intride

Soft, **Digital** and **Green Skills**
for **Smart Designers**:
Designers as Innovative TRIggers
for SMEs in the manufacturing sector

www.intride.eu

Needs' analysis related to Soft, Digital, Green, Design and Technology skills in traditional manufacturing sector

Final Analysis Report 1
- Survey -

WP3. Field analysis of state of the art — September 2020

Co-funded by the Erasmus+ Programme of the European Union

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INTRIDE Proiect

INTRIDE is a 10 partner alliance (Italy, Spain, Poland and Romania) aiming at the development of a structured cooperation framework between HEIs, clusters/business representatives, technical centers and enterprises




SPECIFIC GOALS:

- **Developing a Joint Master Degree Curriculum for Smart Designers** with added competences related mainly to **Soft, Digital and Green Skills, as designers** will in fact become the **future innovation triggers for SMEs** in the manufacturing sector.
- Building a **co-creation environment linked to a HE-Industry community platform** which is supposed to be a virtual place for **activation and monitoring of innovation, technological transfer, * R&D processes** under the cooperation between enterprises, HEIs ad technological centres

INTRIDE project

INTRIDE PROJECT'S SCOPES:

- Definition of skills needs towards future innovation scenarios for traditional manufacturing SMEs
- Co-design of a Training Path (Joint Master Degree)
- Co-creation of a HE-Industry community platform

Method proposed for skills needs identification:

- In each country meetings (workshops with focus groups) will be organized for skills needs and challenges identification involving both HEIs partners, clusters and business representatives partners with selected SMEs in the manufacturing sector (at least 20 per country)
- The results will be summarized in a Final Analysis Report

INTRIDE project

Methods proposed due the COVID-19 situation:

- On-line workshops taking into account the proiect's partners organizational opportunities (large workshops, small workshops, individual dialogs)
- On-line survey using a commonly developed questionnaire to identify the skills needs

RESULTS:

- 83 completed surveys
- 5 workshops
- 4 country reports containing the surveys analysis
- 4 country reports about the workshops results
- Final Analysis Report

INTRIDE project

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The original scenario proposed for the off-line workshops:

T3.1 Workshop/ Focus groups with enterprises

Original workshops draft program:

Workshops title: *Future supporting skills in traditional manufacturing*
Work package: *WP3*
Leader: *Transilvanian Furniture Cluster*
Scope: *Defining skills' needs related to future innovation scenarios for traditional manufacturing SMEs*
Number of participants: minimum 20/country

9:00 – 9:15 Opening (welcome, host/project leader introduction …)
9:15 – 9:45 Project introduction (scope, partners, expected outcomes, WPs …)
9:45 – 10:00 WP3 introduction (scope, outcomes, workshop content, schedule …)
10:00 – 11:00 Participant's introduction (profile, size, activities, existing technologies, products …, 20x3') *video recorded*
11:00 – 11:30 Coffee break
11:30 – 12:00 Inventory of existing skills and competencies (questionnaire)
12:00 – 13:00 Identification of skill and competence needs (pre-prepared guidelines for Industry 4.0, AR/VR, 3D Printing, IoT, circular economy, S3 strategies, business models) - teamwork
13:00 – 13:30 Team presentations of identified skill and competence needs)
13:30 – 13:45 Discussion
13:45 – 14:00 Summary, closing remarks

INTRIDE project

Necessary infrastructure:

- lecture room with minimum 20-25 seats
- video projector + screen
- notebook
- flipchart/white board, paper, pencils, markers, sticky notes
- videorecorder

Prepared documents:

- Project flyers (if exist)
- Registration forms
- List of participants
- GDPR
- Questionnaire for the existing skills and competencies inventory
- Guidelines for Industry 4.0, AR/VR, 3D Printing, IoT, circular economy, S3 strategies, business models – one, A4 page for each
- Questionnaire for feedback

Expected outcomes:

- minimum 20x3’ recorded stakeholder introductions
- minimum 20 questionnaires with the list of existing skills and competencies
- 4-5 lists of identified skill and competence needs (on list per team)
- minutes of the workshop
- report summarizing and concluding the outcomes of the previous lists

Dissemination:

- group photo
- photos taken during the workshop
- minimum 20 feedback questionnaires

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The modified scenario proposed for the on-line workshops:

Modified workshops draft program:

Workshops title: *Future supporting skills in traditional manufacturing*
Work package: *WP3*
Leader: *Transilvanian Furniture Cluster*
Scope: *Defining skills' needs related to future innovation scenarios for traditional manufacturing SMEs*
Number of participants: minimum 20 participants /country

1. On-line survey:

- a questionnaire has been shared and finalized and approved after the KOM
- after approval the questionnaire was translated in 4 languages
- minimum of 20 companies were invited to complete the on-line survey

2. On-line workshops for co-analysis of the completed surveys

- after the 20 surveys have been completed the participants were invited for a short on-line meeting, where the survey results were discussed and/or additional skills related information collected
- 5-6 industry members + moderator/ country is recommended

INTRIDE survey

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METHODOLOGY USED:

1. On-line survey:

- a questionnaire, consisting of 42 questions has been developed for skills needs identification

- the questionnaire has been translated in 4 languages

- minimum of 20 companies (for each partner country) have been invited to complete the online survey

2. Online workshops for co-analysis of the surveys

- after the surveys have been completed the participants were invited for a short online meeting, where the survey results have been discussed and additional skills' information collected

3. National reports prepared by partners

4. Final Analysis Report of the results

INTRIDE survey

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EXPECTED RESULTS:

- report the specific industrial stresses ad challenges that emerged from SMEs
- report on the skills, competencies and knowledge needs emerging from the companies
- field analysis of the state of the art based on national workshops
- skills, competencies and needs harmonization to create a transnational common basis and training program

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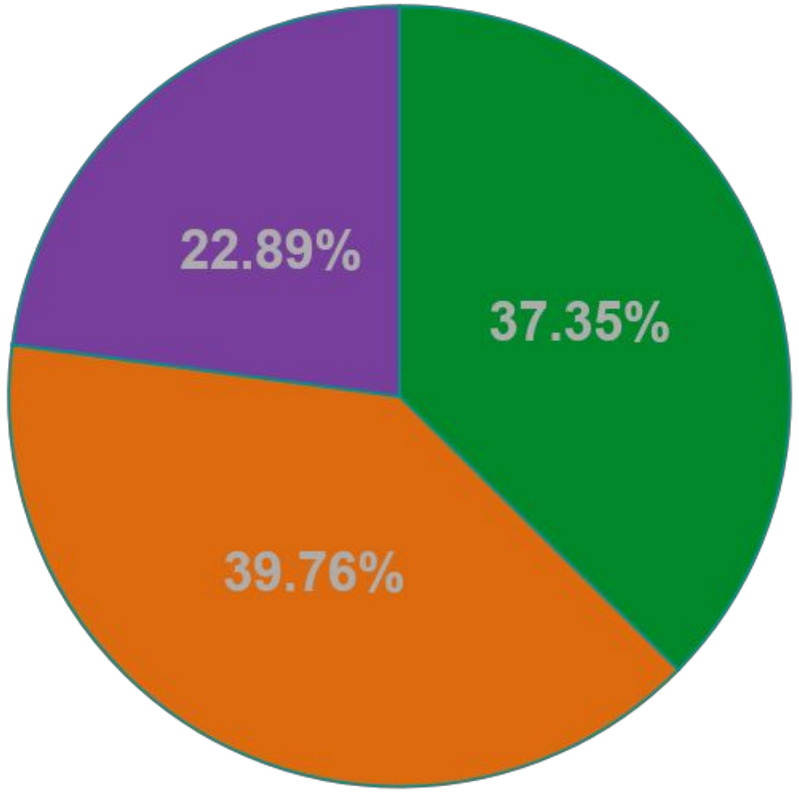
Results:

Company size



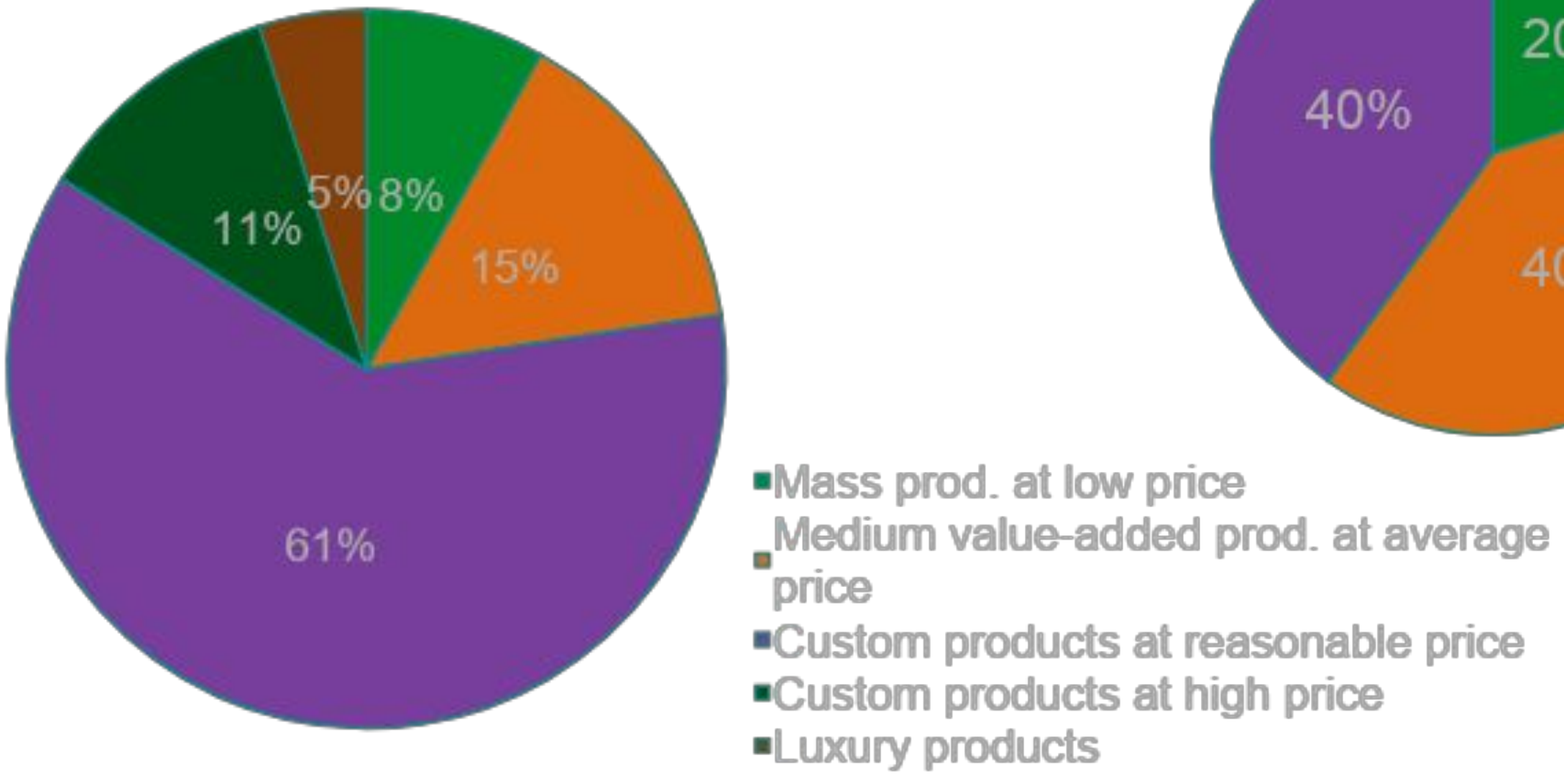
Activities

It	furniture	16
	architecture	1
	lighting objects	1
	handicraft	1
	stone processing	1
Pl	furniture	6
	services (food, laundry, drone, real estate…)	5
	design service	1
	ceramics, metal parts, glass, food, sports equipm., ... production	8
	weaving craft research	1
Ro	furniture	19
	packaging	1
	plastic products	1
	consulting	1
Sp	furniture	11
	design	6
	consulting	1
	lamp production	2
	TOTAL FURNITURE	**62,65%**

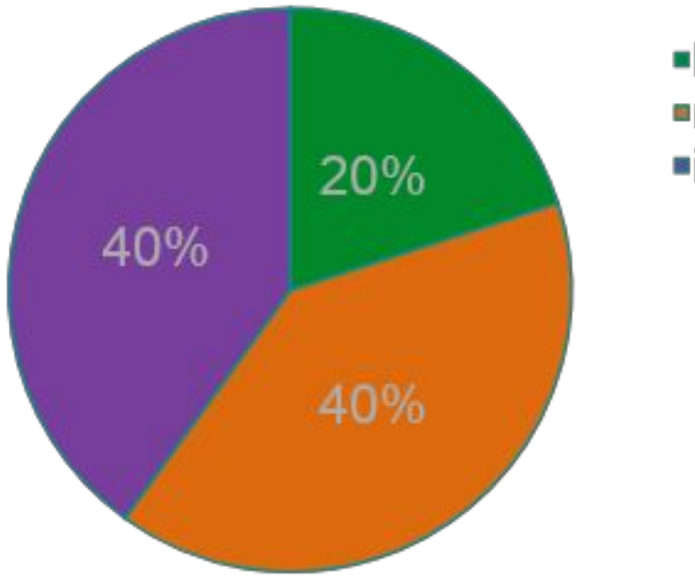
INTRIDE survey

Results:

PRODUCT TYPE:



TARGET MARKETS:



- Europe:
  - France
  - Germany
  - UK
  - Hungary
  - Belgium
  - Netherland
- USA
- Middle East
- Russia
- China
- Australia
- Africa
- South America

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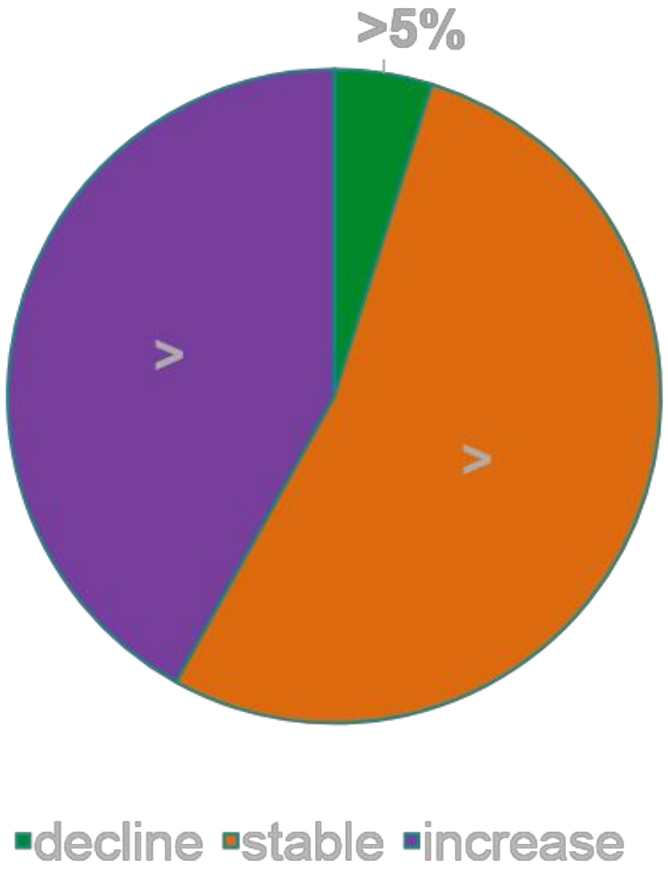
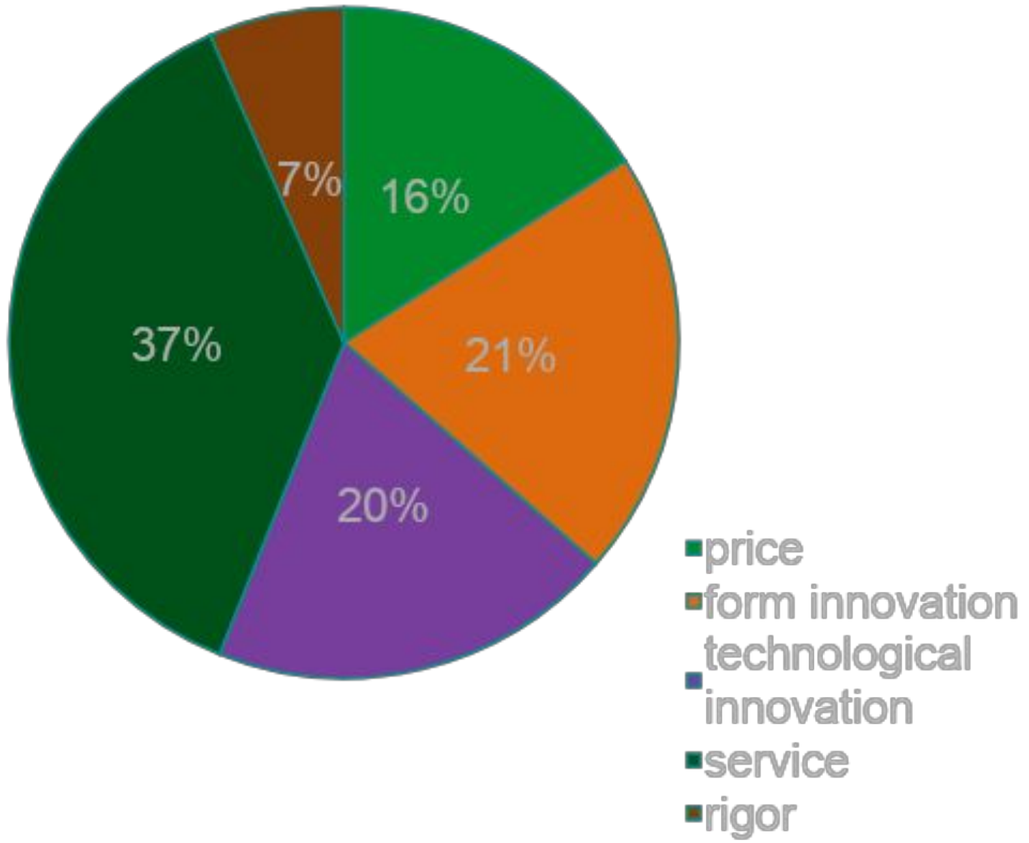
Results:

