Project *Green Transition in Vocational Education and Training*

Sustainability survey – Analysis of responses in regard to Perception of sustainability; Companies sustainability policies; Companies internal sustainability work-processes (internal practices); Assessment of graduates skills

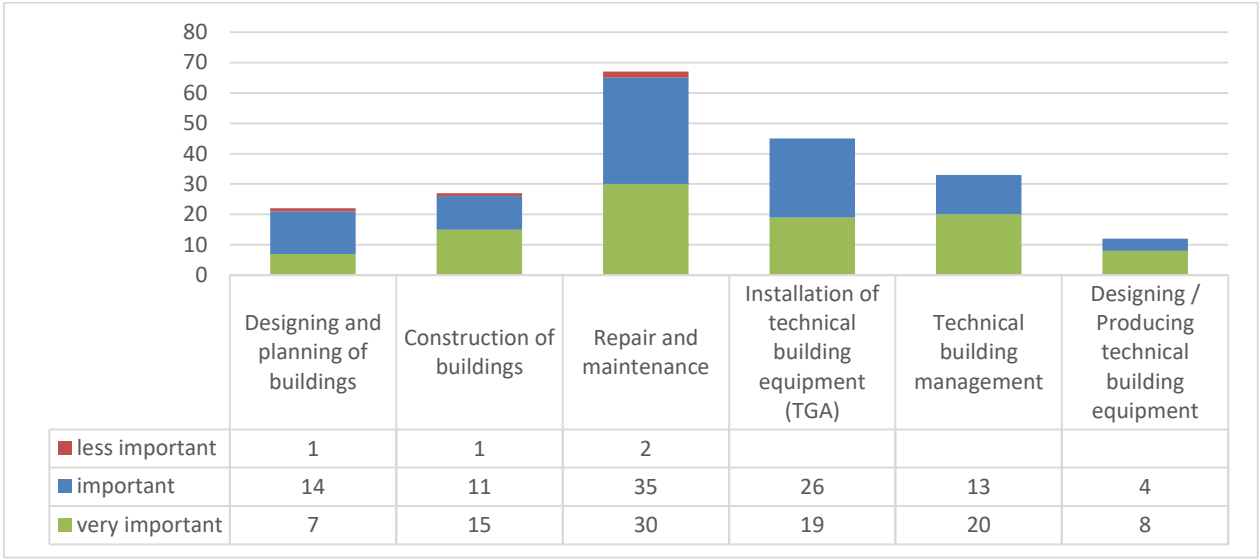
WP 3

I. Perception of sustainability

1. **Are there areas where sustainability plays a very important role/ is not seen as very important? (Questions 5 and 1 and 2)**

The distribution of responses indicates that sustainability is considered important or very important across all areas and specific areas. However, when comparing the choices between "very important" and "important" (Graph 1.2 and 1.4) it appears that slightly more respondents selected "important" for the areas of Repair and maintenance, Installation of technical building equipment, Electric installation and building automation. Nevertheless, this slight preference should not be interpreted as a dominant trend.

Graph. 1.1. Assessment of importance of sustainability by areas / specific areas



	Designing and planning of buildings	Construction of buildings	Repair and maintenance	Installation of technical building equipment (TGA)	Technical building management	Designing / Producing technical building equipment
less important	1	1	2			
important	14	11	35	26	13	4
very important	7	15	30	19	20	8

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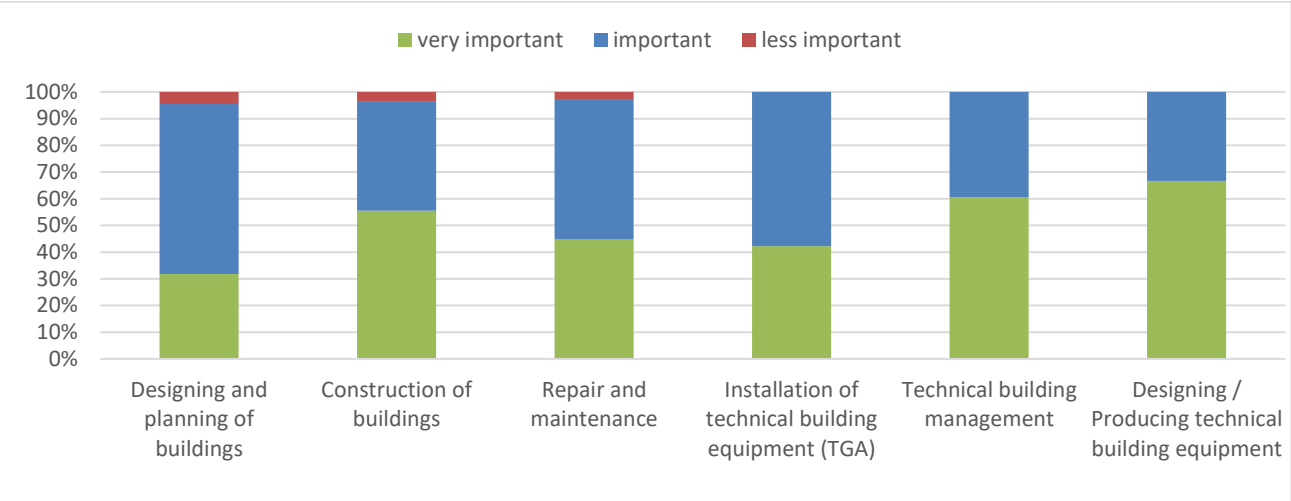
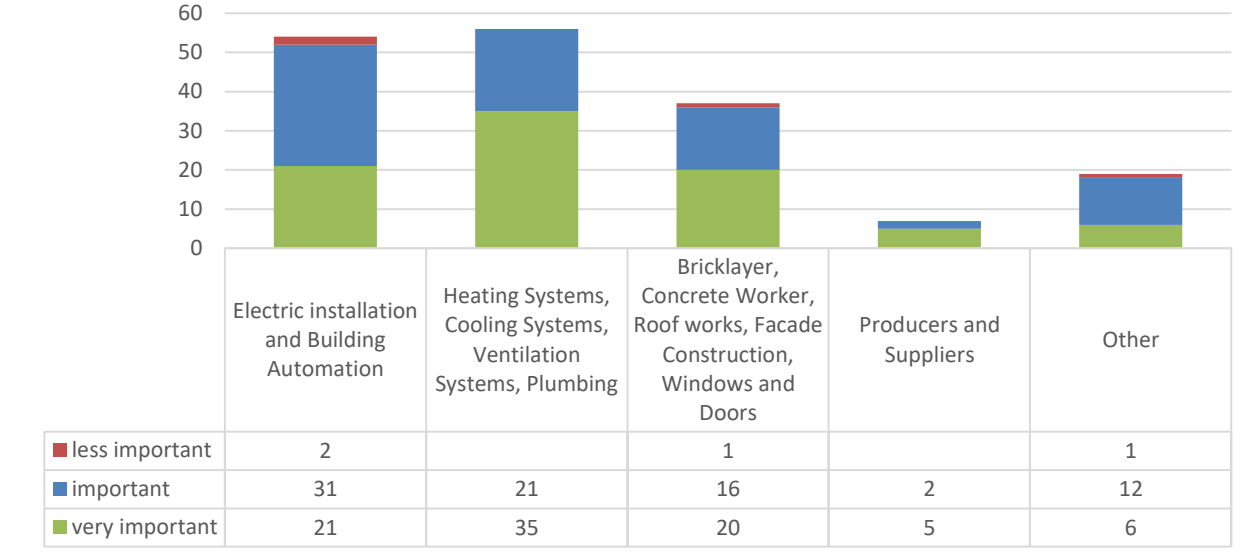
Graph 1.2. Assessment of importance of sustainability by areas / specific areas

