pursue science, technology and innovation policies appropriate to their development stage and economic, social and environmental conditions. This requires strengthening and aligning science, technology and Innovation systems and industrial policies, building digital skills among students and the workforce, and closing digital divides. (UNCTAD, 2021: iv)

Building digital skills is central to ensure the underlying opportunities associated with frontier technologies, and technologies in general, are realised. For example, advanced cloud computing

and data skills will become more important for current digitally skilled workers and future workers (today's students), with these skill-needs projected to triple by 2025. Cloud architecture design consistently emerged as one of the top five most in-demand skills by 2025 in all countries. Another advanced cloud computing skill – specifically, the ability to help organisations transition from a premises-based to cloud-based infrastructure – will also become more important, including in non-technology sectors.

Current digital workers will need to focus on training in advanced cloud computing skills as well as advanced data skills. These skills include cyber security, AI and machine learning, and are projected to see the largest required increase across all digital skills in South Asian countries by 2025, with the number of workers needing these skills expected to triple.

While there is a smorgasbord of policies, initiatives and programmes, all share a common vision to drive digital skills development across national economic growth points. Policies are invariably informed by technology forecasts, growth imperatives, UN 2030 Sustainability Goals, and other key drivers. The World Bank list a comprehensive set of skills that a person needs to succeed in the twenty-first-century labour market.

Cognitive skills – 'the ability to understand complex ideas, adapt effectively to the environment, learn from experience, and reason. Foundational literacy and numeracy as well as creativity, critical thinking, and problem-solving are cognitive skills.'

Socio-emotional skills – 'the ability to navigate interpersonal and social situations effectively, and include leadership, teamwork, self-control, and grit.'

Technical skills – 'the ability to acquire knowledge, expertise, and interactions needed to perform a specific task, including the mastery of required materials, tools, or technologies.'

Digital skills – 'cross-cutting and draw on all of the above skills, and describe the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately.'

What is striking in this list is the manner in which the definition for digital skills is offered as a 'catch-all', and it is not a large step to conclude that twenty-first century skills for effective participation in the labour force are digital skills. In other words, digital skills are an essential and sufficient skill base for success in the twenty-first-century workplace.

4. Methodology and Project Development

The aims of the project were to:

- Conduct a gap analysis of youth digital skills training in the South Asia region.
- Facilitate consultations with stakeholders in South Asia, including governments, the youth and youth-led bodies.
- Provide recommendations for the development of a regional digital skills strategy for South Asia.

Step 1

Each in-country partner undertook a desk review of the digital skills landscape – policies, training and other contextual considerations in their country – identifying what they felt were national strengths and weaknesses.

Step 2

A survey, informed by the reviews, was designed to obtain young people's views on digital skills. This was sent out by the in-country partners to their youth contacts and organisations with the aim of obtaining a rural/urban and male/female balanced response (Table 4.1).

Step 3

The survey responses were reviewed, and the results were used to undertake in-country focus groups with young people, educational specialists and policy experts to further investigate. Due to COVID-19 restrictions some of the focus groups were held online and some, where the focus group was not possible, were in a refined survey form.

Step 4

The data was analysed by country and then aggregated to give an indicative feel for the whole region.

The research teams targeted youth and educational practitioners and professionals, and they were allowed to self-select their professional focus area and/or expertise from: education senior management; digital skills trainer; professional in technology sector; or programme manager (in the case of the educational organisation needs – see aggregation input later in this report). For the national policy focused survey, the respondents could select from the following to represent their professional expertise: national education policy-maker; digital skills strategist; professional in technology sector; or employer.

The WorldSkills UK Report (2021), recognises that the UK is a world leader in digital skills development and this contributed to the UK generating 30 per cent of foreign direct investment across Europe. However, despite this performance, the report concludes that '[W]e will need to boost the supply of advanced digital skills in the UK.' (WorldSkills UK 2021:12). This points to the fact that digital skills are, in effect, a reference point for national policy objectives but need to be further sub-divided into infrastructure development and operational strategies to promote workforce skills development. This is in line with the 'digital by default' strategy advanced by the Foreign, Commonwealth and Development Office (then the Foreign and Commonwealth Office) in 2012, as commented on by the DFID report 2013.

Gaining insights into the youth digital skills context calls for effective measurement tools and awareness of what the digital skills gap is and how it may be addressed. The issue of measurement is addressed later in the document. In order to develop an insight into the digital skills gap, it is necessary to identify 'What are digital skills?'. The UK Department of Education offers the following for essential digital skills framework (DfE 2019):

Digital foundation skills – Need to have the following foundation skills which underpin all essential digital skills.

Communicating – The skills required to communicate, collaborate and share information.

Handling information and content – The skills required to find, manage and store digital information and content securely.

Transacting – The skills required to register and apply for services, buy and sell goods and services and administer and manage transactions online.

Problem solving – The skills required to find solutions to problems using digital tools and online services.

Being safe and legal online – The skills required to stay safe, legal and confident online.

This framework was the result of a wide consultation in the UK which included:

- Accenture
- Amazon
- BT
- British Retail Consortium
- Corsham Institute
- Department for Education
- Department of Culture, Media and Sport
- Department of Works and Pensions
- Federation of Small Businesses
- Good Things Foundation
- Greater London Authority
- Greater Manchester Combined Authority
- Her Majesty's Revenue and Customs (HMRC)
- Microsoft
- National Health Service Digital
- Scottish Council for Voluntary Organisations (SCVO)
- SSE Energy Service

Table 4.1 Number of respondents/ participants in the research exercise.

Country	DICE Team Outputs
Bangladesh	Youth baseline survey – 309 Focus groups: • Youth – 40 • Education experts – 41 • National policy experts – 26
India	Youth baseline survey – 410 Focus groups: • Youth – 27 • Education experts – 26 • National policy experts – 28
Maldives	Focus groups: • Youth – 23 • Education experts – 1 • National policy experts – 3
Pakistan	Youth baseline survey – 60 Focus groups: • Youth – 27 • Education experts – 25 • National policy experts – 2
Sri Lanka	Youth baseline survey – 226 Focus groups: • Youth – 67 • Education experts – 23 • National policy experts – 20
Aggregated countries	Youth baseline survey – 1005 Focus groups: • Youth – 184 • Education experts – 116 • National policy experts – 100

The global representation in terms of Accenture and Amazon on this list speaks to its resonance for the present research exercise, and this formed the base of the consultation process with the South Asia stakeholders through September 2021. Another study conducted by Microsoft and Goldsmiths, University of London (Microsoft, 2020) identified digital skills as:

- Data literacy
- Digital research and problem solving
- Information literacy
- Digital creation
- Digital innovation
- Media literacy.

For the purpose of the present study, the team has integrated these categories and collated the information to inform the consultation process with regard to digital skills, as shown in Table 4.2.

Accepting these categories, the DICE team developed the consultation activities through a mix of online surveys, focus groups and the creation of country Basecamps[2] across the five target countries as indicated above. The activities that were applied over September 2021 built on the assessment of the digital skills status quo in the target countries and the recognition of the need for better and more effective digital measurement at a national level, to assess and inform the effectiveness of any digital skills interventions. The consultation processes included in-country surveys, focus groups and interviews with young people, educational institutes, industry representatives and policy-makers.

The European Union has developed the Digital Economy and Society Index (DESI), which monitors Europe's overall digital performance and tracks the progress of EU countries in their digital competitiveness (DESI 2020). This index has five dimensions: Connectivity, Human Capital, Use of Internet, Integration of Digital technology and Digital Public Services. The DESI concurs with the sentiment outlined above in terms of which 'having an internet connection is not sufficient; it must be paired with the appropriate skills to take advantage of the digital society' (European Commission DESI 2020: 51). The recognition of the need for 'appropriate skills' points to a policy-framing context that must be driven by the development of digital skills that map the economic and industrial strategy for each national economy. So, the challenge is to have equitable access to the internet and then match that with the appropriate digital skill needed for today and for tomorrow's developing technology.

Having suitable measures to inform national digital strategies calls for statistical measures to ensure that infrastructure is mobilised and

Table 4.2 Digital skills definitions.

Digital Skills Category	DICE Team Definition
Digital foundation skills	The basic skills associated with the use of ICT – communicating; handling information and content; transacting; being safe and legal online
Information literacy	The ability to use information effectively and to make balanced use of diverse information sources
Digital research and problem solving	The skills required to undertaking digital research and finding solutions to problems using digital tools and online services
Transacting and being safe online	The skills associated with engaging in online activities and transacting safely

2 Basecamp is an online tool that offers scope for online consultations.

adapted effectively. In 2017 the G20, in a Ministerial Declaration, proposed the aim of 'encouraging members to reflect the measurement of the digital economy in their national statistics in a comprehensive way and to review existing statistical frameworks' (G20 2018:4). To assist in the process of effective digitalisation the G20 developed a Toolkit for Measuring the Digital Economy; the toolkit aims to integrate 'different methodological approaches and indicators that may be used to monitor the digital transformation and highlights critical gaps' (G20 2018:4). Although the toolkit aims to address the G20 contexts,[3] it has resonance for the wider South Asian region and beyond. The toolkit identifies 30 key indicators and organised into four themes, detailed below.

(1) **Infrastructure** – Digital platforms, an important dimension within the infrastructure topic, is not treated and deserves an assessment. The digital economy would be incompletely measured without taking into consideration the size and impact of platforms. Examples, machine-to-machine (M2M) communication, the Internet of Things (IoT).

(2) **Empowering society** – Indicators about educational attainment and occupations are available. One example is the absence of systematic data collection on the perception of firms about the abilities and skills that will be demanded in the near future. This is especially the case for developing economies. Moreover, digital access, which can be measured and used as an indicator of how the digital economy affects education, does not directly translate into educational attainment or academic outcomes.

(3) **Innovation and technology adoption** – Measures about the use and quality of emerging technologies, such as artificial intelligence, the IoT, 3D printing, robotics, distributed ledgers or data-science-based processes.

(4) **Jobs and growth** – More emphasis should be placed on the development of methodologies to measure digitally enabled trade and produce related indicators. (G20 2018: 5)

3 India is a G20 member.

For the purpose of the present exercise the key focus areas are infrastructure and empowering society (digital skills) with the other themes flowing out of these two key areas. For example, for empowering societies the G20 has identified a lack of widespread measurement of skills, abilities and competencies that would allow for cross-country comparison. This gives a steer to the next cycle of the exercise in terms of gaps and challenges, most especially in terms of the G20 observation that:

> [O]ne example is the absence of systematic data collection on the perception of firms about the abilities and skills that will be demanded in the near future. This is especially the case for developing economies. Moreover, digital access, which can be measured and can be used as an indicator of how the digital economy affects education, does not directly translate into educational attainment or academic outcomes. (G20 2018: 7)

The G20 Toolkit development identified two gaps in terms of the digitisation of economies:

(1) **Methodological** – Gaps relate to what existing indicators measure and how they capture the digital economy, or to what extent they do it.

(2) **Availability** – Availability gaps are closely linked to effective implementation. Even in areas where international standards to guide statistical collection exist, countries may lack the capacities and resources to implement them systematically, disseminate the resulting information openly. (G20 2018: 5)

These gaps are relevant to all economies to a greater or lesser degree but are significantly evident in developing countries; the present research activities are informed by these gaps and should endeavour to address the crucial actions that the G20 report highlights (G20 2018: 9–10).

These actions include the following.

- **Promote a comprehensive, high-quality data** infrastructure and collection tools for measuring the use and impacts of digital technologies at the **individual** (youth) and business level, including collecting data on

key characteristics such as sex, age, skills and education and region, as well as business size, sector and location.

- Work towards **improving the measurement** of the digital economy in existing macroeconomic frameworks, e.g., by developing satellite national accounts.
- Foster more **fluid communication** and cooperation between international organisations and G20 countries to share national initiatives, adhere to and disseminate international standards and best practices, and improve comparability of indicators and reduce differences in coverage and timeliness of the data, with greater emphasis on capacity-building in developing countries where resources, both monetary and human, are scarce.
- Encourage **interactions** among government, business and other actors of civil society to strengthen the evidence base and complement official statistics, improving the design of frameworks that facilitate and allow a better use of data in business-to-business (B2B), business-to-government (B2G), and government-to-businesses (G2B) contexts.
- Enable the **collaboration** between the public and private sector to plan and implement business surveys about innovation and the uptake of new digital technologies, including joint efforts to identify and anticipate the demand for skills and competencies.

Using the G20 Toolkit exercise as a backdrop for the present research exercise the DICE team has extracted from the actions above the following methodological drivers which underpinned the consultation phase, as shown in Table 4.3.

Table 4.3 Research Actions.

Project Action	DICE Team Outputs
Promote a comprehensive, high-quality data infrastructure (youth)	Key to the exercise was the development of a dynamic data collection and sharing exercise to promote data infrastructure that informed digital skills delivery for youth, i.e., existing skills, future skills needed, delivery structures and adaptive capabilities. This was a small-scale study to inform the development and inform further areas of study.
Improving the measurement	The research exercise aimed to develop suitable tools and strategies that interface with both demand and supply metrics to inform policy-makers and educational providers.
Fluid communication	Facilitating the communication between stakeholders is essential to the realisation of the research objectives.
Interactions	Linked to communications, effective interactions require clear agendas and goals.
Collaboration	If the digital skills requirements are to be met effectively in a rapidly changing global economic paradigm, effective collaboration is essential, and through the work on this project the team engaged stakeholders and enhanced the scope for collaboration. The DICE Consortium model reflects global co-operation across sectors and organisations, e.g., universities, NGOs, CSO, social enterprises, private enterprise, to achieve common goals.
Encourage development partners	Following on from the work above, the research exercise provides clear recommendations and guidance for development partners to support the requisite digital skills transformations.
Interoperable tools and data formats	The DICE team aims to support the development of a digital ecosystem that will support an interoperable ethos and promote application of data to policy-making and educational delivery contexts.

The DICE team engaged in an initial research exercise to gain insights into the target countries and used those results for more in-depth consultation with the youth, educational institutions and policy-makers in each of the target countries. Implicit in this analysis was the need for digital transformation in all countries, not least the ones under this study.

5. Youth Digital Skills Baseline Study

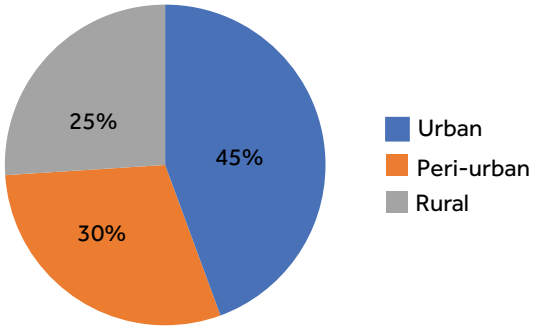
The DICE team conducted an initial youth survey across four of the five countries with a total of 1,005 respondents[4]:

- Bangladesh (309)
- India (410)
- Pakistan (60)
- Sri Lanka (226)

As described in the methodology section, in-country partners targeted young people aged between 15 and 29, as this encompassed the targeted countries views of youth, aiming for a gender and urban/rural balance in responses, as the desk research suggested this was where there were significant digital divides. The questions were aimed at exploring what digital skills young people currently have and their views on digital skills, accessibility, affordability and relevance to them as young people.

Figures 5.1 and 5.2 show shows the wide spread of respondents, including the rural community where the previous research suggests there is a digital divide.[5] The results discussed below confirm that view.

Figure 5.1 Geographical breakdown of respondents overall.



The age range was 13–35 years old, with the bulk (93.1 per cent) in the range of 17–30, showing that the key target youth groups had responded. Figures 5.3 and 5.4 give an indication of the young people's access to digital tools and examples of their current digital skills.

Figure 5.3 indicates that most young people who responded had access to some form of ICT device at home, with 80 per cent citing smartphone access, suggesting that most young people who responded had digital access. Only 2.4 per cent did not have access to the internet in their homes.

Smartphone use leads in terms of ICT devices amongst the youth surveyed, corroborated by 68.5 per cent rating their smartphone skills as good or high, and 84.3 per cent using a smartphone daily. Looking at basic digital skills, for example using a search engine, most young people were more than competent.

The low percentage in India is, a priori, indicative of lack of access rather than the lack of digital skills, in the opinion of the DICE team.

4 Despite extensive action by the team, including employing two researchers in Maldives, accessing data from Maldives proved problematic. The island country does not show a desire to complete online surveys.

5 We defined urban as an area with a high population density and corresponding infrastructure. In contrast, rural areas refer to areas with low population density, such as villages. Areas that are located on the outskirts of cities or large urban areas but retain rural characteristics, such as substantial reliance on agricultural production, are generally considered peri-urban. Peri-urban areas are those which are characterised by a mix of rural and urban characteristics.

Figure 5.2 Geographical breakdown of respondents by country.

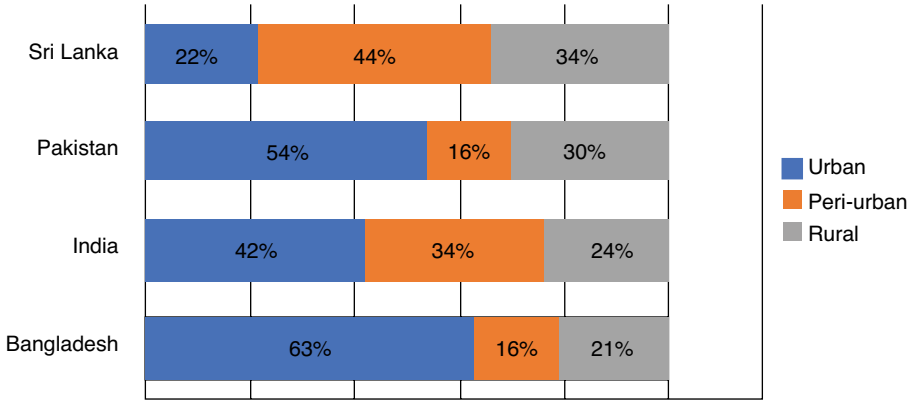


Figure 5.3 ICT device availability at home.

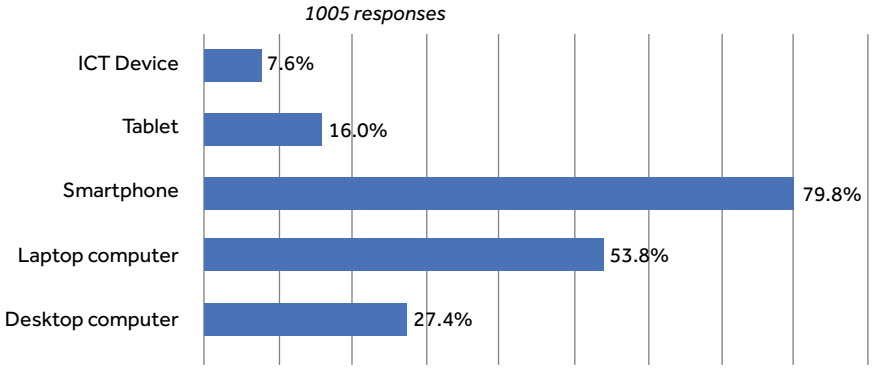
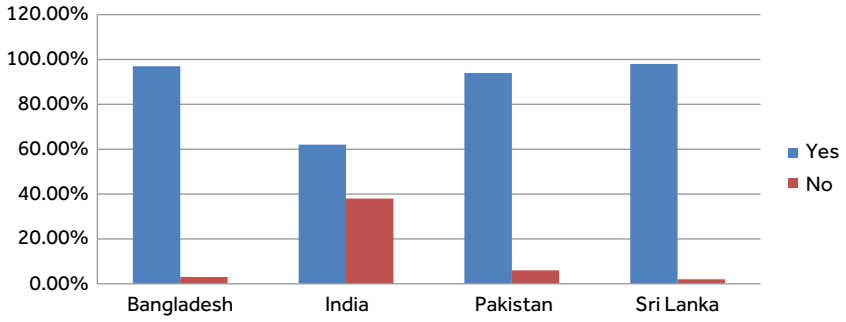


Figure 5.4 Ability to search for online information via search engines.



The full data analysis of the initial survey was used to inform the design of the focus group surveys and focus group country dialogues, to support the development of country gap analysis. This would inform an assessment of contemporary national policies and offer recommendations on future interventions for the promotion of youth digital skills.

It also highlighted early results, such as most young people have access to the internet and have basic digital skills already, which need to be tested in the next stage of the consultation.

6. Digital and Policy Overview of South Asian Countries[6]

The results from those surveys were used for further investigation using focus groups, and refined surveys where focus groups were not possible, with young people, education specialists and policy experts in each country. These are now reported along with an initial insight into the status quo in the target countries. The in-country teams have delivered the following generic baseline data for each of their countries.[7]

Each country gives an overview of what in-country partners saw as the digital skills background including policy and case studies and areas to focus on and finishing with a digital skills overview from the 'Global Digital Skills' report (Coursera, 2021).

The 'Global Digital Skills' report is produced by Coursera and is widely considered to be one of the most accurate 'skills' measure given the extensive data pool. To develop the 'Global Skills Report', Coursera taps into their ecosystem of more than 77 million learners who have registered on their platform, 4,000 campuses, 2,000 businesses and 100+ governments. The findings are meant to help government, workforce and industry leaders better understand the latest skills trends and their relationship to economic resiliency and growth, and as such they provide a touchpoint for us to compare digital skills across and within the target countries of this study.

This is then followed by the in-country research results for each country, identifying the number of participants and respondents, the young people survey results and the focus group results from the youth, education institutions and policy experts, ending with conclusions and recommendations for each country.

6 Country overviews in this report are short summaries. In order to gain more detailed insights, the Country Desk Reviews and Gap Analysis report offers more detail.

