

**Project *Green Transition in Vocational Education and Training***  
***Sustainability survey – Summary and analysis of responses by country***

**WP 3**

**Participants of the survey**

The online survey was answered by 119 participants: 53 from Germany, 12 from Spain, 13 from Italy, 13 from the Netherlands, 25 from Lithuania and 3 from Finland. The trends emerging for Finland should be treated cautiously, given the small number of respondents.

Country	1-9 employees	10-49 employees	50-249 employees	more than 250 employees	Total
Finland	2	1			3
Germany	19	14	7	13	53
Italy	11		2		13
Lithuania	12	8	4	1	25
Netherlands	2	3		8	13
Spain		5	5	2	12
<b>Total</b>	<b>46</b>	<b>31</b>	<b>18</b>	<b>24</b>	<b>119</b>

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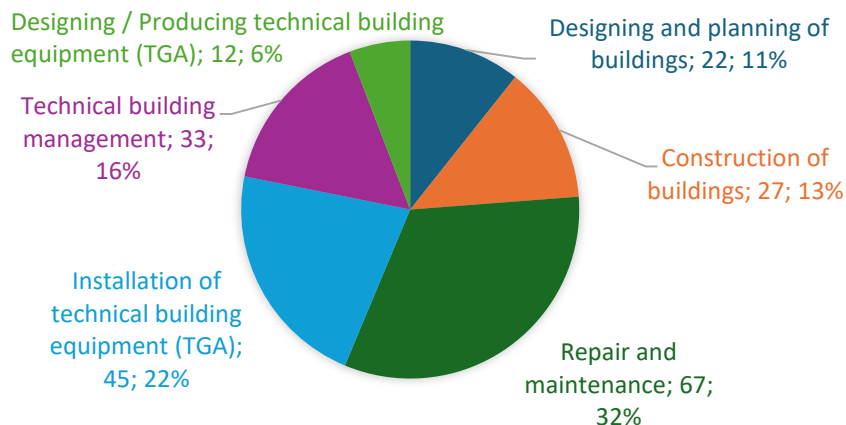
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### Summary of responses by country

#### Part 1 – General Questions

##### 1. Which areas is your company active in?

The majority of respondents are active in Repair and maintenance (32%), Installation of technical building equipment (TGA) (22%) and Technical building management (16%) areas. However, there are certain country differences: The major part of Italian respondents are active in Designing and planning of buildings (46%), and Lithuanian respondents – in Construction of buildings (56%).

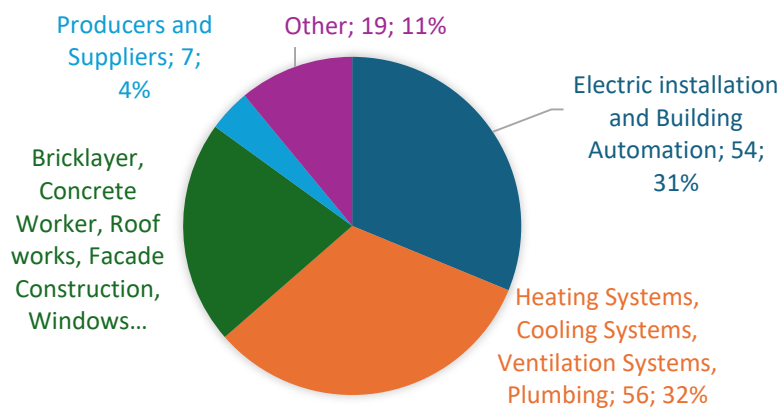


## Distribution of respondents by country and area of activity

Area of activity	Total		DE		ES		IT		NL		LT		FI	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Designing and planning of buildings	22	11%	6	11%	3	25%	6	46%	4	31%	3	12%	0	0%
Construction of buildings	27	13%	7	13%	1	8%	2	15%	2	15%	14	56%	1	33%
Repair and maintenance	67	32%	40	75%	7	58%	4	31%	10	77%	6	24%	0	0%
Installation of technical building equipment (TGA)	45	22%	32	60%	0	0%	3	23%	6	46%	2	8%	2	67%
Technical building management	33	16%	17	32%	2	17%	1	8%	6	46%	7	28%	0	0%
Designing / Producing technical building equipment (TGA)	12	6%	4	8%	3	25%	1	8%	1	8%	3	12%	0	0%

