ITU
Digital Skills Assessment Guidebook

Available in 6 languages at http://academy.itu.int
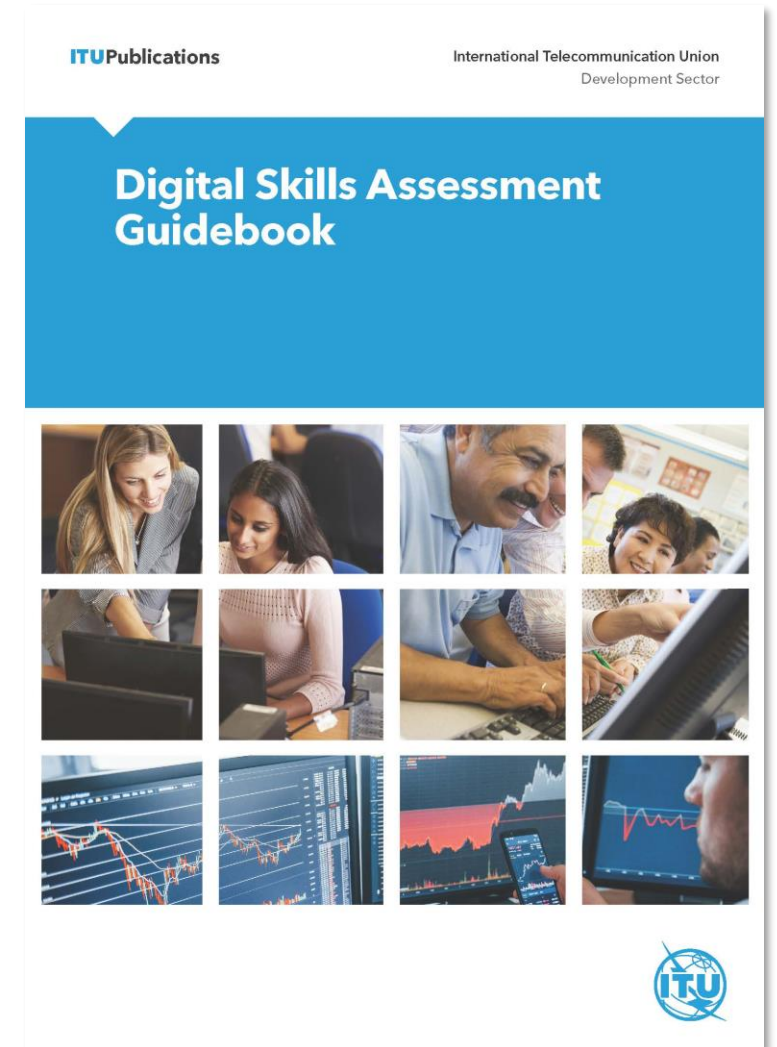
Overview of presentation

- Introduction to ITU's work on digital skills

- Objectives, target audience and content of the Guidebook

- Review of existing frameworks and approaches (examples)

- How to implement national digital skills assessments (step-by-step guidance):

  ➢ How to assess current digital skills levels (supply)

  ➢ How to assess needs and gaps (demand)