COMPANY COMPETITIVENESS:



COMPETITIVE ELEMENT:



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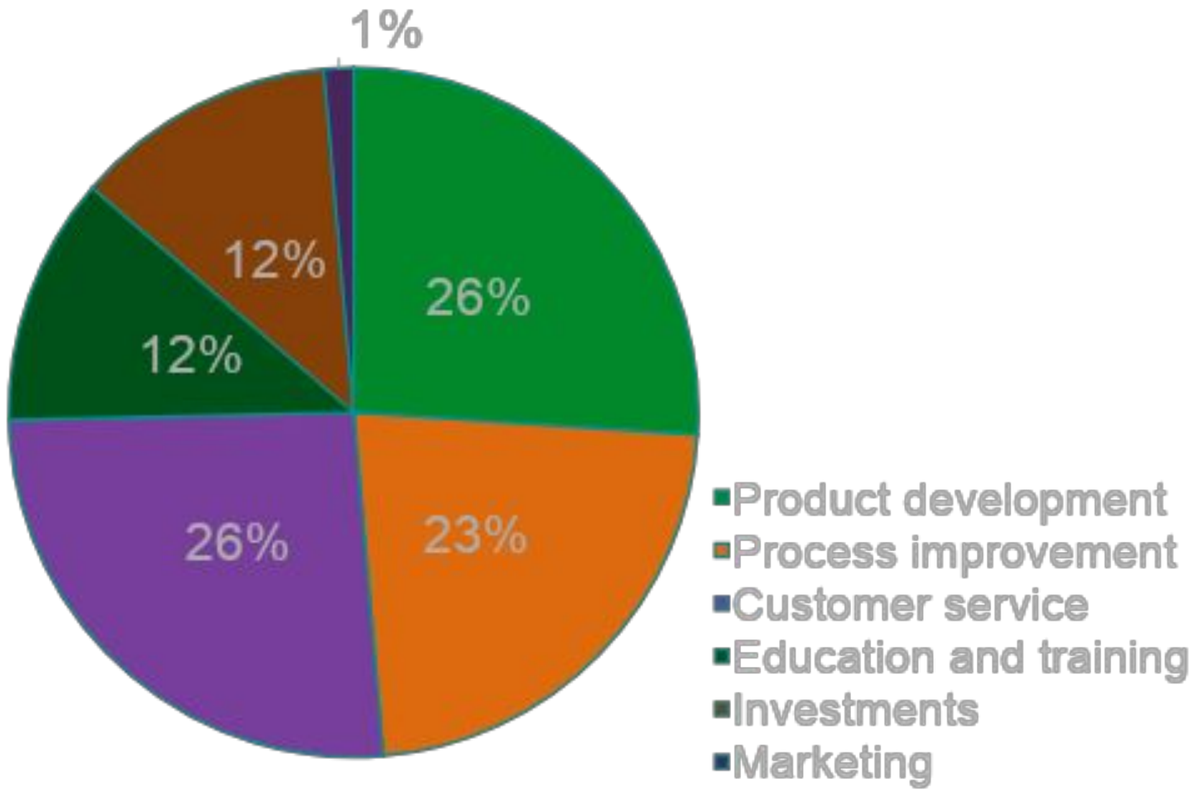
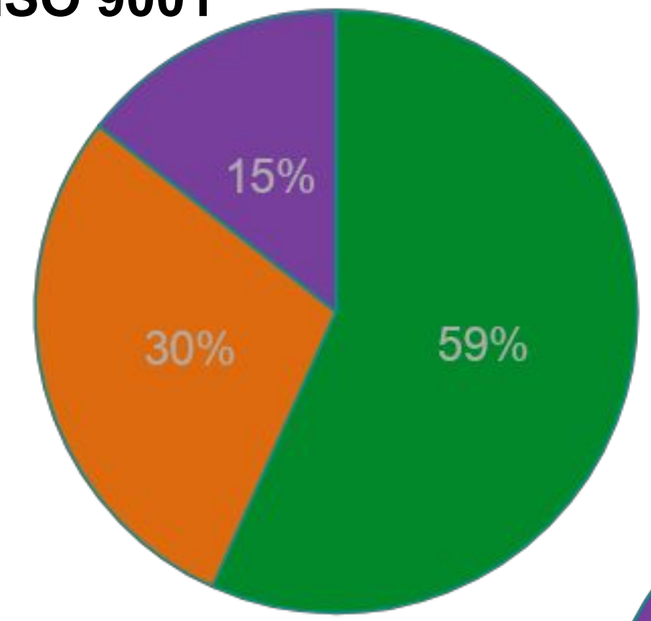
SYSTEMS

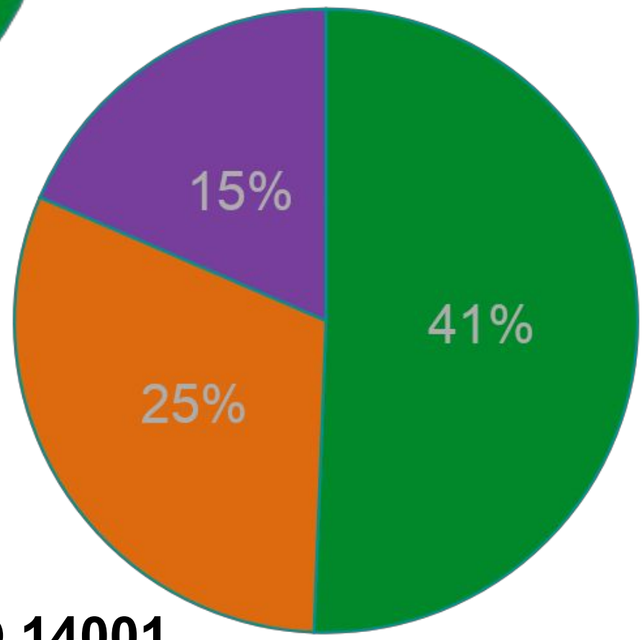
Results:

SUSTAINING COMPETITIVENESS:



Companies that have ISO 9001





Companies that have ISO 14001

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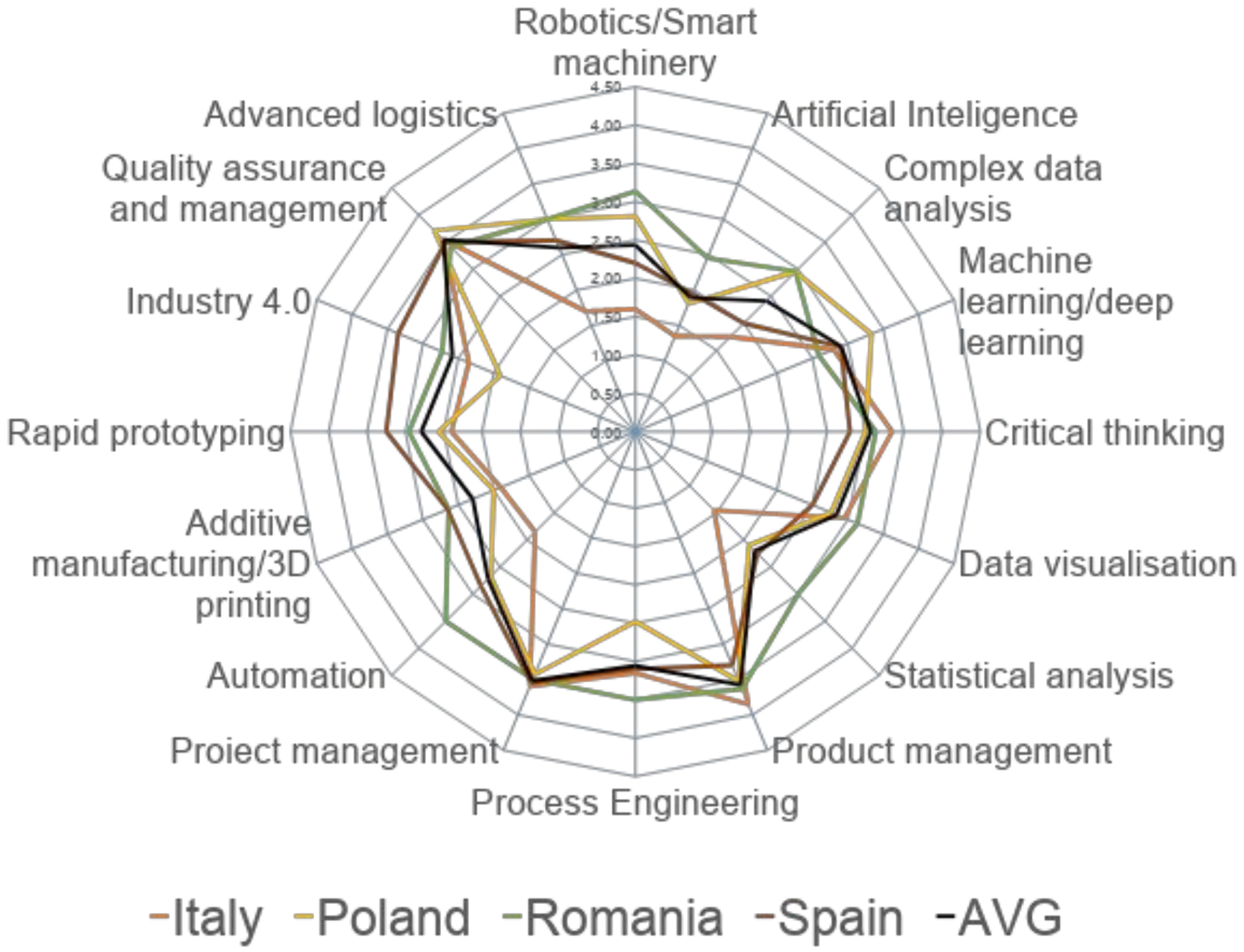
Technical skills: Importance

from 1 to 4 points: 1 – not important; 2 – slightly important
3 – fairly important; 4 – very important

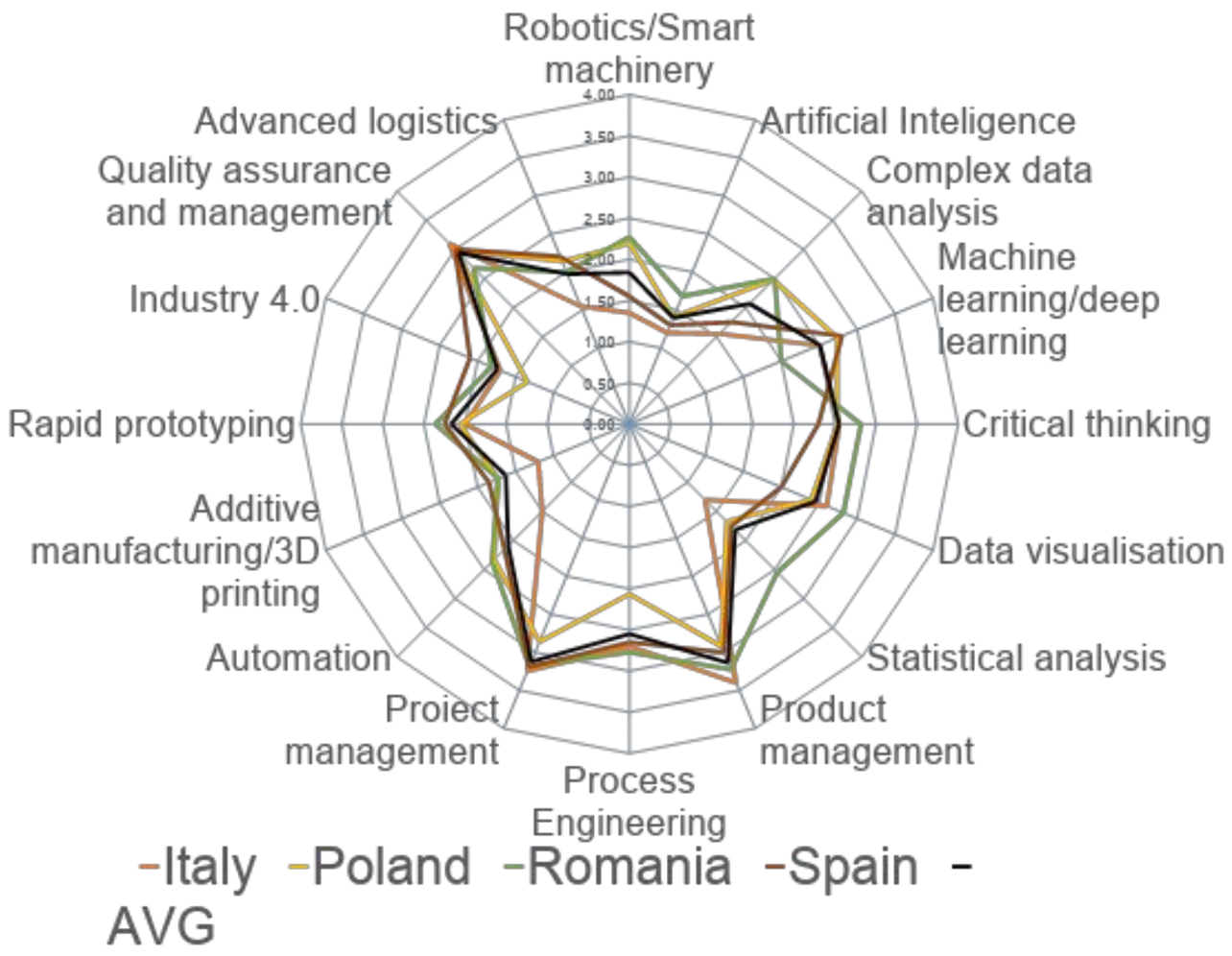


Italy:	
Product management	3,85
Project management	3,60
Quality assurance and management	3,55
Critical thinking	3,35
Process engineering	3,15
Poland:	
Quality assurance and management	3,71
Product management	3,52
Project management	3,43
Machine learning	3,33
Critical thinking/ Advanced logistics	3,00
Romania:	
Product management	3,64
Process engineering	3,50
Project management	3,50
Automation	3,50
Quality assurance and management	3,41
Spain:	
Project management	3,55
Quality assurance and management	3,50
Industry 4.0	3,35
Product management	3,30
Rapid prototyping	3,25

