Building a Common Language for the Twin Transition: Reference Frameworks for Digital and Green Skills

Digitálna koalícia

Ing. Michal Kovacs, PhD.

About the Digital Coalition

- MISSION

  To improve digital skills and reduce the shortage of ICT specialists in Slovakia.

- ESTABLISHMENT

  2017, at the initiative of the Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization and the IT Association of Slovakia.

- MEMBERS

  More than 100 key entities in the field of education and the ICT sector in Slovakia.

- PLATFORM

  A national initiative established at the initiative of the European Commission within the Digital Skills and Jobs Platform.

Key Projects

IT FITNESS TEST

The IT Fitness Test is the largest digital skills assessment in Central Europe. Over the past **14 editions**, nearly **1,000,000** people have taken the test, from primary and secondary school students to teachers and adult users.

DIGITAL ADVISOR

The project offers a helping hand to employees at risk from digitalization and AI to discover their strengths applicable to the future job market through online testing and individual career coaching. This preventive intervention ensures people are ready for their next career move and **align re-/upskilling with their potential and employers needs.**

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DIGITAL STRELKA

The Digital Strelka PROJECT is a project that inspires girls in Slovakia to discover IT and digital careers through an interactive quiz and educational materials. Digital Strelka helps young girls successfully develop their talents and contribute to the digital world.

DIGITAL START

The project helps young people under 30 who are not in employment, or education or training (NEET) discover their strengths and digital skills through online testing and individual career coaching. The intervention helps them to gain necessary self -confidence and skills to access the job market.

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ONLINE STUDENT

Online Student is a Digital Coalition project that provides more than 48,000 primary and secondary school students with special educational needs or living in material hardship with vouchers worth €480 for free internet access for 24 months.

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Digital Future of Slovakia

A national project focused on digital and green skills and their measurement

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About the National Project Digital Future

PROJECT OBJECTIVE

The national project contributes to raising the level of digital and green skills linked to SK RIS3 2021+ domains, primarily Domain 1 (Innovative Industry for the 21st Century) and Domain 3 (Digital Transformation of Slovakia). The project actively supports raising awareness of digital and green transformation in the business sector, local governments and public administration of the Slovak Republic.

TARGET GROUP

- Managers in the business sector
- Managers in public administration
- Managers in local government

MAIN ACTIVITIES

- The Digital Future project develops green and digital skills of employees
- Identification of digital and green skills+
  - Development of Reference Frameworks for Digital and Green Skills
- Raising awareness of the twin transformation
- Measuring digital maturity of human capital

Why do we need the Reference Frameworks for Digital and Green Skills?

Short answer: common language for Employees and Employers based on the DigComp framework

In particular:

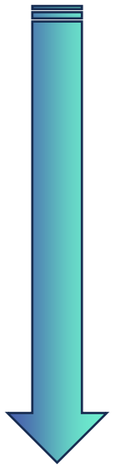
- **PROBLEM 1: Unclear employee fit for a position**
  Employers struggle to identify what level of digital and green skills specific job positions require. Employees, in turn, lack the standards to demonstrate their level of these skills.
- **PROBLEM 2: Companies not ready to leverage the digital and green transition**
  Managers are often not aware of the required levels of digital and green skills for individual positions, nor of the corresponding competency levels of employees (including their own). As a result, they are unable to steer necessary upskilling efforts or leverage competitive advantages in the market.
- **PROBLEM 3: Effectiveness of learning**
  Learners struggle with finding appropriate courses matching their current (starting) level of digital or green skills and desired graduate profile necessary for their career advancement. Employers and learning organizations lack common standards to describe learning outcomes for basic digital and green skills leading to job qualifications.
- **PROBLEM 4: Lack of Labor Force Insights**
  Public authorities, employers, and education providers lack insights about current level of digital and green competences on the labour market hindering effective business planning and policy interventions.

Our Approach

INSPIRATION

Common European Framework of Reference for Languages (CEFR)

is an international standard for describing language ability. It describes language ability on a scale, from beginners, up to those who have mastered a language. It presents the **key aspects for teaching and learning** in a user-friendly form. Scale:

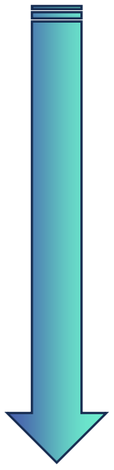


Pre-A 1
Pre-A 2
A 1.1
A 1.2
A 2.1
A 2.1
B 1
B 2
C 1
C 2

OUTCOME

Reference Frameworks for Digital and Green Skills

is a national standard developed by the Ministry of Investment, Regional Development and Informatization of the Slovak Republic in cooperation with the Digital Coalition for describing digital and green skills competence level. Similarly to CEFR, it **describes the competence level on a scale** and enables teaching and learning in a user-friendly form. Scale:



A 1.1
A 1.2
A 2.1
A 2.1
B 1.1
B 1.2
B 2.1
B 2.1
(no C level)

Source Documents for Reference Frameworks

Digital Reference Framework

- **DigComp 2.2:** The Digital Competence Framework for Citizens
- **DigComp 2.1:** Eight Proficiency Levels with Examples
- **DigComp 2.0:** The Conceptual Reference Model
- **DigComp :** Development and Understanding of Digital Competencies in Europe
- **Online Consultation Report** – Expert Opinions
- **Digital Competencies in Practice:** Framework Analysis

Green Reference Framework

- **GreenComp :** European Sustainability Competence Framework
- **DigComp :** The Digital Competence Framework for Citizens
- **EntreComp :** The Entrepreneurship Competence Framework
- **LifeComp :** European Framework for Personal and Social Competences
- **OECD:** Education 2030 – The Future of Education and Skills
- **WEF:** TOP 10 Skills for 2025

DIGITAL SKILLS – Areas according to DigComp

Data processing and working with information	Reading · Listening · Evaluation and selection of alternatives Discovering analogies and connections · Creating databases
Communication and collaboration	Writing · Dialogues · Acting in social interaction Evaluating own influence · Influencing social life
Creating digital content	Perception · Setting achievable goals · Identification and validation of alternatives · Developing strategies and procedures · Creating content
Cybersecurity	Identifying risks · Identifying protection options · Ensuring protection · Communicating risks · Preventing risks
Problem-solving strategies	Formulating and testing hypotheses · Problem solving · Innovating procedures · Testing options and revising procedures · Creating strategies

Level A

DIGITAL SKILLS
Data processing and working with information

A1.1 Fully dependent employee

A person can, based on clear instructions, search for common data and information and perform simple operations in the digital environment.

A1.2 Dependent employee

A person can search for common data and information in the digital environment according to instructions and process them in a simple format.

A2.1 Partially independent employee in routine activities

A person can create routines in the digital environment for searching and organising data and information needed for work activities according to instructions.

A2.2 Partially independent employee

A person can select suitable digital tools and learn procedures for collecting, processing and formatting data in routine work activities.

Level B

DIGITAL SKILLS
Data processing and working with information

B1.1 Independent employee in routine activities

A person can search for various data and information and process them using basic functions of the relevant digital tool.

B1.2 Independent employee

A person can analyze and categorize diverse data and information and use relevant digital tools for their organization in a structured format.

B2.1 Fully independent employee

A person can use various search and filtering strategies for digital content and analyse, categorise and evaluate data from different perspectives.

B2.2 Experienced independent employee

A person can use complex functions of the relevant digital tool for the management and organization of information in structured data.

Level C

DIGITAL SKILLS
Data processing and working with

C1 Expert employee

A person can effectively manage and organize complex data in the digital environment and transform them into a clearly structured form.

EXAMPLE: Competency Profile Master (Supervisor) in Mechanical Engineering

B2.1 Employee Competency Profile

Recommended education: complete secondary vocational education with school -leaving exam without apprenticeship certificate

ISCO 3122

Manages and organizes work in the production unit. Ensures fulfilment of the production plan, sets priorities, organizes work and leads people, resolves arising problems, ensures production continuity and is responsible for meeting set production targets.

Data Processing

B2.2

Can use complex functions of the relevant digital tool for managing and organizing information in structured data.

Communication

B1.2

Can correct the manner and means of communication, detect signs of manipulation and guide colleagues towards appropriate behavior in the digital environment.

Content Creation

B2.1

Can work with various document types and monitor goal achievement using advanced digital tools.

Cybersecurity

B2.1

Can effectively identify potential threats in the digital environment, assess data protection options and evaluate procedures for ensuring confidentiality.

Problem Solving

B2.2

Can examine established problem-solving procedures in the digital environment and propose strategies for streamlining workflows.

What was achieved

PROBLEM 1 ADRESSED: Ensuring employee fit for a position

- Job cards are being updated for necessary digital and green competency levels for all national qualifications (except expert positions in digital and green)
- Digital and green general skills testing introduced and promoted
- Targeted communication effort to facilitate adoption of the reference frameworks started

PROBLEM 2 ADRESSED: Companies ready to leverage the digital and green transition

- Testing of managers increased their understanding of their own competency levels and their willingness to steer necessary upskilling efforts within their companies .