7 Note there are a number of diverse secondary sources and the data is presented here to give a perspective on the general national status quo.

6.1 Bangladesh[8]

Introduction – Overview

Bangladesh is one of the most densely populated countries in the world. As reported in the Sample Vital Registration System (SVRS) its estimated population stood at 166.5 million on 1 July 2019. The population comprised 83.2 million men and 83.2 million women. The intercensal growth rate of population as per 2019 SVRS was 1.37 per annum. As per the Report of Labour Force Survey, 2016–17, the total employed population of the country was 63.5 million, of which 43.5 million were men and 20.0 million women. The job growth rate before the COVID-19 pandemic was good; however, economic turbulence has affected the entire formal employment sector in Bangladesh. According to the Bangladesh Bureau of Statistics, the current rate of unemployment stands at 15 per cent of the active population.

There are nearly 1.2 billion young people on the planet today, with Bangladesh accounting for 27.4 million of them. The overall literacy rate in Bangladesh is around 75 per cent, while the literacy rate for youth (age 15–24) is 95 per cent, of which the rate for men is 94 per cent and for women 96 per cent (WorldBank, 2019; 2020).

There is a total population of 165.5 million in Bangladesh, of which 47.61 million are internet users with a digital skill literacy rate of 28.8 per cent.

Although 'Digital Bangladesh' has become a national slogan, the number of internet users has remained extremely low. According to the World Bank report, 12.9 per cent of the total population had access to the internet as of 2019 (World Bank, 2021). In addition to this low rate of internet access, the urban-rural divide in terms of internet access is also a serious concern for Bangladesh. The Bangladesh Rural Advancement Committee Institute of Governance and Development (BIGD) conducted a survey of 6,500 rural households in 2019. They found that, among rural citizens, women were much less likely to use the internet and be able to use it for functional purposes. Most rural households (59 per cent) do not have access to a smartphone (Rahman, 2020).

Bangladesh is a male-dominated society. This impacts whether women access digital technology and what they can do with it. Women are more likely to only access mobile phones through borrowing, which is associated with lower levels of usage across digital activities, including text and instant messaging, social media, digital services and even using the mobile phone's calculator (Vodafone Foundation, 2018). Women face gendered barriers to digital services beyond their household, and women in Bangladesh report being harassed or turned away by mobile money agents (Financial Inclusion Insights, 2018b). Social norms also lead to negative images of female mobile phone users with the result that male family members limit their access to protect family reputation (Vodafone Foundation 2018). It is unfair to expect to women and girls to instantly adopt digital technologies without facilitating cultural and value shifts. Girls going against the grain currently encounter serious threats, including being beaten, grounded, married off or being taken out of school (Vodafone Foundation, 2018).

The government has enacted several critical policies over the years to accelerate the process of digitalisation. The important ones, *inter alia* include: the National ICT Policy, 2018; the National Youth Policy, 2017; the SME Policy, 2019; and the National Digital Commerce Policy, 2018. The enactment of the National Skills Development Authority Act 2018 laid the foundation for the establishment of the National Skills Development Authority (NSDA) and the subsequent formulation of National Skills Development Authority Rules, 2020. Now the NSDA has become the centre of the country's skills ecosystem. The policy focuses on the development of effective, competency-based skills training delivery mechanisms and a unified standard curriculum and certification system, intended for digital and generic training skills. Moreover, due

8 The nature and quality of secondary data sources differed between the countries, with India and Pakistan more advanced and detailed, Sri Lanka and Bangladesh trailing to a degree and the Maldives being most parsimonious. The DICE team have attempted to achieve uniformity where possible between countries in this report but this lack must be recognised by the reader.

to the perceived low social esteem of technical education, young people are discouraged from choosing skills development training, despite their high rates of unemployment. This mindset needs to be changed with targeted public social marketing intervention.

The objectives of this policy are to:

1. Establish demand-driven, flexible and responsive training provision.
2. Deliver skills training and to assure quality through a framework of qualifications.
3. Establish a unified skills certification system.
4. Improve the co-ordination of skills development training.
5. Provide wide access to skills development training for all.
6. Strengthen industry–institute linkage for demand-driven skills development and job placement.
7. Implement a mutual-recognition agreement for skills development and job placement.
8. Introduce Recognition of Prior Learning (RPL) mechanism for the formal recognition of skills.
9. Establish a skills data system.
10. Operate an efficient monitoring and evaluation system.

Although the Government of Bangladesh has been successful in adopting e-governance by digitising numerous public services, there persists a significant 'digital divide', particularly in rural Bangladesh (Waughen, 2015). This divide is a new source of inequality in which certain factions, such as low-income families and rural residents, fall behind in the adoption and use of ICT (US Department of Commerce, 2013). Factors such as differences in access, affordability, age, bandwidth, content, disability, education, gender, migration, location and mobile speed contribute to the digital divide. According to Romke (2013), the digital divide in Bangladesh exists between urban and rural areas, different income strata and the literate and illiterate. Rural and suburban areas lag behind in terms of access to internet facilities and a reliable power supply (Rahman, 2008, in Shadat, Islam, Zahan, & Matin, 2020).

The Digital Bangladesh initiative started in 2008, when the election manifesto laid its foundation and defined goals for 2021. The election manifesto of 2014 took Digital Bangladesh forward and defined goals for a developed Bangladesh by 2050. The four pillars of Digital Bangladesh are digital government, human resource development, IT industry promotion and connecting citizens. Focus is given to the greater adoption of e-governance and e-services solutions and by providing robust training programmes in intelligent enterprise, digital trust, cyber security, SMAC (social media, mobility, analytics and cloud) and robotics, aiming to empower human resources.

In accordance with the Youth Policy (2020), the objective is to achieve digital skills efficiency.

The government has prepared Strategy 2.2 skills development for emerging technologies, including 4IR and digital skills**.**

- Strategy 2.2.1 – an important objective of the government is to develop a digital system to ensure that services are delivered efficiently to transform the country into a knowledge-based society by 2041 (National ICT Policy 2018, Sections 2.1 and 2.2). For this, the government would like to build ICT-based skilled human resources through training and by generating employment opportunities.
- Strategy 2.2.2 – the National Skills Development Policy 2020 includes provisions for promoting training in digital skills and other emerging skills areas for promotion of youth employment, both domestic and overseas. In this regard, the following measures will be adopted by the skills development system.
    - Use of digital technologies for monitoring and assessing performance and tracking of skills graduates
- Strategy 3.4 – Competency-based training and assessment (CBT&A). The CBT&A system is intended to support the introduction of demand-driven skills development training,

keeping the relevant stakeholders in the loop. It represents a shift from the traditional theory-based approaches to practical skills through the competency-based training required by industry. Two key principles of the CBT&A system include:

- Strategy 4.1 – Improving access and outreach to underserved areas. Expanding outreach and improving access of skills training are two important areas of focus of this policy.
- Strategy 4.2.3 – Persons with disabilities: The Rights and Protection of Persons with Disabilities Act 2013 calls for action to improve opportunities for persons with disabilities through increasing their access and privileges and participation in skills development programmes.

However, a review titled 'Digital Inclusion Challenges in Bangladesh: The Case of the National ICT Policy' assessed the impact and effectiveness of the National Information and Communications Technology Policy (NIP) in Bangladesh. The reports states

> the study employs a qualitative approach using policy goal-means analysis to explore critical scrutiny of the internal rationality and logic of the NIP based on three distinct criteria of the digital inclusion analytical framework: ICT access, use and skills. The analysis argues that the policy is ambiguous and technocentric, with a narrow digitisation frame of reference, which does not comprehensively address the issues associated with digital inclusion. Policy needs to be consistent and relevant to a person's daily life, giving the user a sense of empowerment and skill. The article concludes that a focus on a skill-based approach and the context of societal challenges of Bangladesh is crucial to ensuring digital inclusion.

The following information extract identifies key Bangladeshi national initiatives on digital skills training and the key stakeholders.

Key initiatives taken by Bangladeshi government/private sector for imparting digital skill training

- **Vision 2041:** This has been adopted in line with 'Vision 2021' to provide impetus to the development dream of the nation. Its aim is to end absolute poverty, to be graduated into higher middle-income status by 2031, and to eradicate poverty on the way to becoming a developed nation by 2041. Vision 2041 is a continuation of Digital Bangladesh Vision 2021, based around: (i) governance; (ii) democratisation; (iii) decentralisation; and (iv) capacity-building. Two elements regarding the national digital gap are of note; first the policy proposes several changes in agriculture, aiming at bridging a transformation of the rural agrarian economy into industrial and digital economies as part of decentralisation. Second, it reflects the need for training to build capacity and again has a focus on the digital skills gap. It emphasises the importance of female participation in technical education and skills training, as well as on rural training. It aims to develop and modernise the existing TVET Institutes.
- **a2i-Innovate for All:** 'Our primary goal is to ensure easy, affordable and reliable access to quality public services for all citizens of Bangladesh.' This initiative is aimed at bringing public services to the whole country, including rural areas, by digitalising them and providing digital public access points. 'Citizens need not travel more than 4 km to access more than 150+ essential services from any of the 5,865+ digital services.' They claim to have saved Bangladeshi citizens nearly 2 billion days, over 8 billion dollars and 1 billion visits to date.
- **Digital Bangladesh:** This is the policy delivery for leveraging IT/ITeS and achieving sustainable development goals, creating employment for all and moving Bangladesh towards a developed economy. Two key examples include, first, the setting up of 25 high-tech parks and software

technology centres across the country. Second, training programmes including Top-Up IT programmes, ITeS foundation skills programmes, mid-level management training programmes and industry association skills training programmes. However, these tend to focus on existing qualified people.

- **The National ICT Policy (NIP):** This is the key legal framework for Vision 2021 and Digital Bangladesh – see above. The NIP 2009 was enacted after a failure of the first NIP Act. Bangladesh first introduced NIP in 2002 with the aim of 'ICT systems to provide nationwide coverage and access by any citizen to the government databases and administrative systems which can be used to extend public services to the remotest corner' (NIP 2002, Paragraph 3.6.2). Reasons suggested for the failure include overambitious goals, inappropriate planning and poor implementation capacity. A review of the NIP 2002 led to the current NIP.

The key initiatives in the country generate a wide mosaic of stakeholders; at a generic level the key stakeholders would be business, industry, government, the education sector, the community and the labour force – the nature of the interest will differ in terms of expectations and will be driven by the economic and political exigencies operating within the country. The in-country teams have attempted to identify possible key stakeholders, and for each target country the team have identified some of the key nodes.[9] By the nature of the youth skills agenda, any and all organisations that have a vested interest in youth development are stakeholders in one form or another, how they engage with the national skills agenda will be a matter of resources, capabilities and the wider political landscape and socio-economic conditions.[10] The initiatives in this section show how the engagement of NGOs and leading private sector companies (with digital skills at their core) is making clear progress with digital skills in Bangladesh. Having independent organisations leading or partnering on digital skills projects also suggests political independence, making the opportunities more palatable with some young people. However, a balance is required and linking successful digital projects further into the policy should lead to a better understanding and delivery of the policy goals, which will then cascade down to educational establishments and young people.

Potential stakeholders: Youth digital skills policy

- Access to Information (a2i); Bangladesh, Ministry of Women and Children Affairs; Ministry of Post Telecommunications and Information Technology; SME Foundation; Bangladesh Women in Technology – these stakeholders are leading on Digital Skills for Decent Jobs for Youth in Bangladesh; Bangladesh Technical Education Board (BTEB).
- Government entities (Ministry of Posts, Telecommunications & Information Technology, a2i, NSDA, Bangladesh Computer Council, Leveraging ICT Project, Bangladesh Investment Development Authority, Department of Youth Development, Ministry of Education, National Youth Training Centres (NYTC, local government entities).
- National NGO (BRAC - BRAC Learning Centres)
- International Agencies (UNDP)
- INGOs (Plan International, Action Aid)
- Private Sector Entities (Grameenphone, Dutch Bangla Bank, BRAC Bank, BD

9 This again will not be exhaustive but will inform further research exercises within the country.

10 How each in-country team has selected the relevant stakeholders will offer the reader insights into the possible wider political dynamics of the target country.

Vision 2041	
Providers	Ministry of Planning Government of the People's Republic of Bangladesh
URL	vision 2021–2041.pdf (lged.gov.bd)
Overview	The Vision 2041 has been adopted in line with Vision 2021 to provide impetus to the development dream of the nation. Its aim is to end absolute poverty, to be graduated into higher middle-income status by 2031, and to eradicate poverty on the way to becoming a developed nation by 2041. The government has adopted Vision 2041 as a continuation of Digital Bangladesh Vision 2021. To convert Vision 2041 into a development strategy with policies and programmes, this document launches 'Making Vision 2041 a Reality: Perspective Plan of Bangladesh 2021–2041' (PP2041).
Outputs	• Bangladesh will be a developed country by 2041 • Poverty will be eradicated • High growth, job creation and reduction of poverty and inequality are the final outcomes that are built on the foundations of sustained macroeconomic stability • Need consistent trade and industrial policies in tune with twenty-first- century cross-border transactions of goods and services

a2i-Innovate for All	
Providers	Government of the People's Republic of Bangladesh
URL	Bangladesh to train 250,000 youths on digital skills (thefinancialexpress.com.bd) a2i
Overview	A flagship programme of the government, which announced its commitments at the Asia-Pacific Forum on Sustainable Development in Bangkok during a side event on 'Decent Jobs for Youths: Working together in Asia and the Pacific'. An International Labour Organisation (ILO) statement quoted a2i-Innovate for All policy adviser Anir Chowdhury as saying 'Bangladesh is proud to be the first government in Asia and the Pacific to commit to the Global Initiative on Decent Jobs for Youths and invites other governments to join. Decent Jobs for Youths is a global, multi-stakeholder initiative that brings together governments, social partners, the private sector, youth and civil society organisations to scale up action and impact on youth employment worldwide. As the flagship programme of the Digital Bangladesh agenda, we hope to inspire developing and developed nations on public service innovation and transformation by sharing our ground-breaking insights supported by examples, lessons, and knowledge.'
Outputs	• a2i aligned with the priority for skills development in Bangladesh • builds on a multi-sectorial partnership • focus on demand-driven skills Working with the government, employers' organisations and young trainees to make it a long-term success.

Digital Bangladesh and Vision 2021	
Providers	Government of the People's Republic of Bangladesh
URL	Digital Bangladesh – Vision 2021: The Secret of Bangladesh's Transformation (albd.org)
Overview	The Bangladesh Awami League announced in their election manifesto that by 2021, after 50 years of independence, Bangladesh would be digital, and in continuation of this Digital Bangladesh was declared on 12 December 2008. The core commitment of Digital Bangladesh is to use digital tools to alleviate poverty and reduce corruption. Its main goal is to bring every home under the digital network. Many of the steps taken to build a Digital Bangladesh by 2021 have already been implemented. The main goal of Digital Bangladesh is to digitalise government services.
Outputs	• 39 ministries have been involved in the implementation of 306 action plans • Bangladesh e-governance launched to establish a network in all parts of the country • ICT Corporate City Development has been set up to train ICT graduates • Union Digital Centre has been set up in each union to ensure online government services • Each of the country's 64 district Deputy Commissioners has a Facebook page where they can listen to the public • The government also has a plan to bring 2,800 services of 56 ministries onto the digital platform by 2025 • 250 Agriculture Information Centres have been set up • 18,000 offices now have fibre-optic cabling • Plans to bring to bring fibre-optic cabling to 115,000 organisations

Case studies[11]

The following case studies give examples of other digital skill initiatives, ranging from policy informing to practical training in the field. They have been chosen as they have clear outputs and outcomes and are targeted at clear digital gaps for the country, as described above.

Having reviewed all of the above and the desk review reports, the in-country partners have identified what they feel are the key digital policy initiatives that are being undertaken in Bangladesh.[12]

All countries in the study have similar digital skills aspirations as the global skills needs move to a homogeneous technologically based economic ecosystem, and the implementations of these policy aspirations generate a number of challenges. The in-country teams have identified the following as key challenges facing the country[13]:

11 Case studies have been selected by the in-country teams to reflect activities that show some of the interventions within the country, offering an insight into what are seen as priorities and deliver capabilities. Further, the selected case studies attempt to give some sense of the respective approaches in each country in terms of digital skills activities.

12 The reader needs to be aware that in many cases the digital skills initiatives are not necessarily youth specific and incorporate the whole of the workforce, as would be expected given the active economic lifespan of labour in the target countries.

13 These challenges are not exhaustive but offer the reader a view of some of the key issues.

Box 6.1 Digital Skills Development

- **Effective implementation:** secondary data and our research reveal problems concerning the formulation and implementation of different programmes, such as low coverage, poor infrastructure and lack of foundation required for training.
- **Lack of technical skills:** technical incompetence and language ability in English are poor. Many of the teaching staff are not up to date or have the relevant skills and knowledge to teach digital skills. The primary language of the digital world, software and equipment is English based. Gaining digital skills, especially advanced skills, requires some ability in the English language.
- **Limited connectivity:** lack of computer and internet connection and unreliable power supply. A lack of access and unreliable connections, which are typical of some Bangladeshi's rural and poor areas makes digital training physically very challenging.
- **Ineffective promotion:** lack of awareness about the potential benefits of digital skills in career development and inadequate promotional activities associated with digital skills.

Infographic 1: Bangladesh skills overview

This final infographic of the overview provides a summary of the digital skills levels within the Bangladesh workforce, drawn from the Global Digital Skills report of 2021 (Coursera 2021), to give an insight into the digital skills status quo in Bangladesh.

Box 6.2 Bangladesh skills overview

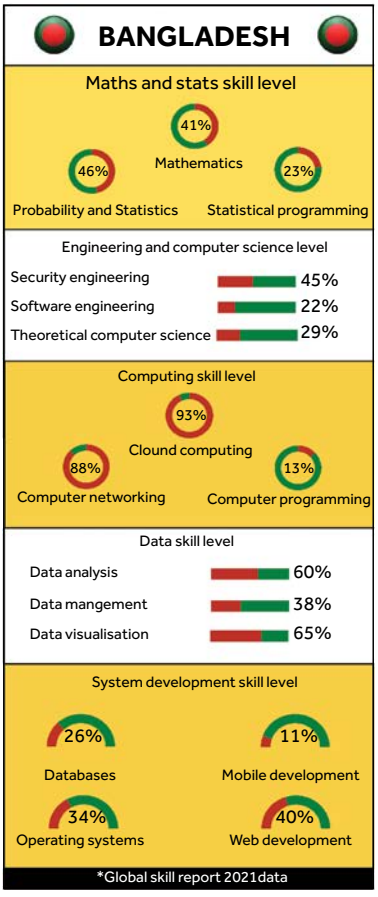
The infographic offers a summary of the digital skills levels within the Bangladesh workforce, according to the Global Digital Skills report of 2021.

The report shows that baseline mathematical skills in the country could be improved. The rating for engineering and computer science levels seems to correlate well with the base of maths and statistics skill levels.

When addressing computing skills, it can be concluded, a priori, that the respondents interpreted cloud computing and computer networking as use of cloud computing and possibly social networking; this is repeated in the results for other countries. This conclusion is borne out to some degree with the low score for computer programming.

The baseline data skills levels are high and indicative of a growing capability in the country of data management activities.

However, when assessing the system development skills level, the score tapers off significantly, showing possible weaknesses in the scores for engineering, computing and data.



Research findings

Data for this project were collected through youth surveys and focus group surveys with young people and educational and policy experts for Bangladesh.

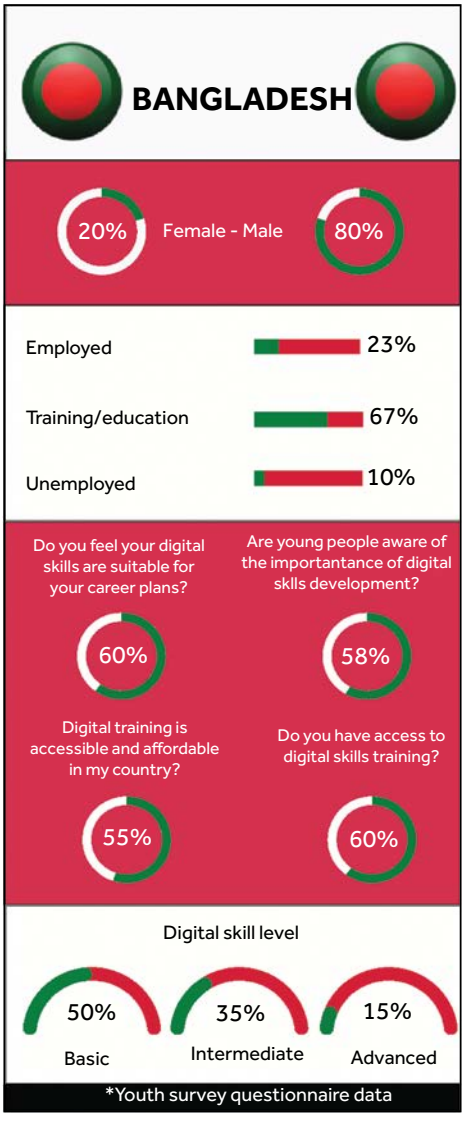
The youth summary survey results (309 responses) are captured in Infographic 2 (baseline data collected by the DICE team over July and August 2021 for Bangladeshi youth).