INTRIDE survey

Technical skills: Strength

from 1 to 4 points: 1 – very weak; 2 – weak
3 – strong; 4 – very strong



Italy:	
Product management	3,40
Project management	3,25
Quality assurance and management	3,10
Process engineering	2,70
Data visualization	2,60

Poland:	
Quality assurance and management	2,99
Product management	2,92
Project management	2,86
Machine learning	2,74
Critical thinking	2,53

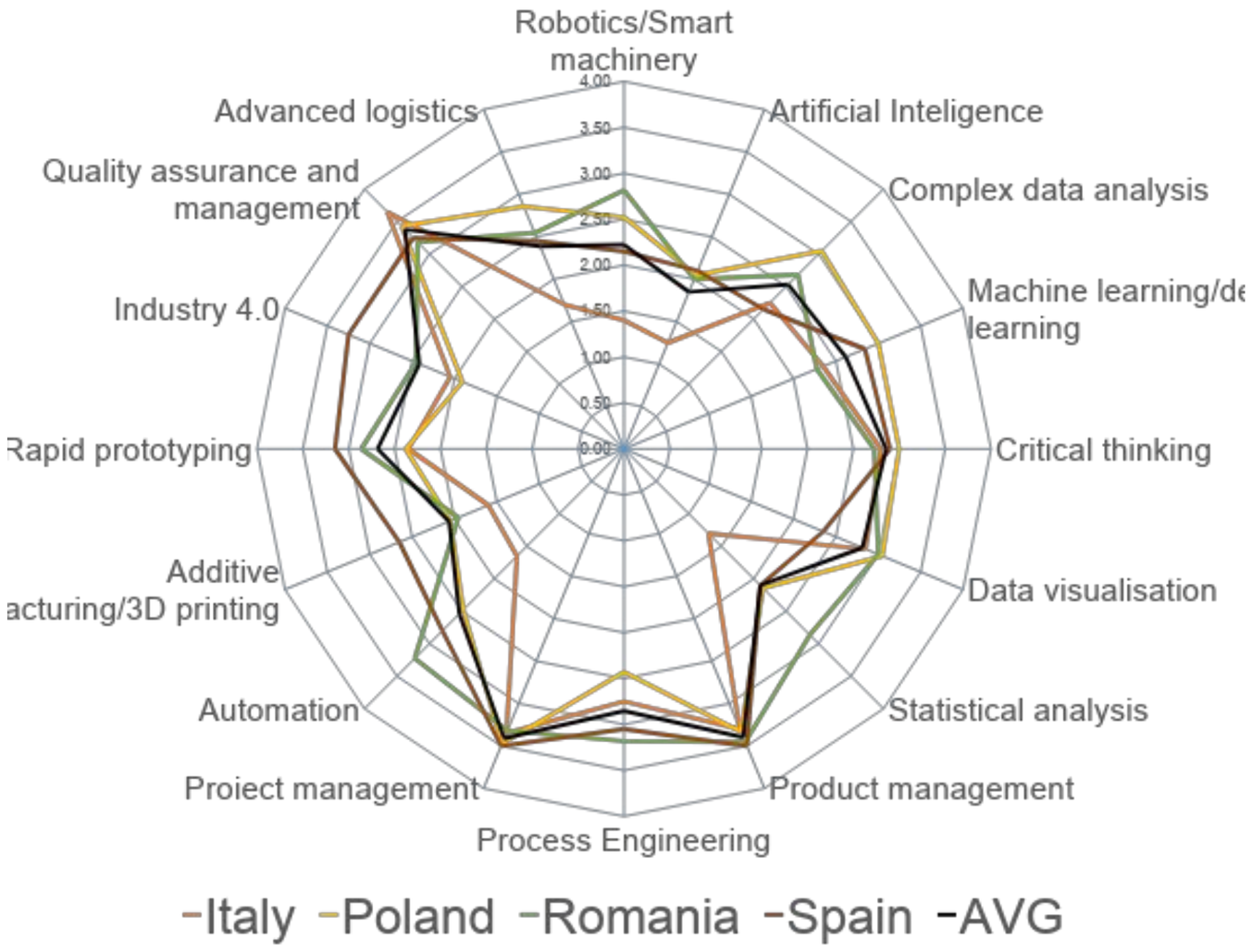
Romania:	
Product management	3,23
Project management	3,18
Critical thinking	2,82
Data visualization	2,82
Process engineering	2,77

Spain:	
Project management	3,20
Quality assurance and management	3,00
Product management	3,00
Critical thinking	2,80
Process engineering	2,65

INTRIDE survey

Technical skills: Commitment

from 1 to 4 points: 1 – not committed; 2 – slightly committed
3 – fairly committed; 4 – very committed



Italy:	
Quality assurance and management	3,65
Project management	3,35
Product management	3,30
Data visualization	2,85
Critical thinking	2,80

Poland:	
Project management	3,48
Quality assurance and management	3,43
Product management	3,33
Data visualization	3,05
Complex data analysis	3,05

Romania:	
Product management	3,45
Project management	3,32
Automation	3,23
Quality assurance and management	3,18
Process engineering	3,18

Spain:	
Project management	3,50
Product management	3,50
Quality assurance and management	3,25
Industry 4.0	3,25
Rapid prototyping	3,15

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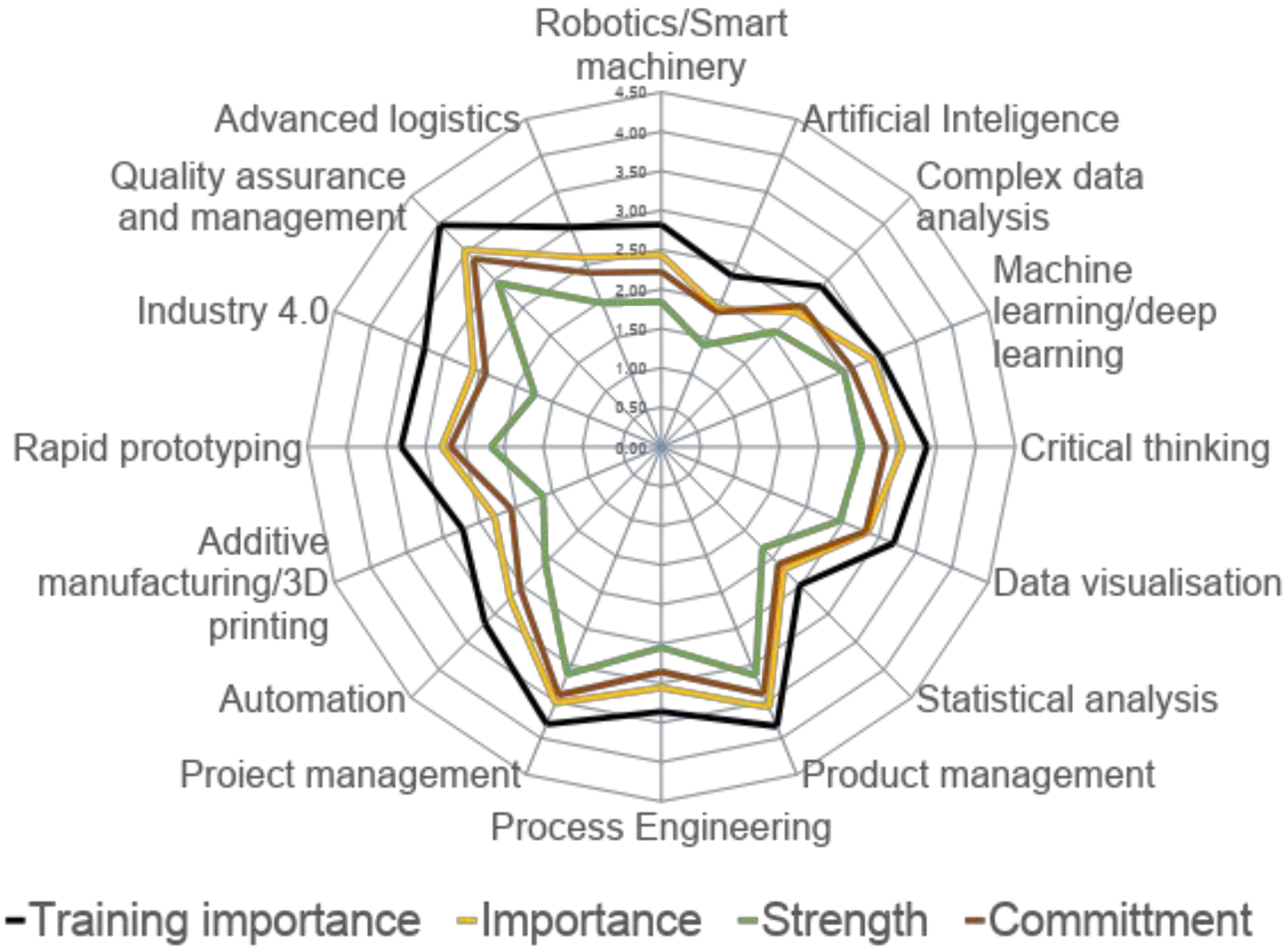
Technical skills – Training importance:

Importance + Commit. to dev. – Strength*:



Recommended for training:	
1. Quality assurance and management	3,98
2. Product management	3,84
3. Project management	3,81
4. Critical thinking	3,38
5. Process engineering	3,36

* **Derived value**: The training importance was determined by the sum of importance and commitment of the companies to develop a certain skill from which the strength in that ability was extracted. This value will help to select those important abilities in which companies present shortcomings. The higher the value the companies are devoted to develop more and the weakness is higher.

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Technical skills:

Rank of the technical skills to be improved:

Italy:
Quality management
Product management
Statistical analysis
Data visualization
Project management

Poland:
Quality management
Project management
Product management
Complex data analysis
Critical thinking

Romania:
Critical thinking
Complex data analysis
Data visualization
Robotics
Statistical analysis

Spain:
Industry 4.0
Rapid prototyping
Project management
Product management
Quality management

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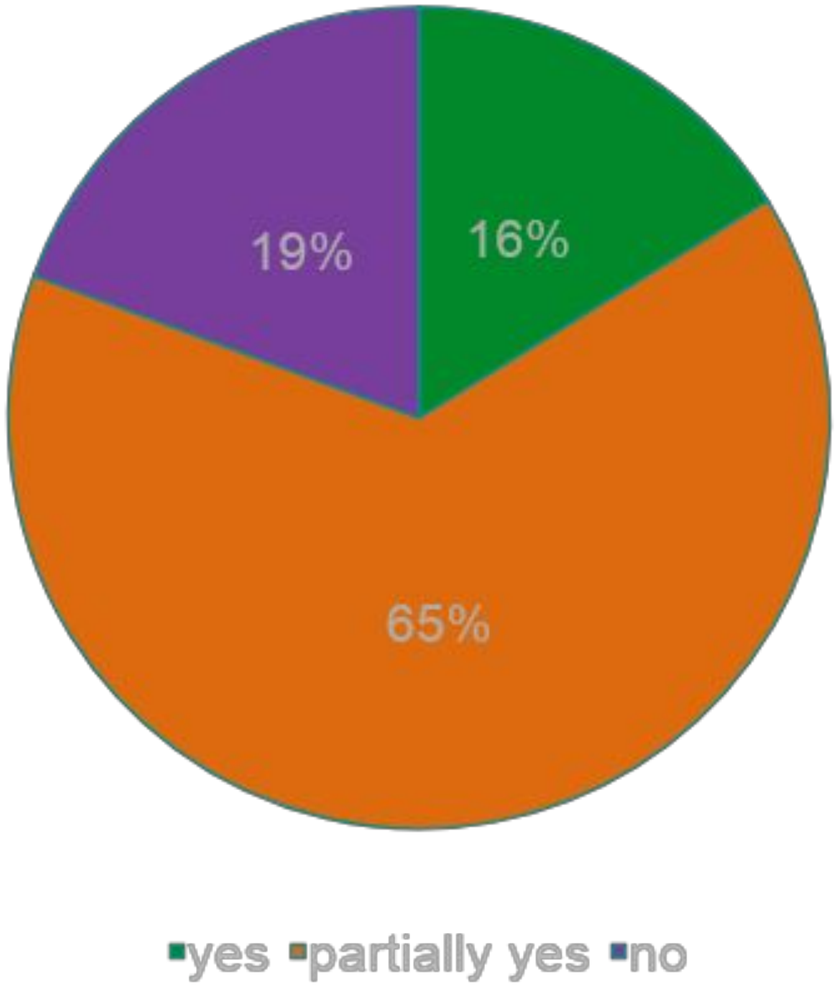
Technical skills:

Training possibilities:



Training possibilities *(order of importance):*
Product management
Project management
Quality assurance and management
Data visualization
Process engineering

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Digital skills: Importance

from 1 to 4 points: 1 – not important; 2 – slightly important
3 – fairly important; 4 – very important

Italy:	
Digital marketing	3,75
E-commerce and social media	3,70
VR/AR	2,80
Mobile application	2,55
Networking and IT systems	2,35

Poland:	
E-commerce and social media	3,29
Cybersecurity	3,10
Programming	2,81
Digital marketing	2,71
Mobile application	2,71

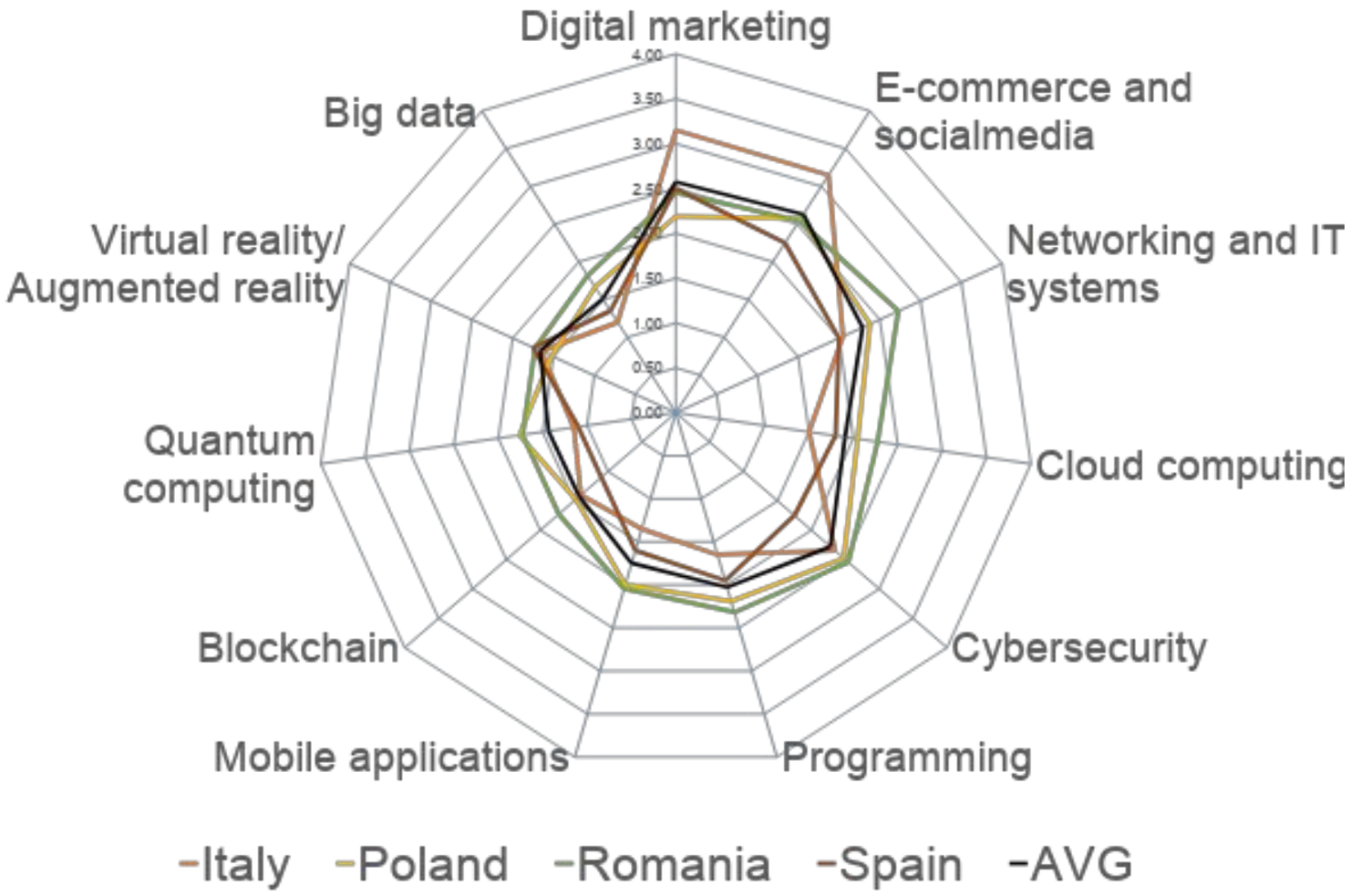
Romania:	
E-commerce and social media	3,14
Networking and IT systems	3,14
Cybersecurity	3,09
Digital marketing	3,05
Programming	2,82