PROBLEM 3 ADRESSED: Increasing effectiveness of learning

- Legislation passed to ensure learning organizations in digital and green adopted the reference framework when applying for Certification and Accreditation for lifelong courses (Digital Coalition gate-keeper)
- Testing of learning guarantors ensures key personnel in learning organizations adopts the framework

PROBLEM 4 ADRESSED: Labor Force Insights

- First insights available (although results are not representative in the pilot phase)

Preliminary* project insights

In both digital and green skills, level **B2.1** is **dominant;** however managers perform **better in green than digital skills** .

subjects tested

Overall average level of green skills

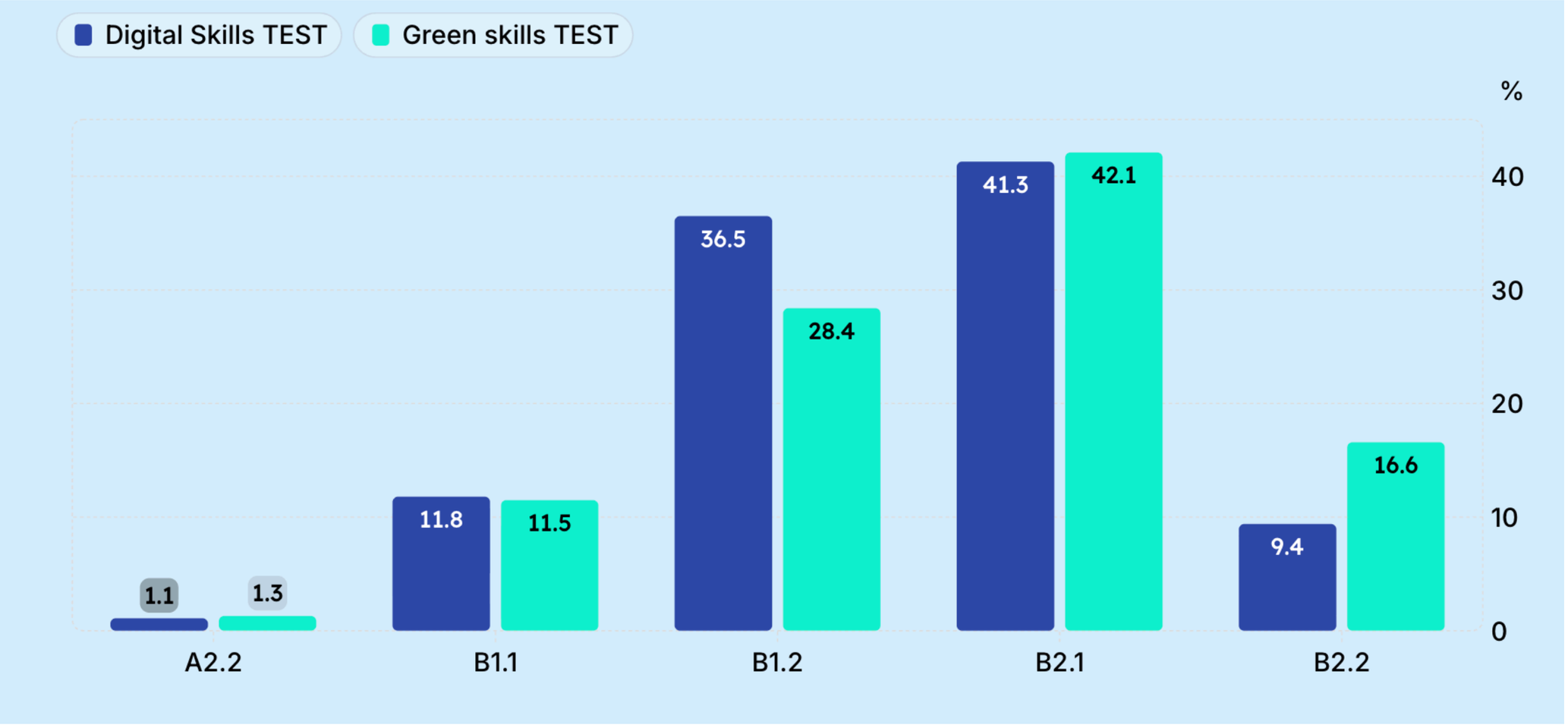
managers

Overall average level of digital skills

* results are not representative in the pilot phase, strong positive bias

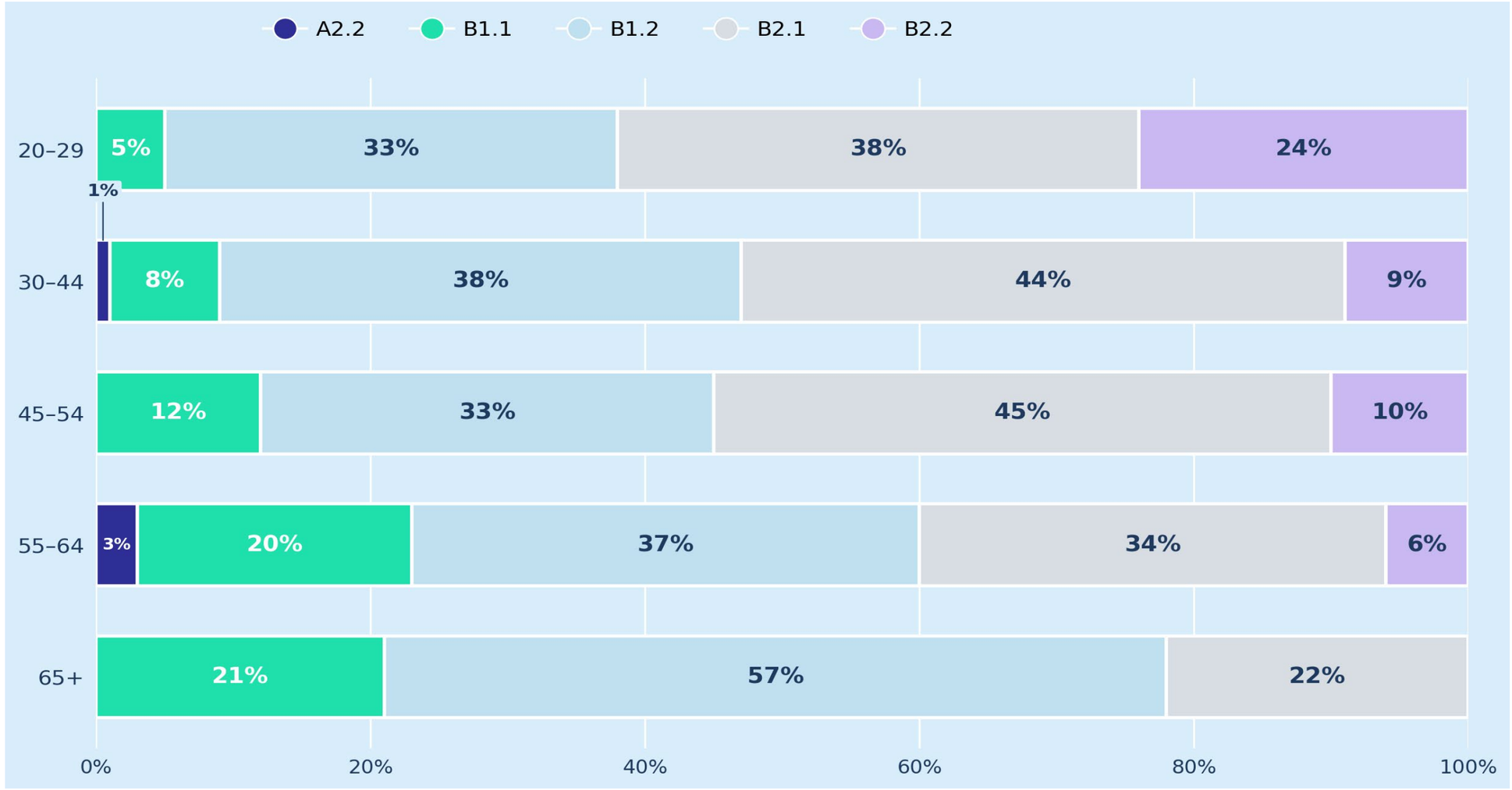
Overall testing achievement level in %

In digital skills, 50.7% of managers reach higher levels (B2.1 and B2.2); in green skills it is **58.7**%.
In green skills, 7.2% more managers reach the highest level (B2.2) than in digital skills.