Number of respondents/participants

Youth Baseline Survey	309
Focus Group/Refined Survey Youth	40
Education Experts	41
National Policy Experts	26

Box 6.3 Bangladesh youth baseline

This infographic represents a summary of the baseline data collected by the DICE team. The team in Bangladesh found it challenging to secure a balanced representation in terms of gender. Therefore, the data have to be assessed in terms of a male bias, which reflects the access to digital skills in the country. 'Bangladesh has a 29% gender gap in the ownership of mobile phones and 52% in the use of mobile internet. This means women are 29% less likely than men to own a mobile phone and 52% less likely than men to use mobile internet' (Business Standard, 2021). The high level of responses from those in education again reflects the lack of access to education for women and girls. These biases aside, 60% of the respondents felt that they had the relevant skills to pursue their career goals and that many young people were aware of the importance of digital skills. In terms of affordability and access, 55% felt that digital skills are affordable and 60% were able to secure access to the training they need in digital skills. In terms of the overall level of digital skills, 85% feel they have basic and/or intermediate skills, while 15% reflected that their skills could be assessed as advanced. This shows that the country does need to address access for women and create pathways to advanced skills across the youth.



These results informed further focus groups and surveys which gave these results.

From the youth focus groups/refined survey

A total of 40 youth surveys were conducted, of which 32 were men and eight women. These were the young people's responses along with representative quotes:

- When questioned about whether they feel that digital skills are suitable for their career plan, 60 per cent of respondents said yes.
- 58 per cent agreed that young people are aware of the importance of digital skills development for their career opportunities.
- When asked whether digital training is accessible and affordable in their country, just over half (55 per cent) agreed, with 60 per cent claiming to have access to digital training.
- Of 40 respondents, 50 per cent marked themselves as having basic digital skills, while only 15 per cent had advanced skills.
- When asked about the biggest challenges to starting and/or maintaining a career using digital skills, the respondents pointed out a lack of investment in IT resources/teaching, poor education and unreliable internet connections and speeds, leading to a lack of awareness of digital skills at the basic school level.

From the educational organisations

A total of 41 surveys of educational organisations were conducted.

The respondents came from various professional circumstances: education senior management (12), digital skill trainer (5), professional in technology sector (10), programme manager (2) and others (12). These were their responses along with representative quotes:

Quote Box (From Respondents)

What do you think are the biggest challenges to starting and/or maintaining a career using digital skills in your country?

Bangladeshi youth response:

'The biggest problem is educating people about digital skills and creating awareness of basic levels.'

'Internet accessibility is not always available.'

'Lack of tech integration in education.'

'There are very limited job opportunities in the IT sector of Bangladesh except for open sourcing.'

Quote Box (From Respondents)

Can you give some examples of digital skills used creatively?

Bangladeshi youth response:

'Business analysis/product analysis.'

'Graphics design / Photoshop.'

'Websites development.'

'Web page design, digital marketing.'

- When asked about the major digital skill gap among the youth, around 76 per cent of respondents either agreed or strongly agreed that there was indeed a youth digital skills gap in Bangladesh. A further 32 per cent of respondents highlighted that at secondary education level digital competences need to be developed.
- When asked about the key issues that influence the supply/acquisition of digital skills for individuals, respondents cited issues such

as lack of knowledge, access to digital devices and poor infrastructure in place to aid teaching.

- The key issues that influence the supply/acquisition of digital skills at institutional level, according to the respondents, were: poor teacher training leading to a lack of competence in teachers; an old, outdated curriculum leading to a skills gap later in life; and poor equipment for teaching in the classroom.
- When asked about key issues that influence the supply/acquisition of digital skills at employer level, the respondents mentioned the performance of digital graduates, the state of the job market and industry-specific training.
- When asked whether the educational infrastructure in the country is able to meet the youth digital skills development challenges, around 71 per cent respondents did not agree that the educational infrastructure of Bangladesh could meet the youth digital skills development challenge.

From the national policy experts

A total of 26 national policy experts were surveyed from various sectors: professional in technology (7), digital skills strategist (3), national education policy-maker (7), employer (4) and others (5). These were their responses along with representative quotes:

- 81 per cent of the respondents agreed that there is a major digital skills gap among the youth. A further 42 per cent believed digital skills should begin to be taught at secondary school level.
- Initiatives suggested by the respondents to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles and to achieve gender equality for women were: the development of scholarships targeted for women; gender-specific training; community-based learning to reach women in rural areas; and female empowerment through public awareness.
- When asked about initiatives for those currently not in education and employment and having no digital skills to help them carry out the most basic tasks, the respondents suggested: training via mobile learning at grassroots level; information technology learning in the community; government-funded outreach programmes; and social awareness programmes.

Quote Box (From Respondents)

What types of initiatives should be adopted to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles?

Bangladeshi educationalist responses:

'Awareness programme, informing about the emerging digital job market.'

'Need basic training, providing scope and opportunities to be an entrepreneur, financial support and policies in place for free internet service.'

'Provide women and young people with sufficient training and ensure their jobs in the private and public sectors as well. Moreover, those who don't have the financial capacity to own a digital device should be provided with these devices.'

'More information about the future of digital businesses should be preached and the sustainability of digital businesses in the future should be showcased.'

Quote Box (From Respondents)

'We need equal access to digital skills training and skill enhancement projects."

Bangladeshi National Policy expert (Project Survey, 2021)

Quote Box (From Respondents)

What are the key barriers that prevent your country from capitalising on the opportunities that new digital technologies offer to the economy?

Bangladeshi Policy Experts responses:

'Lack of motivation and logistic support.'

'Online transactions in Bangladesh are not so secure that people will be encouraged to transact online.'

'Lack of strong internet infrastructure, digital and communication skills.'

'Proper training is not available with no long-term vision.'

Conclusions and Recommendations

Most young people appear to have basic digital skills but not many have advanced skills. They are aware of the opportunity digital skills can give them but just under half think the training is not accessible or affordable. Most of the education and policy experts agreed there is a significant digital skills gap in Bangladesh. The education experts suggested the barrier to digital skill uptake included experts that are not trained to deliver training on the latest digital skills and a lack of digital resources and digital connections. They also felt strongly that the educational infrastructure of Bangladesh could not meet the youth digital skills development challenge currently. The policy experts focused on the lack of equality, suggesting if women and rural youth had more social equality they would be in a better position to consider upskilling, including digital skills. They gave examples such as scholarships targeted for women, gender-specific training and training via mobile learning at grassroots level.

1. The foremost need of the day is the development of appropriate institutional frameworks and their enforcement that can effectively facilitate the acquisition of technology-enabled digital knowledge and skills.
2. Rural–urban and gender divides must be addressed to make sure that equality prevails in terms of accessibility as well as quality.
3. Revamping curricula at the secondary level of education, focusing on the appropriate ICT contents.
4. An appropriate training curriculum needs to be developed at the national level in collaboration with all relevant stakeholders.
5. The benefits of digital skills knowledge awareness and career connection with the secure growth of skills should be promoted.
6. There must be a blend of proper curriculum, motivation and policy for rewarding participants.
7. Innovation freedom and incubator facilities must have gender equality to encourage female engagement.
8. Language simplification is a must where at present only 3% of total population has proper communications skills (speaking, writing, and reading English).
9. There must be a policy for digital resource development to compete according to a global standard. Policy implementations need to be more transparent.

10. Government should have a monitoring and evaluation board for certification to maintain the global standard of digital skills and performance.
11. Promote rural resources to ensure equal opportunity and digital access.
12. Skills gap analysis and competency knowledge for mass segments of youth should be undertaken to analyse and prioritise the reasons why youths are not developing digital skills.
13. Internet accessibility and country digital strengths mapping needed to ensure equal access to the internet among rural and urban youth, as well as people with a disability, minority groups and ethnic people. To further engage them the digital curricula should contain content that has direct relevance to their live such as managing family earnings

The level of inequality and the existence of monopolies create barriers to widening access to digital skills opportunities for many. Creating opportunities for all groups of people is key to the realisation of economic growth and economic development. Building digital skills development should be built on connectivity awareness programmes and an appreciation of the importance of digital skills.

6.2 India

Introduction – Overview

India is recognised as one of the youngest nations in the world, with over 50 per cent of the population under 30 years of age. It is estimated that by about 2025, India will have 25 per cent of the total global workforce (International Institute for Management Development, 2012). Hence, there is a need to further develop and empower the human capital to ensure the nation's global competitiveness. As far as the economic progress of the country is concerned, India is still lagging behind due to various problems such as poverty, unemployment, illiteracy, and poor medical infrastructure. The youth play a crucial role in achieving the economic prosperity of any country, including India. However, most of the Indian youth being educated today are facing severe unemployment problems due to a lack of skills and technical knowledge. Many of them are unaware of the developments taking place in the modern world.

India has begun to deal with the skills gap in several ways. The National Skill Development Corporation India (NSDC) was set up as a public-private partnership company with the primary mandate of catalysing the skills landscape in India. The NSDC runs the National Skill Development Initiative, which aims to empower all individuals through improved skills, knowledge, and nationally and internationally recognised qualifications, so improving their chances of being employed and thus ensuring India's competitiveness in the global market. The government has recognised the need for skills development, firstly with the Eleventh Five-Year Plan, termed 'India's educational plan', which provides a framework to address the situation. The first National Skill Development Policy was framed in 2009 and, subsequently, a National Skill Development Mission was launched in 2010. The Twelfth Five-Year Plan, which was the nation's key policy document for higher education from 2012 to 2017, observed that skill development programmes in the past have been run mainly by the government, with insufficient connection with the market demand. It called for an enabling framework that would attract private investment in vocational training through public-private partnership. A Department of Skill Development and Entrepreneurship was created under the Ministry of Youth Affairs and Sports in July 2014 and was subsequently upgraded to a full-fledged ministry in November 2014, delivering the National Policy for Skill Development and Entrepreneurship. The role of the ministry involves co-ordinating and evolving skill development frameworks, mapping of existing skills and certification, industry-institute linkages, etc.

A broad policy framework was implemented in line with the recommendations of the five-year plan by launching the Skill Development Policy of 2009. A special budget was allocated and the Prime Minister's National Skill Development Council was established to strategize skill development programmes in the country. Similarly, the National Skill Development Agency was formulated to implement different schemes of the central government in co-ordination with various states and the private sector. Even so, after investing enormous resources in infrastructure and training initiatives, creating a skilled workforce suiting industry requirements could not be achieved. One of the impediments to achieving success in the 2009 policy is attributed to the focus given to Vocational Education and Training (VET) imparted through ITIs. As a World Bank report in 2008 suggested, expanding the VET system as a skill development programme would not substantially improve the outcomes. Whereas Ahamed (2016), considering National Sample Survey Organisation data in his research, argues that the net effect of VETs in the Indian context is positive for employment and wages, and he further asserts the reason for that could be specific VET courses and employer participation.

The government are currently considering revising the National Policy for Skill Development to meet the challenges of skilling in India at scale with speed, quality and sustainability, including digital skills. The plan is to link skilling of the workforce with the government's new production linked incentive (PLI) scheme. This will create a pool of skilled people to boost manufacturing capacity and standards in

select sectors, and a case should be made for digital skills. This would help attract both domestic and foreign investments and integrate India with global supply chains.

The government is setting up an expert committee to review the policy and is also likely to appoint a national-level institution to assess the impact of the PLI scheme and come up with recommendations to update the current policy or, if required, form a new policy. Hopefully the results of the report will influence their direction.

Digital India, launched in 2015, is the policy to ensure the government's services are made available to citizens electronically by improved online infrastructure, increasing internet connectivity and making the country digitally empowered. The initiative includes plans to reduce the rural digital gap by connecting rural areas with high-speed internet networks. It consists of three core components: the development of secure and stable digital infrastructure; delivering government services digitally; and universal digital literacy. It is centred on three key areas: digital infrastructure as a utility to every citizen; governance and services on demand; and digital empowerment of citizens.

Digital India is an umbrella programme that covers multiple government ministries and departments. It weaves together many ideas and thoughts into a single vision so that each of them can be implemented as part of a larger goal. Each individual element stands on its own but is also part of the larger picture. These range from universal access to mobile connectivity and public internet access programmes to IT for jobs.

The following information extract identifies key Indian initiatives on digital training and the key stakeholders that should be involved.

Box 6.4 Key initiatives taken by Indian government/private sector for imparting digital skill training

- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** is the flagship scheme of the Ministry of Skill Development and Entrepreneurship (MSDE) implemented by the National Skill Development Corporation. The objective of this skill certification scheme is to enable Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. Two targets of note include: first, short-term training for young people who either didn't complete their school/college education or are unemployed, which will include training in soft skills, entrepreneurship, and financial and digital literacy. Second, special projects which envisages the creation of a platform that will facilitate training in special areas and/or the premises of government bodies, corporates or industry bodies, and training in special job roles. It is hoped these will include digital skills.
- **Pradhan Mantri Kaushal Kendra, towards creation of standardised infrastructure for delivery of skill development training.** The MSDE has initiated the establishment of state of the art, visible, aspirational model training centres in every district of India. These model training centres are referred to as Pradhan Mantri Kaushal Kendra (PMKK). They are equipped to run industry-driven courses of high quality, with focus on employability, and create an aspirational value for skill development training. Training is to reflect district need and local youth aspirations and manufacturing. Again, there is a hope it will also include digital skills. To date, of the 812 PMKKs planned, 738 are established.
- **Universal access to mobile:** A key strand of Digital India is its aim to provide mobile access to more than 55,600 villages that do not have mobile coverage. The initiative aims to focus on network penetration and fill the gaps in connectivity in the country. Further, it hopes to target all

underserved areas and identifies specific groups, such as marginalised communities, women and people with disabilities that merit specific attention. It also looks practically at solving last-mile connectivity issues in both urban and rural areas, through the use of public Wi-Fi infrastructure. The policy direction is positive, moving from broad claims about the need for universal access to specific factors identified as digital gaps, such as location, gender and marginalisation.

- **DigiSaksham:** This joint initiative with Microsoft India and India's Ministry of Labour and Employment (MoLE) is a free programme to develop digital skills. The initiative gives priority to job-seekers in semi-urban areas belonging to disadvantaged communities, including those who have lost their jobs due to the COVID-19 pandemic. The programmes are delivered though the National Careers Service (NCS). NCS portals can be accessed directly or from career centres (employment exchanges), common service centres, post offices, mobile devices, cybercafes, etc. Young people can access Microsoft learning resources such as programming languages, data analytics, software development fundamentals and advanced digital productivity on the NCS portals.

Given these initiatives, some of the possible stakeholders are listed in the box below. They focus on the skills development areas that can bridge the gaps between policy aims and educational delivery and provide standardised digital qualifications that industry, academia and young people recognise as having value towards building digital skills careers and jobs. This is a key area that needs further attention from those stakeholders who are responsible or influential for skills development.

Box 6.5 Potential stakeholders: Youth digital skill policy

- National Council on Skill Development (NCSD)
- National Skill Development Coordination Board (NSDCB)
- National Skill Development Corporation
- National Skill Development Agency
- Ministry of Labour and Employment
- National Skills Qualifications Framework
- Regional Vocational Training Institutes
- Ministry of Skill Development and Entrepreneurship
- Pradhan Mantri Kaushal Vikas Yojana

The following are key case studies giving further examples of other digital skill initiatives ranging from award to providing digital skills and resources. These case studies are chosen as the initiatives are related to India's national interest.

Pradhan Mantri Kaushal Vikas Yojana 2016–20	
Providers	Ministry of Skill Development and Entrepreneurship
URL	https://msde.gov.in/en/schemes-initiatives/schemes-initiatives-through-nsdc
Overview	Ministry of Skill Development and Entrepreneurship through NSDC has implemented Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2015–16 with a target to cover 240,000 youth in the country. The scheme is implemented with the objective to enable a large proportion of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. Individuals with prior learning experience or skills were also assessed and certified under RPL category. PMKVY (2016–2020) is a grant-based scheme providing free-of-cost skill development training and skill certification in over 252 job roles to increase the employability of the youth. The scheme was launched on 2 October 2016 with the following objectives: • Provide fresh skill development training to youths who didn't complete their school/college education and unemployed youths through short term courses. • Recognise the available skills of the current workforce through skill certification. • Engage states in the implementation of the scheme, leading to capacity development of the states. • Improved quality of training infrastructure along with alignment of training with the needs of the industry. • Encourage standardisation in the certification process and initiate a process of creating a registry of skills.
Outputs	During its pilot phase, PMKVY trained 198,500 people in 375 job roles. Under PMKVY 2015–16 it was not mandatory for NSDC's training partners to report employment data. The employment data available reflects only a fraction of the actual employment provided under the scheme. Of the total trained candidates, around 25,300 candidates have been reported as placed. It was a reward-based scheme, which provided the entire cost of training as a reward to successful candidates.

DigiSaksham	
Providers	Microsoft and India's Ministry of Labour and Employment (MoLE)
URL	https://digisaksham.azurewebsites.net/
Overview	The programme aims to provide 10 million jobseekers on the National Career Service platform access to the tech giant's Global Skills Initiative to help with computing and computer science training, low-cost certifications, and free job-seeking tools. In its first year, it also aims to train over 300,000 jobseekers in programming languages, data analytics, software development fundamentals, and advanced digital productivity through online training and in-person workshops. Some of the courses for the first year include Excel, Python, Azure, Java, and Security Fundamentals. The initiative is billed as an extension of the government's ongoing commitment to upskill youth from rural and semi-urban areas to enhance their employability. It will be implemented in the field by Aga Khan Rural Support Programme India (AKRSP-I), a development NGO that provides support to local communities.
Outputs	The project launched in October 2021 so outputs are still to be assessed, but DigiSaksham is part of Microsoft's global commitment to help 25 million people acquire digital skills in a COVID-19 economy. The programme will directly train 300,000 jobseekers through online training on the Microsoft Community Training (MCT) platform and in-person workshops at career centres. AKRSP-I will also organise instructor-led boot camps on emerging technologies like cloud, AI, and data analytics to reach 2,400 jobseekers across four career centres.

The Google Future Classroom Initiative	
Providers	Google, Greater Visakhapatnam Municipal Corporation (GVMC) Visakhapatnam, India
URL	https://edu.google.com/intl/ALL_uk/latest-news/future-of-the-classroom/
Overview	The Google Future Classroom Initiative helps educators empower students by letting them drive their own learning with digital tools and skills that can better prepare them for the future. To do this, a Chromebook is provided for every student, along with Google Workspace for Education and K-Yan, an integrated computer projector. GVMC is committed to ensuring that each of the 21,800 students across its 147 schools reaches their full academic potential, regardless of their economic circumstances. Providing equitable access to modern technology can dramatically improve the way learning happens, allowing students to more easily grasp complex concepts, and work more collaboratively with both their peers and teachers.
Outputs	Through the Google Future Classroom Initiative, schools across India are shifting from rote memorisation to engaged discovery. Teachers can focus on teaching, rather than on technology, and empower students to dive deeper into their studies. At KDPM High School, the Google Future Classroom Initiative has already had a pronounced impact on learning outcomes. Students with access to Chromebooks, Google Workspace and K-Yan have seen their grades improve by an average of 15 per cent across all subjects. This, in turn, has led to an increase in enrolment at the school of 12 per cent.

Box 6.6 Digital Skills Development – Challenges

- **Low literacy**: the limited literacy levels pose a major challenge. The primary language of the digital world, software and equipment is English based. Gaining digital skills, especially advanced skills, requires some ability in the English language.
- **Lack of connectivity**: limited internet connectivity at home makes it difficult to practice, eventually leading to de-learning and forgetting the skills learned. A lack of access, which is typical of some Indian rural and poor areas, makes digital training physically very challenging.
- **Need to expand training**: the duration of training needs to be spread over a longer period, with more hours to enhance the absorption and retention of information and skills. Current programmes tend to be short with little chance to practice. This, linked with limited or unreliable connectivity, means longer teaching periods can increase the interaction time, leading to better practice and experience.
- **Lack of skilled trainers**: along with the other challenges, India needs to push to promote ICT-skilled trainers through train-the-trainer projects.

Having reviewed all the above and the desk review reports, the in-country partners have identified what they feel are the key digital policy initiatives that are being undertaken in India.[14]

All countries in the study have similar digital skills aspirations as global skills needs move to a homogeneous technologically based economic ecosystem, and the implementations of these policy aspirations generate a number of challenges. The in-country teams have identified the following as key challenges facing India[15]:

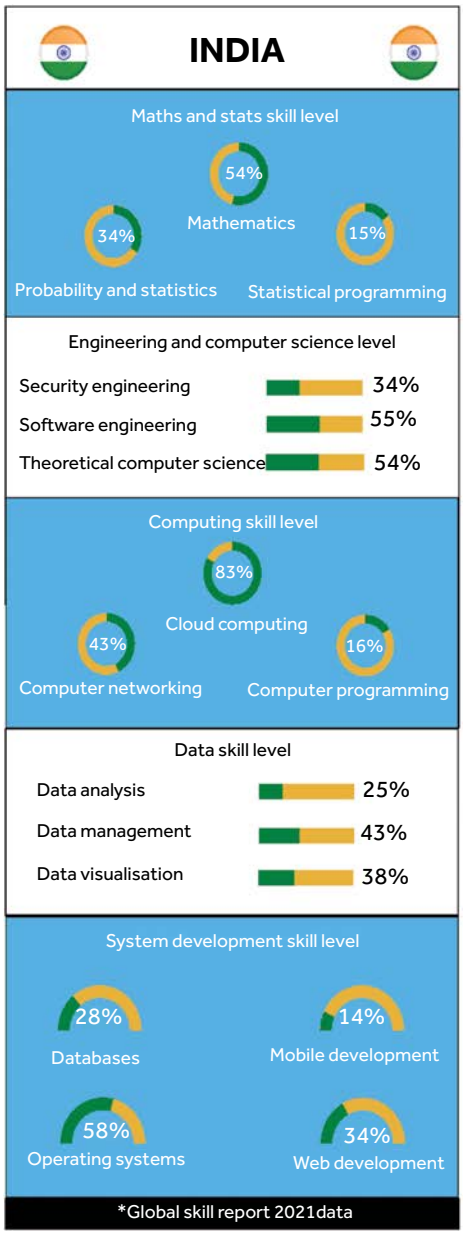
Box 6.7 provides a summary of the digital skills levels within the Indian workforce, drawn from the Global Digital Skills report of 2021 (Coursera 2021), to give an insight into the digital skills status quo in India.