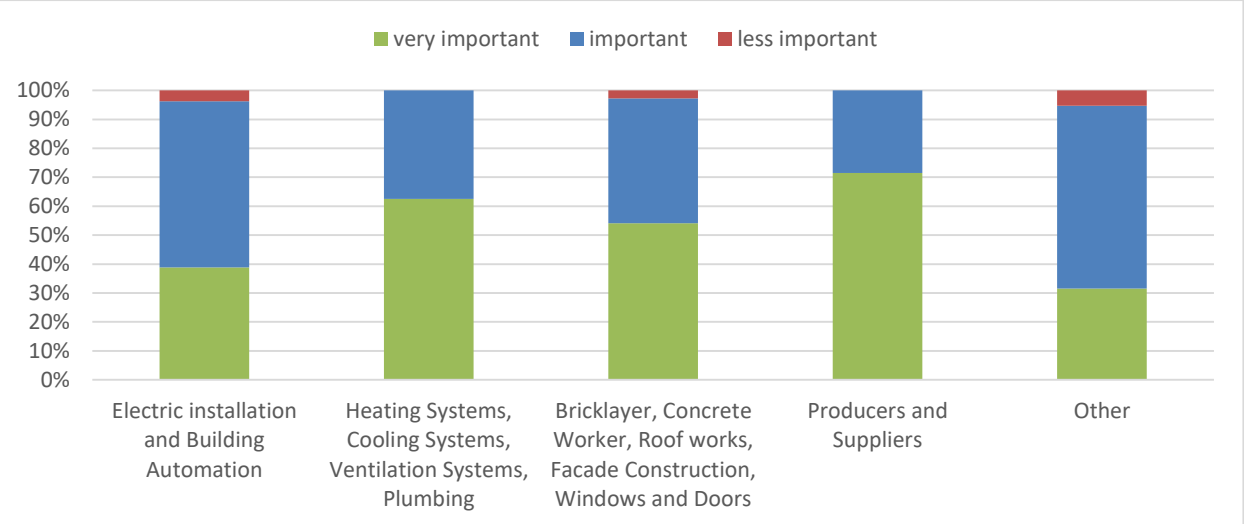


Graph 1.3. Assessment of importance of sustainability by areas / specific areas



	Electric installation and Building Automation	Heating Systems, Cooling Systems, Ventilation Systems, Plumbing	Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors	Producers and Suppliers	Other
less important	2		1		1
important	31	21	16	2	12
very important	21	35	20	5	6

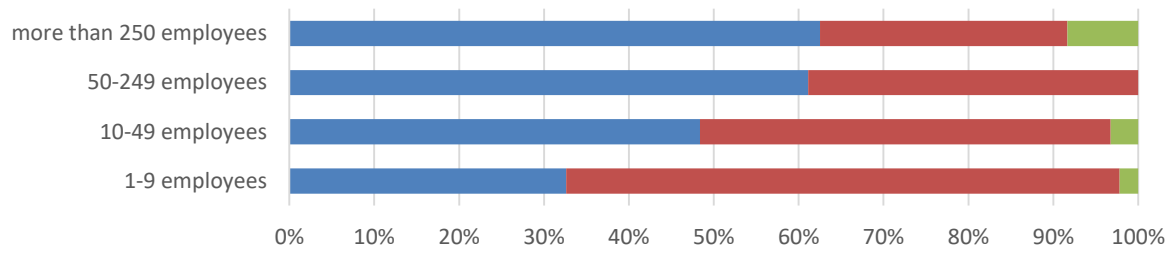
Graph 1.4. Assessment of importance of sustainability by areas / specific areas



2. **Is there a difference concerning sustainability depending on the size of the company? (Questions 5 and 3)**

The distribution of responses suggests a trend that larger companies tend to place greater importance on sustainability. However, due to the limited number of responses, this trend should be interpreted with caution.

Graph 2.1. Differences concerning sustainability depending on the size of the company

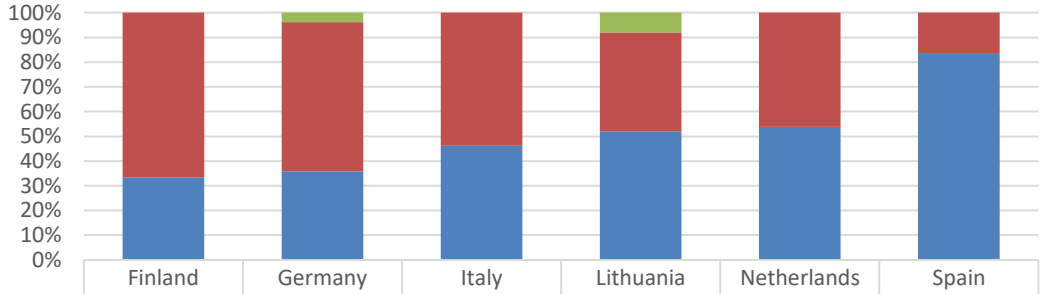


	1-9 employees	10-49 employees	50-249 employees	more than 250 employees
very important	15	15	11	15
important	30	15	7	7
less important	1	1		2

3. **How important is sustainability in the different countries? (Question 5 and 4)**

Absolute majority of respondent regard sustainability to be very important or important. Sustainability is in particular important for Spanish respondents. Respondents from Germany, Italy and Finland seem to be more reserved in choosing the answer "very important".

Graph 3.1. Importance of sustainability in the different countries

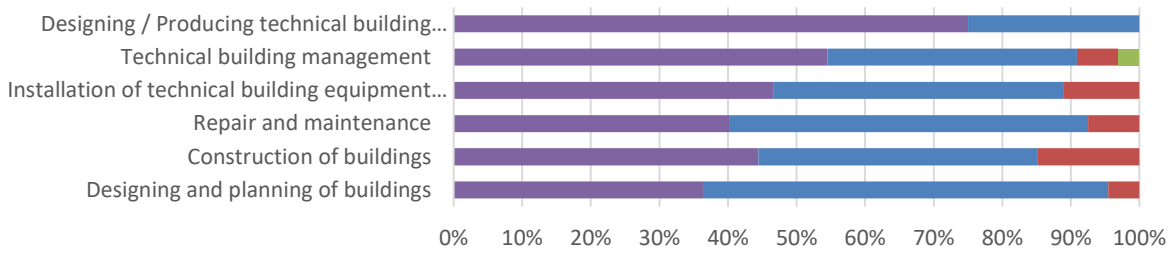


	Finland	Germany	Italy	Lithuania	Netherlands	Spain
less important		2		2		
important	2	32	7	10	6	2
very important	1	19	6	13	7	10