Spain:	
Digital marketing	3,40
E-commerce and social media	3,40
VR/AR	2,90
Networking and IT systems	2,85
Cybersecurity/Programming	2,70

INTRIDE survey

Digital skills: Strength

from 1 to 4 points: 1 – very weak; 2 – weak
3 – strong; 4 – very strong



Italy:	
Digital marketing	3,15
E-commerce and social media	3,15
Cybersecurity	2,35
Networking and IT systems	2,05
VR/AR / Programming	1,65

Poland:	
E-commerce and social media	2,57
Cybersecurity	2,48
Networking and IT systems	2,38
Digital marketing	2,19
Programming	2,19

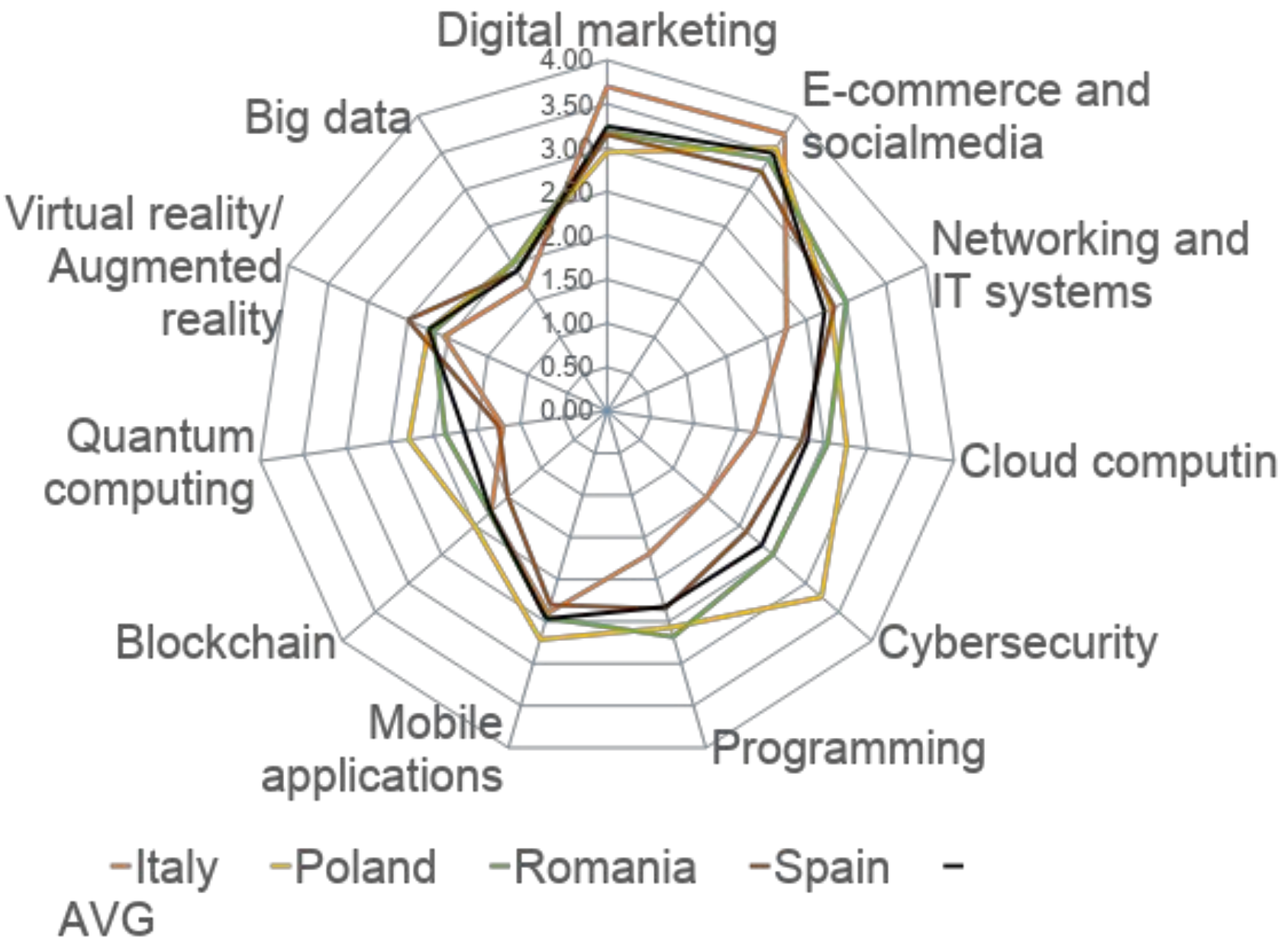
Romania:	
Networking and IT systems	2,73
E-commerce and social media	2,55
Cybersecurity	2,55
Digital marketing	2,45
Programming	2,32

Spain:	
Digital marketing	2,50
E-commerce and social media	2,25
Networking and IT systems	2,00
Programming	1,95
Cloud computing	1,80

INTRIDE survey

Digital skills: Commitment

from 1 to 4 points: 1 – not committed; 2 – slightly committed
3 – fairly committed; 4 – very committed



Italy:	
E-commerce and social media	3,75
Digital marketing	3,70
Mobile application	2,40
Networking and IT systems	2,25
VR / AR	2,05

Poland:	
E-commerce and social media	3,57
Cybersecurity	3,24
Programming	2,81
Digital marketing	2,71
Mobile application	2,71

Romania:	
E-commerce and social media	3,41
Digital marketing	3,18
Networking and IT systems	3,00
Programming	2,68
Cloud computing	2,55

Spain:	
E-commerce and social media	3,25
Digital marketing	3,15
Networking and IT systems	2,85
VR / AR	2,50
Programming	2,35

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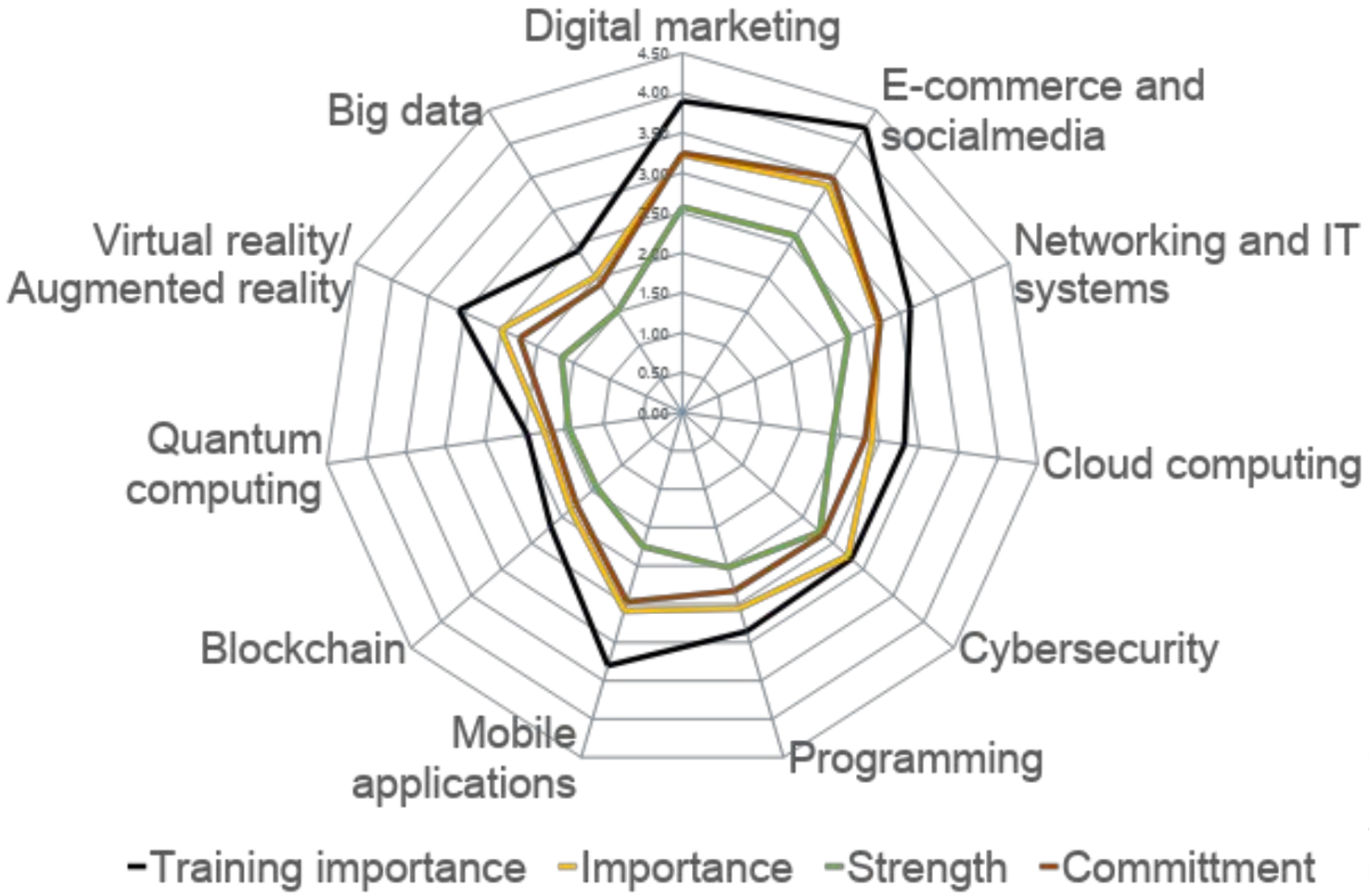
Digital skills – Training importance:

Importance + Commit. to dev. – Strength*:



Recommended for training:	
1. E-commerce and social media	4,25
2. Digital marketing	3,90
3. Mobile application	3,31
4. Networking and IT systems	3,14
5. VR / AR	3,08

* **Derived value**: The training importance was determined by the sum of importance and commitment of the companies to develop a certain skill from which the strength in that ability was extracted. This value will help to select those important abilities in which companies present shortcomings. The higher the value the companies are devoted to develop more and the weakness is higher too.

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Digital skills:

Rank of the digital skills to be improved:

Italy:
Digital marketing
E-commerce and social-media
Virtual reality/ augmented reality
Networking and IT systems
Programming

Poland:
E-commerce and social-media
Networking and IT systems
Digital marketing
Cybersecurity
Programming

Romania:
Networking and IT systems
Blockchain
Big data
Cybersecurity
Cloud computing

Spain:
E-commerce and social-media
Digital marketing
Networking and IT systems
Virtual reality/ augmented reality
Mobile application

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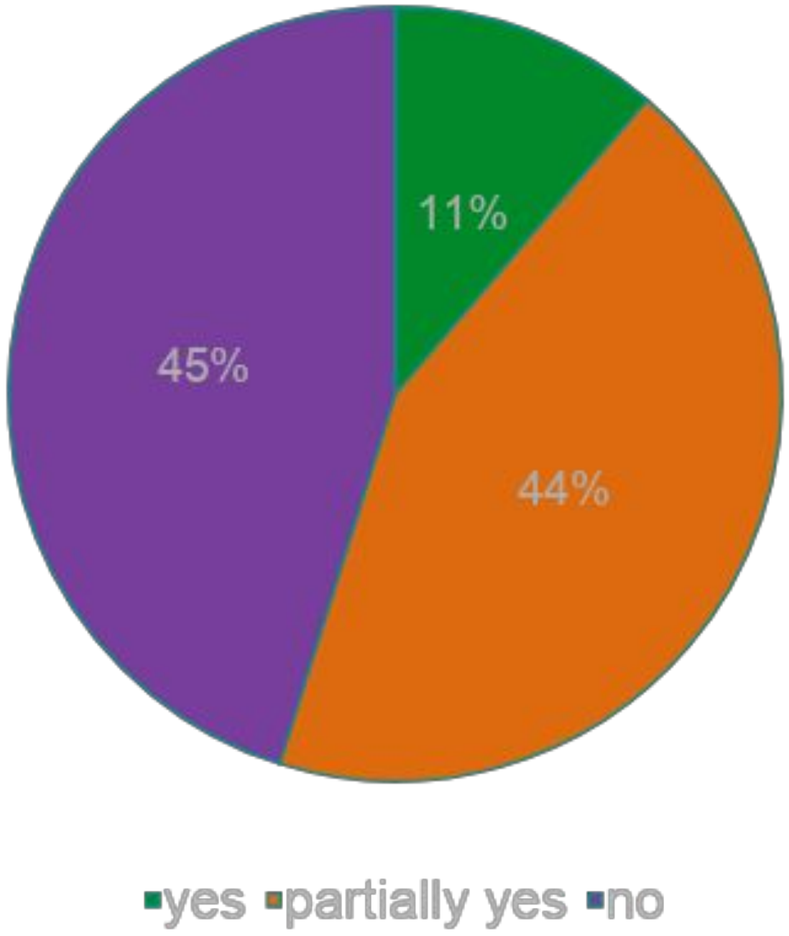
Digital skills:

Training possibilities:



Training possibilities *(order of importance):*
Digital marketing
E-commerce
Networking and IT systems
Security
Programming

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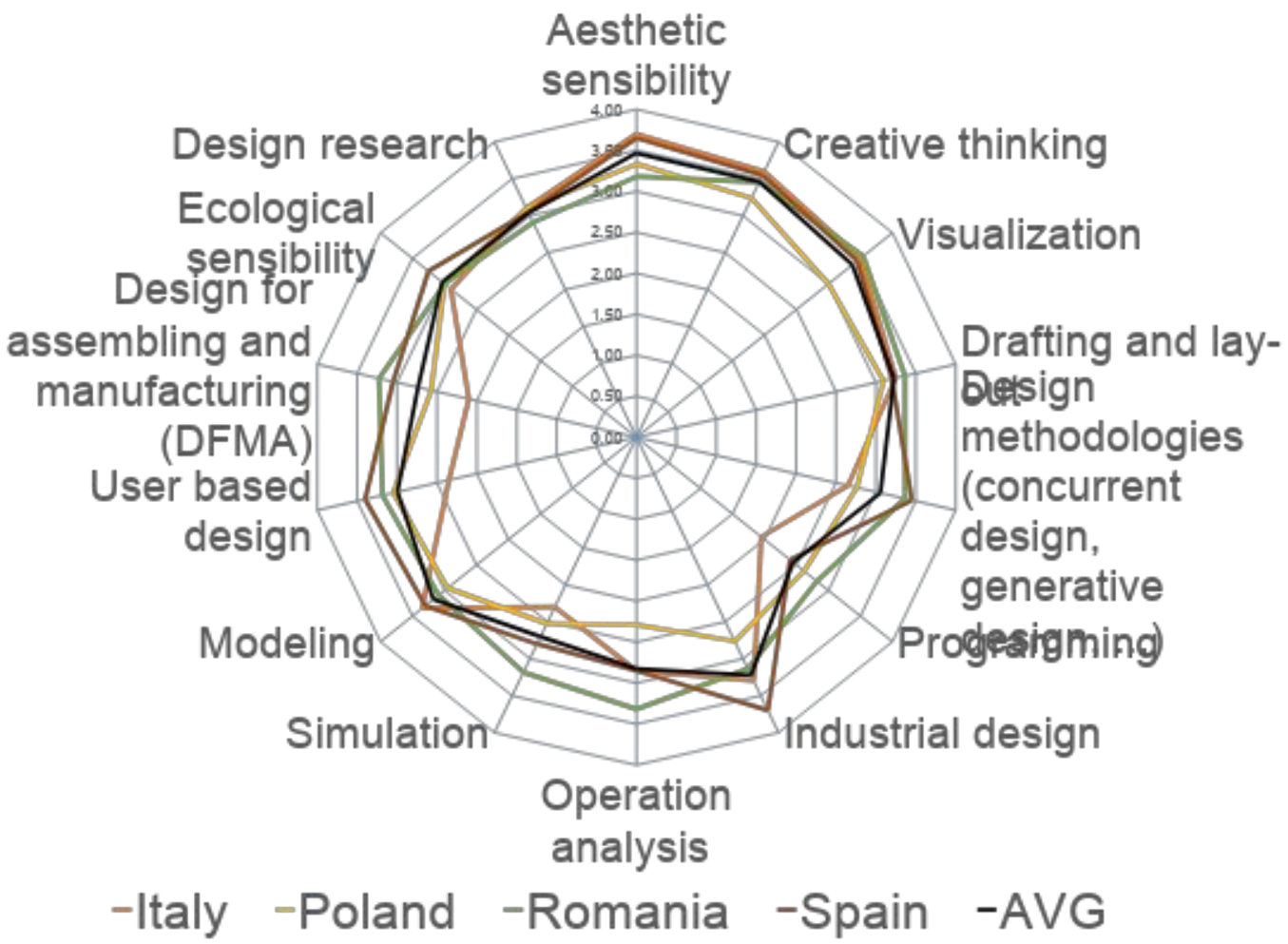
Design skills: Importance

from 1 to 4 points: 1 – not important; 2 – slightly important
3 – fairly important; 4 – very important