14 The reader needs to be aware that in many cases the digital skills initiatives are not necessarily youth specific and incorporate the whole of the workforce, as would be expected given active economic lifespan of labour in the target countries.

15 These challenges are not exhaustive but offers the reader a view of some of the key challenges.

Box 6.7 India skills overview

The infographic offers a summary of the digital skills levels within the Indian workforce according to the Global Digital Skills report of 2021. India has enjoyed leading status in the South Asia region in terms of global outsourcing (Couto and Fernandez-Stark, 2019). However, the data from this report shows some surprising results; for example, low levels on the probability and statistical skills level, especially when assessed against the other target countries. Only Sri Lanka scored similarly to India in the theoretical computer science skills level. As mentioned, in the other countries the high score for cloud computing reflects the ability to use cloud computing rather than an ability to manipulate cloud computing. Further, the levels associated with data skills are lower than would have been expected from an economy with such a deep history of global outsourcing activities. Systems skills also show some surprising results, with low mobile and relatively low web development skills. While it is not clear what the Skills Report defined as operating systems, clearly respondents felt empowered in this area.



Research findings

Data for this project were collected through youth surveys and focus group surveys with young people and educational and policy experts for India.

The youth summary survey results (410 responses) are captured in the following infographic (baseline data collected by the DICE team over July and August 2021 for Indian youth).

Number of respondents/participants

Youth Baseline Survey –	410
Focus Group/Refined Survey Youth –	27
Education Experts –	26
National Policy Experts –	28

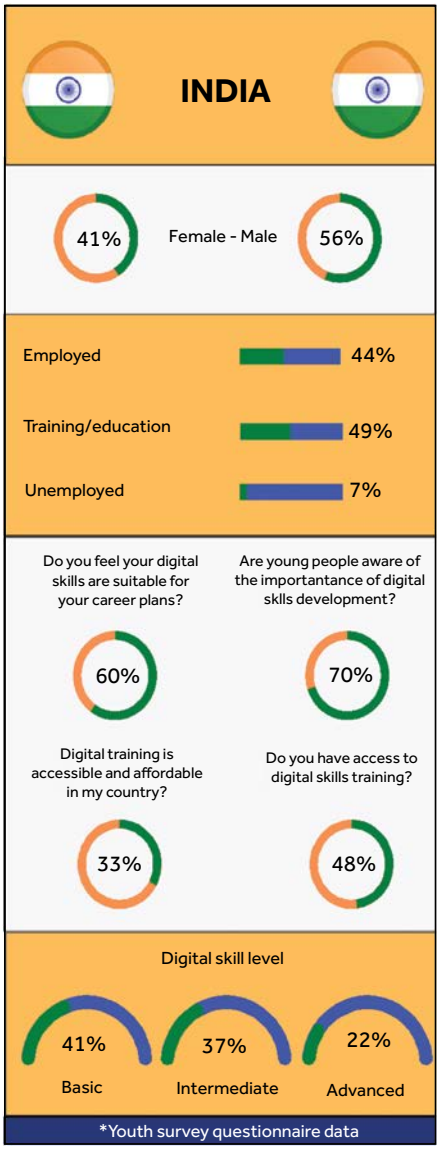
Box 6.8 India youth baseline

This represents a summary of the baseline data collected by the DICE team over July and August 2021 for India youth (410 respondents).

The Indian in-country team were able to secure a reasonably high level of engagement from female youth and a balance between those in employment and those still in education. Again, the results are reasonably consistent with the other countries.

In the region of 60% felt that they had the digital skills level to meet their career aspirations. However, only 33% felt that digital skills are affordable, and just under 50% indicated that they can access digital skills training.

When assessing their levels of digital skills, again the Indian youth show similar assessment to other target countries, viz: 78% feel they have basic and/or intermediate skill levels, while 22% assessed themselves as being at an advanced level, making a suitable base upon which to build youth digital skills.



Further points and representative quotes from the youth survey included:

- When asked about types of ICT devices at their home, most of the users mentioned laptops, desktops or smartphone devices. When asked about the level of knowledge using the ICT device, users marked themselves as good and the respondents were frequent users of the mobile phones, using them every day.
- When asked about internet access at home, 193 participants used mobile phones as a source and 98 used cables as a source of connectivity. 20 participants responded that they do not have any access to the internet at their home.
- Around 73 per cent of respondents agreed that they use online search engines for getting information to buy something but they do not rely on such information.
- When asked about their digital skills, such as save and store files, communication with mobile phone, email, chat, sharing files, using technology for service interaction, use of social media, content creation by tool, editing the contents along with their rules and regulation for social media commenting, and copyrights for digital content, an average of 76 per cent of respondents were familiar with those skills. The respondents were familiar with how to solve technical problems while using a device, and they also agreed that private information should not be revealed online and that their credentials can be stolen if proper safety cannot be taken.

Quote Box (From Respondents)

What are the biggest challenges to starting and/or maintaining a career using digital skills in your country?

Indian Youth Survey Responses:

'Lack of IT resources and management'

'Skills gap'

'Understanding digital skills'

'Proper career guidance in this field'

- On communication and literacy, 72 per cent of respondents were multilingual, reading books and magazines, had spoken sometimes in front of groups of people, engaged in group discussion, used social media sites and emails for communication, and many consider themselves good listeners.
- Based on decision-making and problem-solving skills among the respondents, 60 per cent play online games or do puzzles and crosswords, express their ideas in groups, solve problems in difficult situations and make use of search engines to solve problems.
- When asked about numeracy, 65 per cent of respondents enjoy mathematics, can understand common forms of numerical data such as percentages, graphs, charts and spreadsheets, and are able to apply numbers in practical contexts, such as measuring, weighing, estimating and applying formulae, and they can use a calculator.
- While collecting the information related to working effectively with other people, it was found that 55 per cent of respondents considered themselves organised, helped at home with domestic activities, set and worked towards personal goals, enjoyed learning new things, and were punctual.

Quote Box (From Respondents)

Can you give some examples of digital skills when transacting online?

Indian Youth Survey Responses:

'Secure payment methods'

'Setting up accounts to purchase goods'

'Access and use public services online'

'Job application form'

- When asked about the use of ICT, 70 per cent of respondents had an account on Instagram, Facebook or LinkedIn. Fifty per cent of respondents have been trained to use programmes such as Word, Excel or

PowerPoint, only 30 per cent of respondents had applied for online jobs, around 65 per cent respondents agreed that they play games either on a mobile device or a PC, and 50 per cent of respondents have thought about their own business idea.

These results informed further focus groups and surveys, which gave the following results.

From the youth focus groups/refined surveys

A total of 27 youth surveys were conducted, of which 15 were men, 11 were women and one preferred not to give their gender. These were the young people's responses, along with representative quotes:

- When questioned about whether they feel digital skills are suitable for their career plan, 60 per cent of respondents said yes, they agreed.
- 70 per cent agreed that young people are aware of the importance of digital skills development or the career opportunities.
- When asked whether digital training is accessible and affordable in India, 50 per cent disagreed.

Quote Box (From Respondents)

Can you give some examples of digital skills used creatively?

Indian Youth Responses

'Digital creativity tools'

'Digital business analysis'

'Using digital tools and technologies to explore creative ideas and new ways of displaying your ideas, research, or work.'

'Consume different kinds of content related to digital skill.'

- Of the 27 respondents, 63 per cent marked themselves as basic or advanced in digital skills.
- When asked about the biggest challenges to starting and/or maintaining a career using digital skills, the respondents pointed out a lack of IT resources and management, skill gaps, understanding digital skills, job-specific skills and funding.

From the educational organisations

A total of 26 surveys were conducted. The respondents were from various professional circumstances: education senior management (6); digital skill trainer (4); professional in the technology sector (5); programme manager (2); and others (9). These were their responses along with representative quotes:

- 58 per cent of respondents highlighted that they agree with the statement that there is a major gap for digital skills in the country. To overcome this, 43 per cent of respondents highlighted that digital competency can be developed from secondary education level.
- When asked about the key issues that influence the supply/acquisition of digital skills for individuals, respondents suggested issues like lack of knowledge, digitalisation, social media (WhatsApp, Facebook), etc.
- The key issues that influence the supply/acquisition of digital skills at institutional level according to the respondents were use of emerging technologies and experts not trained to deliver training on latest digital skills.
- When asked about key issues that influence the supply/acquisition of digital skills at employer level the respondents indicated: online communication, social contact, and learning new things to develop themselves as key influences.

Quote Box (From Respondents)

What types of initiatives should be adopted to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles?

Indian educationalist responses:

'Upskilling or gap-filling training programmes for selected youth women and others. Certification of already possessed digital skills.'

'Free seminar should be increased.'

'Offer digital skills programme through government institutions, announce digital bootcamp for university/colleges students.'

- Respondents felt that initiatives which spread awareness, give knowledge free, or provide training and education programmes, new technology and software should be developed to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles.
- According to respondents, barriers such as the lack of equipment, lack of digital gadgets, speed of the internet, costly devices, etc. help prevent the expansion and provision of digital skills for youth.
- When asked whether the educational infrastructure in the country is able to meet the youth digital skills development challenges, around 62 per cent of respondents say yes and agreed with the same.

From the national policy experts

A total of 28 surveys were conducted with national policy experts from various professions in the technology sector: digital skills strategist, national education policy-makers and employers. These were their responses along with representative quotes:

- 54 per cent of respondents agreed that there is a major digital skills gap amongst the youth.
- Initiatives suggested by the respondents to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles included: achieve gender equality for women; give girls a strong foundation through early childhood development; focus on basic education; create an environment that encourages investments in knowledge; and provide risk management tools that facilitate innovation.

Quote Box (From Respondents)

What are the key barriers that prevent your country from capitalising on the opportunities that new digital technologies offer to the economy?

Indian policy experts' responses

'Poor internet systems'

'Lack of a corporate vision for digital'

'Risk-aversive culture'

'Lack of high-speed broadband networks, low rates of digital skills learning in rural and remote areas'

- When asked about initiatives taken by the country for those who are currently not in education and employment and have no digital skills, the respondents suggested providing training, helping them to participate in the digital world, leaders giving guidance and creating a virtual task force to develop a digital skills strategy for them.

Quote Box (From Respondents)

'All jobs are now becoming technology based'

Indian National Policy Expert (Project Survey, 2021)

Conclusion and Recommendations

There is a significant rural and gender digital divide in India. Most young people appear to have basic digital skills but not many have advanced skills. They are aware of the opportunity digital skills can give them but half think the training is not accessible or affordable. Most of the education and policy experts agreed there is a significant digital skills gap in India. The education experts suggested the barrier to digital skill uptake included a lack of digital resources and digital connections and a significant minority did not feel the educational infrastructure in the country can meet the youth digital skills development challenges at present. The policy experts focused on the lack of equality, suggesting if women and rural youth had more social equality they would be in a better position to consider upskilling, including digital skills. The case studies showed examples of public-private partnerships working together in education establishments to promote digital skills.

1. Increase awareness of the role of digital skills in developing careers
2. Explore scope for introduction of digital training course
3. Increases provision of entry-level digital training programmes
4. Have clear digital skills development pathways
4. Develop professional development programmes for educators at all levels
5. Improve digital skill strategies at institutional level
6. Expand the focus on the mix of digital skills
7. Increase research into the nature of the digital skills gap
8. Need to highlight the role those digital skills play in terms of promotion of economic development
9. Develop clear understanding of the nature of digital skills and enhance its link with employability to inform delivery strategies
10. Policy goals must be complemented by suitable budgetary structures
11. All relevant stakeholders should be included in the development of policy

Educational organisations need to be supported to build digital skills strategies

6.3 Maldives

Introduction – Overview

The Republic of Maldives has a population of around 515,696 people spread across 185 islands. Maldives covers a land area of 298 square km, which is spread over 90,000 square km, making it the world's sixth smallest sovereign state. It encompasses 1,192 islands, of which only 185 are inhabited. More than 95 per cent of the islands are less than one square kilometre in size.

The country has been a development success, enjoying robust growth coupled with considerable development of the country's infrastructure and connectivity. It has also provided high-quality and affordable public services for its people, resulting in impressive health and education indicators, with a literacy rate approaching 100 per cent and life expectancy of more than 78 years. More than 30 per cent of the population live in the capital city, Malé.

Maldives has managed to attain upper-middle-income status and reduce poverty mainly through the successful development of high-end tourism. The poverty rate is expected to decline slowly over the medium term to 2.7 per cent in 2023. However, the COVID-19 pandemic is the largest shock to have ever hit the Maldives economy. The government closed borders between the end of March to mid-July 2020, resulting in a sudden stop of tourist inflow. To mitigate the adverse welfare impacts of the crisis, the government spent USD 187 million, or about 4.7 per cent of estimated 2020 GDP, on special financing facilities for firms and freelance workers, monthly income support allowances and discounted utility bills.

The Maldives economy is estimated to have contracted by 28 per cent in 2020, as tourism and construction activity slumped. Only 555,494 tourists visited the country, a third of the number in 2019. Since December 2021, however, tourism has picked up strongly thanks to the absence of quarantine requirements and the unique 'one island, one resort' concept. However, it makes the case for widening the country's economy beyond tourism, such as developing digital skills opportunities to spread the risk to the economy and people.

In 2012 Maldives launched its first digital literacy programme, the e-Citizen programme, aiming to empower citizens with digital literacy skills. This programme trained people on basic digital skills and access. Since then, and with the COVID-19 pandemic, many of the public and education services have gone online, requiring young people to engage with digital skills online as well as the rest of the population.

The government has recognised digital skills as a necessity with the Strategic Action Plan 2019–2023 and related policies to increase digital capacity and ensure digital security, including:

- Strategy 1.3: establishing institutional frameworks and capabilities to facilitate a safe and secure cyberspace for everyone in Maldives, of the Jazeera Dhiriulhun (island life) sector
- Strategy 4.3: strengthening community engagement and collabo ration to ensure the safety of local communities
- Strategy 5.3: taking measures to address bullying and instil gender equality while ensuring psychosocial support to young people, of the Caring State sector
- Strategy 2.3: increasing advocacy programmes on tackling stigma, discrimination and violence against young women and men.

The UNDP Maldives aims to enhance the e-Citizen programme of the Government of Maldives to foster a culture of responsible digital citizenship through healthy and safe interactions online, reducing misinformation through media and information literacy, and supporting the prevention of violence by building digital responsibility and safety skills (UNDP 2020).

The following information extract identifies key Maldives policy initiatives on digital training and the

key stakeholders that should be involved: all are related to national initiatives/policies.

Given these initiatives, some of the possible stakeholders identified by the in-country team are listed in the box below. They focus on the skills development areas that can bridge the gaps between policy aims and educational delivery and target some of the leading higher education institutions where ambitious young Maldivian people look to gain qualifications and start careers. The focus is on getting relevant programmes that can deliver digital skills with those organisations and further ensuring the digital content of those courses, and the teachers delivering it, are up to date with the latest digital developments. This is a key area that needs attention from those stakeholders who are responsible or influential for skills development at their establishments.

The following case studies give further examples of digital skill initiatives focusing on developing digital skills and resources in schools.

Box 6.9 Key initiatives taken by Maldivian government/private sector for imparting digital skill training

- **Maldives: Enhancing Employability and Resilience of Youth Project (MEERY):** The project is a collaboration between the Ministry of Higher Education, the Ministry of Economic Development and the World Bank. Funded by the World Bank, the objective of the MEERY project is to empower youth with skill sets and relevant entrepreneurship training to address the job market amid the COVID-19 pandemic, to foster livelihoods. MEERY aims to address some of the major challenges faced by the youth of the country by refining the response to vocational education and training. It has three main components: (1) Promoting entrepreneurship and employment; (2) Fostering technical and vocational skills development and eLearning; and (3) Specific actions to address gender gaps to empower women. It is expected that digital skills will be included and be core to the eLearning strategy. The MEERY project is a five-year project with a total cost of USD 20 million and was launched in 2019.
- **Facilitating open-governance and a digital economy:** It is a key pledge of the government to facilitate open data governance for public sector efficiency and accountability. However, to deliver that, large scale intra-sectoral and cross-sectoral reforms are needed to usher in the changes that the government believes are crucial to welcome a new era of development in the country. These include a focus on weaknesses in security infrastructure, affordability of internet, lack of capacity for ICT-driven initiatives and a lack of initiatives to nurture digital entrepreneurs. Practical solutions include, for example retaining the local talent pool within the country; the government aims to foster strategic partnerships with global leaders in the technology industry with a view to establish technology hubs in the country – this will retain staff and provide regional centres reducing regional digital gaps.
- **K-12 Master trainers in Maldives:** This is intended to support teachers to be proficient in digital pedagogies by the end of 2021 and equip teachers to use these skills to build more engaging online learning experiences for students. The initiative is a part of a large-scale teacher training programme that UNESCO MGIEP initiated in January 2021, to train 15,000 teachers by 2021 across countries in South Asia.
- **National Skills Development Authority (MNSDA):** This was created in 2021 and aims to be the leading partner in the development of the Maldivian skilled people. MNSDA provides technical and vocational education and training services to meet labour market demands, industrial/

commercial stakeholders training requirements and personal development needs. MNSDA's goal is to ensure that young people can find and follow satisfying careers in an economy that has a continuing supply of new workers with skills and attitude required by industry and business.

In order to retain the local talent pool within the country, the Government also seeks to foster strategic partnerships with global leaders in the technology industry with a view to establish technology hubs in the country

- **K-12 Master Trainers in the Maldives** - is aimed to support teachers to be proficient in digital pedagogies by the end of 2021 and equip the teachers to use these skills to build more engaging online learning experience for students. The initiative is a part of a large-scale teacher training programme that UNESCO MGIEP initiated in January 2021 to train 15,000 teachers by 2021 across countries in South Asia.
- **National Skills Development Authority (MNSDA)** – created in 2021 and aims to be the leading partner in the development of the Maldivian skilled. MNSDA provides Technical and Vocational Education and Training Services to meet labour market demands, industrial/commercial stakeholders training requirements and personal development needs. MNSDA goal is to ensure that young people can find and follow satisfying careers in an economy that has a continuing supply of new workers with skills and attitude required by industry and business.

Box 6.10 Potential stakeholders: Youth digital skill policy

- The UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP)
- Maldives National University
- Maldives Polytechnic
- Ixcel Centre for Professional Studies
- Maldives Business School
- The Ministry of Education

Facilitating open governance and a digital economy	
Providers	Maldives Partnership Forum 2019
URL	Blue-Economy_Policy-Note-6.pdf (mpf.gov.mv)
Overview	Identification of the challenges facing Maldives and development of policy initiatives. Policy number 6 identifies the following weaknesses in the Maldives economy: • weaknesses in security infrastructure • lack of a secure digital ID • affordability of internet • governance issues • lack of capacity for ICT-driven initiatives • lack of initiatives to nurture digital entrepreneurs • lack of uniformity in data management and analytics • weaknesses in the legislative framework • ineffective disaster recovery mechanisms • cyber security threats • overall strategic approach to ICT development
Outputs	The key outputs are policy initiative plans to: • modernising ICT governance • establish digital infrastructure for efficiency • modernise government services through digital-first policy • encourage digital innovation • Develop a digital-ready workforce

Enhancing Employability and Resilience of Youth Project	
Providers	World Bank
URL	https://projects.worldbank.org/en/projects-operations/project-detail/P163818
Overview	The project development objective is to improve the relevance of technical and vocational skills and foster entrepreneurship to promote youth employment in priority sectors. The key results would seek to bring about a better match between the demand and supply of labour, reflected in the following project indicators: • Relevance: employers satisfied with graduates from the skills development programmes in the project priority sectors • Youth employment: targeted trained youth in wage employment within six months of graduation in an area relevant to skills • Entrepreneurship: new businesses registered by targeted trained youth after receiving business support services The project design is oriented to: (a) Finance integrated skills development with labour demand in the priority sectors of tourism and construction and ICT-enabled services. (b) Evaluate the pilots in terms of employment outcomes (wage and/or self-employment) for youth aged 16–35 years. The pilot interventions and evaluations would be focused on two groups: ages 16–25 years and ages 26–35 years. (c) Assess the potential for scale-up. These pilot interventions will be based on small-scale, island-specific labour-market surveys using appropriate tools to assess the local labour demand in the tourism, construction and ICT-related services sectors.
Outputs	(i) Employers to absorb trainees, build human capital and nurture talent. (ii) Individuals with innovative and creative ideas, risk and resilience bearing capacity to become entrepreneurs. (iii) Skills development in the tourism and construction sector across the value chain. (iv) Skills development in the ICT-related services sector across the value chain.

Launch of the Digital Teacher Certification Course	
Providers	UNESCO
URL	https://mgiep.unesco.org/article/digital-teacher-maldives-launch
Overview	Through this collaboration, UNESCO MGIEP will train 1,000 K-12 Master Trainers in Maldives to be proficient in digital pedagogies by the end of 2021 and equip teachers to use these skills to build more engaging online learning experiences for students. The initiative is part of a large-scale teacher training programme that UNESCO MGIEP initiated in January 2021, to train 15,000 teachers by 2021 across countries in South Asia. The Digital Teacher is a course for in-service and pre-service teachers (K-12 and higher education), educators, curriculum developers, instructional designers and others interested in using digital technologies for creating learning experiences. The course caters to novice or expert users of technology, offering a choice across four unique quests – to explore tools, resources, take up challenges and tasks based on the learner's level and interest.
Outputs	As part of the partnership announcement, on 27 May 2021, 200 teachers from Maldives began a five-week course to be trained in digital pedagogies, acquiring skills that they can then apply to their remote classrooms. While the digital medium offers tremendous opportunities, a number of challenges have emerged, a critical one being the lack of teacher preparedness to make effective use of the tools that online learning offers. The institute has embarked on a mission to train 15,000 teachers by 2021 to make online student learning immersive, interactive, experiential and fun.