4. **Which sectors rate interdisciplinary collaboration in connection to sustainability as important/not important? (Questions 8 and 1 and 2). Is there a relationship between companies' sustainability practices and interdisciplinary collaboration?**

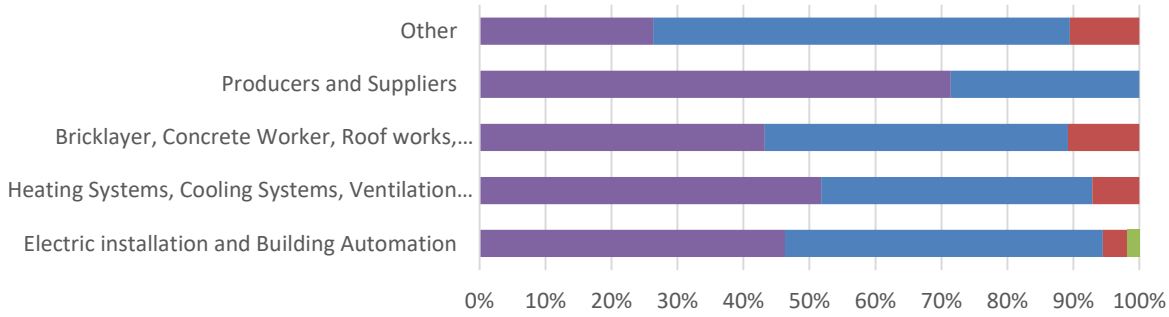
The distribution of responses indicates that interdisciplinary cooperation is considered important or very important across all areas and specific areas. However, when comparing the choices between "very important", "important", “less important” (Graph 4.2 and 4.4) it appears that slightly more respondents selected "important" and “less important” for the areas of Designing and planning of buildings, Repair and maintenance, Electric installation and building automation and Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors. Nevertheless, this slight preference should not be interpreted as a dominant trend.

Graph 4.1. Rating interdisciplinary collaboration in connection to sustainability by areas



	Designing and planning of buildings	Construction of buildings	Repair and maintenance	Installation of technical building equipment (TGA)	Technical building management	Designing / Producing technical building equipment (TGA)
very important	8	12	27	21	18	9
important	13	11	35	19	12	3
less important	1	4	5	5	2	
not important					1	

Graph 4.2. Rating interdisciplinary collaboration in connection to sustainability by specific areas



	Electric installation and Building Automation	Heating Systems, Cooling Systems, Ventilation Systems, Plumbing	Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors	Producers and Suppliers	Other
very important	25	29	16	5	5
important	26	23	17	2	12
less important	2	4	4		2
not important	1				

5. Which sectors are more active in promoting sustainable solutions for clients? (Questions 9 and 1 and 2)

Majority of respondents (108 from 119) claim to actively promote sustainable solutions to clients. Considering the number of respondents, the following areas with most active promotion of sustainable solutions can be distinguished: Construction of buildings; Repair and maintenance; Installation of technical building equipment (TGA); Technical building management; Electric installation and Building Automation; Heating Systems, Cooling Systems, Ventilation Systems, Plumbing; Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors (Tables 5.1. and 5.2).

Table 5.1. Which sectors are more active in promoting sustainable solutions for clients – Distribution of responses by areas

Area of activity	Yes	No
Designing and planning of buildings	18	4
Construction of buildings	25	2
Repair and maintenance	62	5
Installation of technical building equipment (TGA)	41	4
Technical building management	30	3
Designing / Producing technical building equipment (TGA)	12	

Table 5.2. Which sectors are more active in promoting sustainable solutions for clients – Distribution of responses by specific areas

Specific area of activity	Yes	No
Electric installation and Building Automation	51	3
Heating Systems, Cooling Systems, Ventilation Systems, Plumbing	53	3
Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors	34	3
Producers and Suppliers	7	
Other	16	3

6. Are there any sectors or countries which rate sustainability as more important than costs when purchasing materials? (Questions 16 & 17 and 1,2 and 4)

Sustainability criteria play a role for significant share of companies when purchasing materials, components and system parts (78%, 93 respondents). The survey did not show that the price (costs) dominates over sustainability criteria when purchasing materials, components and system parts. The respondents are evenly split, with 59 (49.6%) agreeing that sustainability criteria are applied despite higher costs, while 60 (50.4%). Due to the low number of respondents, it is not feasible to draw definitive conclusions about differences among sectors, company sizes, or countries. Any observed trends should be interpreted with caution, and the data does not reveal any dominant patterns.

Table 6.1. Rating sustainability as more important than costs when purchasing materials - by company size

Size of companies	Sustainability criteria plays a role for company when purchasing materials, components and system parts				Does this also apply if this results in higher purchasing costs			
	Yes		No		Yes		No	
	N	%	N	%	**N**	%	N	%
1-9 employees	32	70%	14	30%	15	48,4%	16	51,6%
10-49 employees	26	84%	5	16%	20	43,5%	26	56,5%
50-249 employees	16	89%	2	11%	8	44,4%	10	55,6%
more than 250 employees	19	79%	5	21%	16	66,7%	8	33,3%

Table 6.2 Rating sustainability as more important than costs when purchasing materials - by area of activity

Area of activity	Sustainability criteria plays a role for company when purchasing materials, components and system parts				Does this also apply if this results in higher purchasing costs			
	Yes		No		Yes		No	
	N	%	N	%	**N**	%	N	%
Designing and planning of buildings	17	77,3%	5	22,7%	10	45,5%	12	54,5%
Construction of buildings	21	77,8%	6	22,2%	11	40,7%	16	59,3%
Repair and maintenance	52	77,6%	15	22,4%	33	49,3%	34	50,7%
Installation of technical building equipment (TGA)	34	75,6%	11	24,4%	23	51,1%	22	48,9%
Technical building management	29	87,9%	4	12,1%	19	57,6%	14	42,4%
Designing / Producing technical building equipment (TGA)	11	91,7%	1	8,3%	6	50,0%	6	50,0%

Table 6.3. Rating sustainability as more important than costs when purchasing materials - by specific area of activity

Specific area of activity	Sustainability criteria plays a role for company when purchasing materials, components and system parts				Does this also apply if this results in higher purchasing costs			
	Yes		No		Yes		No	
	N	%	N	%	**N**	%	N	%
Electric installation and Building Automation	41	75,9%	13	24,1%	30	55,6%	24	44,4%
Heating Systems, Cooling Systems, Ventilation Systems, Plumbing	46	82,1%	10	17,9%	29	51,8%	27	48,2%
Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors	29	78,4%	8	21,6%	16	43,2%	21	56,8%
Producers and Suppliers	7	100,0%		0,0%	5	71,4%	2	28,6%
Other	13	68,4%	6	31,6%	8	42,1%	11	57,9%