## 2. Which specific area is your company focused on?

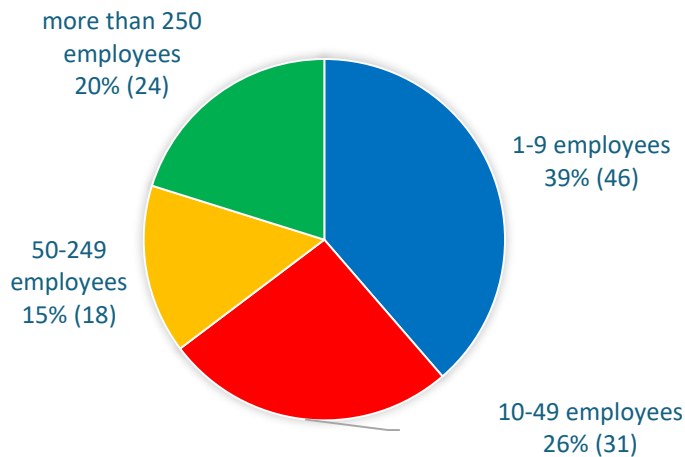
The majority of respondents focus on Electric installation and Building Automation (31%) and Heating Systems, Cooling Systems, Ventilation Systems, Plumbing (32%) specific areas. However, there are certain country differences: 31% of Italian respondents and 68% of Lithuanian respondents focus on Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors areas.



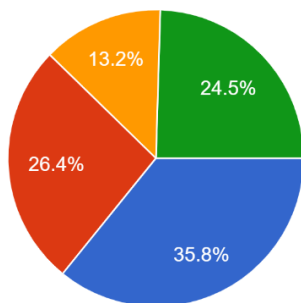
### Distribution of respondents by country and area of activity

Specific area	Total		DE		ES		IT		NL		LT		FI	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Electric installation and Building Automation	54	31%	32	60%	1	8%	4	31%	13	100%	2	8%	2	67%
Heating Systems, Cooling Systems, Ventilation Systems, Plumbing	56	32%	25	47%	11	92%	3	23%	6	46%	8	32%	3	100%
Bricklayer, Concrete Worker, Roof works, Facade Construction, Windows and Doors	37	22%	15	28%	1	8%	4	31%	0	0%	17	68%	0	0%
Producers and Suppliers	7	4%	5	9%	0	0%	0	0%	1	8%	1	4%	0	0%
Other	19	11%	10	19%	1	8%	3	23%	2	15%	3	12%	0	0%

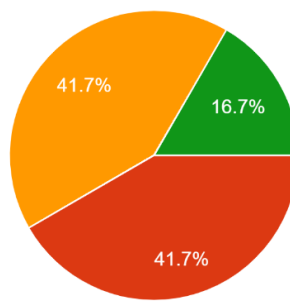
### 3. How many employees does your company employ (N=119)?



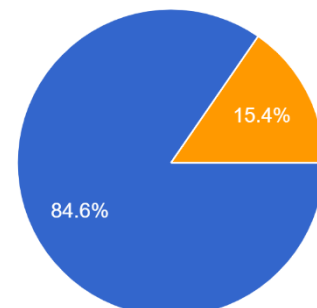
### Distribution of responses by country



Germany (N=53)



Spain (N=12)

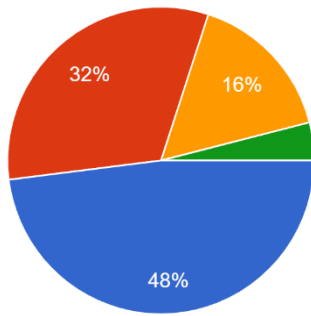


Italy (N=13)

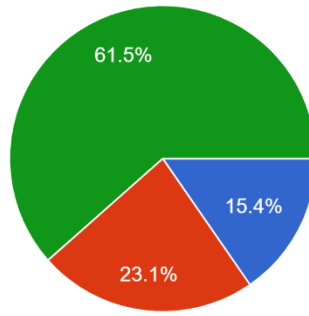
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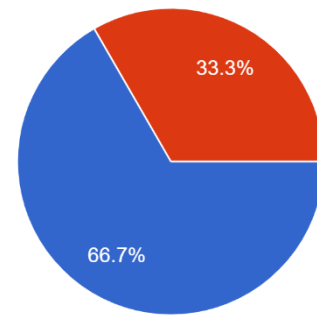




Lithuania (N=25)



Netherlands (N=13)



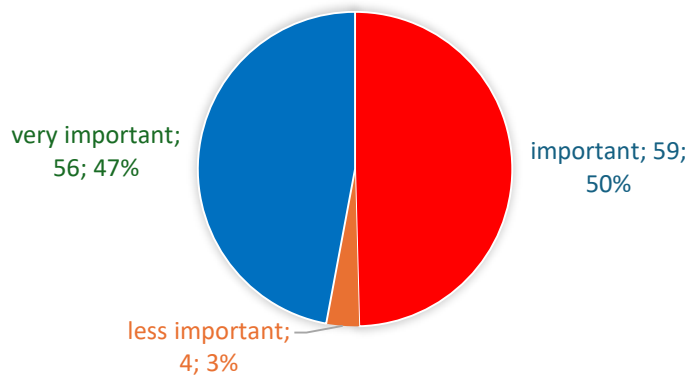
Finland (N=3)