Having reviewed all of the above and from the desk review reports, the in-country partners have identified what they feel are the key digital policy initiatives that are being undertaken within the Maldives.[16]

All countries in the study have similar digital skills aspirations as the global skills needs move to a homogeneous technologically based economic ecosystem, and the implementations of these policy aspirations generate a number of challenges. The in-country team has identified the following as key challenges facing the country[17]:

16 The reader needs to be aware that in many cases the digital skills initiatives are not necessarily youth specific and incorporate the whole of the workforce, as would be expected given the active economic lifespan of labour in the target countries.

17 These challenges are not exhaustive but offer the reader a view of some of the key issues.

Box 6.11 Digital Skills Development – Challenges

- **Lack of penetration:** Maldives, despite having high internet penetration, lacks enabling policies to promote the effective adoption of suitable and appropriate digital technologies and digital skills.
- **Lack of skilled workforce:** Maldives lacks a workforce that is equipped with knowledge of science, technology, engineering and mathematics (STEM) skills and needs to invest in development of the digital skills of the workforce and the youth.
- **Geographical issues:** the diverse nature of the Maldivian atolls is characterised by different levels of digital technology adoption, and this presents significant challenges associated with equalisation of access to inexpensive high-speed internet.
- **Tourism concentration:** Maldives needs to move to a more diverse economic base to decrease the significant reliance on tourism for economic growth; effective digital policies will support this diversification strategy.

Research findings

Data for this project were collected through youth surveys and focus group surveys with young people and educational and policy experts. As was noted earlier in the report, research engagement was challenging in Maldives and a baseline youth survey was not possible.

Number of respondents/participants

Focus Group/Refined Survey Youth –	23
Education Experts –	1
National Policy Experts –	3

The results are therefore based on the focus group/refined survey only.

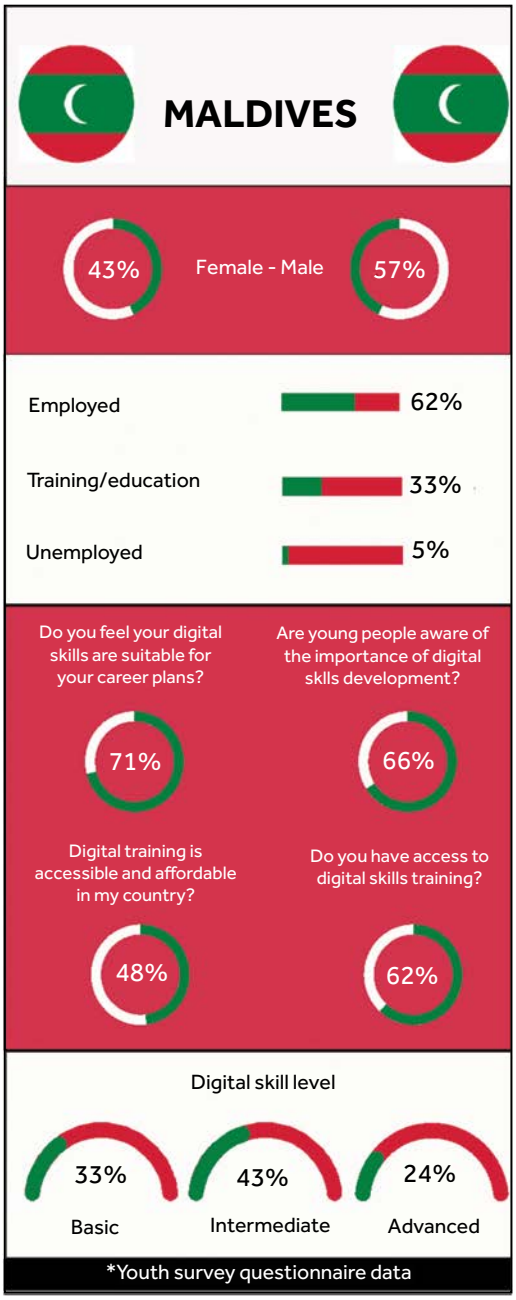
From the youth focus groups/refined surveys

The youth summary survey results (23 responses) are captured in Infographic 5 (survey data collected by the DICE team over July and August 2021 for Maldives youth).

- A total of 23 young people from Maldives responded. Of that total 43 per cent were female and 57 per cent male.
- Those from low-income families made up 14 per cent and the rest were comprised of single- or multiple-income families.
- Only 5 per cent were unemployed and the rest were in either some form of training, schooling or employment.
- Of the group, 71 per cent felt they had the digital skills suitable for their career plan.
- Just over 66 per cent felt that young people are aware of the importance of digital skills development or the career opportunities that exist for people with advanced digital skills.
- However, just under half (48 per cent) felt that digital training was accessible or affordable within Maldives, and a further 38 per cent stated they did not have access to digital skills training.
- Just under a quarter of the total believed they had advanced digital skills, with the rest believing they have intermediate or basic level of digital skills.

Box 6.12 Maldives youth baseline

The Global Skills Report 2021 did not have data for the Maldives. Box 6.12 represents a summary of the refined data collected by the DICE team for the Maldives youth (23 respondents). The team found penetrating the Maldives challenging and while relative to other target countries the numbers were low, it does offer some insight into areas of possible future research. The respondents were predominately employed and felt that they had the relevant digital skills for their career aspirations. They also felt that the youth in Maldives are aware of the importance of digital skills. Similar to the other countries, the accessibility of training in terms of costs was seen by almost half to be affordable, while over 60% have access to digital training. Again, similar to the other countries, 76% felt that they have either basic or intermediate digital skills capabilities. The balance, or 24%, rated their digital skills as advanced. The islands do seem to have a suitable base upon which to build and develop a vibrant digital youth skills strategy and open scope for global competitiveness, through freelancing and other online service provision.



Quote Box (From Respondents)

What do you think are the biggest challenges to starting and/or maintaining a career using digital skills in your country?

Maldives' youth response:

'Poor internet connection and high cost'

'Not meeting the skill requirements mentioned in job descriptions.'

'Prices of tech hardware and software, not enough opportunities for digital courses and lack of career development activities by employers.'

'Low salaries and no minimum wage.'

When reviewing the answers to the question 'What do you feel are the biggest challenges to starting and/or maintaining a career using digital skills in your country?', answers which kept appearing included a lack of proper training and digital skills provided by the education system. Other answers touched on lack of awareness of such careers, poor internet connection due to expensive data charges and the high cost of acquiring these skills through private programmes.

Quote Box (From Respondents)

'A multilevel educational approach is needed in bridging the digital divide for vulnerable populations.'

Maldives' National Policy Expert (Project Survey 2021)

Quote Box (From Respondents)

Can you give some examples of digital skills when problem solving?

Maldives' youth response:

'Troubleshooting ICT-related issues such as basic connectivity and hardware issues.'

'Data analysis done through various platforms like Revinate.'

'Using stack overflow and forums to solve coding problems.'

'Able to use different analytical tools as well as online tutorials, FAQs and advice forums to solve problems.'

Conclusion and Recommendations

The result from Maldives shows that there is a lack of proper training programmes for digital skills provided by the education system. However, the case studies and generics policy suggest this is beginning to be handled. Apart from this, awareness about careers in digital skills is also missing in local institutions. Institutions and households face poor internet connectivity due to expensive data charges. Young people face high charges for acquiring digital skills through private institutions. This means public institutions are lacking digital infrastructure as well as poor quality of education compared to private institutions.

1. Improve the data collection on digital skills across the islands and atolls.
2. Establish a clear institutional governance framework for digital government that clearly identifies the roles and responsibilities of the agencies involved.
3. Prepare and adopt a digital government policy that outlines a roadmap for the government's digital transformation efforts.
4. Seek solutions for enhancing STEM career uptake.
5. Prepare an action plan for digital government activities in co-ordination with all stakeholders, including local island councils.

6. Government and policy-makers should aim to boost Maldivians' digital capabilities and skills.
7. Develop roadmaps for educational organisation to accelerate digital skills development.
8. Promotion of wider adoption of digital technologies.
9. Expand application of digital technologies to improve service delivery.
10. For digital development to play a more prominent role in the Maldives' economic recovery, it is essential to close the digital divide between Malé and the atolls. This can be done by improving connectivity infrastructure.
11. Seek to boost internet access and connectivity infrastructure across the atolls.
12. Deliver awareness campaigns and community-based learning, and target hard-to-reach cohorts.
13. Equipping the public and private sectors to cope with cybersecurity threats is also of vital importance, given the increase in such incidents since the onset of the COVID-19 pandemic.

6.4 Pakistan

Introduction - Overview

Pakistan is the sixth most populous country in the world, with 64 per cent of its population below the age of 30 and a high youth unemployment rate of 8.5 per cent. There is an estimated 38 per cent digital literacy rate within the country. Due to these low figures, Pakistan urgently needs to prepare its youth workforce for the technological transformation underway (World Economic Forum, 2020).

Almost 30 per cent of Pakistanis (65.4 million) are aged between 10 and 24 years of age, encompassing 33.8 million boys and young men, and 31.6 million girls and young women. Proportionately more young people will enter the critical 20–24 age bracket over the coming years, and the proportion of young men and rural young people entering this age group will be especially high. It is also clear that a large proportion of young Pakistanis live in rural areas, where opportunities are scarce and, at best, informal. There is a rural/urban digital divide, with 66 per cent of urban users having internet access, and only 47 per cent in rural areas. This makes the challenges facing Pakistan's young people particularly complex (Khan, 2020).

Pakistan is among the lowest spenders on education in South Asia. An average of 2 per cent of Pakistan's GDP is spent on education each year – far short of the estimated 5–6 per cent needed to educate all of the children in Pakistan, and far behind the South Asian average of 4 per cent and the global average of 4.8 per cent. Data on education infrastructure and enrolment numbers demonstrate that not only is the amount of spending low, but the balance is skewed in favour of primary education. While large numbers of out-of-school children confirm that substantial investment gaps persist in primary education, even bigger gaps exist in secondary education. The number of middle and high schools in Pakistan is just a small fraction of the number of primary schools.

Gender balance also worsens as the level of education rises – opportunities for girls shrink more significantly at the middle and secondary school levels, as there are too few secondary schools for girls. This creates a funnel effect: as children pass the age of ten their access to education shrinks, with a particularly pronounced effect on girls and young women (Khan, 2020). Today, approximately 44 per cent of children and teenagers are out of school. With 64 per cent of the population younger than 30, Pakistan has the power to revolutionise its workforce by becoming re-skilled in relevant and desirable industries (Ditmar, 2021).

Pakistan has a national Digital Pakistan Policy with the vision

> to become a strategic enabler for an accelerated digitisation ecosystem to expand the knowledge-based economy and spur socio-economic growth.

The overall purpose of this policy is to: generate sustainable innovation, entrepreneurship and employment opportunities for the country's rapidly growing technology savvy and entrepreneurial youth; conduct digital skills programmes for the human resource development in current and emerging technology domains; collaborate with international partners to boost innovation; and set up venture capital funds to hold national-level competitions on regular basis in all key emerging technologies and applications.

There is a clear set of objectives that includes the two main digital gap issues of gender and rural/urban divide identified by the research and overview:

i. Youth, women and girl's empowerment using IT. The aim is to reduce the gender gap by initiating specific 'ICT for Girls' programmes for imparting quality trainings in computer skills, including software coding, across the country to reduce inequalities, provide decent work and promote economic growth in line with relevant SDGs.

ii. Bridge the industry-academia gap to ensure relevance of ICT education to the industry needs.

iii. Enhance primary and secondary school students' capabilities to construct, hypothesise, explore, experiment, evaluate, foster logical thinking, problem solving, persistence and collaboration by encouraging next-generation computing and analytical curricula and ICT tool adoption programmes.

iv. Digital Inclusion. The aim is to bridge the digital divide, including the urban and rural divide, gender disparity, unserved and underserved areas and inequality for people with disabilities, by connecting the unconnected with broadband by the development of IT zones/ software technology parks and the setting up of telecentres in unserved and underserved areas of Pakistan to provide the public with easy access to ICT services.

Pakistan is the fourth largest provider of digital freelancers throughout the world. To maintain and improve Pakistan's digital position it needs to ensure that Pakistani youth are equipped with digital skills, knowledge and abilities. Realising this fact, the Ministry of Information Technology and Telecommunications aimed to provide training to one million people in digital skills, in collaboration with Ignite and Virtual University. The result was the DigiSkills programme, which is designed to equip the participants with the necessary knowledge, skills, tools and techniques to take maximum advantage of any available opportunities in freelancing, employment and entrepreneurship in the online job market. This initiative aims to enable Pakistan to be at the top of the countries providing freelance services.

The following information extract identifies key Pakistani initiatives on digital training and the key stakeholders that should be involved: all are related to national initiatives/policies.

Box 6.13 Key initiatives taken by Pakistani government/private sector for imparting digital skill training

- **Digi PAKISTAN National Skills Development Initiative** recently started to provide contemporary online IT training in technical, non-technical and high-tech domains across all provinces of Pakistan. It aims to transform Pakistani youth into a productive workforce to contest the challenges of the Fourth Industrial Revolution through the latest, demand-driven and state-of-the-art IT skills. It will not offer jobs to trainees; rather, it will offer skill-based training, which will enable them to get projects from freelance markets or will be enough to get digital skilled jobs.
- **Parwaaz** is the National Accelerator Initiative aimed at closing the skills gap in Pakistan and set up in collaboration with the World Economic Forum. With the guidance of the most influential public and private sector leaders, it is developing reskilling, upskilling and new skilling plans for the current and future workforce of Pakistan. **Parwaaz** has identified six priority sectors to fuel Pakistan's future growth: ICT, financial services, textile, hospitality, retail and services, manufacturing and light engineering and agriculture and livestock.
- **Skills for All – Kamyab Jawan Hunarmand Pakistan Programme** with an investment of $134,651 million and a four-year duration, this was initiated in January 2020 to strengthen the quality of technical and vocational education and training (TVET). The purpose of the programme is to equip young people with the market-driven conventional and high-tech skills required for career progression. The skill-development scheme will use digital trends to offer vocational and education training to 500,000 individuals. Moreover, the government will also open more than 500 technical centres to facilitate youth training.

- **National Freelance Training Programme (NFTP)**. Taking advantage of Pakistan's position as one of the leading countries supplying freelancers, the NFTP has been designed to provide contemporary training to aspiring freelancers across all provinces of Pakistan. This ambitious programme seeks to achieve sustainable economic growth through women empowerment, reduced inequality, gender balance and leading-edge training. Over the course of three years, this programme aims to empower 21,600 individuals to be self-sustaining, through its 20 state-of-the-art centres.

Given these initiatives, some of the possible stakeholders are listed in the box below. The Ministry of Information Technology and Telecommunication (MoITT) is the national focal ministry and enabling arm of the Government of Pakistan for planning, coordinating and directing efforts to initiate and launch Information Technology and Telecommunications programmes and projects aimed at economic development of the country. Under MoITT other stakeholders are working to close the digital skills gap among the youth of Pakistan and to close the gap of the digital divide. The Higher Education Commission of Pakistan is providing a platform to the students of Pakistani public and private sector universities to enhance their digital skills. To align with these aims, the chosen stakeholders can bridge the gaps between policy aims and educational delivery and target the leading establishments with digital influence in Pakistan. These include top universities, top technology incubation centres and policy developers. Developing incubation centres in rural areas and targeting organisations such as the Begum Nusrat Bhutto Women University also works towards reducing the rural and female gender digital gap.

Box 6.14 Potential stakeholders: Youth digital skill policy

- Ministry of Information Technology and Telecommunication MoITT
- Punjab Information and Technology Board
- National Incubation Centre – NIC
- Pakistan Software House Association – P@SHA
- Sukkur IBA Student Council
- FAST University Karachi
- University of Balochistan
- NUST University Faisalabad
- Sukkur IBA University
- Begum Nusrat Bhutto Women University
- Aga Khan University
- Education and Literacy Department, Government of Sindh
- Benazir Bhutto Shaheed Skill Development University, Khairpur

The following are key case studies giving further examples of digital skill initiatives focusing on developing digital skills and resources.

Digiskills.pk	
Providers	Ministry of IT & Telecom through Ignite – National Technology Fund (formerly National ICT R&D Fund) and executed by Virtual University of Pakistan
URL	https://digiskills.pk/
Overview	DigiSkills mission is to offer one million training opportunities to create strong workforces for a future shaped by the Fourth Industrial Revolution, characterised by technology orientation, innovation and initiative. In the Pakistani economy and others, companies have begun extensively outsourcing key functions, such as human resources, marketing and accounting, to a growing body of freelancers – individuals with the skills to provide services previously handled in-house. The freelancing marketplace is full of diverse and talented individuals who need to stay current, so training and education is a continuous process in order to be successful. • The programme has been launched to train people in those skills that are demanded in freelance markets. • The programme is aimed at equipping youth, freelancers, students, housewives, professionals, etc. with the knowledge, skills, tools and techniques necessary to seize opportunities available internationally in online marketplaces, as well as locally, to earn a decent living. • To reduce the unemployment ratio in Pakistan and also reduce poverty levels.
Outputs	More than 2.2 million enrolments have been made in this DigiSkills programme. Many people have started working and earning as a freelancer after attending this online training programme. • Freelancing • E-Commerce Management • Creative Writing • Graphics Design • QuickBooks • WordPress • AutoCAD • Search Engine Optimisation (SEO)

National Freelance Training Programme (NFTP)	
Providers	The MoITT Punjab Information and Technology Board
URL	https://nftp.pitb.gov.pk/aboutus
Overview	The MoITT has a vision to provide freelancing training to empower youth. Thus, a comprehensive NFTP has been designed which provides contemporary training to aspiring freelancers across all provinces of Pakistan. This ambitious programme seeks to achieve sustainable economic growth through women empowerment, reduced inequality, gender balance and leading-edge training. This will, in turn, help in increased global representation, partnerships and social uplift of underdeveloped regions. Over the course of three years the aim is to empower 21,000+ individuals to generate substantial income, through its 20 state-of-the-art centres.
Outputs	The first batch of 21,000+ candidates have been trained. After completion of these courses, students have started working as freelancers in international markets. The National Textile University shows that 134 graduated from these courses, of which 25 have started earning. DigiSkills developed: • Web Development Basics • Brief Intro to Programming Languages • Introduction to Databases • Theme Building and Development of Websites through WordPress • Creating Engaging and Inventive Content • Digital Marketing • Blogging • Lead Generation and SEO • Creative Logo Design • Corporate Identity Kit • Adobe Suite

Prime Minister Kamyab Jawan Programme (Hunarmand Programme)	
Providers	Government of Pakistan
URL	https://navttc.gov.pk/
Overview	The Skills for All (Hunarmand Pakistan) programme of 10 billion rupees was initiated in January 2020 to strengthen the quality of technical and vocational education and training (TVET). The purpose of the programme is to equip young people with market-driven conventional and high-tech skills required for career progression. The Skills for All Hunarmand Programme has 14 areas of intervention and plans to serve as a catalyst for the transformation of the entire TVET system in the country besides enabling youth to become skilled and employed.
Outputs	499 institutions are working under this programme to provide training in 225 courses throughout Pakistan. 95,710 individuals have been awarded scholarships under the Kamyab Jawan Skill Scholarship Programme across Pakistan. These individuals come from various demographics and fields of work. The programme is inclusive and representative of diverse groups of society, including differently abled people. The programme offers more than 250 different technical and vocational courses, including IoT, CIT – web designing and development, and app designing and cyber security. The programme has enabled these inspiring individuals to acquire and advance their respective technical skills. It has allowed them to use their skills and create new and improved opportunities for themselves, their families and their communities.

Having reviewed all of the above and the desk review reports, the in-country partners have identified what they feel are the key digital policy initiatives that are being undertaken within Pakistan.[18]

All countries in the study have similar digital skills aspirations as the global skills needs move to a homogeneous technologically based economic ecosystem, and the implementations of these policy aspirations generate a number of challenges. The in-country teams have identified the following as key challenges facing the country[19]:

Box 6.15 Digital Skills Development – Challenges

- **Urban biased**: the majority of Digi skill institutes and universities in public and private sector courses are focused mainly in urban areas. There needs to be innovative ways of expanding their reach, such as e-portals (where digital access exists) or partnering with other agencies who already have a presence, such as the government's agricultural extension services, and equipping farm extension workers with digital skills and digital skill training.

18 The reader needs to be aware that in many cases the digital skills initiatives are not necessarily youth specific and incorporate the whole of the workforce, as would be expected given the active economic lifespan of labour in the target countries.

19 These challenges are not exhaustive but offer the reader a view of some of the key issues.

- **Speed of internet**: there is low internet speed, connectivity and load shedding in rural areas and limited access for the youth to online learning. The provision of telecentres and software parks will not resolve this, as suggested by the policy, so there needs to a more effective strategy in place.
- **Governance complexities**: complex processes and procedures of approvals are the hallmarks of the government organisations and signify a big challenge in digitalising the system.
- **Lack of strategic vision**: most of the public institutions do not have clear strategies for digital skills adoption or acquiring emerging digital skills at their respective institutions, because they don't have any representation from country stakeholders for development of digital skills.
- **Enhancing Leadership**: institutional leadership also plays a vital role to uplift their education institutions as the emerging market needs. Leadership in public institutions of Pakistan are not enough competent to develop an IT infrastructure that can create a learning environment for the youth.