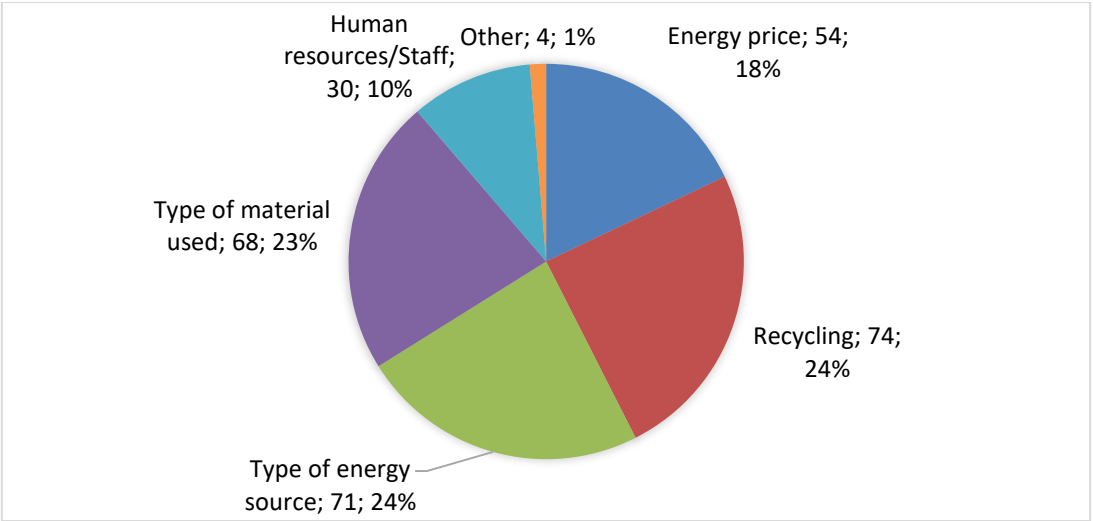
Table 6.4. Rating sustainability as more important than costs when purchasing materials - by country of respondents

Size of companies	Sustainability criteria plays a role for company when purchasing materials, components and system parts				Does this also apply if this results in higher purchasing costs			
	Yes		No		Yes		No	
	N	%	N	%	**N**	%	N	%
Finland	2	66,7%	1	33,3%	2	66,7%	1	33%
Germany	38	71,7%	15	28,3%	20	37,7%	33	62%
Italy	9	69,2%	4	30,8%	8	61,5%	5	38%
Lithuania	23	92,0%	2	8,0%	16	64,0%	9	36%
Netherlands	10	76,9%	3	23,1%	9	69,2%	4	31%
Spain	11	91,7%	1	8,3%	4	33,3%	8	67%

7. When you think about sustainability, which aspect comes first to your mind?

Respondents mostly associate sustainability with recycling (24%), type of energy source (24%) and type of material used (23%). Energy price and human resources (staff) in overall are stressed less, yet energy price seems to be an important factor in particular to Germany (53% of respondents), Italy, Lithuania and Netherlands, whereas Human resources/Staff as a sustainability factor is appreciated more in Lithuania and in Finland. What regards trends by companies size,

Graph 7.1. Aspects defining sustainability



Graph 7.2. Aspects defining sustainability - Distribution of responses by country

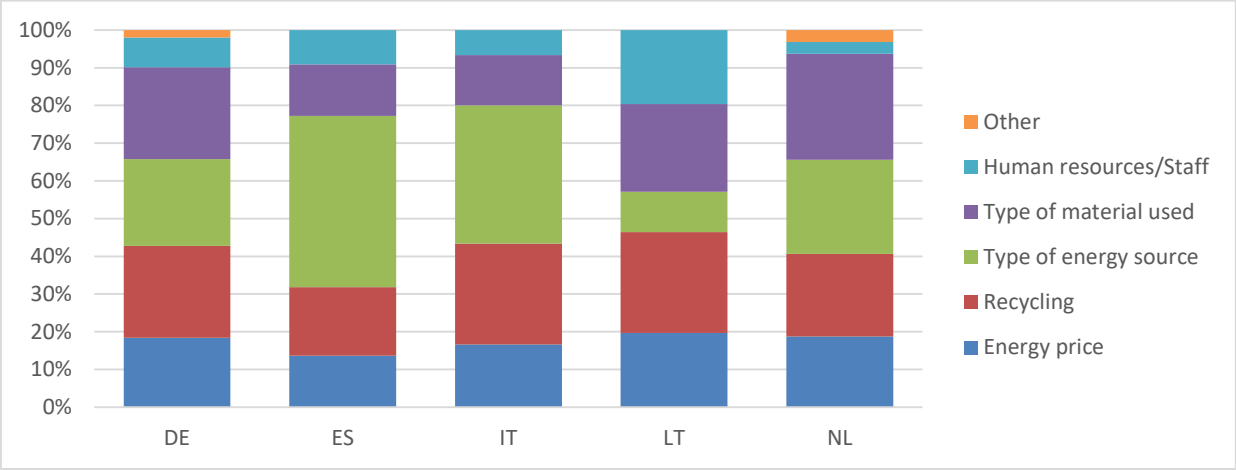


Table 7.3. Aspects defining sustainability - Distribution of responses by country

Aspect	Total	DE	ES	IT	LT	NL	FI
Energy price	45%	53%	25%	38%	44%	46%	33%
Recycling	62%	70%	33%	62%	60%	54%	100%
Type of energy source	60%	66%	83%	85%	24%	62%	33%
Type of material used	57%	70%	25%	31%	52%	69%	67%
Human resources/Staff	25%	23%	17%	15%	44%	8%	67%
Other	3%	6%	0%	0%	0%	8%	0%

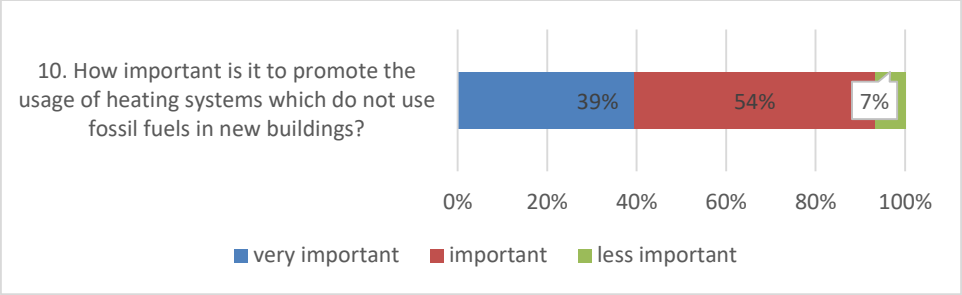
Table 7.3. Aspects defining sustainability - by company size

Size of company	Energy price	Recycling	Type of energy source	Type of material used	Human resources/Staff
1-9 employees	52%	67%	63%	57%	26%
10-49 employees	48%	55%	45%	52%	35%
50-249 employees	22%	67%	72%	39%	28%
more than 250 employees	46%	58%	63%	79%	8%

8. How important is it to promote the usage of heating systems which do not use fossil fuels in new buildings? (Q10)

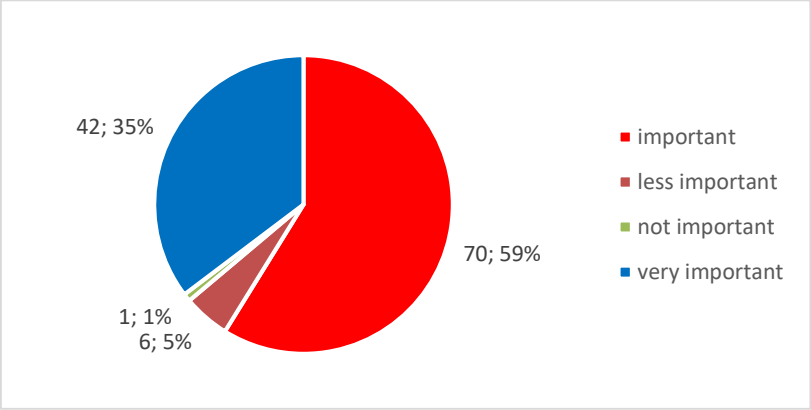
The fact that type of energy source is very close connected with sustainability is confirmed by the fact that 93% of respondents report that is very important or important to promote the usage of heating systems which do not use fossil fuels in new buildings? (Q 10).