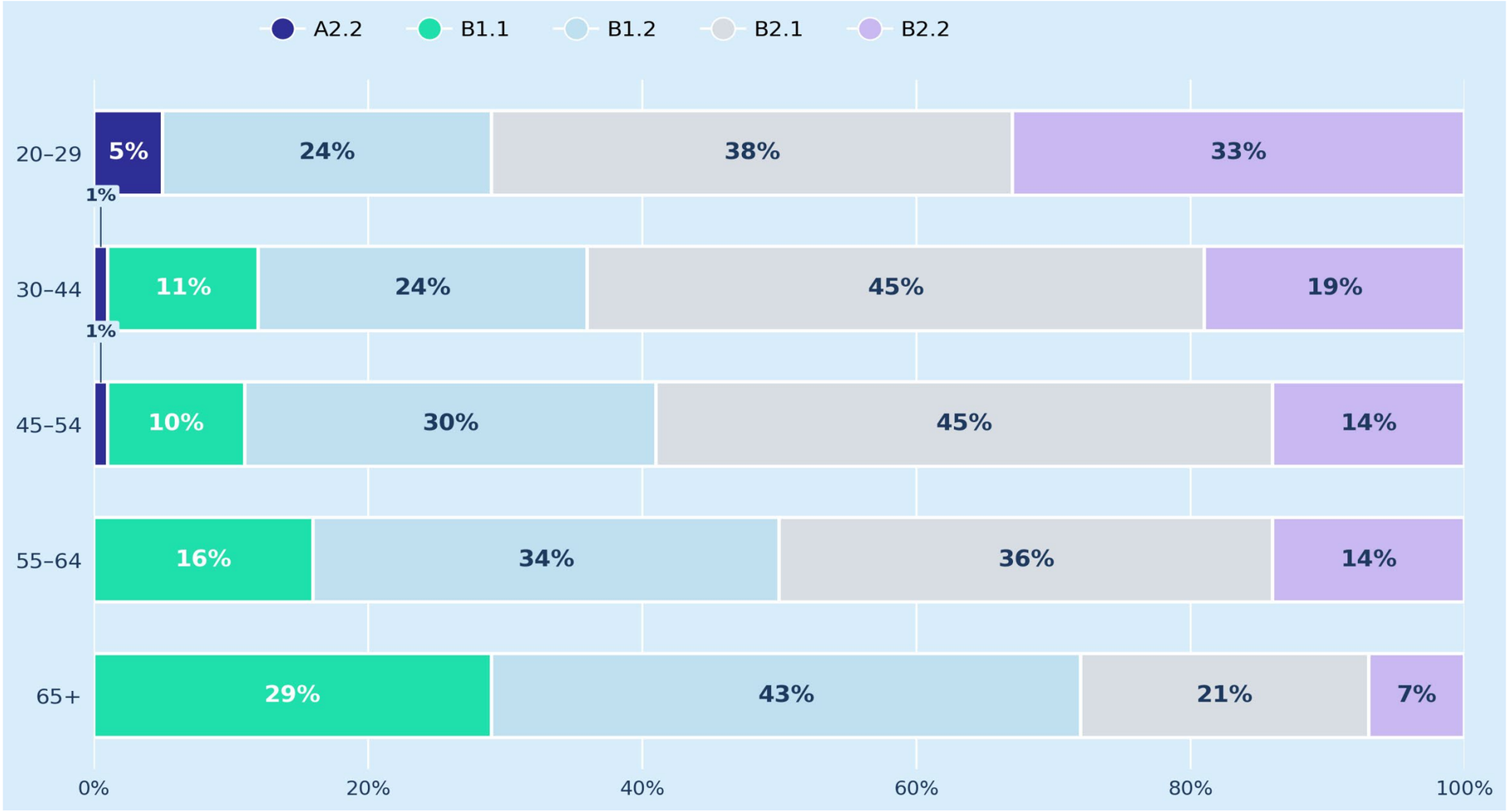
Digital skills across age groups

Digital skills are distributed across all age groups, with the dominant level gradually declining from B2.1 in the working-age population (20–54) to B1.2 in the 55+ age group. Younger managers demonstrate a higher share of advanced competences (B2.2), while more experienced cohorts form a stable intermediate level of digital maturity.