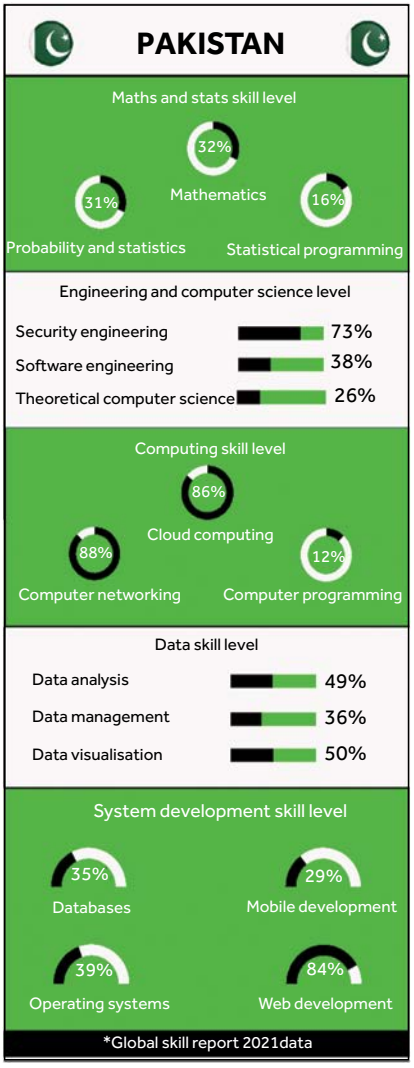
Infographic 6: Pakistan skills overview

Infographic 6 provides a summary of the digital skills levels within the Pakistani workforce, drawn from the Global Digital Skills Report of 2021 (Coursera 2021), to give an insight into the digital skills status quo in Pakistan.

Box 6.16 Pakistan skills overview

This box summarises the digital skills levels within the Pakistani workforce according to the Global Digital Skills Report of 2021. The baseline skills are surprisingly low and show that much work may be needed at secondary level for mathematical education. The security engineering score is potentially an outlier, given the other scores; however, this could be a result of respondents not being clear on the nature of security engineering. Both software engineering and theoretical computer science show more reasonable correlation with the maths and statistics skill levels. The levels associated with data are higher and may point to the growing business process outsourcing (BPO) activities in Pakistan. However, India is the global BPO pioneer: 'In 2017, Pakistan exported USD655 million in offshore services, while India and the Philippines surpassed USD117 billion and USD25 billion in export revenues.' (Couto and Fernandez-Stark 2019: 6).

Pakistan still trails these leading South Asian partners; however, the foundation for building digital skills is present and could support a growing focus on BPO activities in the future and as a source of economic growth.



Research findings

Data for this project were collected through youth surveys and focus group surveys with young people and educational and policy experts for Pakistan.

The youth summary survey results (60 responses) are captured in Infographic 7 (baseline data collected by the DICE team over July and August 2021 for Pakistani youth).

Number of respondents/participants

Youth baseline –	60
Focus Group/Refined Survey	
Youth –	27
Education experts –	25
National Policy Experts –	23

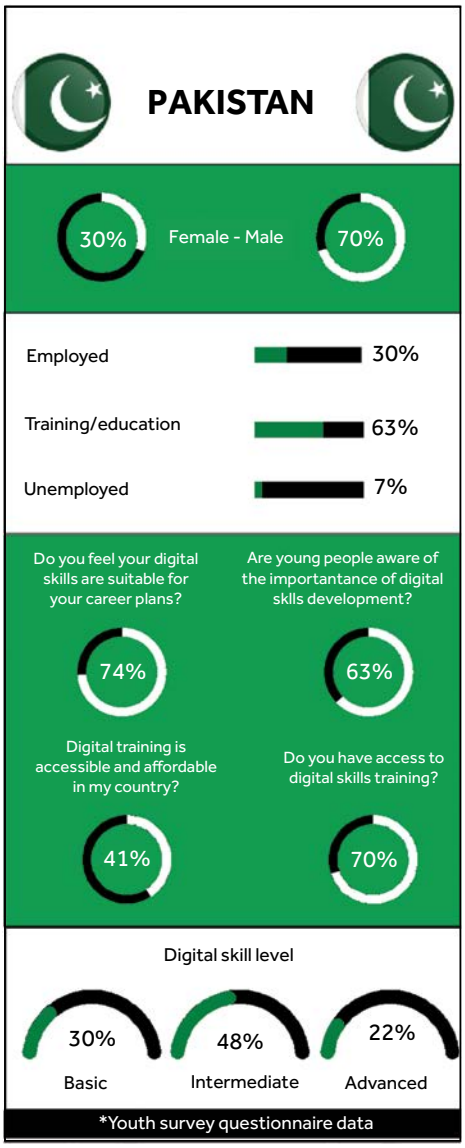
Box 6.17 Youth baseline

Box 6.17 represents a summary of the baseline data collected by the DICE team over July and August 2021 for Pakistani youth (60 respondents).

The team in Pakistan struggled to reach a balanced gender response but were able to reach employed youth. The respondents did feel that they have suitable digital skills for pursuing their career interests and they felt that they had access to suitable training, although just over half felt that it was not affordable.

The awareness of the importance associated with the acquisition of digital skills was recognised by the respondents, and correlates to their view that they have suitable skills for their career plans.

Despite the high level of perceived skills and the alignment with their career goals, the level that 78% assess they possess is either basic or intermediate, with only 22% feeling that they have advanced-level digital skills.



Further points and representative quotes from the youth survey included:

- The result shows young people's awareness of digital skills acquisition and its importance in the future. Most Pakistani youth have basic digital skills but are less aware of the future skills essential for employers and industry. Reforms are needed to create awareness of future digital skills in readiness for the job market.
- When asked about internet access at home, 60 participants responded that mobile phones were their optimum source of connectivity; others used a cable for connection, while 16 participants responded that they had no access to the internet as they come from northern areas of Pakistan which face connectivity issues.
- Around 81 per cent of respondents agreed that they use online search engines for getting information to buy something. They also prefer to buy things online.

  When asked about the use of ICT, almost all respondents have an account on Instagram, Facebook or LinkedIn, and 70 per cent of respondents have been trained to use programmes such as Word, Excel or PowerPoint. Only 35 per cent of respondents have applied for a job online, and 65 per cent of respondents thought that they should have their own business instead of working for someone else.

These results informed further focus groups and surveys, which gave these results:

From the youth focus groups/refined surveys

A total of 27 young people from different parts of Pakistan were engaged in the online focus group discussion. There was a 70 per cent/30 per cent male/female divide. These were the young people's responses along with representative quotes.

- When asked about the importance of digital skills for future employment, 74 per cent thought that digital skills would be necessary for future jobs.
- When asked about access to digital skills in Pakistan, 37 per cent agree that digital training is accessible while 33 per cent are neutral. This suggests that, to a degree, digital training is accessible in Pakistan.
- 48 per cent possess medium-level digital skills in Pakistan.
- The participants felt that the biggest challenges to starting or maintaining a career using digital skills are a poor internet connection, unskilled youth, lack of career counselling, insufficient IT resources, cyber security and time management.

Quote Box (From Respondents)

Can you give some examples of digital skills when communicating?

Pakistani youth responses:

'Email marketing and social media marketing.'

'A digitally skilled person when communication must have the basic information on the social media apps, its handling, marketing, advertising and application.'

'Communication via email/video conferencing, use of Microsoft Office software to create documents and share with others using tools such as Google Docs.'

Quote Box (From Respondents)

What do you think are the biggest challenges to starting and/or maintaining a career using digital skills in your country?

Pakistani youth responses:

'In a poor country the biggest issue is investment towards upskilling people.'

'Biggest challenges would be costly equipment and lack of computer awareness among people.'

"The lack of digital facilities and the minimum training required to gain digital skills.'

'I feel, the biggest challenge is the mental readiness, resource insufficiency and motivation towards that career that hinders opportunities.'

From the educational organisations

A total of 25 education experts gave their opinions about digital skills analysis. These were their responses along with representative quotes:

- The results show that 48 per cent of education experts express the view that digital foundation skills are high in Pakistan, and 40 per cent say that they are at a medium level.
- 64 per cent of those surveyed state that there is a major digital skills gap among youth in Pakistan.
- The education experts highlighted the key issues that influence the supply and acquisition of digital skills at an **individual** level. They are: a lack of training programmes in towns and rural areas; socio-economic disparity; cultural conflicts; accessibility; lack of resource at institutional level; and high fees at private institutions.
- Those experts also highlighted the key issues that influence the supply and acquisition of digital skills at the **institutional** level. They are: limited access to rural areas; digital divide; traditional teaching methods; IT infrastructure; lack of expertise; lack of resources; outdated curriculum; and lack of funds to supply digital skills.
- The key issues that influence the supply and acquisition of digital skills at the **employer** level are: digital skills are not linked to jobs; employees are not interested in updating their skills; no environment/culture; no proper design of training programmes; and a lack of support from employers to their employees.
- To encourage potential learners, especially young women, to take up a career path linked to digital roles, there should be initiatives such as: online courses with minimum fees; the offer of digital skills at government institutions in the evening; bootcamps at university level; career counselling; offer skill-based courses in regular programmes; and encourage local NGOs to provide basic IT skills in rural areas, especially for girls.
- To upskill those who are not in education and employment, the government may adopt informal education programmes, non-formal digital skills programme and skill development training in rural areas of Pakistan where people are not in formal education. For unemployed youth, the government may announce hands-on training programmes at government institutions.
- To ensure that the current workforce are continually updated with emerging job roles, those in power should make it necessary for all government departments to have any two digital skills certificates in any fiscal year. Government departments should also

create an attitude of self-improvement, by providing opportunities and funding and by assessing new tasks with paid incentives for digital inclusion.

- Success factors that could be extended to other areas are: tech parks, freelancing centres, IT-related job requirements in almost all types of business domains, e-marketing and freelancing skills like e-commerce.

Quote Box (From Respondents)

What types of initiatives should be adopted to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles?

Pakistan Educational Institutions Responses:

'Digital Skills training programme at local institutions, bootcamps at universities and IT skills online workshops.'

'Empower local institutions to provide digital skills training, Encourage NGOs to provide basic IT skills in rural setup.'

'Basic IT skills programme to be introduced in government schools of rural areas with focus on young girls.'

'A national unemployed skill development programme may encourage potential learners.'

From the National Policy Experts

'*Governments should provide digital skill training through an online and 'DigiSkills' platform, enhancing youth skill development at the provincial level.'*

From the national policy experts

A total of 23 national policy experts gave their opinions about digital skills analysis. These were their responses along with representative quotes:

- The results showed that 57 per cent of policy-makers express the view that digital foundation skills are high in Pakistan, while 43 per cent express that it is at a medium level. Alternatively, 61 per cent of policy-makers state that digital communication skills are at a medium level in Pakistan. The results go on to show that 74 per cent of national policy experts express that there is a major digital skills gap among youth in Pakistan.
- Key barriers that prevent Pakistan from capitalising on the new opportunities are: limited faculty, limited institutions in rural areas, lack of policies, lack of growth mindset, lack of content in local and regional language, lack of government coordination, security concerns and a lack of IT infrastructure.
- Initiatives suggested include awareness campaigns, career counselling workshops, freelancing workshops in rural setups, bootcamps at university level, digital skills development programmes for local artisans, IT incubators, IT competitions, skill development programmes and the development of computer labs in rural areas.
- Employers may help to upgrade and develop skill development programmes at different institutions; they can also sponsor some bootcamps at the university level while also supporting basic education and IT programmes in rural areas of Pakistan. Career counselling through industry experts as well as employers sponsoring their employees to update their IT skills can go a long way to solving these issues in Pakistan.
- Government, through HEC and TVETs, may help to initiate programme-based digital skills by implementing policies and providing opportunities to collaborate with other organisations in Pakistan and overseas. Government should also look to upskill workforces through other localised content and training delivery platforms, such as coding skills and DigiSkills.

Quote Box (From Respondents)

What are the key barriers that prevent your country from capitalising on the opportunities that new digital technologies offer to the economy?

Pakistani Policy Experts Responses:

'No defined policies. There is a lack of awareness and training programmes at all educational levels.'

'Lack of infrastructure at different institutions, lack of government coordination with private universities/institutions.'

'Despite the rapid spread and uptake of digital technologies, adoption and use vary among demographics, industries and by firm size, raising concerns about the inclusiveness of the digital transformation.'

'Barriers to the access and effective use of digital technologies typically include some combination of a lack of high-quality and affordable infrastructure; a lack of trust in digital technologies and activities as well as a shortage of the skills needed to succeed in the digital economy.'

Conclusion and Recommendations

In Pakistan, most public and private institutions have poor internet connection, lack the required IT infrastructure and need updated curricula for the delivery of digitals skills training programmes. Professional development of digital experts in these institutions is also lacking, as they are stuck with traditional teaching methods. Most public institutions don't have clear strategies for digital skills adoption or acquiring emerging digital skills at their respective institutions, because they don't have any representation from country stakeholders for such development. In public sector institutions it is alarming that they don't have clear policies and procedures to adopt emerging technologies, although the results show that these institutions have budgets to do so but they are not currently delivering or providing what is needed. Individuals face digital divide, socio-economic disparity and lack of infrastructure in local institutions to acquire digital skills. Public and private institutions face issues such as limited access to rural areas, traditional teaching, IT infrastructure, and the non-availability of experts for the supply of digital skills among young people. To fill this gap, government can put more emphasis on the development of rural areas for digital skills, as there is poor internet access in rural areas, very few IT institutions with required IT resources and a lack of expertise. Apart from this, in urban areas there should be career counselling sessions, bootcamps and competitions to be arranged in public and private sectors institutions so that youth may be guided properly for the skills of future.

1. Government may encourage universities to arrange awareness sessions for future digital job skills.
2. Policy-makers may encourage educational experts to update the curricula at public institutions, as per the emerging technological skills need.
3. NGOs and government organisations may launch digital skills programmes for those students who are unemployed due to unwanted degrees. They could be trained in emerging digital skills
4. Basic digital literacy programmes could be planned in government schools in rural areas to benefit both young boys and girls.

5. A free internet initiative would provide connectivity to close the digital divide.
6. A freelance programme for young rural people could be introduced to reach the hidden talent in underprivileged areas.
7. Employers could provide opportunities for staff to become qualified in digital skills. They could also announce incentives for those who complete any certification programme in a fiscal year.
8. IT industry expert sessions could be arranged at university level to update students with emerging skills.
9. Government may sign an MoU with local training providers for provision of digital skills to the needy students of Pakistan. This may also be extended to rural areas so that maximum benefits can be taken by the students.
10. Technology parks may be established in different public sector institutions with government help.
11. A separate budget should be allocated for investment in infrastructure and equipment at institutions so that they can provide digital skills more effectively.

6.5 Sri Lanka

Introduction – Overview

In Sri Lanka, the youth are generally considered as being 15–29 years of age. According to official statistics, young people aged between 15 and 29 are estimated at 4.73 million and account for 23.2 per cent of the total population (Department of Census, Statistics, 2012). Within the country there are an estimated 10.9 million daily internet users, comprising 50.8 per cent of the total population. There is a rural/urban digital divide with urban digital rates at 65 per cent, compared to 47.6 per cent in rural areas. This is matched to the computer literacy divide, with urban areas at 43.5 per cent and rural areas at a much lower 30.7 per cent.

According to the Sri Lanka Labour Force Survey (2017, third quarter) the unemployment rate in Sri Lanka is 4.2 per cent, of which 28.1 per cent are youth and causing serious socio-economic problems. This is a group who are currently struggling to be successful in their roles as adolescents and are socially, educationally and economically disadvantaged, relative to their peers. The majority are not connected to society through mainstream public systems and agencies or, even if they are connected, not in a meaningful way to assist their smooth transition throughout adolescence and young adulthood (National Education Commission, 2018).

Technology is touted as both saviour and saboteur of young people's futures. It is capable of opening opportunities once undreamed of by helping young people to transcend the physical, social and economic barriers that stand between them and a decent job. At the same time, advances in automation and AI (digital skills development) could combine to see two-thirds of workers worldwide replaced by machines.

Over the next decade, Sri Lanka's growth trajectory will undoubtedly see technologizing across the economy in varying degrees. Sri Lanka's workforce will not be immune to the vast technological shifts underway globally, even if the speed and intensity of their entry into Sri Lanka's socio-economic context occurs differently than in other countries. Recent policy stances have specific focuses on attracting high-end, export-oriented manufacturing and services; foreign direct investment; and promoting innovation, entrepreneurship and the digital economy at a national strategic level. Policy initiatives such as concessionary loan schemes and matching grant schemes have been deployed to enable enterprises to upgrade, adopt technology and improve products and processes. All these dynamics will shape an economy over the next two decades that is more technology-oriented than it is today.

Sri Lanka has a National Digital Policy which outlines their digital agenda for 2020 to 2025. The policy provides the high-level principles and conceptual framework for Sri Lanka to achieve sustained digital economic development and growth, through the creation of a digital government and a digital economy. It is led and managed by the Information and Communication Technology Agency (ICTA).

ICTA's digital economy strategy looks to use existing programmes and relevant partners in the ecosystem to develop and implement an integrated digital economy transformation in Sri Lanka.

Its strategy includes technology industry development, technical diffusion and capacity-building.

Technology industry development

To design projects localised to Sri Lanka it is necessary to align the tech ecosystem with global trends. The overall objectives are to improve competitiveness, create jobs and improve export growth through innovation and entrepreneurship, and improve the supply of skilled professionals to satisfy growing market demand.

Programme and initiatives supported include:

- LEAP IT SME Export Readiness Programme
- Spiralation Tech Start-up Support Programme
- Disrupt Asia Start-up Conference and Innovation Festival

- Start-up platform: Directory for Sri Lanka technology start-up ecosystem
- Start-up Genome Global Start-up Ecosystem Report Survey: Start-up ecosystem branding and in-depth assessments
- Imagine IF entrepreneurship bootcamps.

Technical diffusion

Five regional clusters are to be set up in northern, central, southern, western and eastern Sri Lanka in close proximity to an existing university. Each cluster includes a cohort of technology education institutes, technology companies, shared working space with incubation facilities, a government arm, and a technology diffusion cell.

Capacity-building

The aims of capacity-building include increasing IT jobs and achieving a 75 per cent citizen IT literacy. Programmes and initiatives supported include:

- Educate to Innovate
- National IT-BPM Workforce Survey 2019
- Quality Coder.

The following information extract identifies key Sri Lanka initiatives on digital training and the key stakeholders that should be involved.

Box 6.18 Key initiatives taken by Sri Lankan government/private sector for imparting digital skill training

- **Digital policy outlines Sri Lanka's digital agenda for 2020–2025**: The policy provides the high-level principles and conceptual framework for Sri Lanka to achieve sustained economic development and growth, through the creation of an innovative economy and effective governance and is covered in detail above.
- **Digital for Everyone (D4E)**: The Information and Communication Technology Agency (ICTA) of Sri Lanka launched the 'Digital for Everyone (D4E)' national initiative in 2021 with the aim of working with all stakeholders to enhance digital literacy among citizens. The launch was called 'Lighting Digital', a national digital capacity-building drive focusing on accelerating digital transformation through a holistic approach. The plan is a series of capacity-building initiatives across three key pillars: education sector, government sector and capacity-building of citizens. These initiatives include the establishment of SMART education to produce a future-ready employable workforce and to empower citizens to adopt digital technologies. In the education sector, a master plan and policy for digital education, a higher education conversion programme, an interactive network with the industry for digital education, and a national skills framework and platform were all introduced.
- **Regional Cluster development**: Regional Clusters is a key initiative to achieve the objectives of the Digital Economy Strategy. The Regional Cluster Development Programme of ICTA has segmented Sri Lanka into five regional clusters in western, central, southern, northern and eastern regions. The Cluster Readiness Index (CRI), launched in December 2021, is a tool for regional digital benchmarking and readiness assessment. ICTA recognises the digital divide, including regional, that exists across the country and that a 'one size fits all' digital strategy will not work. Regional contexts have to be taken into account for example the significant digital divide within regions, uneven resource distribution, and disparities in the socio-economic conditions, etc. The CRI is a model designed to evaluate the readiness of each regional ecosystem for establishing technology clusters and the interventions required for regional technology industry

development. Alongside the cluster developments, ICTA is running the Nenasala telecentre project. Communication and knowledge centres are being built by the government in rural areas to develop culture and commerce, including digital. There are currently 1,005 such centres in the country.

- **International NGOS support**: In addition to direct government initiatives, organisations such as LinkedIn and Microsoft are offering Learning and Microsoft Learn courses and low-cost certifications that align to ten of the most in-demand jobs. The next stage of the initiative sets a new foundation for a skills-based, including digital, economy through a suite of new tools and platforms designed to connect skilled job seekers with employers. In partnership with the Vocational Training Authority of Sri Lanka, Facebook has launched a series of training sessions to help Sri Lankans upskill their digital capabilities. The initiative is a part of Facebook's flagship *We Think Digital* programme and has been designed with the objective of helping the vocational sector understand the digital landscape better and equip students with skills to build successful careers. Through the 'Train the Trainer' programme, students will cover topics such as changes in digital landscape, e-learning, online content creation, digital tools for businesses and responsible digital citizenship.

Given these initiatives, some of the possible stakeholders identified by the in-country team are listed in the box below. A clear goal for the Sri Lankan youth is to be made aware of what opportunities are available in the digital skill areas; therefore, stakeholders who can engage and influence the youth community have been chosen. The organisations can provide the link on the ground from the clear policy and industry aims and clearly show the need and opportunity that digital skills would add to the young people's ability base.