Graph 7.4. Responses to the question about importance of promoting the usage of heating systems which do not use fossil fuels in new buildings



9. How important do you think sustainability certification is for new buildings?

94% of respondents believe that sustainability certification for new buildings is very important and important, suggesting growing awareness of the importance of certification in meeting regulatory sustainability standards and addressing the increasing demand for sustainable development from clients and stakeholders.



II. Companies sustainability policies

10. Presence of laws about using materials and raw materials in an eco-friendly way (Q20)

75% of respondents claim that there is a law in their country about using materials and raw materials in an eco-friendly way. Most certain are respondents from Spain, Lithuania (92%) and Netherlands (85%).

Table 8.1. Presence of law about eco-friendly usage of materials and raw materials

Country	Is there a law in your country about using materials and raw materials in an eco-friendly way?	
	Yes	No
Finland	33%	67%
Germany	64%	36%
Italy	69%	31%
Lithuania	92%	8%
Netherlands	85%	15%
Spain	92%	8%
Grand Total	75%	25%

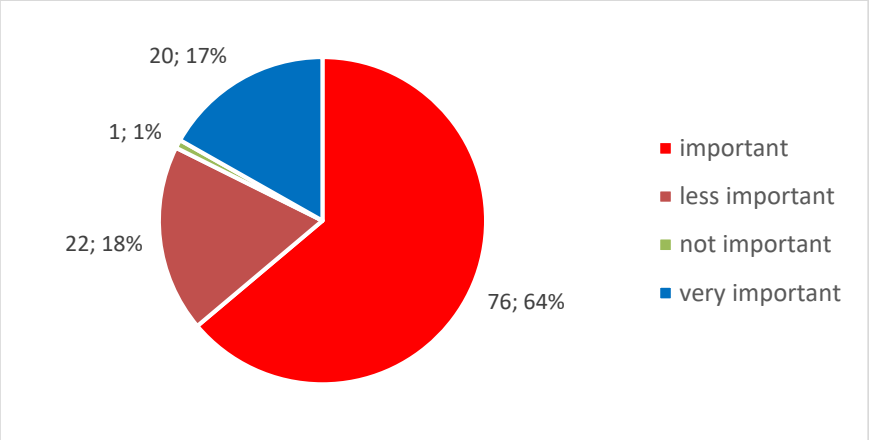
11. Presence of company policy for the sustainable use of materials and resources? (e.g. guidelines for saving energy, producing less waste etc.) (Q21)

61% of respondents report that their company has a policy for the sustainable use of materials and resources apart from legal requirements. Although on the country level, responses do not clearly confirm this fact with responses from respondents from Germany Spain, Italy and Netherlands splitting almost equally, the responses still indicate the need for students to get familiarised with companies policies in this regard.

12. How important is it for you to apply internal standards which go beyond the legal regulations regarding sustainable aspects? (Q 29)

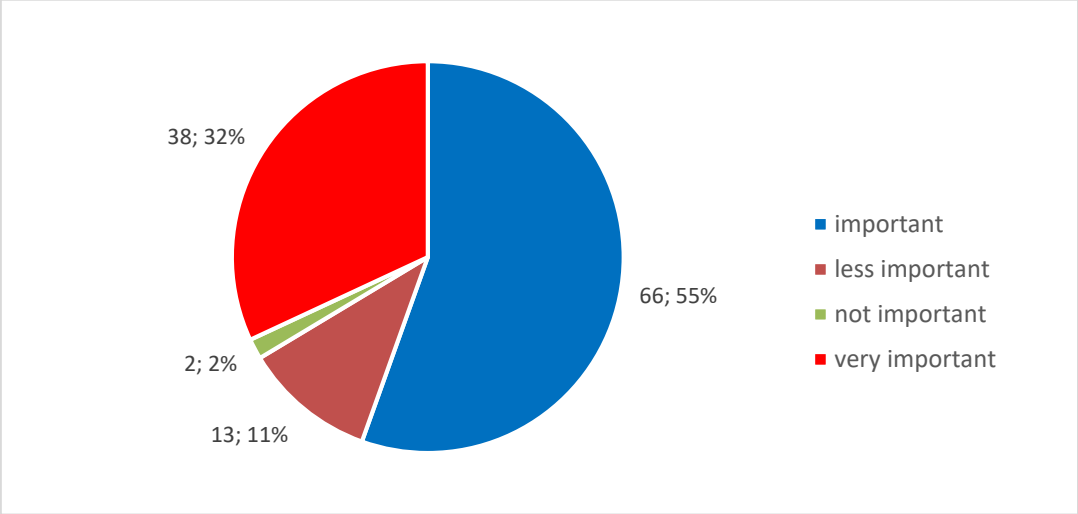
81% of respondents believe that applying internal standards which go beyond the legal regulations regarding sustainable aspects is important or very important, indicating that there is a strong commitment within the industry to go beyond mere compliance with existing laws.

Graph 11.1. How important is it for you to apply internal standards which go beyond the legal regulations regarding sustainable aspects



13. How important is the use of environmentally and health-friendly resources in your company? (Q 19)

Majority of respondents (87%) believe that the use of environmentally and health-friendly resources is very important or important in their companies.



III: Companies internal sustainability work-processes (internal practices)

Respondents expressed diverse views about sustainability in their companies practices (Usage of energy; Sustainable transportation; Sustainable usage of resources; Promotion of sustainability and advice for clients; Human resources development / support on sustainability).

Two thirds of the respondents agreed with the following statements:

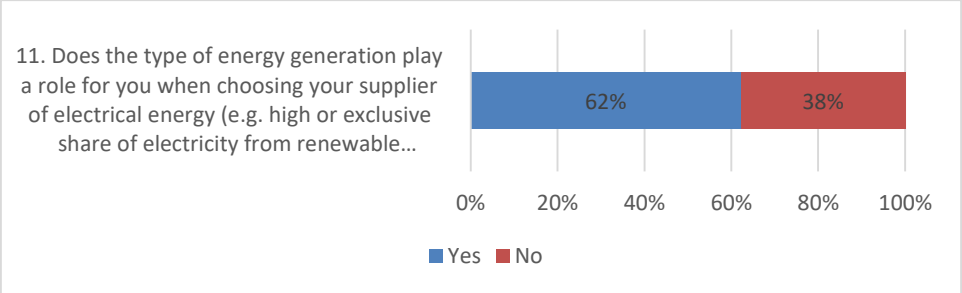
- The company actively promotes sustainable solutions to clients (91%);
- When planning projects, the materials used are also selected regarding durability and wear resistance (82%);
- Sustainability criteria play a role for the company when purchasing materials, components and system parts (78%);
- The company has a procedure for documenting the handling of hazardous substances (75%);
- The company has instructions for the economical and resource-conserving use of materials and raw materials (71%);
- The company has a process in place to document the continuous improvement of workplace conditions for employees to increase workplace safety and employee satisfaction (71%);
- The possibility of later recycling plays a role in the procurement of materials, parts and system components in projects (69%)
- There are instructions for employees on the resource-saving use of energy and materials (66%).