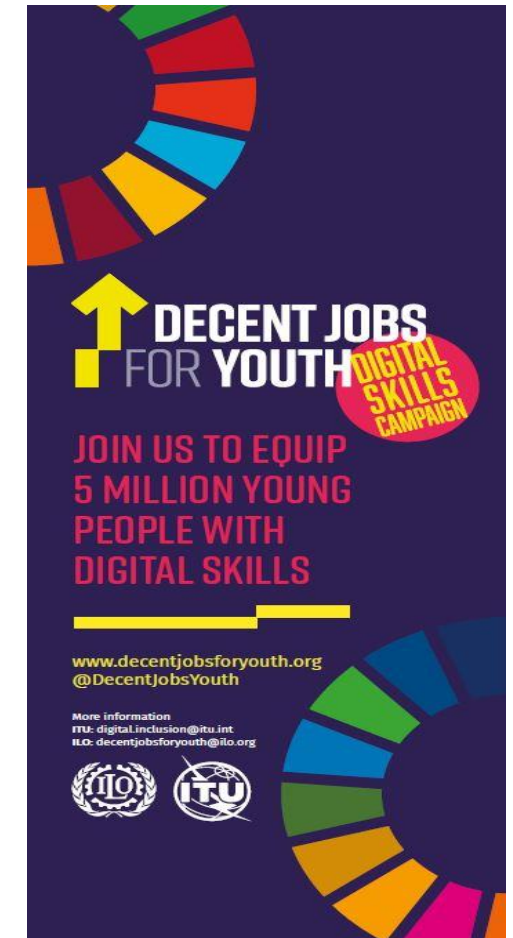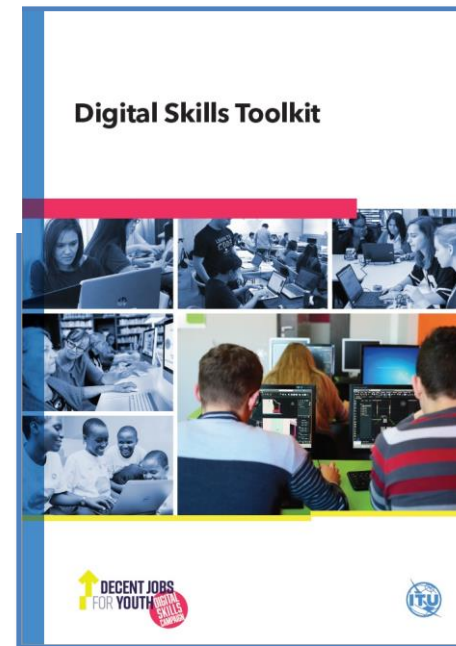 ➢ How to forecast future skills requirements

ITU's work on digital skills

Main objectives of Guidebook

- Focus is on <u>national</u> level skills assessment

- Helps governments assess skills <u>supply</u> and <u>demand</u> and determine existing and future skills <u>gaps</u>

- Practical tool to <u>guide policy makers in their digital skills strategies</u> and education policies
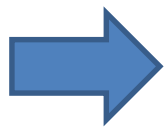
→ Interested Member States are invited to use the *Guidebook* for implementing digital skills assessment at the national level

Target audience

Policy makers

Private sector

Academia

Non-governmental organizations
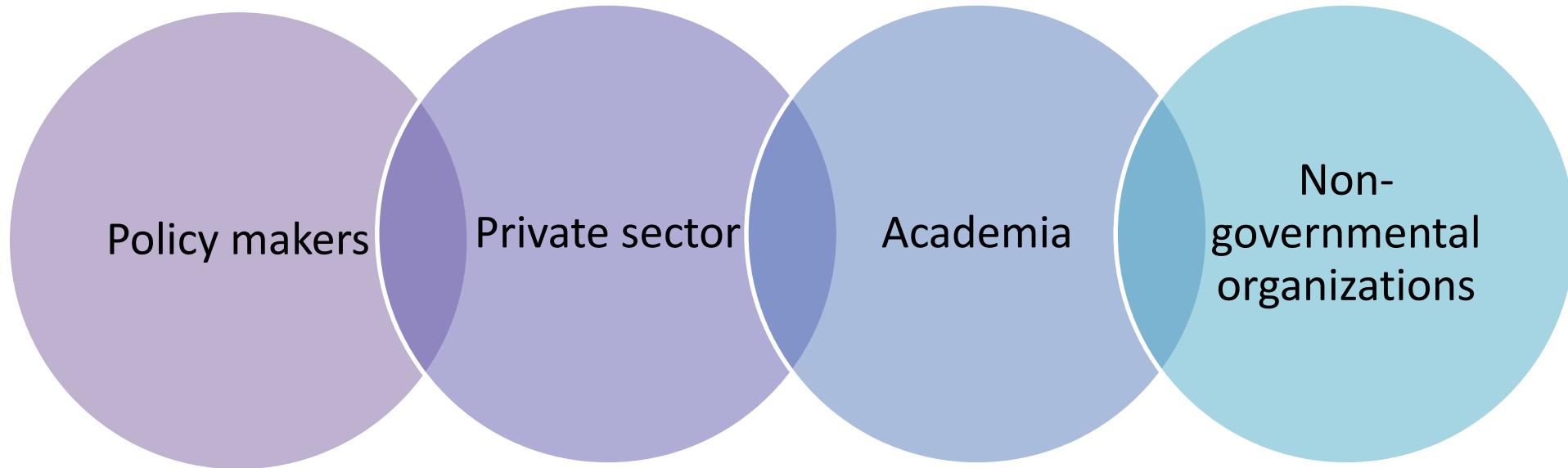
ICT policy makers working in close collaboration with other stakeholders