Box 6.19 Potential stakeholders: Youth digital skill policy

- Students in the HEIs of Sri Lanka (including university and TVEC affiliated colleges and schools)
- Sri Lanka Federation of Youth Clubs
- Youth Link Movement (Sri Lanka)
- Sustainable Development Goals Youth Network of Sri Lanka
- Commonwealth Youth Network of Sri Lanka
- AFRIEL youth network – (Association for Friendship and Love) is a youth volunteer network in Sri Lanka that promotes human rights, good governance and national reconciliation
- National Cadet Corps (Sri Lanka)
- Shanthi Sena or Sarvodaya Shanthi Sena Sandasaya (Peace Brigade) is a country-wide Sri Lankan youth force consisting of over 100,000 youth dedicated to peace building and community development
- NGOs – the Sri Lanka Girl Guides Association; the Sri Lanka Scout Association
- The Youth Leagues Sri Lanka; Sarvodaya Sharamadana Movement

The following are key case studies giving further examples of other digital skill initiatives focusing on developing digital skills and resources for women.

NENASALA PROJECT (NATIONAL TELECENTER PROJECT)	
Providers	Information and Communication Technology Agency (ICTA) of Sri Lanka
URL	https://www.icta.lk/projects/nensala-project-national-telecenter-project/
Overview	The **Nenasala Project** is one of the projects implemented under the e-Sri Lanka Initiative. Formally known as the Vishva Gnana Kendra Project (Nenasala), ICTA has incorporated it under the Nenasala label to introduce several models of the telecentres or knowledge centres to be established in all parts of Sri Lanka to spread ICT services to the rural and semi-urban population. The project will aim to meet the infrastructure requirements in order to address the information and communication needs of rural areas in all parts of the country through the establishment of Nenasalas and the provision of ICT-based services. As the diffusion and the use of ICT in rural areas is limited, it is recognised that the most effective and efficient way to provide access to ICT for rural areas will be through the establishment of Nenasalas. The main objectives of a Nenasala are to assist communities in: • poverty reduction • social and economic development • peace building. **e-Sri Lanka Initiative** The e-Sri Lanka Initiative initiated by the Government of Sri Lanka aims to provide access to 'diverse and unrestricted sources of information and means of communication' to all citizens. The Government of Sri Lanka recognises the great potential that ICT has in strengthening the democratic processes in the country, the advancement of the peace process, improving the quality of life of the people and enhancing the social and economic development.
Outputs	Since the inception of the project, a comprehensive monitoring and evaluation (M&E) approach is being implemented under the Nenasala project with the aim of measuring performance, learning lessons and making required corrective actions. Through building capacities and regular follow-up activities, the collection of ongoing data at the Nenasala centre level was promoted throughout the period. As a result, Nenasala log books were maintained by the centre operators for the purpose of collecting the day-to-day administrative and usage data, which will be useful for measuring performance. In addition, several periodic and independent evaluation surveys were also carried out under the ICTA central M&E unit to assess the development outcomes and impacts of the Nenasala project. Furthermore, the Nenasala project management team, in collaboration with the M&E team, conducted regular field visits to Nenasala centres on a random basis to ensure the quality of implementation. The Nenasala management team organises regular capacity-building programmes for operators aiming to upgrade their day-to-day management skills as well as enabling them to improve the visibility of the Nenasala centres in the community. These programmes were systematically monitored by the M&E team using different M&E tools.

Digital for Everyone (D4E)	
Providers	The Information and Communication Technology Agency (ICTA) of Sri Lanka
URL	https://www.icta.lk/news/digital-for-everyone-d4e-national-initiative-launched-towards-enabling-a-technology-based-society/
Overview	The initiative was launched to collaborate with all stakeholders to enhance digital literacy among citizens. In line with this, many initiatives are planned to take the message of digital technologies and its benefits to all segments of society.
Outputs	As the initiative is relatively young there are no outputs to list at this stage.

Education for all by ICT4D Hubs: A Sri Lankan Case Study	
Providers	Information and Communication Technology Agency (ICTA) of Sri Lanka
URL	https://www.proquest.com/openview/8d66862df5da96f4313d7b999fb1e1c5/1?cbl=1796419&pq-origsite=gscholar
Overview	ICT4D are defined as the use of Information and Communication Technologies (ICT) in developing regions, has been classified as one of the most powerful and cost-efficient ways to improve the standard of living in the developing world. Many regions in Asia have shown a rapid but heterogeneous development where information technology has made a drastic change to urban regions and globalisation but often left rural areas without much investment, with further urbanisation as a result. The aim of this study is to describe and discuss how a number of ICT4D initiatives and the creation of eLearning hubs in Sri Lanka have been supporting local development and education for all. ICT4D hubs can have various physical as well as virtual shapes and organisational models but should always facilitate education and development by the use of ICT. Some examples of studied eLearning hubs are telecentres, primary schools, online distance learning programmes, libraries and learning object repositories.
Outputs	Hubs have contributed positively to the general progress of the country and most urban areas in the western region have had a rapid development where ICT has been an important catalyst. Sri Lanka has had an outcome that must be classified as better than average, with increased opportunities for education and ICT hubs as multipurpose meeting points. Contributing main factors to the successful development is the high literacy rate, the chain of ICT4D projects and a committed implementation of e-Services. Several initiatives have contributed to development but the internal gap has rather grown and knowledge sharing and inter-project co-operation has failed. What could be seen as a strength in the Sri Lankan ICT4D model is the way top-down management is sometimes combined with bottom-up activities. The recommendation is to enhance the island's existing rural ICT4D hubs and upgrade them to more autonomous and service-oriented ICT4D routers that could handle the island's future e-Governance and e-Health services. The keywords for successful outcomes are commitment, collaboration, communication and coordination.

Having reviewed all of the above and the desk review reports, the in-country partners have identified what they feel are the key digital policy initiatives that are being undertaken within Sri Lanka.[20] All countries in the study have similar digital skills aspirations as the global skills needs move to a homogeneous technologically based economic eco-system, and the implementation of these policy aspirations generate a number of challenges. The in-country teams have identified the following as key challenges facing the country[21]:

Sri Lanka skills overview

Box 6.20 provides a summary of the digital skills levels within the Sri Lankan workforce, drawn from the Global Digital Skills Report of 2021 (Coursera 2021) to give an insight into the digital skills status quo in Sri Lanka.

Box 6.20 Digital Skills Development – Challenges

- **Connectivity issues**: as described previously, the government is taking steps to widen digital access. Other examples include the setting up of 1,400 free Wi-Fi hotspots in public places for free access to the internet. However, in rural and poor areas there is still the inability to afford digital devices such as laptops and desktops, the inability to afford data for existing devices and the absence of network coverage. Due to these challenges rural young people find it difficult to make any progress.
- **Language fluency barriers**: the country also enjoys near universal literacy, thanks to decades of investment in human development. However, ICT and English language training is inadequate as the national English language literacy rate is only 30 per cent (2012) and computer literacy is 28 per cent (2017). As these are key to advanced digital skill careers they need to be focused on.
- **Affordability of digital devices**: internet connectivity in Sri Lanka is more affordable than in other Asian countries, and the government has shown an interest in increasing internet access via public Wi-Fi, but there still needs to be a plan to reduce the affordability divide.
- **Lack of digital awareness**: the limited use of the internet points to low levels of awareness of the potential for digital skills to promote career development and work opportunities.

20 The reader needs to be aware that in many cases the digital skills initiatives are not necessarily youth specific and incorporate the whole of the workforce, as would be expected given the active economic lifespan of labour in the target countries.

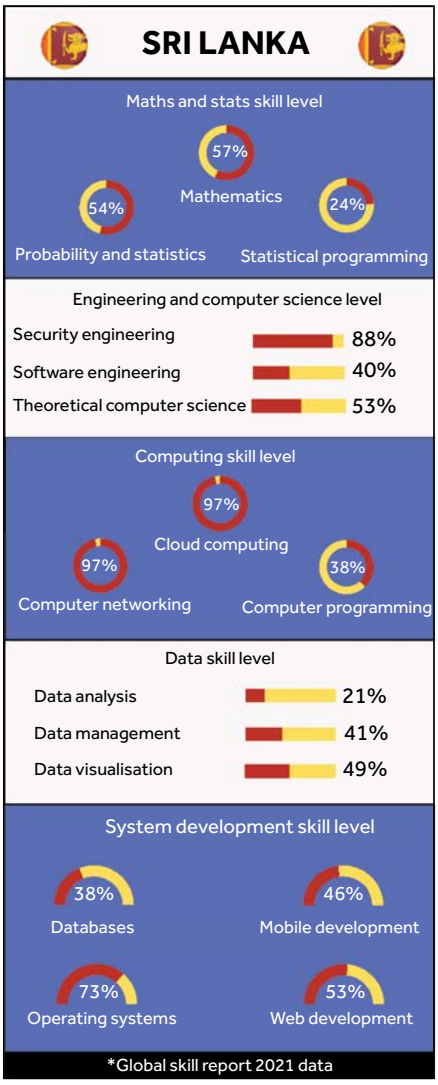
21 These challenges are not exhaustive but offer the reader a view of some of the key issues.

Box 6.21 Sri Lanka skills overview

Box 6.21 summarises the digital skills levels within the Sri Lankan workforce according to the Global Digital Skills report of 2021.

The level of mathematical skill is reasonably high and reflects a good base on which to develop digital skills. In terms of more advanced digital skills, the scores for engineering and computer science are very high for security, again potentially a misinterpretation between being secure online and security engineering. Similarly, scores for computer skills are high and most likely to point to the respondent's view of cloud computing and computer network in a more conventional day-to-day manner, with the former being able to use cloud computing while the latter pertains to the use of social networks.

Finally, in terms of the system development skill, the Sri Lankan skills landscape looks encouraging and a solid base upon which to build.



Research Findings

Data for this project were collected through youth surveys and focus group surveys with young people and educational and policy experts from Sri Lanka.

The youth summary survey results (226 responses) are captured in Infographic 9 (baseline data collected by the DICE team over July and August 2021 for Sri Lanka youth).

These results informed further focus groups and surveys, which gave these results.

Number of respondents/participants

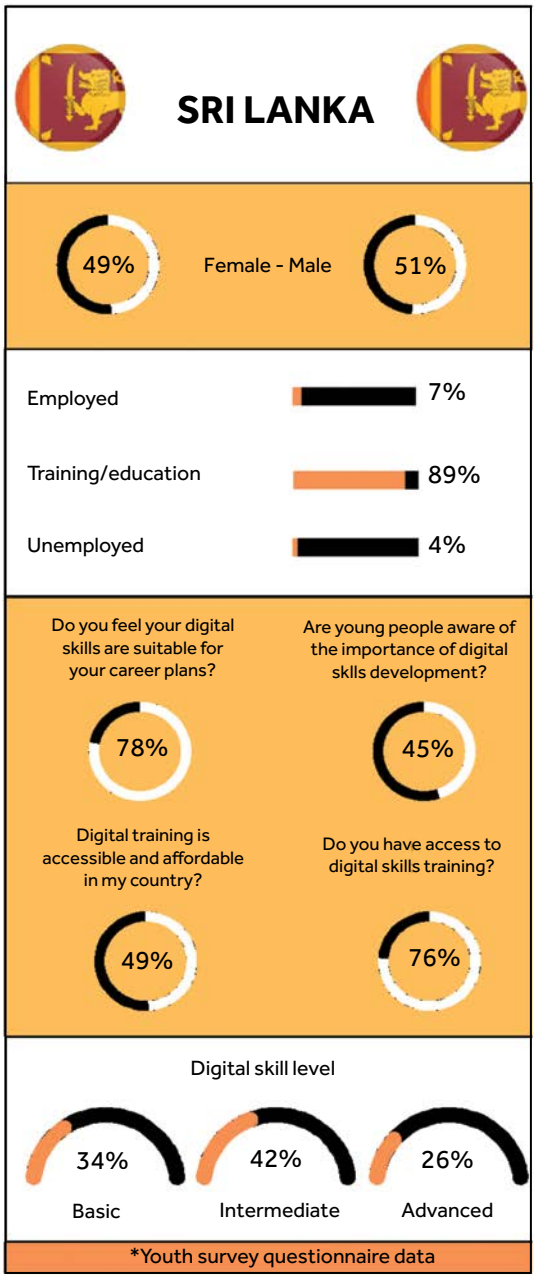
Youth baseline –	226
Focus Group/Refined Survey	
Youth –	67
Education Experts –	23
National Policy Experts –	20

Box 6.22 Sri Lanka Youth Baseline

Box 6.22 represents a summary of the baseline data collected by the DICE team. The team were able to generate a gender balance and a bias towards those in education and training. Given the time frames and the impact of COVID-19, the reach into the unemployed youth cohort was low, and this would be an area that could benefit from further research.

Of the respondents, 78% felt their digital skills were suitable for their career aspirations and 76% had access to digital skills training. However, they felt that the affordability of suitable training is potentially an issue, with almost half feeling that it was affordable. However, these answers should be assessed in terms of the level of digital skills that the respondents felt they have, with the vast majority (76%) only possessing, by their own assessment, basic or intermediate digital skills.

The rapid advance of technological applications and needs within the workplace causes a clear need to increase the number of young people with advanced digital skills.



From the youth focus groups/refined surveys

A total of 67 young people were engaged in the online focus group surveys. These were the young people's responses along with representative quotes.

- Poor economic conditions for young people may be a source of threat in the process of digital skills acquisition.
- Most young people recognise that digital skills are suitable for a career plan. Therefore, increasing awareness of the importance of digital skills development and the associated career opportunities are an added advantage for successful delivery of IT or ICT-related programmes in the country.
- Existing digital training is accessible and affordable to most young people in the country. However, significant numbers are still struggling to access digital skills training programmes.
- Digital skills training programmes need to range from basic to intermediate to highly advanced digital skills.

Quote Box (From Respondents)

What do you think are the biggest challenges to starting and/or maintaining a career using digital skills in your country?

Sri Lankan Youth responses:

'Lacking technical skills and internet bandwidth issues.'

'Lack of jobs and opportunities.'

'Lack of resources and lack of knowledge to use and maintain them.'

Quote Box (From Respondents)

Can you give some examples of digital skills when transacting online?

Sri Lankan Youth responses:

'Network management.'

'Filling online forms like this, using different payments method.'

'Digital banking.'

'Buying and selling things, using services and managing your money online.'

From the educational organisations

A total of 23 educational experts were engaged in the online focus group discussion/ survey. These were their responses along with representative quotes:

- Demand for digital skills and Digital Foundation Skills (DFS) are at a medium level.
- There is a need for the digital skills framework in terms of communications in the country.
- There is a need for the digital skills framework in terms of handling information and content.
- A major digital skills gap amongst youth exists in the country.
- Digital skills competencies need to be developed in primary, secondary and higher education institutes.
- More community engagement projects are needed to uplift the unschooled youth.
- All youth digital skills abilities need to be improved.

Quote Box (From Respondents)

What types of initiatives should be adopted to encourage potential learners, particularly women and young people, to take up career paths linked to digital roles?

Sri Lankan Educational Experts responses:

'Need to arrange workshop regarding benefits of use of digital media in business and occupation environment, there should be a standardised series of digital skills training programmes.'

'Teach ICT from the primary, promote hands-on sessions rather than traditional teaching and exam-oriented teaching, exposing earning possibilities for women with online ICT jobs.'

'Introduce technology-related studies into secondary education and continue them through university teaching in order to prepare students to be technology specialists in their respective fields.'

'Educate and promote the benefits of such career paths, facilitating them with required tools and equipment (computers, data service, etc).'

From the national policy experts

'Digital skill transformation should be implemented at each industry level.'

Sri Lankan National Policy expert (Project Survey 2021)

A total of 20 national policy experts were engaged in the online focus group discussion/ survey. These were their responses along with representative quotes:

- Demand for digital skills and Digital Foundation Skills (DFS) are high.
- There is a need for the digital skills framework in terms of communications in the country.
- There is a need for digital skills framework in terms of handling information and content.
- A major digital skills and abilities gap exists among the youth in the country.
- Attention needs to be focused on the ICT curriculum in the primary and secondary education of the country.
- It should be a government responsibility to upskill the workforce.

Quote Box (From Respondents)

What are the key barriers that prevent your country from capitalising on the opportunities that new digital technologies offer to the economy?

Sri Lankan national policy experts' responses:

'Internet cost, weak connection coverage, lack of knowledge.'

'Financial barrier.'

'Access to digital technology at a regional and rural level.'

Conclusion and Recommendations

Young people recognise that digital skills are key to the future, as does industry and the national experts who rate the need for digital skills as high. However, young people do not believe that access to training programmes, in particular advanced skill access, is that easily available. Furthermore, the educational experts rated the demand for digital skills as medium. This suggests a potential mismatch, with the needs of young people and employers on one side and the educational establishment on the other. It is important that digital skills keep up to expected industry standards and ensure the economics of the digital sector are matched. Therefore, an emphasis on digital skills development, in order to bridge the gap between digital skills programme expectation and youth and employer demand, is needed. Digital skills can act as a key reference framework for national digital skills policy objectives but it is critical that these are broken down into infrastructure development and operational strategies to promote workforce skills development.

1. Raise awareness of the importance of digital skills in advancing one's career.
2. Conduct awareness programmes to help youngsters understand how to use technology in their careers.
3. Create a platform to conduct digital training courses online.
4. Design appropriate digital training courses based on industry requirements.
5. Map digital skills plans across educational levels
6. Create a country-specific policy framework.
7. The country's ICT curriculum in primary and secondary education requires reform.
8. Undertake digitisation and digitalisation in the public and private sectors.
9. The creation of robust digital network infrastructure will be critical to support the deployment of digital services and platforms.
10. Ubiquitous high-speed broadband and next-generation networks to support emergent technologies will be important to gain and maintain digital leadership in the region.
11. Reforms are required to ensure accessible, reliable, secure, affordable and resilient mobile and internet services of the necessary quality.
12. Online security and data protection to build trust in digital systems will be important considerations for any digital solution adopted by businesses or government.

7. Aggregated Analysis of Research Findings

> Online learning is not the next big thing; it is the now big thing.
>
> **Donna J. Abernathy**

South Asian countries have large populations, many of whom have yet to enter the growing global digital economy. Yet, South Asia has a unique competitive advantage and is well positioned to benefit from this new wave of digital jobs. Many countries in the region have a skilled and young workforce, especially in computer science and computer engineering (O'Donnell & Raja, 2017). The legacy and history of the continent means there are still many English language speakers, which is still the lingua franca of the global business world. Finally, relatively low labour costs make these workers competitive in an increasingly globalised marketplace (O'Donnell & Raja, 2017). The first and most important prerequisite for participating in the digital economy is infrastructure and access to the internet. The past decade has seen a rapid expansion of the internet across South Asia, but there are still several pockets that are not connected, and efforts to connect these areas will be critical for digital inclusion (O'Donnell & Raja, 2017). This digital divide shows the importance of the youth survey (results below) to better inform and help close the digital gap in South Asia.

With the help of in-country leads and using the results of the initial survey, the DICE team collected additional data from different stakeholders, as best as the COVID-19 pandemic constraints allowed, to further analyse the digital skills challenges facing educational institutions. Using this data, the team aggregated and built the following regional recommendations. While the sample sizes are not large, the diverse nature of the respondents allows for a reasonable base to extrapolate for other countries in the South Asian region.

The focus surveys collected data from the following target groups in each country:

- Youth focus group
- Educational expert focus group
- Policy expert focus group

Through the research project basecamp all in-country teams were supported to engage with the target groups and generate data to inform this report. Key results from each group inform the way forward and the generation of recommendations and conclusions.

From the youth focus group (184 responses)[22]

The teams were requested to engage youth aged 15–29 to complete a more focused online survey. Key to the recommendation development were the following in terms of a digital skills baseline.

The results show that the current offering of digital skills among the South Asian target countries is accessible to just over 50 per cent of the youth and they are affordable for most of the youth in the region.

The result shows that most of the youth have intermediate level of digital skills, and around 37.5 per cent have basic digital skills. Very few are equipped with advanced digital skills.

22 The team have extracted data to support a collection of recommendations.

Figure 7.1 Digital training is accessible and affordable in target countries.

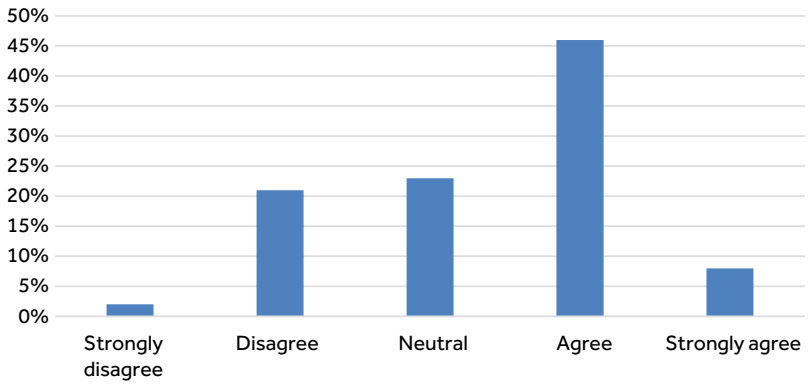
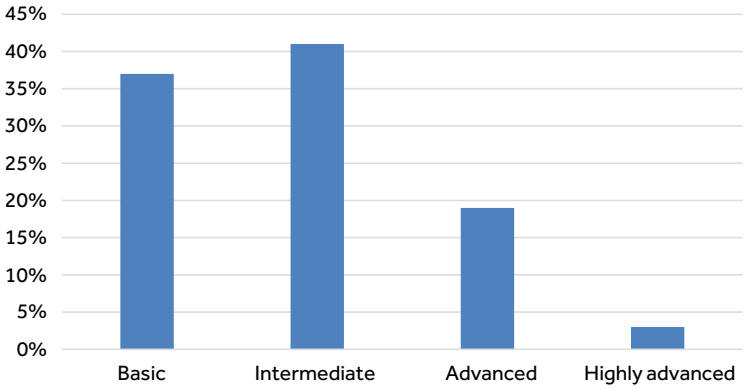


Figure 7.2 Level of digital skills among youth of the region.