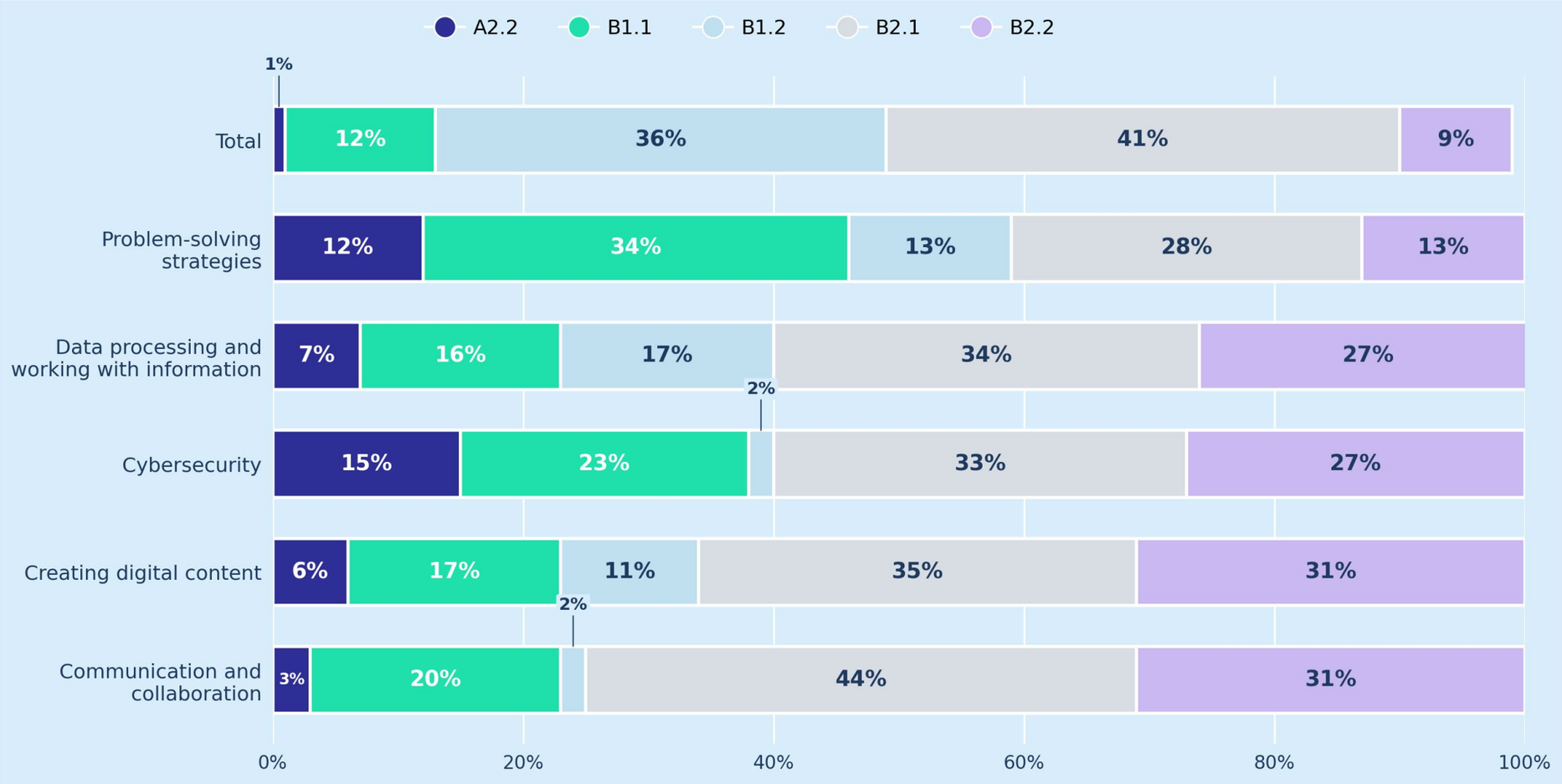
Green skills across age groups

Green skills are distributed across all age groups, with the dominant level gradually declining from B2.1 in the working-age population (20–54) to B1.2 in the 55+ age group. Younger employees demonstrate a higher share of advanced competences (B2.2), while more experienced cohorts form a stable intermediate level of green maturity.



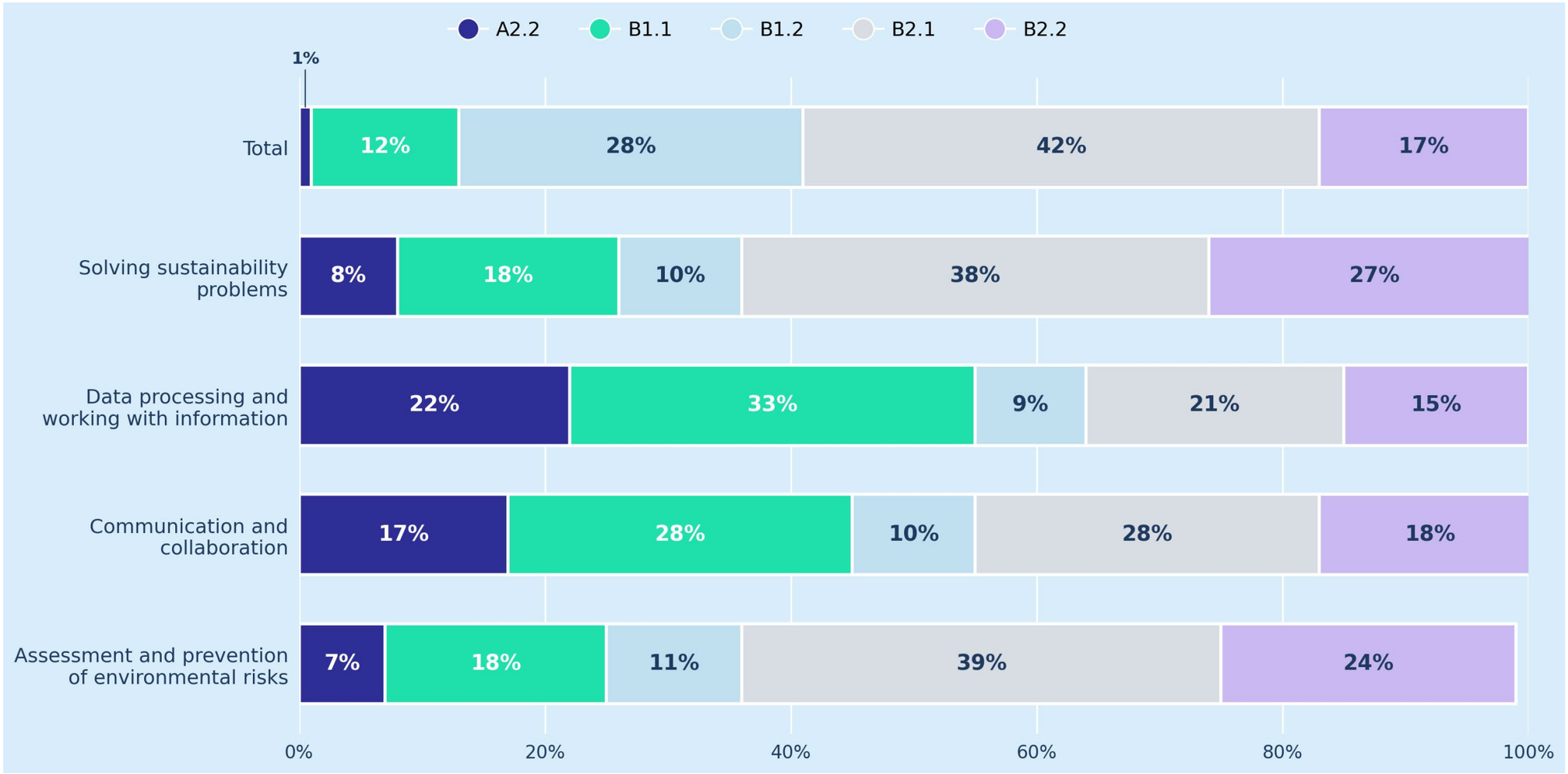
Digital Skills by Subtest: Strengths and Gaps