What does the Guidebook cover?

Chapter 1:
Review of existing skills assessment frameworks and approaches

Chapter 2:
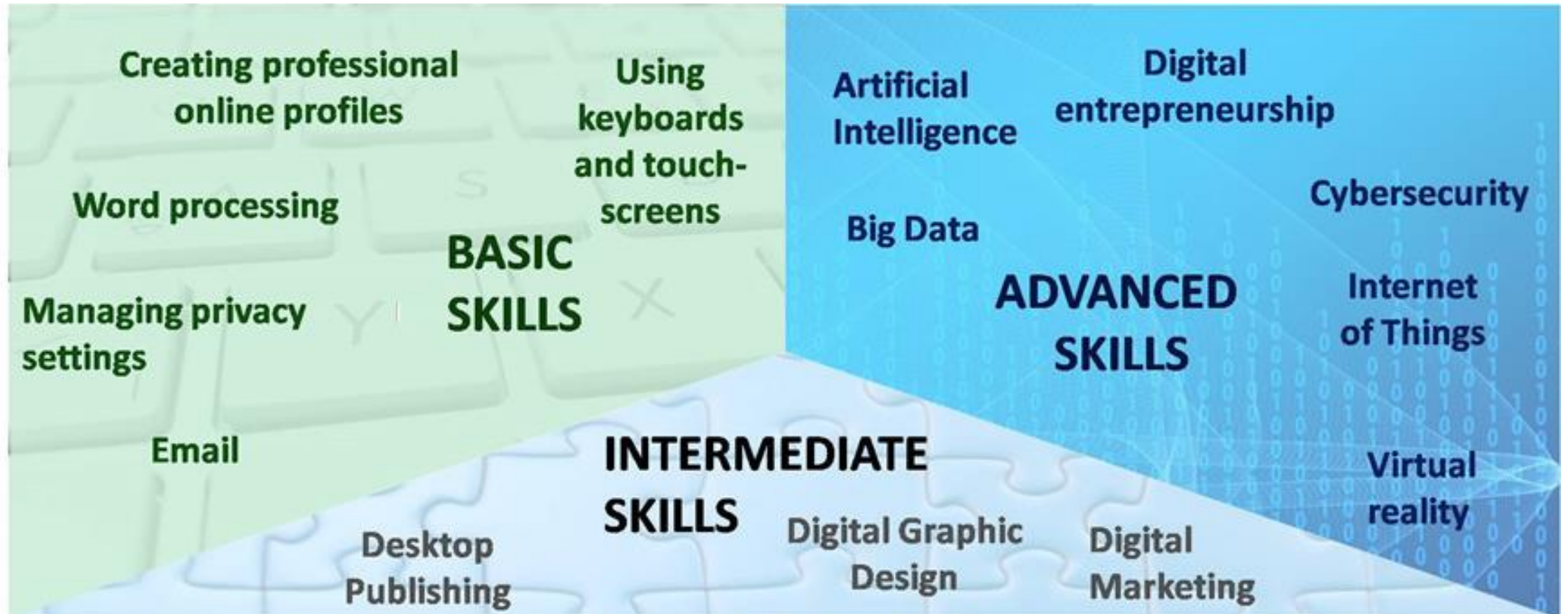Assessment of current national skills levels (supply)

Chapter 3:
Assessment of skills needs and gaps (demands)