Italy:	
Aesthetic sensibility	3,70
Creative thinking	3,60
Visualization	3,50
Modeling	3,35
Industrial design	3,30

Poland:	
Aesthetic sensibility	3,33
Creative thinking	3,24
Design research	3,10
Drafting and lay-out	3,10
User based design	3,05

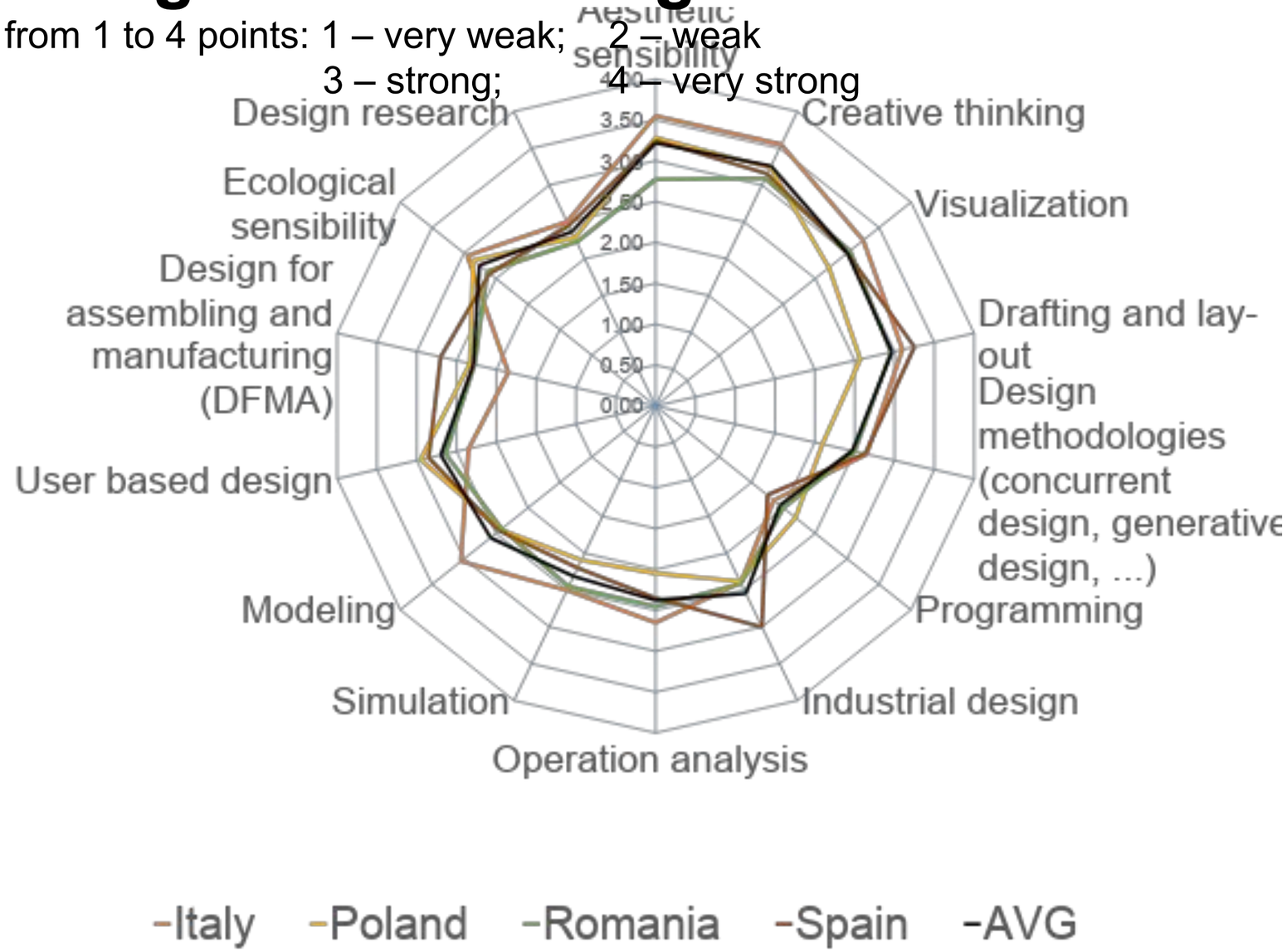
Romania:	
Visualization	3,55
Creative thinking	3,45
Drafting and lay-out	3,36
Design methodologies	3,36
Operation analysis	3,32

Spain:	
Industrial design	3,70
Aesthetic sensibility	3,65
Creative thinking	3,55
Visualization	3,45
Design methodologies	3,45

INTRIDE survey

Design skills: Strength

from 1 to 4 points: 1 – very weak; 2 – weak
3 – strong; 4 – very strong



Italy:	
Aesthetic sensibility	3,55
Creative thinking	3,55
Visualization	3,25
Drafting and lay-out	3,10
Modeling	3,05

Poland:	
Aesthetic sensibility	3,29
Creative thinking	3,24
User based design	2,95
Ecological sensibility	2,86
Visualization	2,71

Romania:	
Creative thinking	3,09
Visualization	3,05
Drafting and lay-out	2,95
Aesthetic sensibility	2,77
User based design/Ecological sensibility	2,64

Spain:	
Aesthetic sensibility	3,25
Drafting and lay-out	3,25
Creative thinking	3,15
Visualization	3,00
Indsutrial design	3,00

INTRIDE survey

Design skills: Commitment

from 1 to 4 points: 1 – not committed; 2 – slightly committed
3 – fairly committed; 4 – very committed

Italy:	
Creative thinking	3,70
Aesthetic sensibility	3,65
Visualization	3,25
Drafting and lay-out	3,20
Modeling	3,05

Poland:	
Creative thinking	3,67
Aesthetic sensibility	3,48
Drafting and lay-out	3,48
Ecological sensibility	3,48
Visualization	3,43

Romania:	
Visualization	3,09
Drafting and lay-out	3,09
Design methodologies	3,09
Creative thinking	3,05
Simulation	2,95

Spain:	
Aesthetic sensibility	3,45
Creative thinking	3,45
Ecological sensibility	3,30
User based design	3,25
Industrial design	3,05

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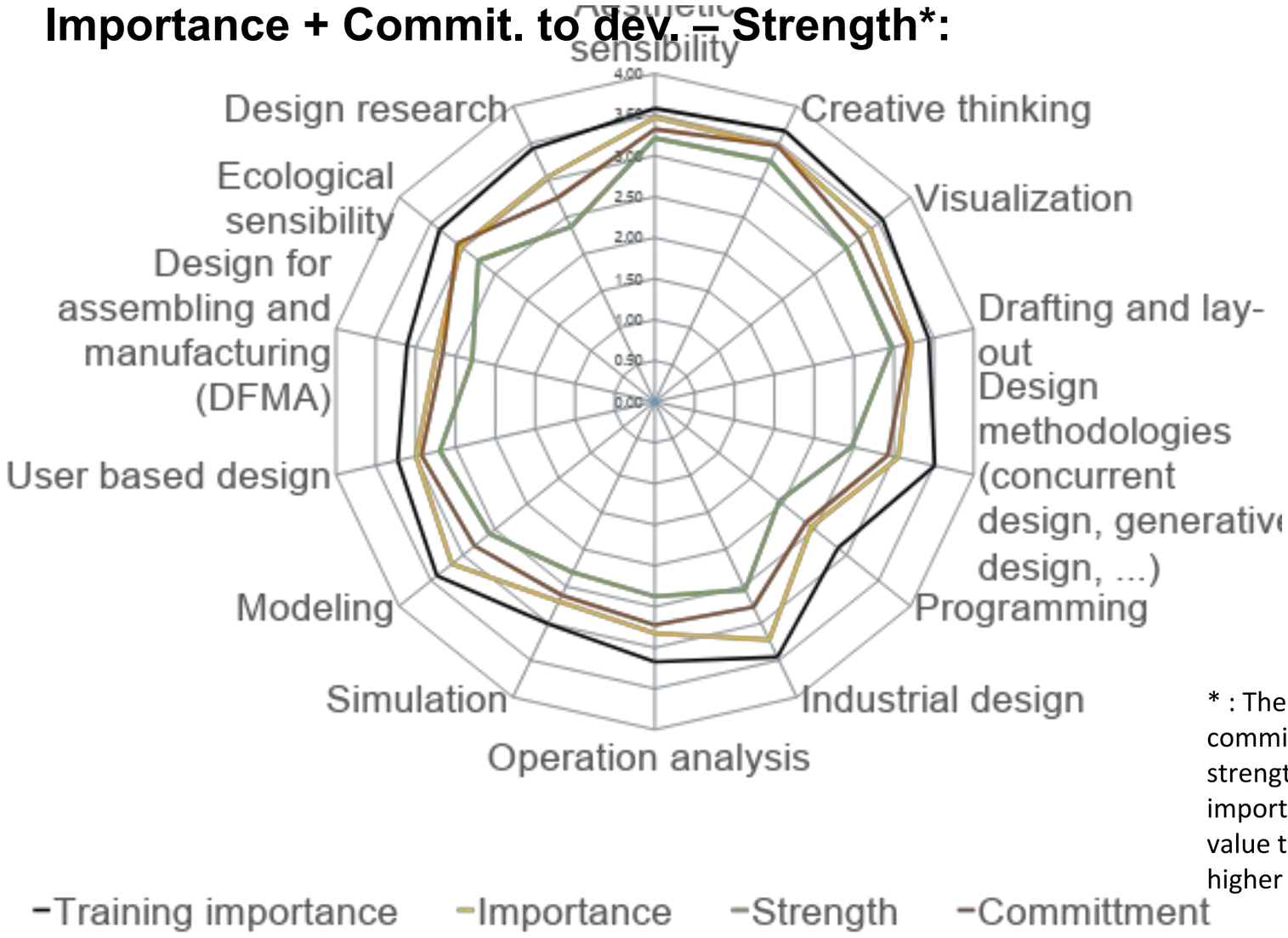
Design skills – Training importance:

Importance + Commit. to dev. – Strength*:



Recommended for training:	
1. Creative thinking	3,67
2. Aesthetic sensibility	3,58
3. Visualization	3,56
4. Design methodologies	3,51
5. Industrial design	3,46

* : The training importance was determined by the sum of importance and commitment of the companies to develop a certain skill from which the strength in that ability was extracted. This value will help to select those important abilities in which companies present shortcomings. The higher the value the companies are devoted to develop more and the weakness is higher too.

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Design skills:

Rank of the design skills to be improved:

Italy:
Aesthetic sensitivity
Creative thinking
Industrial design
Design methodologies
User centered design

Poland:
Creative thinking
Industrial design
Design research
User centered design
Vizualization

Romania:
Operational analysis
Creative thinking
Drafting and lay-out
Aesthetic sensibility
Industrial design

Spain:
Industrial design
Aesthetic sensitivity
Creative thinking
Vizualization
Design methodologies

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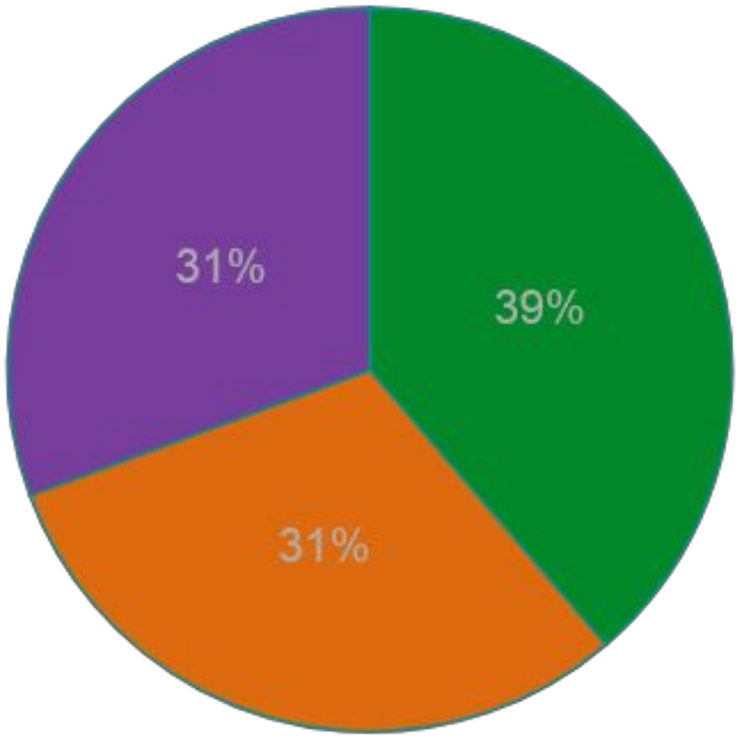
Design skills:

Training possibilities:

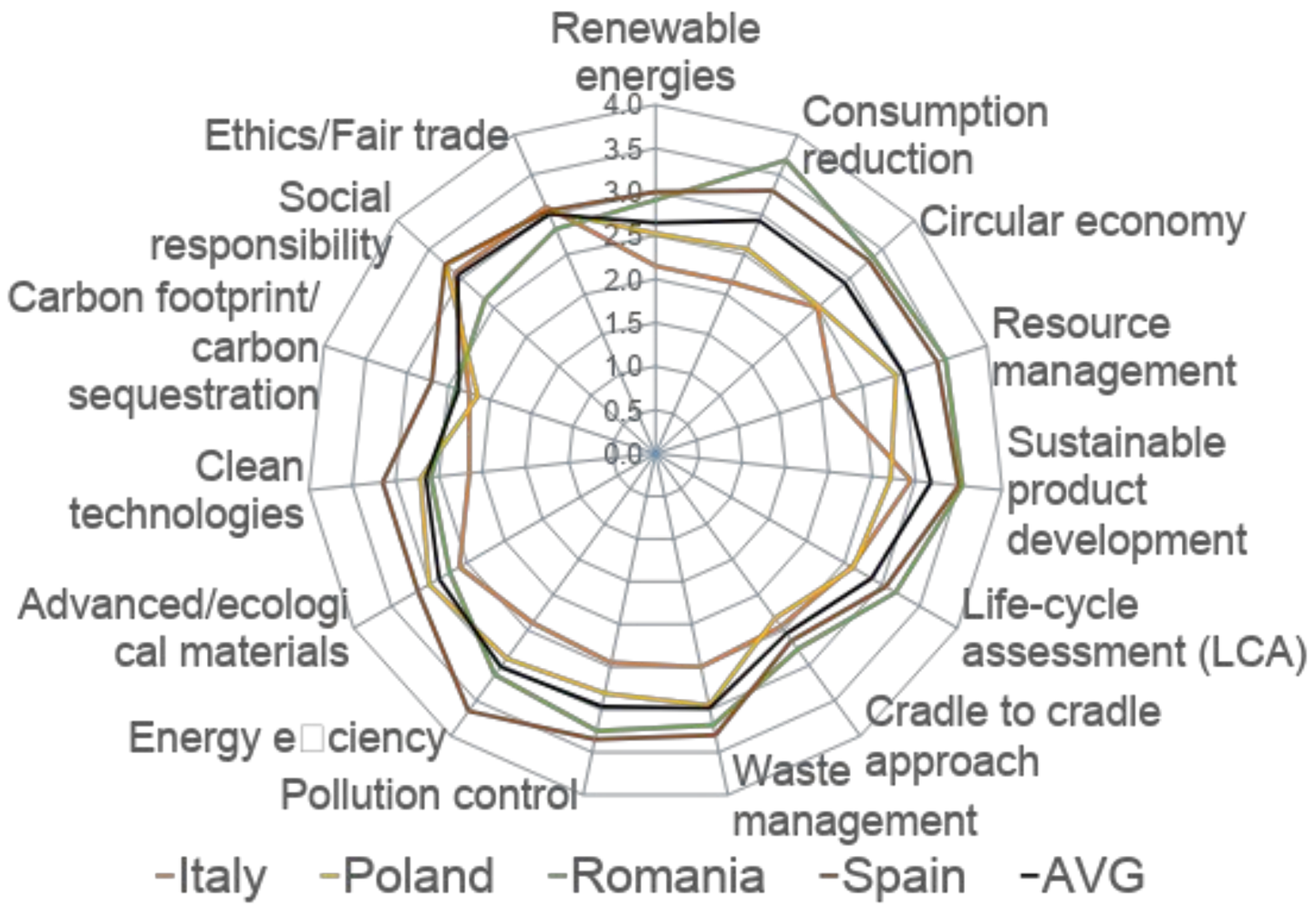


Training possibilities (order of importance):
Industrial design
Aesthetic sensitivity
Drawing and layout
Operation analysis
DFMA

INTRIDE survey

Green skills: Importance

from 1 to 4 points: 1 – not important; 2 – slightly important
3 – fairly important; 4 – very important



Italy:	
Social responsibility	3,10
Ethics/ Fair trade	3,10
Sustainable product development	2,95
Life cycle assessment	2,60
Advanced/ecological materials	2,60

Poland:	
Social responsibility	3,24
Ethics/ Fair trade	3,05
Advanced/ecological materials	3,00
Waste management	2,95
Resource managm./ Energy efficiency	2,90

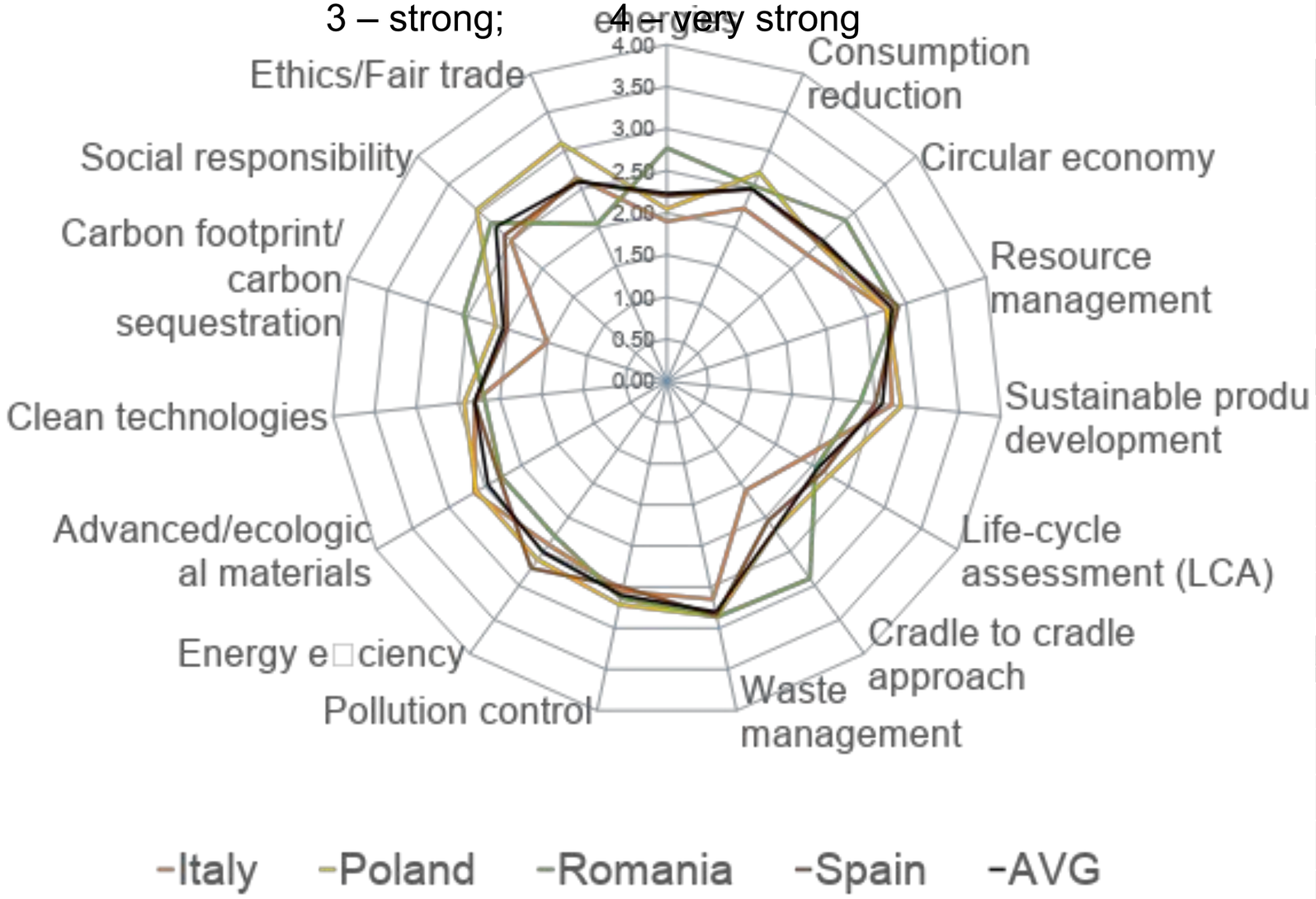
Romania:	
Consumption reduction	3,68
Sust. product development	3,55
Resource management	3,50
Circular economy	3,36
Pollution control	3,25

Spain:	
Energy efficiency	3,65
Sust. product development	3,50
Resource management	3,40
Pollution control	3,35
Consumption reduction, circular economy	3,30

INTRIDE survey

Green skills: Strength

from 1 to 4 points: 1 – very weak; 2 – weak
3 – strong; 4 – very strong



Italy:	
Resource management	2,75
Sust. product development	2,70
Waste management	2,65
Advanced/ecological materials	2,65
Ethics/ Fair trade	2,65

Poland:	
Ethics/ Fair trade	3,10
Social responsibility	3,05
Waste management	2,86
Sust. product development	2,81
Resource management	2,76

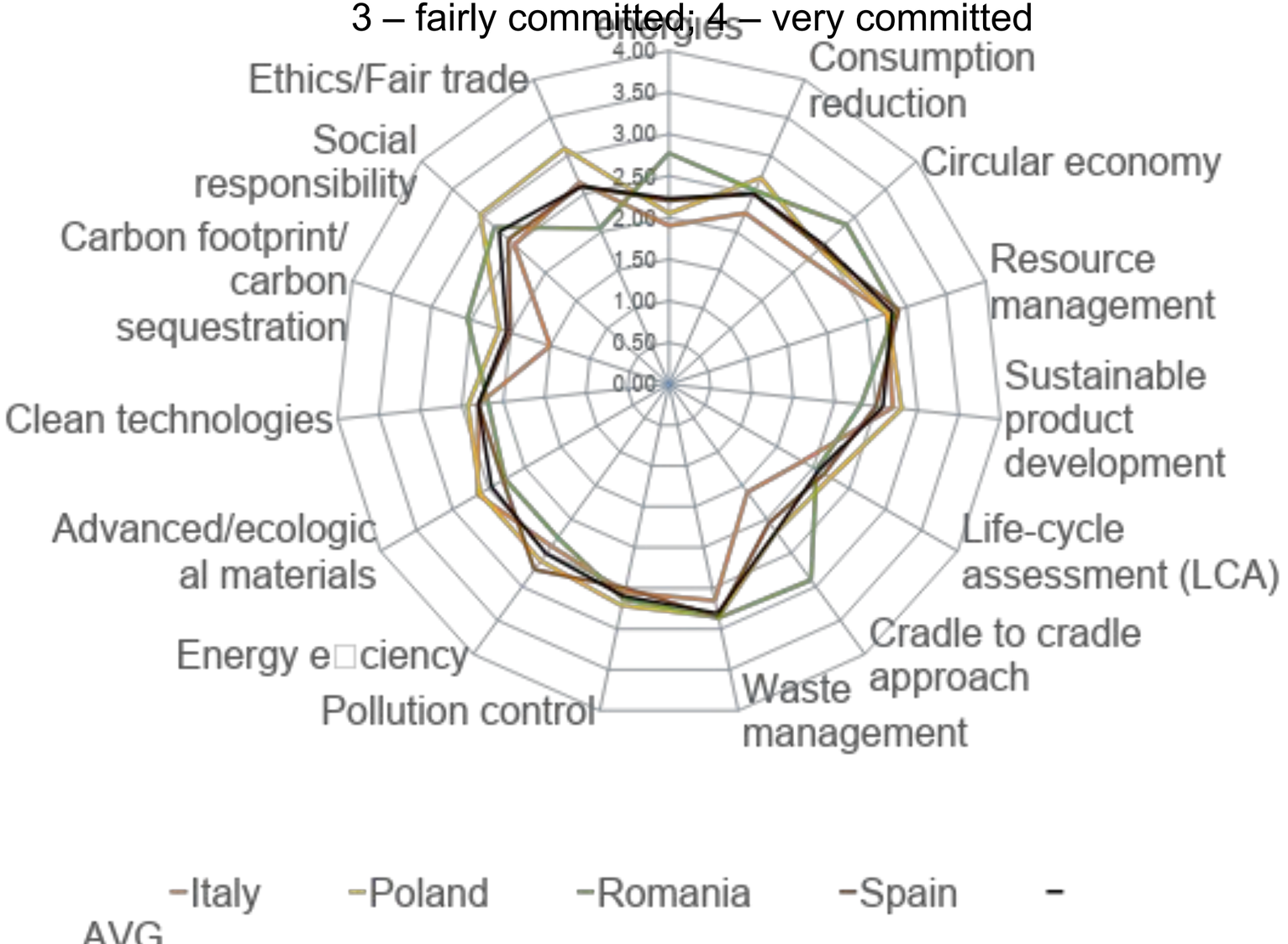
Romania:	
Cradle to cradle approach	2,90
Resource management	2,86
Circular economy	2,86
Waste management	2,86
Social responsibility	2,82

Spain:	
Resource management	2,90
Waste management	2,85
Energy efficiency	2,75
Social responsibility	2,60
Ethics/ Fair trade	2,60

INTRIDE survey

Green skills: Commitment

from 1 to 4 points: 1 – not committed; 2 – slightly committed
3 – fairly committed; 4 – very committed



Italy:	
Ethics/ Fair trade	3,10
Pollution control	2,80
Energy efficiency	2,80
Resource managment	2,75
Waste management	2,75

Poland:	
Waste management	3,52
Resource management	3,45
Waste management	3,43
Pollution control	3,38
Social responsibility	3,38

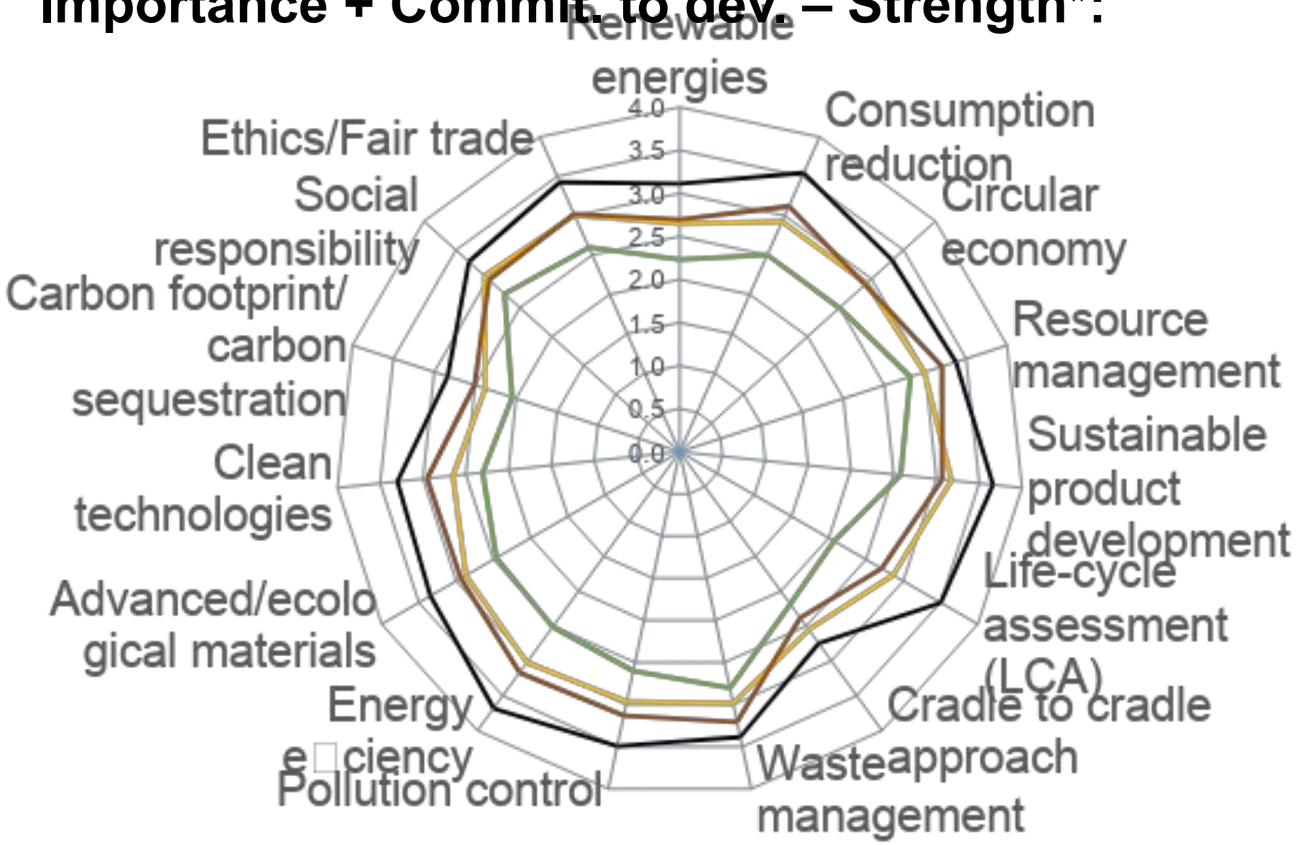
Romania:	
Resource management	3,27
Waste management	3,25
Sust. product development	3,18
Consumption reduction	3,14
Pollution control/Energy efficiency	3,09

Spain:	
Consumption reduction	3,55
Resource management	3,35
Energy efficiency	3,35
Waste management	3,30
Pollution control	3,25

INTRIDE survey

Green skills – Training importance:

Importance + Commit. to dev. – Strength*:



Recommended for training:	
1. Energy efficiency	3,68
2. Sustainable product development	3,66
3. Consumption reduction	3,54
4. Life-cycle assessment	3,50
5. Ethics/Fair trade	3,43

* : The training importance was determined by the sum of importance and commitment of the companies to develop a certain skill from which the strength in that ability was extracted. This value will help to select those important abilities in which companies present shortcomings. The higher the value the companies are devoted to develop more and the weakness is higher too.