The strongest areas are communication and collaboration (75 % at B2.1+) and digital content creation (66 %), while the weakest results are seen in problem-solving strategies (46 % at low proficiency) and cybersecurity (38 %).



Green Skills by Subtest: Strengths and Gaps

The strongest areas are solving sustainability problems (65 % at B2.1+) and assessment of environmental risks (63 %), while the weakest results are seen in data processing (55 % at low proficiency) and communication on sustainability (45 %).



We are ready to help **LOCALIZE** the framework in your country or support you in developing YOUR OWN.

Digitálna koalícia

TOGETHER for a better digital future

Please contact me for further information:

kovacs@digitalnakoalicia.sk

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Thank you.

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TOGETHER for a better digital future

Ing. Michal Kovacs, PhD.

Back-up slides

Level A

DIGITAL SKILLS
Data processing and working with information

A1.1 Fully dependent employee

Based on clear instructions, can search for common data and information and perform simple operations in the digital environment.

A1.2 Dependent employee

Can search for common data and information in the digital environment according to instructions and process them in a simple format.

A2.1 Partially independent in routine activities

Can create routines in the digital environment for searching and organising data and information needed for work activities according to instructions.

A2.2 Partially independent employee

Can select suitable digital tools and learned procedures for collecting, processing and formatting data in routine work activities.

GREEN SKILLS

Data processing and working with information	Listening · Observation · Reading · Abstraction– model creation Assessment and selection of alternatives
Communication and collaboration	Dialogues · Independent oral expression · Writing · Understanding others' motivations Influencing social life
Assessment and prevention of environmental risks	Formulating hypotheses · Creating and implementing procedures · Validating hypotheses Setting achievable goals · Testing options and revising measures
Solving sustainability problems	Abstraction – conceptualisation · Argumentation and verification · Solving problems · Creating concepts · Developing strategies and procedures

Level A

GREEN SKILLS
Data processing and working with information

A1.1 Fully dependent employee

Can understand simple instructions in a work situation and, on instruction, recognise objects and routine activities that have an impact on sustainability and nature.

A1.2 Dependent employee

Can understand simple instructions and tasks in a work situation and, on instruction, understand specific pictograms and simple diagrams for routine activities.

A2.1 Partially independent in routine activities

In a work situation, can understand explicit information in short texts including notices, regulations and recommendations that govern routine work activities in the context of green transformation.

A2.2 Partially independent employee

In a work situation, can understand explicit information in short texts, diagrams and graphs that help solve more complex work tasks and select environmentally acceptable alternatives.

Level B

GREEN SKILLS
Data processing and working with information

B1.1 Independent in routine activities

Can independently assess and process texts, diagrams, graphs and tables needed for work activities with regard to current environmental legislation.

B1.2 Independent employee

Can independently analyse work process models, assess their economic and environmental impact and choose the most suitable alternative.

B2.1 Fully independent employee

Can independently analyse opinions, arguments and expectations from various perspectives in work communication and assess their relevance in relation to current legislation and transformation costs.

B2.2 Experienced independent employee

In the context of their work role, can effectively make decisions and act in the interest of global sustainability and defend their decisions in light of current legislation and transformation aspects.

Level C

GREEN SKILLS
Data processing and working with information

C1 Expert employee

Can make strategic decisions based on complex information and set up implementation processes with regard to the costs and benefits of transformation.

EXAMPLE: Competency Profile Master (Supervisor) in Mechanical Engineering

B2.1 Employee competency profile

ISCO 4120

Manages and organises work in their production unit. Ensures fulfilment of the production plan, sets priorities, organises work and leads people, solves arising problems, ensures smooth operation of production and is responsible for meeting set production goals.