Chapter 4:
Forecasting future skills requirements

Appendix:
List of knowledge resources on skills assessment

Digital skills categories

Review of existing digital skills frameworks

- Assessment approaches are often constructed around a digital skills framework

- A digital skills framework provides a means of categorizing and organizing the complexity and range of digital skillsets

- Frameworks create a common language and sometimes prescribe proficiency levels

DigComp	DLGF	DiSTO	NEDSF
• Digital Competence Framework for Citizens • EU JRC • Updated 2017 • Includes 5 competence areas	• Digital Literacy Global Framework • UNESCO • Developed in 2018 to serve SDG 4 • Adds 2 competence areas to DigComp	• Digital Skills to Tangible Outcomes • LSE • Organizes digital media skills around 4 domains • Updated 2012	• New Essential Digital Skills Framework • UK Government • 5 skills categories • Updated 2018

Assessment approaches

Eurostat, ITU household questionnaires

More accurate information on people's abilities than self-assessments

Knowledge based assessments

Tests skills using questions about factual or procedural knowledge

Self assessments

Participants rate their own level of knowledge, ability, confidence or usage

Performance based assessments

Measures actual performance on digital skills in realistic scenarios using tools such as browsers and word-processing software in a laboratory or software simulation.

Often deployed in school settings; expensive

International digital skills assessments

Assessment	Developer	Number of Countries	Implementor	Frequency	Audience
Programme for the International Assessment of Adult Competencies in Technology Rich Environments (PIAAC-TRE)	Organisation for Economic Cooperation and Development (OECD)	Over 40 developed countries	Individual countries	Every 10 years	Adults
International Computer and Information Literacy Study (ICILS)	International Association for the Evaluation of Educational Achievement (IEA)	21 countries overall; mostly developed countries	National education systems	Every 5 years	8th-grade students
Programme for International Student Assessment (PISA)	Organisation for Economic Cooperation and Development (OECD)	2018: 80 developed and developing countries and 82 languages	National education systems	Every 3 years	15 years old

Methods to assess current skills needs

Sector studies

Focus groups, roundtables, expert workshops

Quantitative forecasting models for current and short-term requirements

Employer-employee skills surveys, enterprise/ establishment skills survey

Graduate surveys (at both secondary and post-secondary level) / tracer studies

Foresights and Scenario development for current and short-term requirements

Assessing available skills (supply)

STEP 1

Assemble Team

Create a structure to manage the process

STEP 2

Decide what to assess

Find out what data already exists and decide what should be assesed

STEP 3

Collect and analyze the data

Decide how the data will be collected and analyzed, then collect and analyze

STEP 4

Disseminate data

Identify who you will share the data with, aiming for wider dissemination

Assessing available skills (supply)

Assemble Team

Choose a governance model
Policy model
Independent Model
Hybrid Model

Engage stakeholders

Decide what to assess

Inventory of existing data sources

Decide who, what and how

Collect and analyze data

Compile existing data

Choose a data collection approach

Collect and Analyze data

Disseminate data

Decide who

Assessing available skills (supply) : Decide who what and why

Needs to consider	Defined characteristics
Who e.g. Adults? Students? Sample of population at large or certain geographic areas? Working adults?	
What e.g. Level of skills (basic–advanced), labour force, ICT sector–specific	
Timeline e.g. How long will this take? When do you need the data (before a new education plan, workforce initiatives, etc.)?	
Frequency e.g. How often do want to collect data? Annually? Every 3 years?	
Data collection and analysis e.g. Where will data be collected? Who's in charge? Who will conduct the analysis?	
Data dissemination e.g. When and how to disseminate the data? Who's in charge?	

Assessing skills needs and gaps (demand)

1. What is the current demand for digital skills across the country and what are the different types of digital skills requirements ?