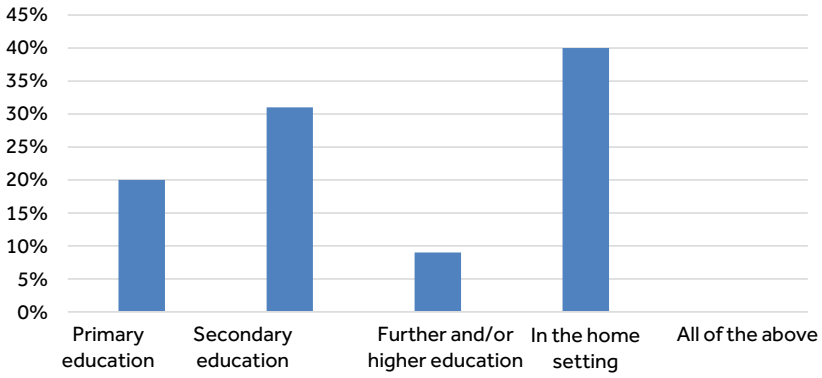
Thus, in terms of a regional enabling context these results show that access to some form of digital training is available to around at least half of the youth population and 78 per cent of young people judge their digital skills to be basic or intermediate. It suggests, therefore, there is a sound foundation on which to build and/or offer more advanced digital skills training to match the gaps identified earlier in the report and to widen the current offering to ensure that digital skills training is available to as wide an audience as possible.

From the educational expert focus group (116 responses)

> Teaching in the internet age means we must teach tomorrow's skills today.
>
> **Jennifer Fleming (https://edtechreview.in)**

To promote the generation of data the DICE team elected to create two different sets of questions, one for educational and one for policy experts.

Figure 7.3 At what point in the education pipeline should digital competences be developed?



The data was collected as focus group surveys, the following outputs have been identified as the key to contributing to regional recommendations.

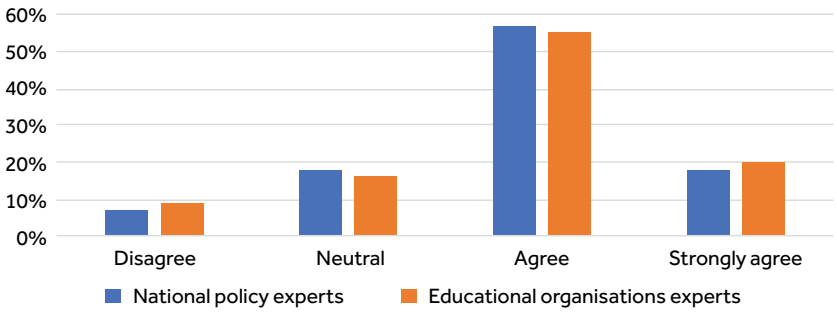
Development of digital competencies

It is clear that basic and intermediate digital skills are already being developed and that the feeling was that digital competency should be an explicit and underlying theme through all levels of education.

KEY RECOMMENDATION 1 The need to have clarity on where digital skills are best developed must be assessed at a national policy level and then fed into the formal education structures; 55% of the educational experts believe that digital skills need to be developed across educational levels. This is likely to grow as technology becomes more embedded in the countries and regions' economic futures.

KEY RECOMMENDATION 2 Digital skills frameworks should be further analysed and differentiated into skills development trajectories that are mapped to the different education levels. This will allow for enhanced digital skills development within educational settings.

Figure 7.4 Digital skills gap sentiment



Despite most young people believing they have basic or intermediate digital skills, the educationalists (68 per cent) and policy-makers (75 per cent) believe there is a major skills gap in their country. The questions are, therefore, is the gap for advanced skills training? Are the young people competent but not interested in those jobs? Or is there a difference between young people's views of digital competency and those of employers?

KEY RECOMMENDATION 3 Policymakers need to develop a deeper understanding of the nature of the digital skills gap at a national level and how developing digital skills should be mapped against economic development goals so delivery can be achieved.

Accessing and adapting to technology and bringing those to students and learners is the major challenge. So, make them comfortable with the technology.

Viveka Von Rosen (https://edtechreview.in)

When faced with a steam-rolling technology, you either become part of the technology or part of the road!

Nigel Willetts (https://edtechreview.in)

KEY RECOMMENDATION 4 Policy-makers must recognise as a matter of urgency that the digital skills gap is a major impediment to effective economic growth. This should be supported with very clear and deliverable interventions across the educational sector to promote and support the clear demand for these skills from industry to start filling the gap.

Digital media enables us to build more stages for our kids to express themselves.

Marco Torres (https://edtechreview.in/)

When reviewing the actual demand for different types of digital skills, educationalists were quite balanced in their views.

Educational experts show that they believe there is a relatively high demand for all five skills, given their responses to the survey. The policy experts show from their survey results that they feel there is higher demand for digital foundation skills and communicating. This could, therefore, be an indication where new or additional training could be focused.

Policy experts' responses mirrored the view of the educational experts in terms of priorities for digital foundation and communication skills.

KEY RECOMMENDATION 5 The importance to the economy of digital foundation skills must be acknowledged and education and training delivery must reflect this at an appropriate level, where public finance will generate high return on investment. With more targeted public finance at building foundational digital skills, educational organisations will see the benefits and engage more meaningfully.

It is important to remember that educational software, like textbooks, is only one tool in the learning process. Neither can be a substitute for well-trained teachers, leadership and parental involvement.

Keith Krueger (https://edtechreview.in/)

Figure 7.5 Demand for digital skills – educational expert responses.

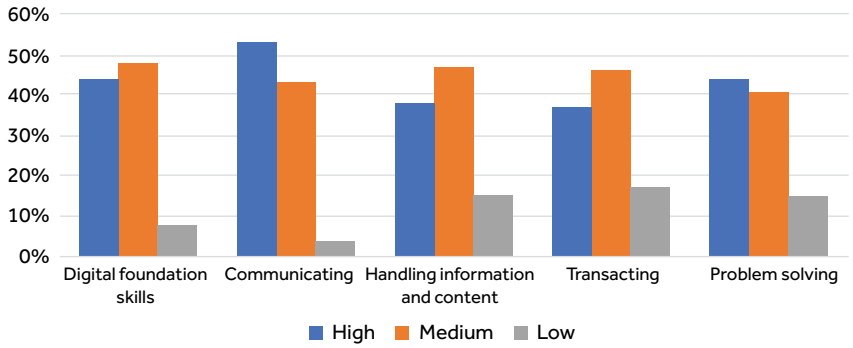
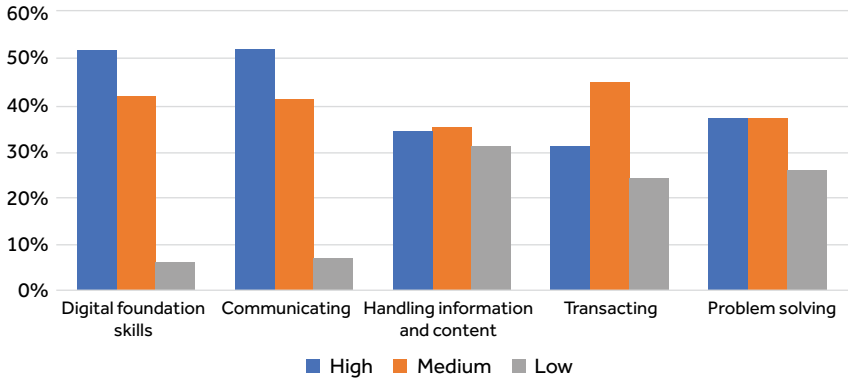


Figure 7.6 Demand for digital skills – policy expert responses.



Education organisations digital strategy assessment (64 responses)

As a final cycle, the DICE team engaged those who had indicated a desire to participate in further research; this generated 64 responses (19 each from India and Pakistan; 15 from Bangladesh, 8 from Sri Lanka and 3 from Maldives). Respondents were requested to reflect on the application of digital strategies at their own educational institution level, referred to as the institution.

Figure 7.7 To what extent do you agree with the following statement? The institution has clear policies and processes for deciding on new technologies.

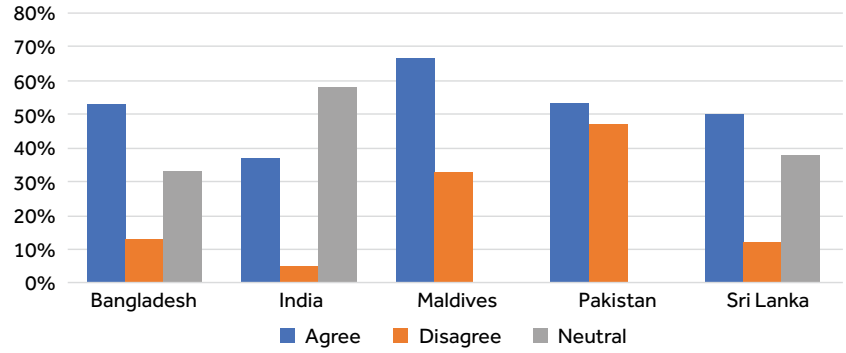
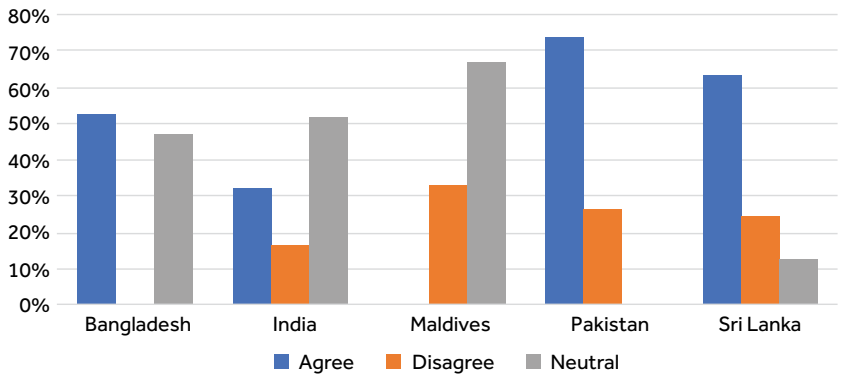


Figure 7.8 To what extent do you agree or disagree with the following statement? The institution has a budget to support the digital skills development.



The data shows that both Bangladesh and Sri Lanka educational organisations are reasonably robust in terms of the adoption of new technologies, and the response from Maldives, although with a very low level of respondents (3), indicates they have suitable policies. There was a significant number from Pakistan who disagreed, and the reasons for this should be further explored.

Despite having the largest number of responses not agreeing they had clear policies, Pakistan stands out in terms of institutional budgets. It is fairly clear that having a suitable budget and finance will impact the scope for effective digital skills development across educational organisations, and if budgets are limited this is likely to impede the implementation of effective digital skills training, regardless of the policy-enabling context, i.e., Pakistan's budgets seem to exist but suitable policies may be a limiting factor. There is some argument that there may be a need for better linking of policies and budgets for more efficient delivery of digital skills training.

KEY RECOMMENDATION 6 National policies must be supported by suitable and coherent budgetary allocations at all educational levels for the delivery of digital skills.

> We already knew that kids learned computer technology more easily than adults, it is as if children were waiting all these centuries for someone to invent their native language.
>
> **Jaron Lanier (https://edtechreview.in/)**

The results here show some correlation between the countries with suitable budgets and application of these budgets – Bangladesh and Sri Lanka – with an interesting drop from mid-70 per cent to below 50 per cent for Pakistan, which may indicate inefficiencies in the application of processes and budgets and supports the assessment from Graph 7, where Pakistan experts felt that polices and process could be improved.

KEY RECOMMENDATION 7 In the development of digital skills, educational organisations need to be given effective support for the implementation of technology adoption and the maintenance of policies and process to deliver, and they must recognise the importance of keeping the technology infrastructure current.

Figure 7.9 To what extent do you agree or disagree with the following statement? The institution assures that the hardware and software are maintained regularly.

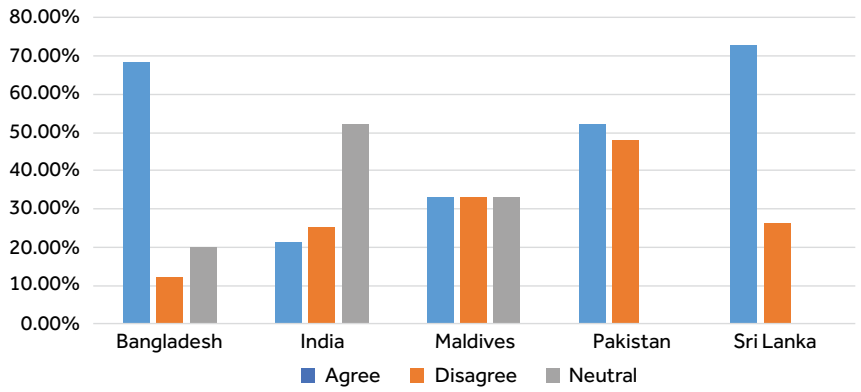
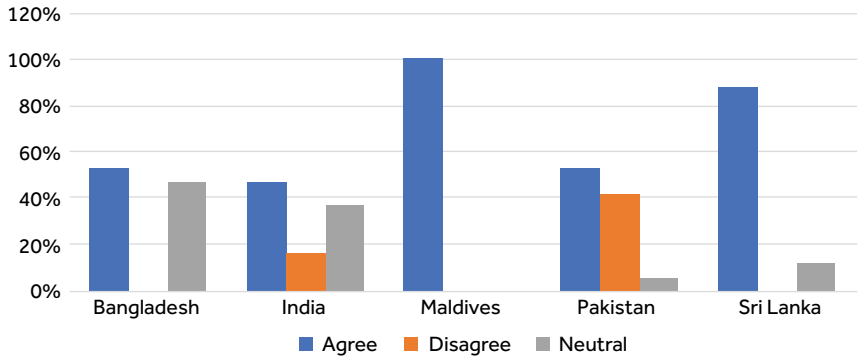


Figure 7.10 To what extent do you agree or disagree with the following statement? Governance of digital skills development includes representation from key stakeholders (teaching and administrative staff, external stakeholders).



The lower responses from India and Pakistan points to a need in those countries to promote engagement with all relevant stakeholders. However, all countries would benefit from such strategies as it ensures what they are teaching is relevant, up to date and what employers expect from a modern workforce and new labour market entrants.

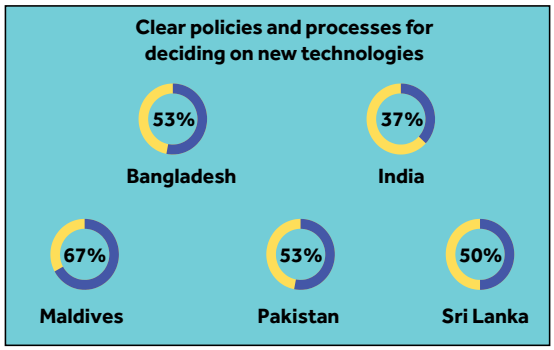
KEY RECOMMENDATION 8 Educational organisations should recognise the role and importance of engaging the relevant stakeholders to promote the delivery and development of youth digital skills.

Our children have digital limbs. We cannot amputate them at the front door.

Brendan Murphy (https://edtechreview.in/)

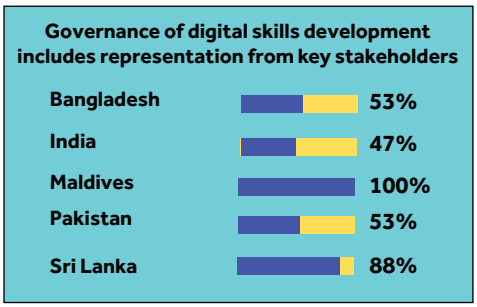
When addressing the application of policies and processes to support the adoption of new technologies (see Infographic 10) the Indian experts felt that it was true for only 37 per cent of the respondents, while Maldives showed a reasonably high level in terms of policies and processes.

Figure 7.11 Institutional policies.



KEY RECOMMENDATION 9 Educational leaders of secondary and higher education institutions should seek to make the organisational strategy vis-à-vis the delivery of digital skills more central to their operational activities; this will also promote higher engagement from educators and students.

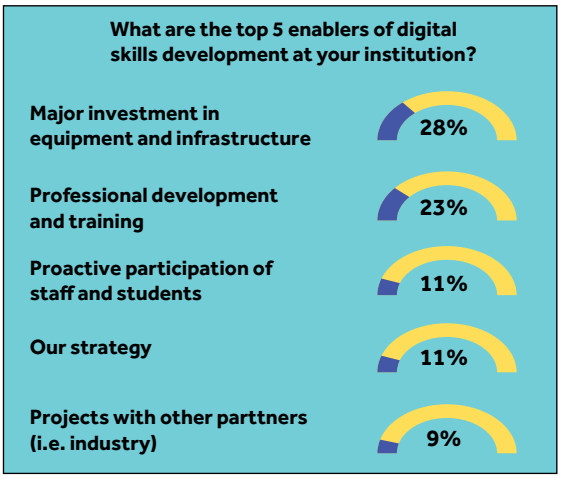
Figure 7.12 Institutional governance.



KEY RECOMMENDATION 10 National digital policy-enabling frameworks should strive to develop a blueprint for educational stakeholder engagement activities. This could include community structures, business and industry, policymakers, etc.

These top five enablers generate the following key recommendations for consideration:

Figure 7.13 Institutional enablers.



KEY RECOMMENDATION 11 Policy and educational structures must seek to enhance the role played by CPD and other professional development capabilities to ensure the digital skills training being delivered is current for the industry.

KEY RECOMMENDATION 12 Educational organisations should seek to be more active in promoting engagement with staff and students, to allow them to feel they have agency in the development and delivery of digital skills interventions.

KEY RECOMMENDATION 13 Policymakers should support and assist educational organisations to develop whole institutions' strategies for digital skills development. This is not always happening, for example, in Bangladesh.

KEY RECOMMENDATION 14 National structures should aim to build suitable complementary funding frameworks that mirror the national policy aspirations and targets.

KEY RECOMMENDATION 15 National regulation should have clear plans and support for development of stakeholder engagement (see other recommendations) supporting the aims and objectives of the national policy goals for digital skills development.

It is clear that the different data nodes and respondents have clear views and perspectives on the youth digital skills context and the data have allowed the team to develop the list of recommendations outlined above. The team acknowledges that there is much more that could be extracted from the data collected, and further mining would generate greater insights into the status quo of the digital skills contexts in the target countries.

8. Conclusion

In conclusion, to achieve the benefit from digital transformation, South Asian countries must boost digital skills literacy and address legal regulatory and policy gaps, such as removing roadblocks and recognising that digital enabling regulations needs to be enhanced. Collaborations between governments and the private sector to revamp the education system to meet the demand for digital skills and online platforms should be encouraged. Focused collaboration at all levels between some South Asian countries needs to move from inaction towards a digital future of shared prosperity using best practices with a shared 'digital vision' towards the Fourth Industrial Revolution.

The research conducted by the DICE team aimed to develop insights into the status quo of youth digital skills in each of the target countries. The impact of COVID-19 resulted in over-dependence on online survey methodologies; however, despite these constraints, as outlined above the data offer a robust platform for the collection of recommendations. The research exercise points to further areas of research into the country-based constraints and youth digital strategies.

The need to support and promote digital skills development cannot be overstated, and from the research conducted by the DICE team it is clear that support for an integration between national policy and educational operational contexts needs to be seen as central to address the youth digital skills gap across South Asia.

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10. Report Authors

The in-country partners and lead researchers were:

- **Bangladesh:** Huraira Shishir has 14 years of experience at Grameenphone (Bangladesh's leading mobile phone provider) in the field of strategic HR development, customer service experience, team building and leadership. She teaches at the Daffodil International University.
- **India:** Professor Simple Doshi, Campus Head – Training, Placements and International Alliance in SAL Education Campus and Zonal Placement Officer- Zone-1(Ahmedabad) Gujarat Technological University.
- **Maldives:** Unfortunately, we were unable to gain an in-country Maldives partner, so the Maldives work was led by Professor Jeff Gow, part of the central team. This led to difficulties in obtaining data and the Maldives analysis is based on desk reviews and focus group surveys. Professor Gow is a leading expert in the application of data envelope analysis and has worked with the DICE Consortium and a number of other partners to develop suitable frameworks for social impact analysis. He was a key member of the UKEIRI team that developed the Social Enterprise Programme for India and the EU.
- **Pakistan:** Sayed Kamran is responsible for managing a variety of training and consultancy functions for both the public and corporate sectors at Sukkur IBA University. Projects include Sindh Education Foundation for AALTP (Adolescent and Adult Learning Training Programme) Teachers and the Head Teachers Training Project.
- **Sri Lanka:** Raisal Ismail is currently working as a Senior Lecturer in Management at South Eastern University of Sri Lanka. He holds a Doctor of Philosophy in Management from the Management and Science University of Malaysia. He has worked on several national and international research projects, published widely in reputable journals, such as *Journal of Islamic Marketing*, *World Journal of Entrepreneurship Management* and *Sustainable Development*, and has presented research at various national and international conferences.

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