INTRIDE survey

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Green skills:

Rank of the green skills to be improved:

Italy:
Energy efficiency
Clean technologies
Consumption reduction
Renewable energy
Circular economy

Poland:
Social responsibility
Ethics/Fair trade
Renewable energy
Consumption reduction
Advanced ecological materials

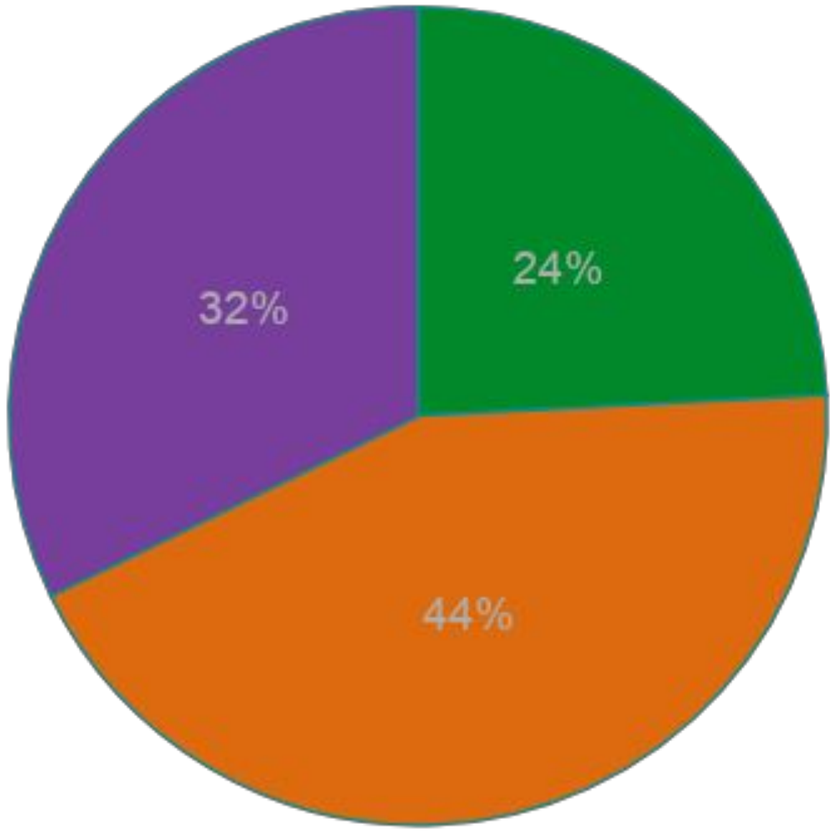
Romania:
Consumption reduction
Resource management
Renewable energies
Pollution control
Advanced ecological materials

Spain:
Consumption reduction
Energy efficiency
Sustainable product development
Pollution control
Clean technologies

INTRIDE survey

Green skills:

Training possibilities:



Training possibilities *(order of importance)*:
Waste management
Pollution control
Resource management
Consumption reduction
Energy efficiency

INTRIDE survey

Soft skills: Importance

from 1 to 4 points: 1 – not important; 2 – slightly important
3 – fairly important; 4 – very important

Italy:	
Communication	3,65
Innovation	3,65
Creativity	3,60
Adaptability, flexibility	3,50
Self-management	3,50

Poland:	
Communication	3,62
Responsibility	3,48
Time management	3,38
Teamwork	3,38
Ethics / Self-management	3,29

Romania:	
Communication	3,68
Teamwork	3,68
Time management	3,64
Creativity	3,59
Positive attitude	3,59

Spain:	
Teamwork	3,80
Creativity	3,70
Communication	3,70
Strategic planning	3,65
Innovation	3,65

INTRIDE survey

Soft skills: Strength

from 1 to 4 points: 1 – very weak; 2 – weak
3 – strong; 4 – very strong

Italy:	
Creativity	3,65
Teamwork	3,30
Communication	3,15
Self-management	3,15
Complex problem solving	3,10

Poland:	
Ethics	3,29
Responsibility	3,24
Teamwork	3,19
Adaptability, flexibility	3,19
Creativity	3,10

Romania:	
Teamwork	3,14
Complex problem solving	3,05
Adaptability, flexibility	3,05
Ethics	3,00
Creativity, Responsability	2,95

Spain:	
Empathy	3,40
Responsability	3,35
Teamwork	3,30
Adaptability, flexibility	3,30
Ethics	3,30

INTRIDE survey

Soft skills: Commitment

from 1 to 4 points: 1 – not committed; 2 – slightly committed
3 – fairly committed; 4 – very committed

Italy:	
Creativity	3,60
Innovation	3,60
Communication	3,25
Leadership	3,25
Strategic planning / Responsability	3,15

Poland:	
Communication	3,76
Creativity	3,67
Teamwork	3,67
Time management	3,67
Responsibility	3,67

Romania:	
Communication	3,36
Adaptability, flexibility	3,32
Teamwork	3,27
Time management	3,23
Responsibility	3,23

Spain:	
Positive attitude	3,60
Innovation	3,60
Teamwork	3,55
Creativity	3,55
Time managm./ Adaptability, flexibility	3,55

INTRIDE survey

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Soft skills – Training importance:

Importance + Commit. to dev. – Strength*:

Recommended for training:	
1. Time management	4,19
2. Communication	4,17
3. Innovation	3,97
4. Strategic planning	3,91
5. Creativity	3,78

* **Derived value**: The training importance was determined by the sum of importance and commitment of the companies to develop a certain skill from which the strength in that ability was extracted. This value will help to select those important abilities in which companies present shortcomings. The higher the value the companies are devoted to develop more and the weakness is higher too.

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Soft skills:

Rank of the soft skills to be improved:

Italy:
Solving complex problems
Strategic planning
Communication
Creativity
Teamwork

Poland:
Innovation
Communication
Creativity
Self-management
Ethics

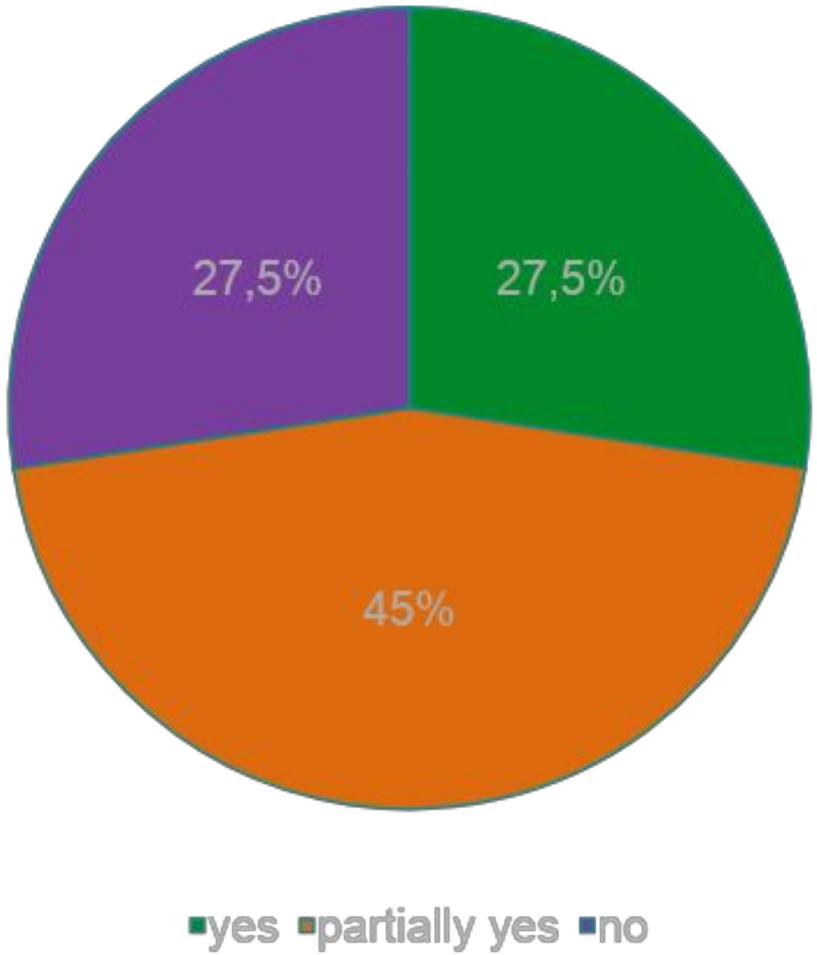
Romania:
Leadership
Responsability
Adaptability and flexibility
Time management
Positive attitude

Spain:
Time management
Strategic planning
Communication
Innovation
Teamwork

INTRIDE survey

Results – Soft skills:

Training possibilities:



Training possibilities (*order of importance*):
Adaptability
Innovation
Time management
Problem solving
Strategic planning

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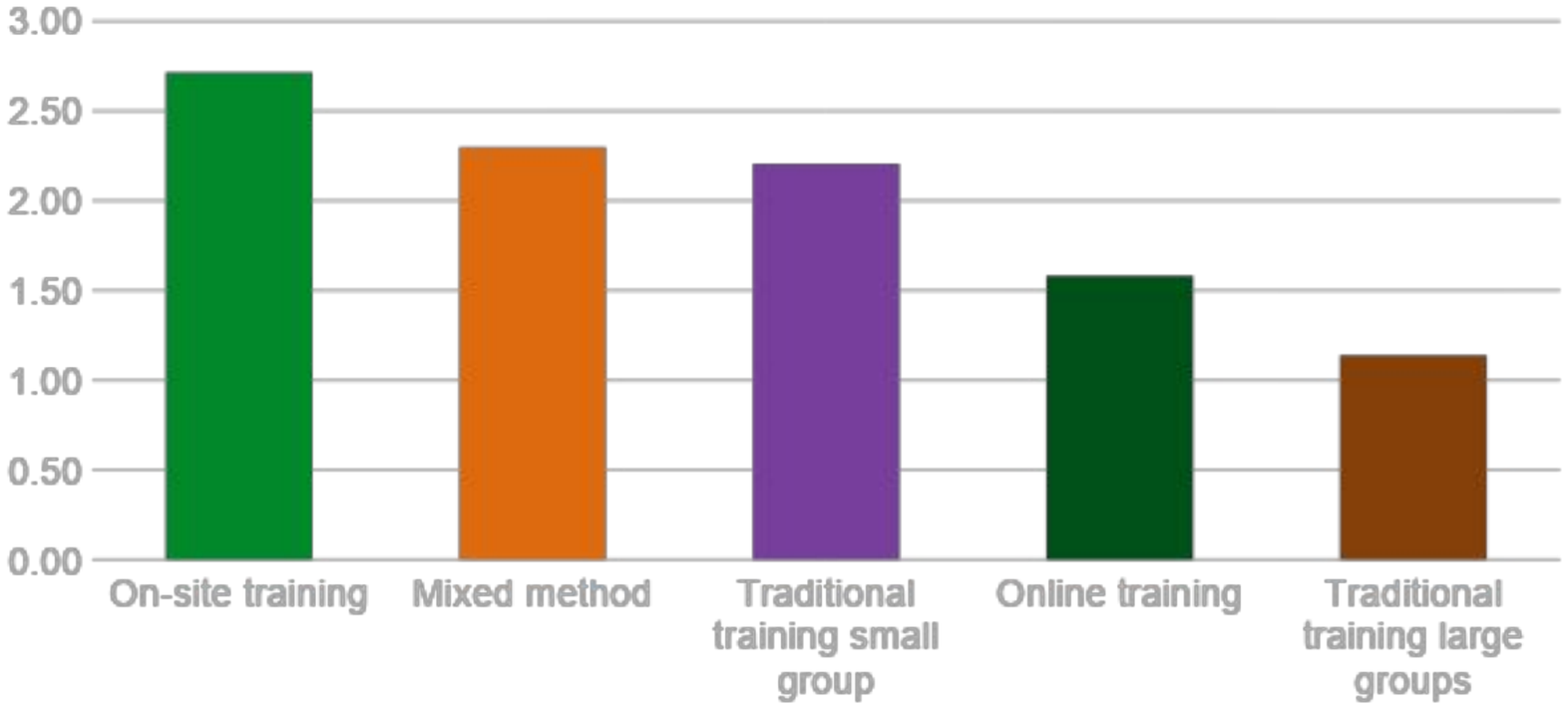
Training method preferences:

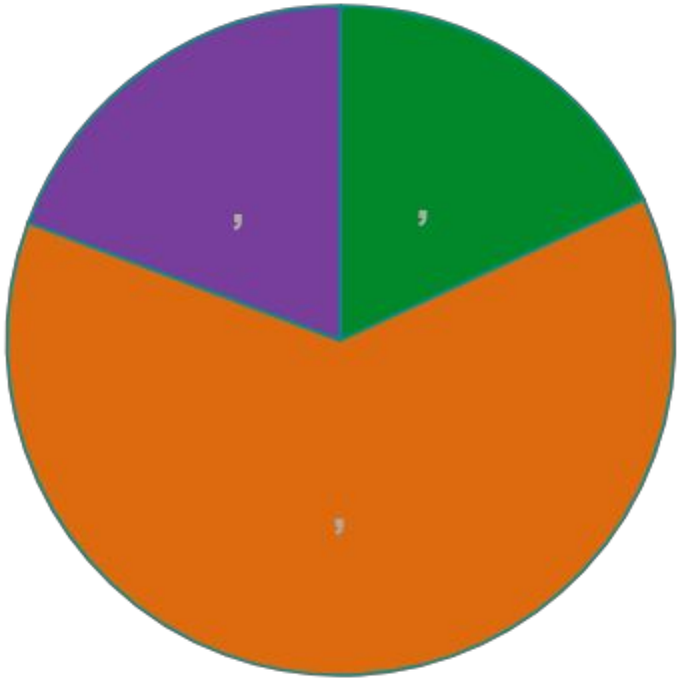


	Ro	5-Ro	It	5-It	Es	5-Es	Pl	5-Pl	AVG
Traditional training large groups	3,18	1,82	4,3	0,7	4,3	0,7	3,67	1,33	1,14
Traditional training small group	2,09	2,91	2,9	2,1	2,9	2,1	3,29	1,71	2,21
On-site training	2,50	2,50	2,2	2,8	2,2	2,8	2,24	2,76	2,72
Online training	3,64	1,36	3,4	1,6	3,4	1,6	3,19	1,81	1,58
Mixed method	3,68	1,32	2,4	2,7	2,4	2,7	2,43	2,57	2,30

INTRIDE survey

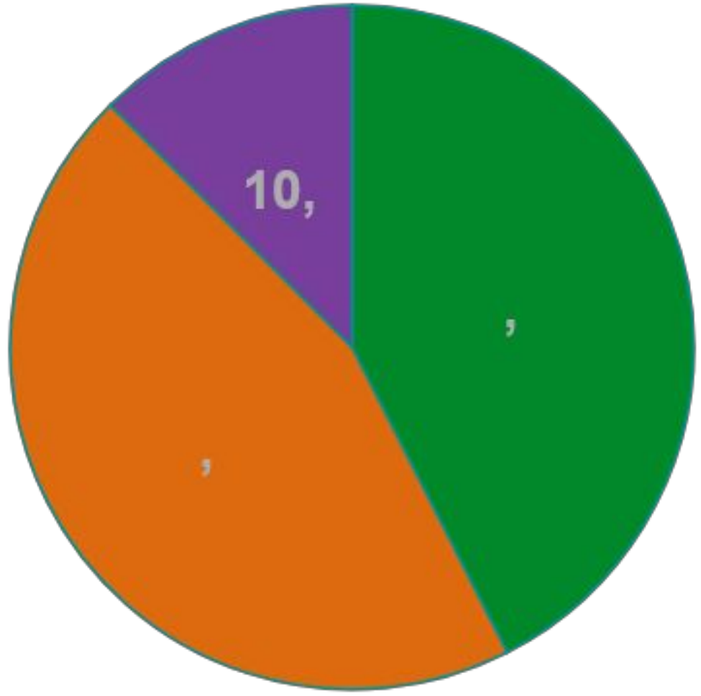
COVID effect:

Impact on activities:



- All activity has stopped
- Runs partially
- Not affected

Impact on business:



- Lost markets
- Financial problems
- Dismiss employees

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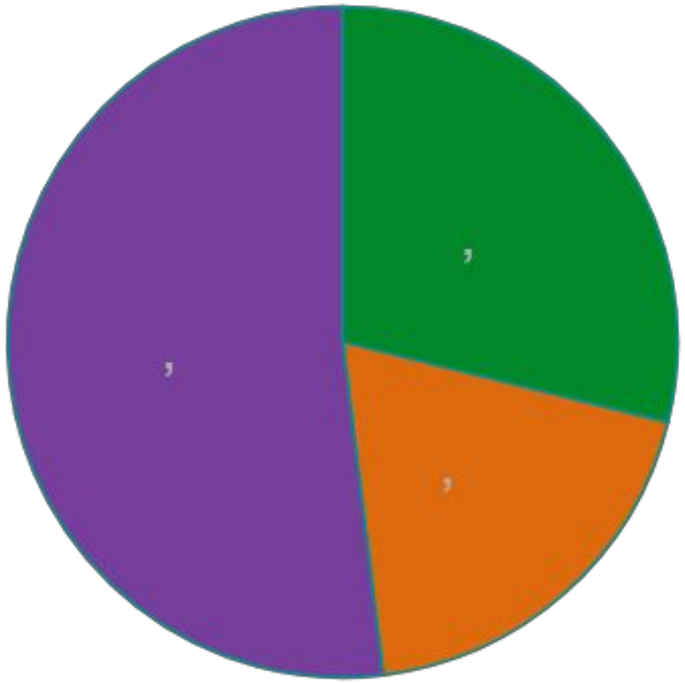
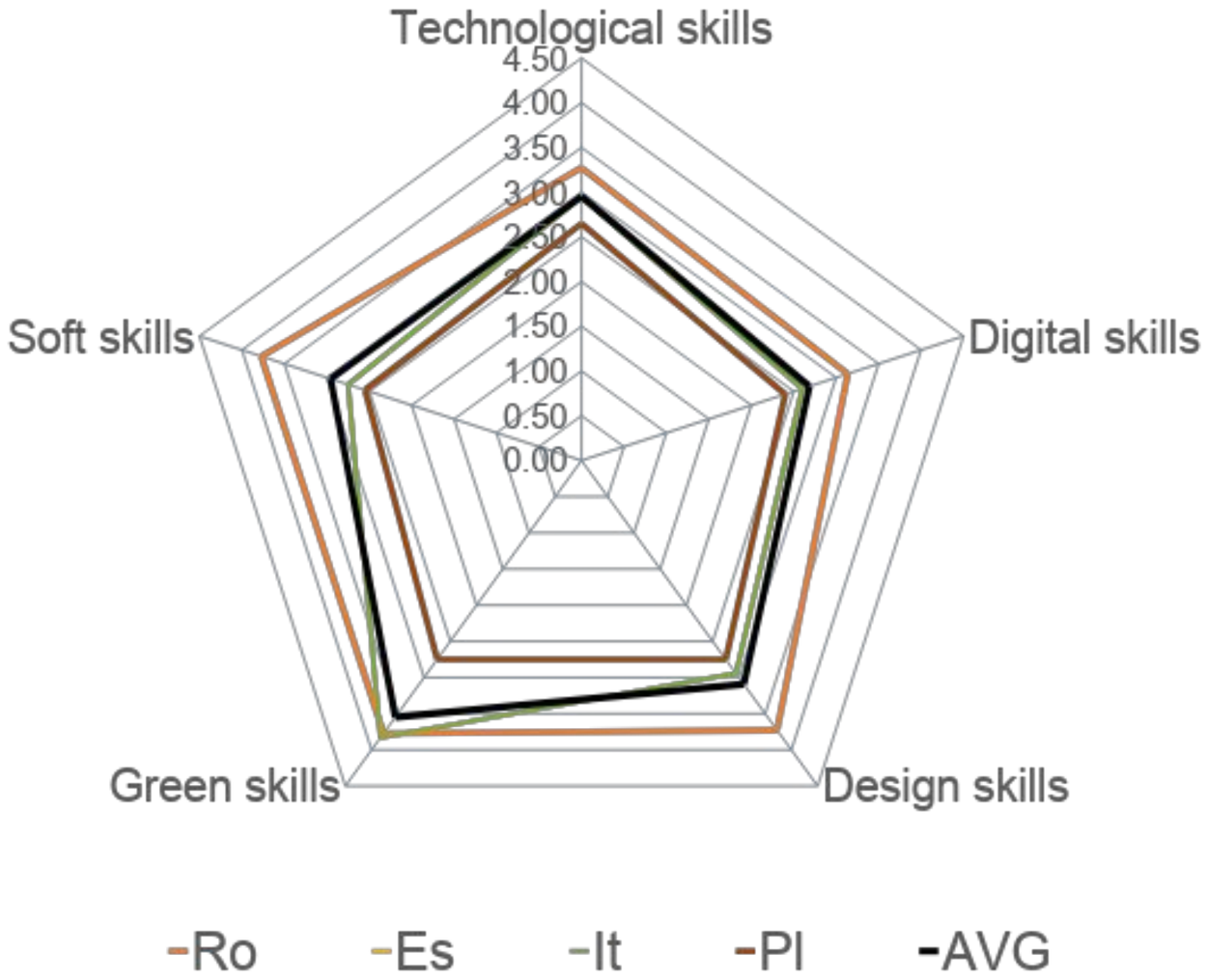
COVID effect:

State support:



- Tax exemption
- Loan payment suspension
- Salary takeover

Key skills to face with the COVID situation:



INTRIDE survey

Conclusions, Italy:

- ✔ The skills identified as **most important** are related to **product and process management**, **quality** and, in relation to digital marketing, probably the possibility of obtaining data in relation to the market from digital communication tools (sites, social networks, ...)

- ✔ The environment linked to **Industry 4.0 is perceived as moderately important,** mediating between enabling technologies that intervene on the process (automation, robotics, ..) not relevant for the SMEs of the traditional sectors and KETs applicable to the design (sales and after-sales services to support the customer constitute the technological skills most related to the upstream and downstream phases of the production process)

- ✔ The Covid emergency brought out the need to **digitize corporate systems** and, consequently, the skills associated with it, both in terms of **process management and control**, both in terms of **sales and promotion channels**, and in relation **to the interaction with the market**.

- ✔ In the foreground the skills (external but also internal) related to **digital marketing, the management of e-commerce sales channels and communication through social channels** are considered extremely important and on which companies declare themselves interested in improving.

- ✔ Technologies such as AR / VR are also perceived as important tools, especially as a function of customer relationships, but they are also weaknesses of the companies even though there would be interest in improving.

INTRIDE survey

Conclusions, Italy:

- ✔ An encountered weakness – even though it is not recognized by all as a requirement - is the management of data and the IT system of companies which in fact forms the basis for any further digitization of activities

- ✔ The majority of the companies interviewed notes the **skills of design**, understood as linked to the world of design, **fundamental for their sector**.

- ✔ Both the **set of technical skills** (modeling, drawing and layout, industrial design, ...) and the set of more **strategic and methodological skills** (creative thinking, design research, operations analysis, ...).are considered crucial for the self-improvement of the company.

- ✔ The companies show interest in improving the skills useful for rendering and communicating the product itself, both with a view to define the project and in relation to the customer / market: display, drawing and layout, modeling.

- ✔ Lack of skills and knowledge are highlighted in relation to more technical methodologies such as DFMD (Design for manufacturing and disassembling) or user-centered design which could lead to a more aware approach to consumer needs and sustainability issues.

- ✔ The average of the importance values assigned to the green competences revealed significantly lower than the digital, design and soft competences.

INTRIDE survey

Conclusions, Italy:

- ✔ Even placing **social responsibility and ethics** in the first place of importance highlights, a vision of sustainability linked to its production that does not perceive the environment as a potential for development. This is probably related to the fact that green products do not emerge as a pressing market demand.
- ✔ Therefore, attention is paid more towards a **higher control of the process with a view to circular economy** with the aim, certainly more tangible, of cost savings and more optimized management of resources and waste.
- ✔ The LCA (Life Cycle Assessment) tool is perceived as important for an evaluation of impacts but also as a tool for communicating environmental value but companies admit the lack of skills on this issue.

- ✔ Soft skills are perceived as important attitudes for the management of business dynamics and in support of individual specific skills.
- ✔ In the foreground, it emerged a set of soft skills related to the capacity for innovation, creativity, communication and, almost on an equal level, and to the aptitudes for the management skills of work activities: flexibility, problem solving, time management, planning, teamwork, responsibility, ...
- ✔ Companies noted Soft Skills' importance with the attribution of high scores, and equally the desire for improvement, while assessing that they are at a good level. Instead, the emphasis is placed on the desire to improve the aspects of Leadership and Strategic planning.

INTRIDE survey

Conclusions, Poland:

- ✔ In the **next 3-5 years** the companies are expected to intensify their efforts aimed at developing a vast group of **green skills.** It is worth noting the set of 2 green skills, which – although they are not particularly important for the organisation and despite the fact that employees do not perceive this competence to be highly developed – according to the respondents are going to be **very challenging for the organisation**. These skills are **energy efficiency and pollution control**. This indication should be interpreted in the context of the region in which the research was conducted.
- ✔ **The Silesian voivodeship is currently restructuring its energy sources.** Energy efficiency and pollution control are going to pose a significant challenge in the coming years for the region highly dependent on bituminous coal.
- ✔ The research demonstrates that the “traditional manufacturer” sector has been **severely affected** by the crisis inflicted by COVID-19 pandemic
- ✔ The most important Digital skills: e-commerce and social media, cyber security, programming, digital marketing, networking and IT systems
- ✔ The most important Design skills are: creative thinking, fine arts, visualisation, drafting and lay-out, user badge design, design research, design for environment
- ✔ The most important green skills are: social responsibility, ethics, waste management, advanced/ecological materials, resource management

INTRIDE survey

Conclusions, Poland:

- ✔ Among technical/technological skills there is a deficit in advanced logistics.
- ✔ Among digital skills there is a deficit in cloud computing, whose importance will increase in the next 3-5 years.
- ✔ Among the design skills, there is a deficit in design research
- ✔ Among green skills there is a deficit in advanced/ecological materials. In addition, the respondents expect the importance of competences in the field of energy efficiency and pollution control to increase within the next 3-5 years.
- ✔ Among soft skills there is a deficit in communication and time management. Additionally, the importance of both competences will increase within the next 3-5 years. Great attention is being paid to the ability to work in a group, independence, responsibility and self-organisation.
- ✔ In general, entrepreneurs believe that soft skills are the most important area of desired development of their organization from their perspective.
- ✔ The surveyed companies definitely prefer on-site training, mixed method and traditional training in small groups.

INTRIDE survey

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Conclusions, Romania:

- Most of the respondents are micro and small companies
- The main activities of the companies is furniture production
- More than half of the respondents manufacture custom products at reasonable price
- Almost three quarter of the companies are present on the national market, few of on the international market too
- The most important target countries are: Germany, France, UK
- Most of the companies are stable in their businesses, the competitiveness dues mainly to price and offered service
- The competitveness is maintained by product development and process improvements
- More than half of the companies have quality management system (ISO 9001), less than half environmental management system (ISO 14001)
- Product management, process engineering, project management, automation and quality assurance are the most important technical skills and the companies are devoted to develop them in the future
- Beside the five technical skills listed above the robotics and smart machineries are subjects recommended to train
- Data visualization, data analysis, rapid prototyping and critical thinking are considered for improvement

INTRIDE survey

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Conclusions, Romania:

- Companies have partial access for technical skills training, CNC programming, product and project management process engineering automation, analytics are the most wanted training subjects
- E-commerce, social media, networking, cybersecurity, digital marketing and programming are considered the most important digital skills, respondents are committed to develop them plus cloud computing
- E-commerce, social media, digital marketing, networking and IT system, cybersecurity and mobile applications are recommended for training
- Companies ranked quantum computing and virtual/augmented reality skills to be improved additionally
- Majority of respondents have partial access to digital skills, digital marketing, e-commerce, networking, security and programming are most accessible
- Visualization, creative thinking, drafting, design methodologies and operation analysis are the most important design skills and companies are committed to develop them
- Design methodologies, operation analysis, DFMA simulation and industrial design are the skills companies want to improve recommended for training
- Consumption reduction, sustainable product development, pollution control, resource management and ecological materials are the green skills considered most important and worth to be developed

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Conclusions, Romania:

- Beside the five most important green skills companies consider social responsibility, ethics and fair trade, the cradle to cradle approach skills to be improved
- Respondents are not really have access to develop the green skills
- Teamwork, communication, time management, positive attitude, innovation are the most important soft skills, companies are committed to develop them and the adaptability, responsibility additionally
- On the top of the soft skills to be improved rank we find self-management, empathy, emotional intelligence, persuasion, ethics
- The traditional training method in small groups and on site trainings are preferred mostly by respondents
- The COVID pandemy hits badly the companies, 68% of them run just partially, they suffering from market loss and facing financial problems, 19% of respondents must dismiss some of their employees
- Companies consider soft and green skills as key skills to face with the COVID situation followed by design skills and technological skills

INTRIDE survey

Conclusions, Spain:

The priority technological competences are the following:

Industry 4.0
Rapid prototyping
Project management
Product management
Quality
Process Engineering
Automation
Additive manufacturing / 3D printing
Critical thinking

The priority digital competences are the following:

E-commerce and social media
Digital marketing
Networking and IT systems
Virtual reality / Augmented reality
Mobile applications
Programming
Cybersecurity

The priority design competences are the following:

Industrial design
Aesthetic sensitivity
Creative thinking
Display
Design methodologies
User-centred design
Modelling
Ecological sensitivity
Design research

INTRIDE survey

Conclusions, Spain:

The priority green competences are the following:

Consumption reduction
Energy efficiency
Sustainable product development
Pollution control
Clean technologies
Renewable energy
Resource management
Circular economy
Waste management
Social responsibility
Advanced / ecological materials
Life cycle analysis (LCA)

The priority soft competences are the following:

Time management
Strategic planning
Communication
Innovation
Teamwork
Creativity
Positive attitude
Adaptability, flexibility
Leadership
Self-management
Ethics
Responsibility
Crisis management

INTRIDE survey

General Conclusions:

- ✔ Most of the survey respondents come from the furniture sector or are somehow linked with the furniture sector. The furniture sector belongs to the traditional manufacturing sector.
- ✔ More than 60% of the participants produce custom products at reasonable price and 40% are present on the international market
- ✔ The offered services are the most competitive elements followed by form innovation (design) and technological innovation (process control)
- ✔ Companies maintain their competitiveness by product development (26%), customer service (26%) and process improvement (23%)
- ✔ The highest rate for certified quality and environmental management systems belongs to the Romanian companies
- ✔ The technical, digital, design, green and soft skills needs were researched from several point of view including importance, commitment of the companies to develop, how strong the companies are in certain skills, etc.
- ✔ Despite of country differencies in rankings, in most cases we find in front of the lists the same skills, just the order differs.
- ✔ Most of respondents are quite strong in the skills they consider important and committed to further develop

INTRIDE survey

General Conclusions:

- ✔ SMEs have just limited access to train their employees in the skills they want to develop
- ✔ In the case of digital skills participants are committed to improve and develop the skills which are closely related to their on-line appearance: e-commerce and social media, digital marketing, networking and IT systems, cybersecurity
- ✔ The most preferred design skills to be improved are connected to creative activities, visualization and design methodologies
- ✔ SMEs are aware of environmental protection and sustainability therefore they put accent on energy efficiency, sustainable product development, consumption reduction, ethics and fair trade
- ✔ In the case of soft skills time management, communication, innovation, creativity are the skills we recommend to be developed for survey participants
- ✔ On site training and the mixed on-line, off-line methods are the most preferred training methods
- ✔ The COVID-19 pandemy severely affected SMEs, 63% reduced their activities, 42% lost markets, 45% struggling with financial problems
- ✔ Just two-thirds of the respondents got state support in form of salary takeover (52%), tax exemption (29%), loan payment suspension (19%)
- ✔ Green skills and design skills are considered as key skills to face challenges in the post COVID-19 era followed by soft skills and technological skills