The following statements received somewhat more mixed opinions:

- The type of energy generation plays a role when choosing supplier of electrical energy (e.g. high or exclusive share of electricity from renewable energy sources) (62%);
- Companies have procedures in place to minimize journeys to customers or suppliers and thus save fuel and energy (58%);
- Materials such as metals, plastic or paper are fed into the recycling process in the company (50%)
- Appliances and system com;ponents such as electronic devices or heaters are fed into the recycling process in your projects (44%);
- There are training courses for employees on the resource-saving use of energy and materials (39%);
- Ecological criteria during manufacture or transport routes play a role in your company when selecting materials or system components (12%).

Usage of energy

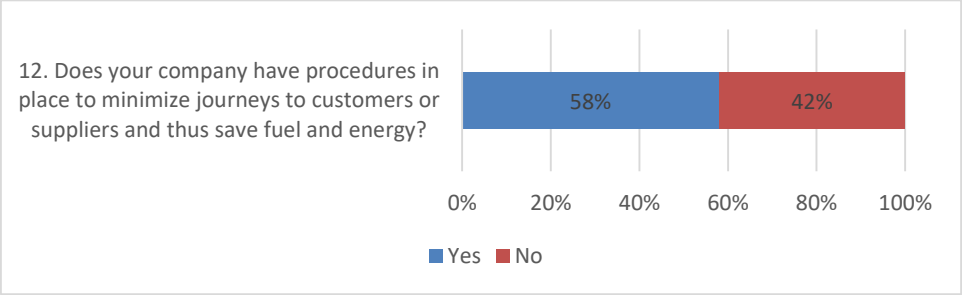
14. **Does the type of energy generation play a role for you when choosing your supplier of electrical energy (e.g. high or exclusive share of electricity from renewable energy sources)? (Q11)**



The trend can be noted that the importance of type of energy generation decreases with the size of companies.

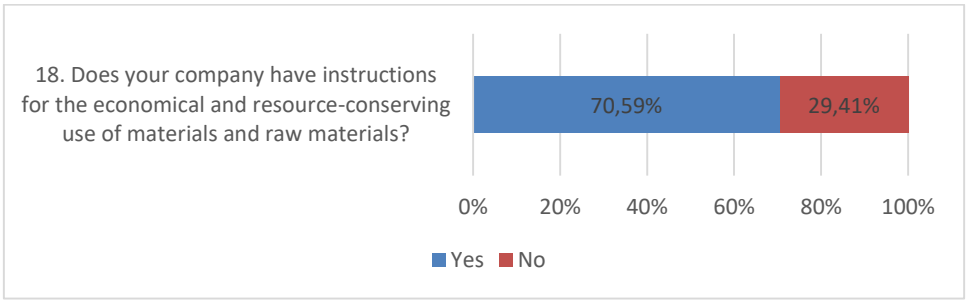
Sustainable transportation

15. **Does your company have procedures in place to minimize journeys to customers or suppliers and thus save fuel and energy? (Q 12)**

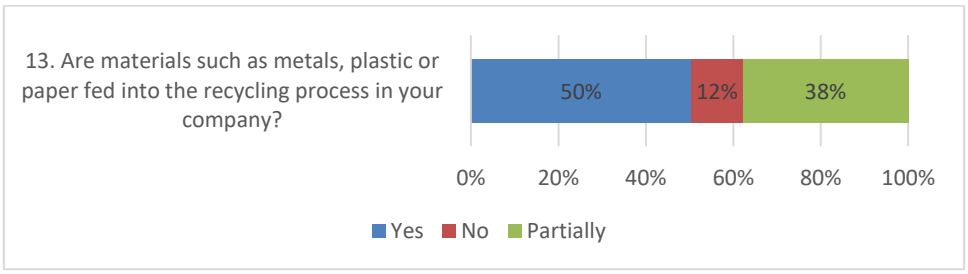


Sustainable usage of resources

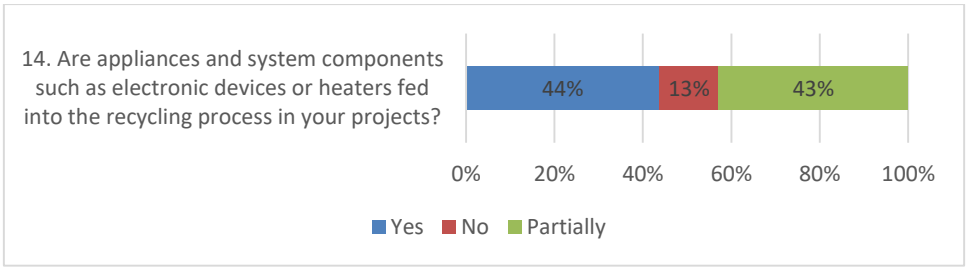
16. **Does your company have instructions for the economical and resource-conserving use of materials and raw materials? (Q 18)**



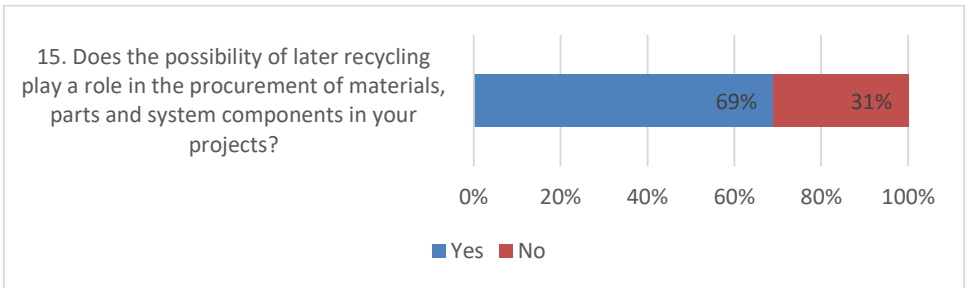
17. **Are materials such as metals, plastic or paper fed into the recycling process in your company? (Q 13)**