2. What are the areas of shortage or mismatch of digital skills in the workforce ?

Assessing skills needs and gaps (demand)

Understanding current digital skills needs and gaps

Step 01 — Administer desk review
Review available literature on the demand of digital skills in the country

Step 02 — Choose methods
Choose the appropriate methods to respond to data gaps that are not covered in the desk review

Step 03 — Focus on key sectors
Identify key sectors and focus on those

Step 04 — Conduct a gap analysis
Compare results of the skills supply with skills demand to identify digital skills gaps

Step 05 — Communicate the results
Develop a communication and reporting strategy

Assessing skills needs and gaps (demand)

1. How have technological changes affected your sector ?

2. What new digital technologies have been introduced in your sector ?

3. What impact have these technologies had on the sector ?

4. For all employees, what are the baseline digital skills that are needed for your work? What are the intermediate digital skills that are needed for your work ?
   a. What shortages do you observe in these skills ?
   b. When recruiting, which jobs do you find difficult to find candidates for ?
   c. Which digital skills are required for these jobs ?
   d. In general, which digital skills would you say are most commonly lacking in candidates ?

5. For your sector, what are the sector-specific digital skills that are required? What are the intermediate digital skills that are needed for your work ?
   a. What shortages do you observe in these skills ?
   b. When recruiting, which skills do you find are most commonly lacking in candidates ?

6. For your sector, what are the advanced/specialist technical IT skills that are required ?
   a. What shortages do you observe in these skills ?
   b. When recruiting, which skills do you find are most commonly lacking in candidates ?

7. What do you think are the causes of the skills gaps ?

8. What types of training do you provide to your employees? How frequently ?

9. How does the skills gap affect your business ?

Assessing skills needs and gaps (demand)

Gap analysis

Compare the results of the skills supply with the required skills levels identified by partners.	Compare skills mentioned in vacancy surveys explaining why positions have gone unfilled with outcomes of supply-side skills assessments.	Compile information from sectoral studies, both surveys and qualitative research, about the difficulty of recruiting appropriate candidates.	Review any employee surveys and find out if they feel over- or under-qualified for jobs, and in what digital skills areas.	Assess graduation rates for specialized digital skills fields, as well as average growth rates in particular fields of study over a period of time, as compared with employment rates for specialized digital skills fields

Forecasting future skills requirements

How to forecast future digital skills requirements

STEP 01

Understand trends

Review resources that examine worldwide and regional technology trends.

Identify impacts of trends.

STEP 02

Conduct anticipation exercises

Conduct desk review of development trends.

Gather data to understand existing industries.

STEP 03

Make strategic decisions

Review other factors that influence requirements.

Make decisions on further action.

Forecasting trends and their impacts

1. How do you expect technological changes will affect your sector in the coming five to 10 years ?

2. What new digital technologies will likely be introduced in your sector ?

3. What impact might these technologies have on the sector ?

4. What new digital skills requirements might emerge to meet technological changes in your sector ?

5. What digital skills could be added to the education system to ensure the pipeline is well prepared for these changes ?

6. How might you consider retraining or upskilling current employees for these changes?

Forecasting trends and their impacts

Trend forecasted	Assessment of impact on country (e.g. how population growth will impact the economy; how emerging technology will be adopted)	Sectors likely to be affected by the trend	New sectors that might emerge from the trend

Anticipation exercises (review of national plans)

Name of national development plan/strategy plan	Year and time-frame of plan	Lead agency	What goals are covered in the plan?	What sectors are affected by the goals?	What digital skills requirements emerge from the plan?

Making strategic decisions on further action

What are some of the factors that affect digital skills demand?

Demographics trends

e.g. retirement and replacement, youth unemployment

Technological changes

e.g. automation

Business Trends

e.g. economic expansion and contraction, employer surveys, employment data, future scenarios

Trade

e.g. trade agreements, export sectors

Industry policies

e.g. investment in new technologies, hiring practices

Shift to a greener economy

e.g. alternative energy

Conclusion

- This guidebook is designed to provide as much flexibility as possible for each country to choose an approach that fits its resource constraints and unique goals.

- Each country has different digital skills needs and requirements based on its level of technological development and its economic sectors.

- Assessment methods will depend on a country's resources and stakeholder engagement.

- Policy-makers should engage with partners in the private sector, non-governmental organizations and academia to craft the assessment approach that matches the country's needs and goals.
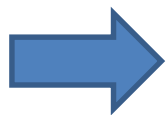
ITU can provide further advice to Member States interesting in using the *Guidebook* for implementing national digital skills assessments