Recommended education: complete secondary vocational education with school leaving exam without apprenticeship certificate

Data Processing

B1.2

Can independently analyse work process models, assess their economic and environmental impact and choose the most suitable alternative.

Communication and Collaboration

B1.1

Can independently process relevant information for preparing materials for analysis and communicating changes caused by green transformation including its costs.

Envir. Risk Assessment

B2.1

Can propose preventive measures against current and potential environmental risks and defend their long-term sustainability in the face of green transformation challenges.

Sustainability Problem Solving

B2.1

Can develop and defend strategies for solving current environmental problems and risks.

The latest data for Slovakia

51%

BASIC
digital skills

EU average: 55%

Source: Digital Decade Report 2024/2025

22%

ADVANCED
digital skills

EU average: 27%

Source: Digital Economy Slovakia 2024

44% of companies

SHORTAGE
of digital skills
as a barrier

Source: Industry4UM 2023

82% of Slovaks

CSR
as an integral
company value

Source: Ipsos 2023

Key problem

Employers struggle with identifying what level of digital and green skills, specific job positions require. Employees, in turn, lack the standards to demonstrate their level of these skills.

Reference Frameworks – Introduction

Competency Scale

They describe the cognitive and communication development of digital and green skills according to the CEFRlanguage model, from A1 (fully dependent employee) to C1 (expert employee).

Areas of cognition, thinking and communication

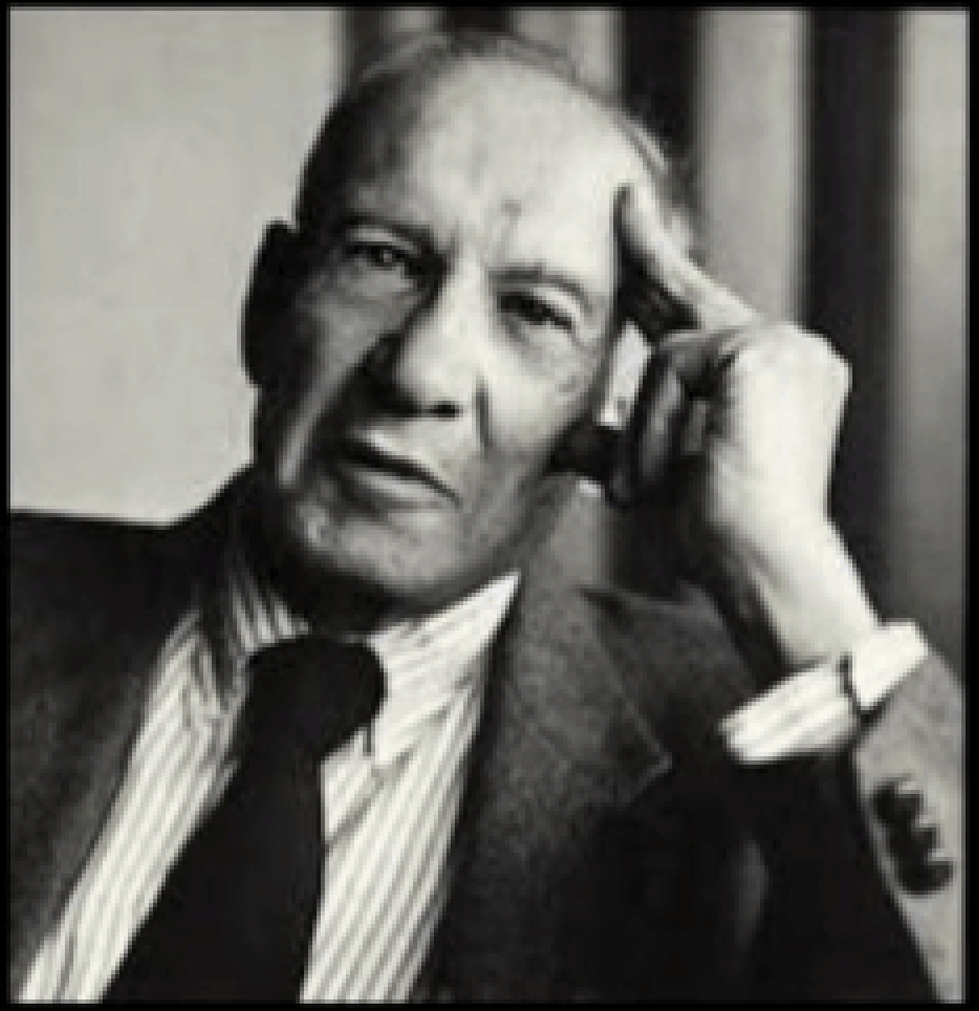
They define the areas of essential digital and green skills required for performing a specific job position.

Measurement and competency profile

They enable measuring the current skill level of an individual and creating a competency profile.

Value for employers

They provide information on the return on investment in employee education.



"If you can't measure it, you can't manage it"

Peter Drucker