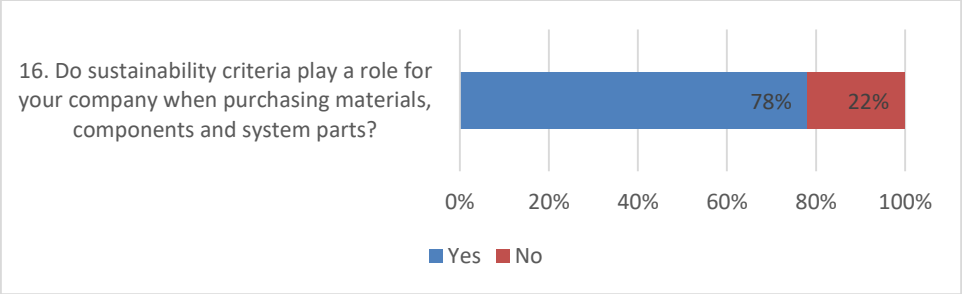
18. **Are appliances and system components such as electronic devices or heaters fed into the recycling process in your projects? (Q 14)**



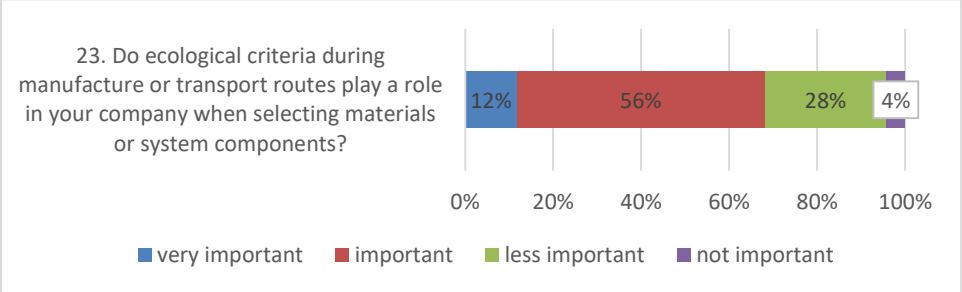
19. **Does the possibility of later recycling play a role in the procurement of materials, parts and system components in your projects? (Q 15)**



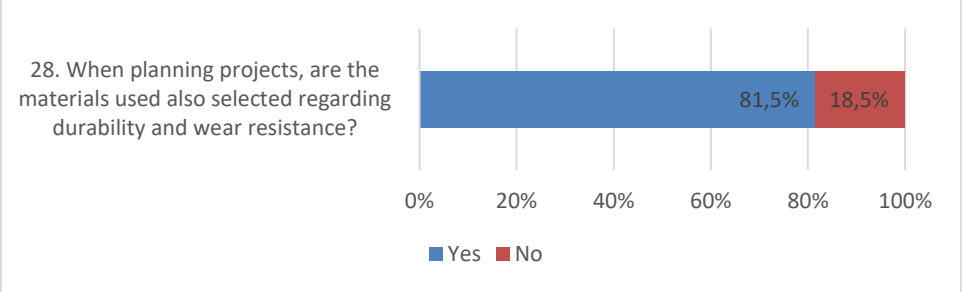
20. Do sustainability criteria play a role for your company when purchasing materials, components and system parts? (Q 16)



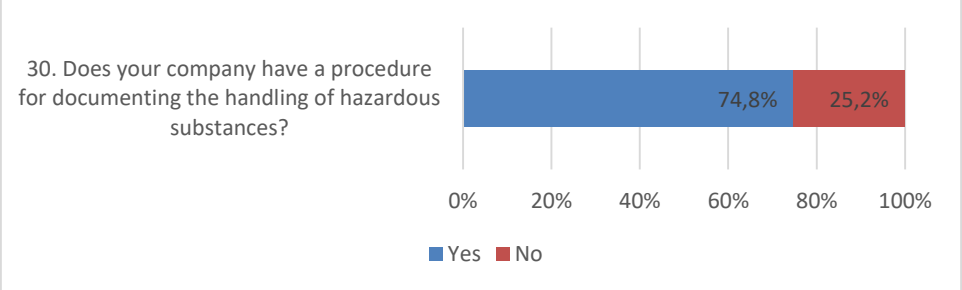
21. Do ecological criteria during manufacture or transport routes play a role in your company when selecting materials or system components? (Q 23)



22. When planning projects, are the materials used also selected regarding durability and wear resistance? (Q 28)

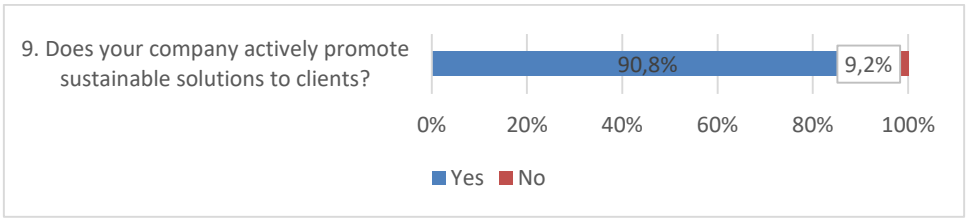


23. Does your company have a procedure for documenting the handling of hazardous substances? (Q 30)



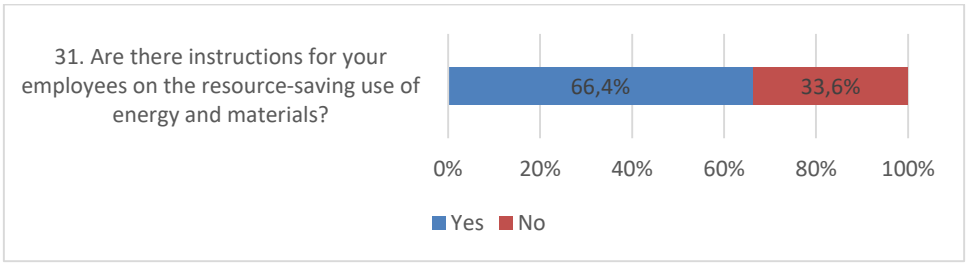
Promotion of sustainability and advice for clients

24. Does your company actively promote sustainable solutions to clients? (Q 9)

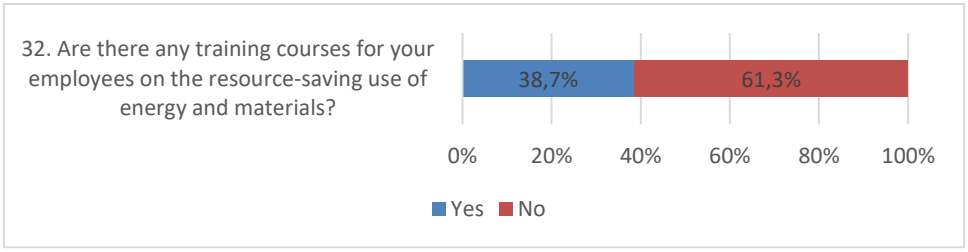


Human resources development / support on sustainability

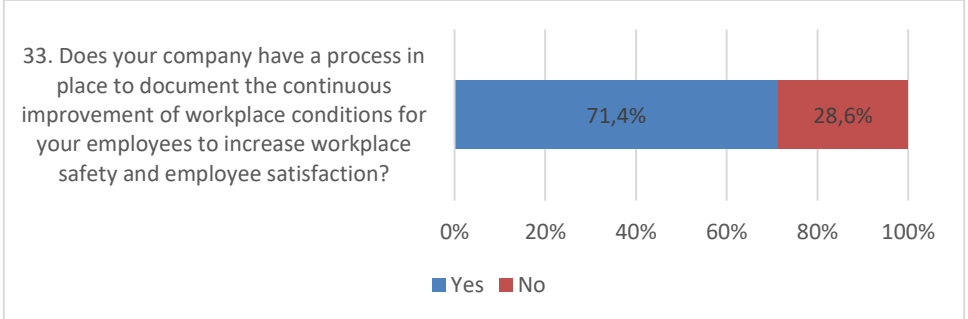
25. Are there instructions for your employees on the resource-saving use of energy and materials? (Q 31)



26. Are there any training courses for your employees on the resource-saving use of energy and materials? (Q 32)



27. Does your company have a process in place to document the continuous improvement of workplace conditions for your employees to increase workplace safety and employee satisfaction? (Q 33)



Dimension 4: Assessment of graduates skills

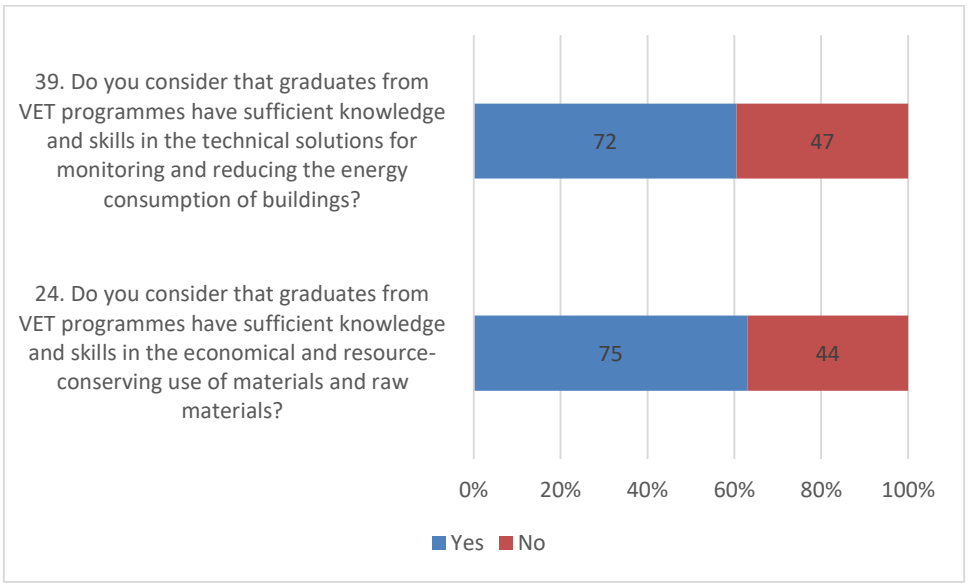
28. Do you consider that graduates from VET programmes have sufficient knowledge and skills? (Q24 and 39)

Around 60% of respondents believe that graduates from VET programmes have sufficient knowledge and skills in the in the economical and resource-conserving use of materials and raw materials (63%) and in the technical solutions for monitoring and reducing the energy consumption of buildings (60,5%). This is not exactly the case for Germany, where 55 % of respondents do not agree with this statement. The responses signal that respondents somewhat better assess graduates' knowledge and skills in the economical and resource-conserving use of materials and raw materials. However, due to the limited number of responses, this trend should be interpreted with caution.

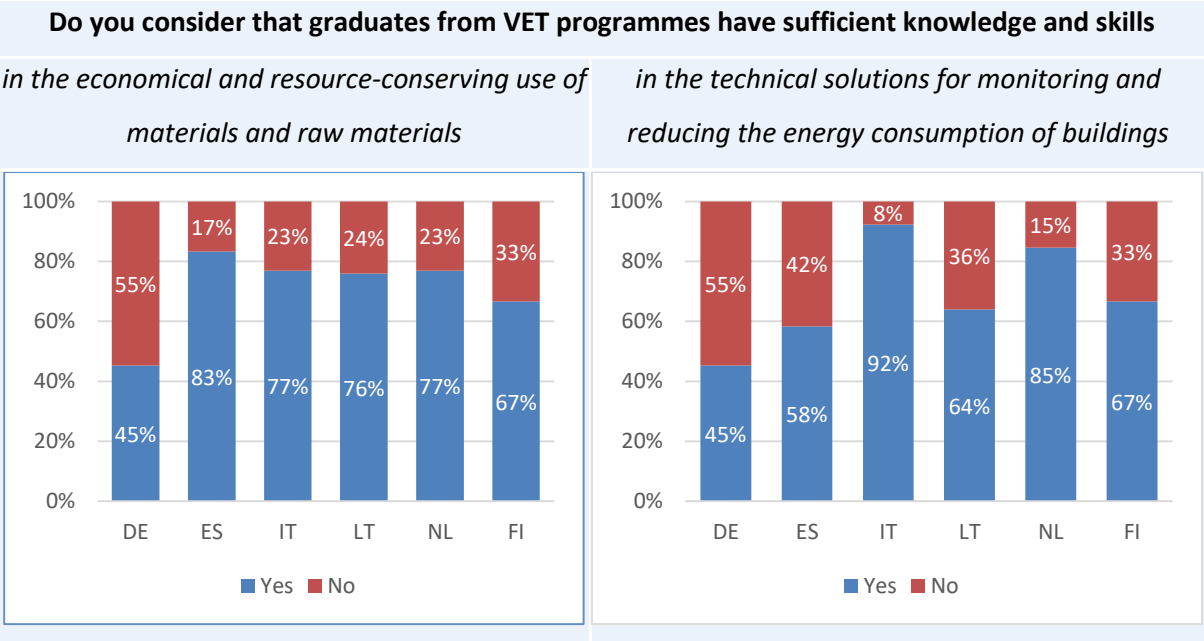
Respondents had opportunity to explain what knowledge and skills in graduates they miss and provided the following comments:

- Lack of a sense of responsibility and interest of the trainees;
- Need for technical understanding, in-depth knowledge and know-how (how much energy can be saved with which improvements, which options can be used to record energy consumption, what conclusions can be drawn from the values determined, where specific savings can be made; no in-depth knowledge of precise details of systems; awareness of sustainability, of the long-term consequences and their effects and how harmful the construction of new buildings is to the environment; knowledge on alternative ways of generating energy; lack of awareness of sustainability, of the long-term consequences and their effects and how harmful the construction of new buildings is to the environment
- Lack of practical experience in the field;
- More cooperation between vocational schools and businesses is needed;
- Lack of cooperation and experience with other trades.

Graph 28.1. Assessment of graduates skills and knowledge, distribution of respondents



Graph 28.2. Assessment of graduates skills and knowledge, distribution of respondents by countries



Graph 28.2. Assessment of graduates skills and knowledge, distribution of respondents by countries

Country	24. Do you consider that graduates from VET programmes have sufficient knowledge and skills in the economical and resource-conserving use of materials and raw materials?		39. Do you consider that graduates from VET programmes have sufficient knowledge and skills in the technical solutions for monitoring and reducing the energy consumption of buildings?	
	Yes	No	Yes	No
Finland	2	1	2	1
Germany	24	29	24	29
Italy	10	3	12	1
Lithuania	19	6	16	9
Netherlands	10	3	11	2
Spain	10	2	7	5
Total	75	44	72	47