- 1-9 employees
- 10-49 employees
- 50-249 employees
- more than 250 employees

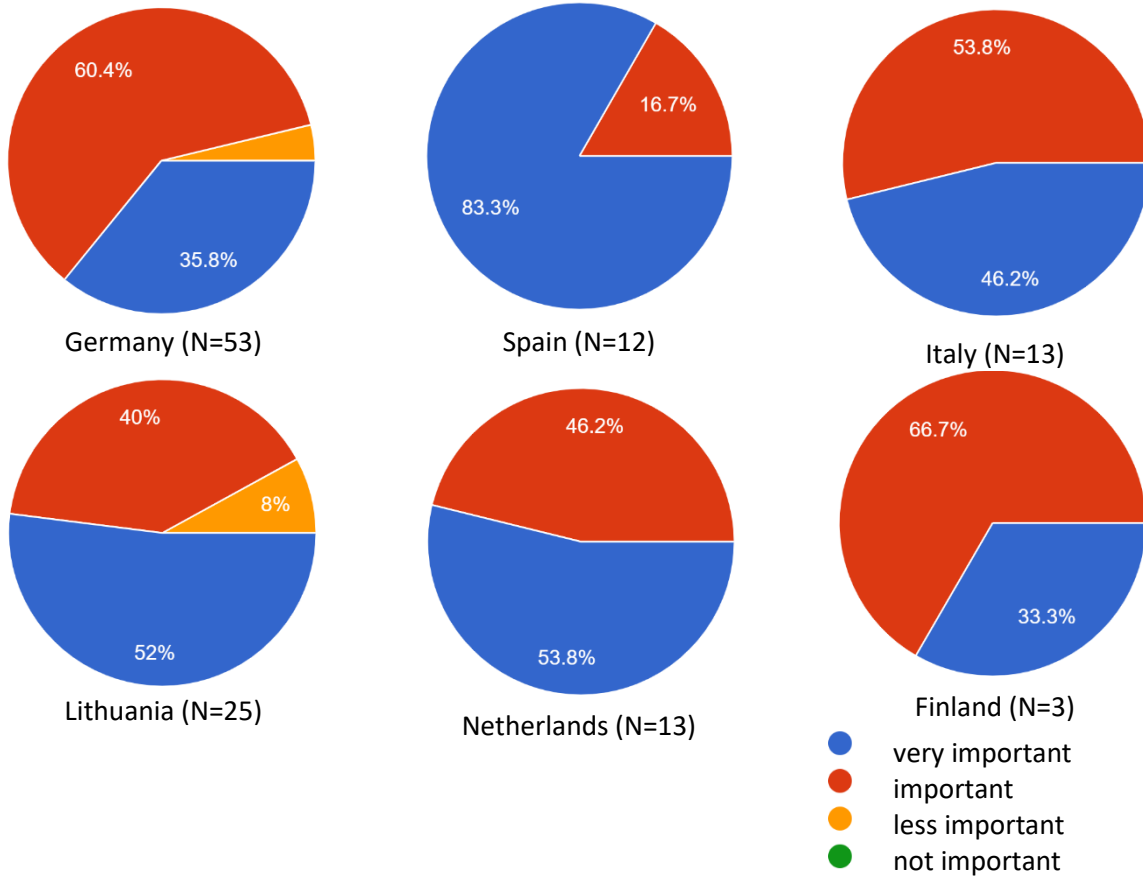
## Part 2 – General questions against the background of sustainability

5. How important is the sustainability in your mind?

97% of respondents regard sustainability to be very important or important. Respondents from Germany, Italy and Finland seem to be more reserved in choosing the answer “very important”.

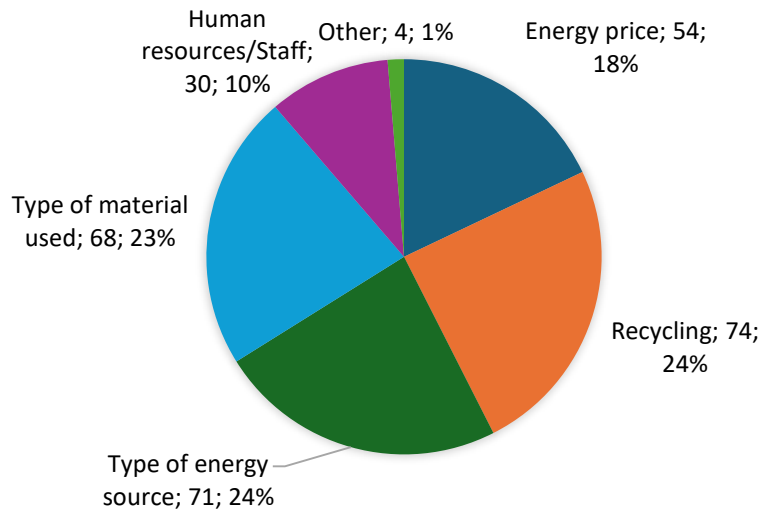


### Distribution of responses by country

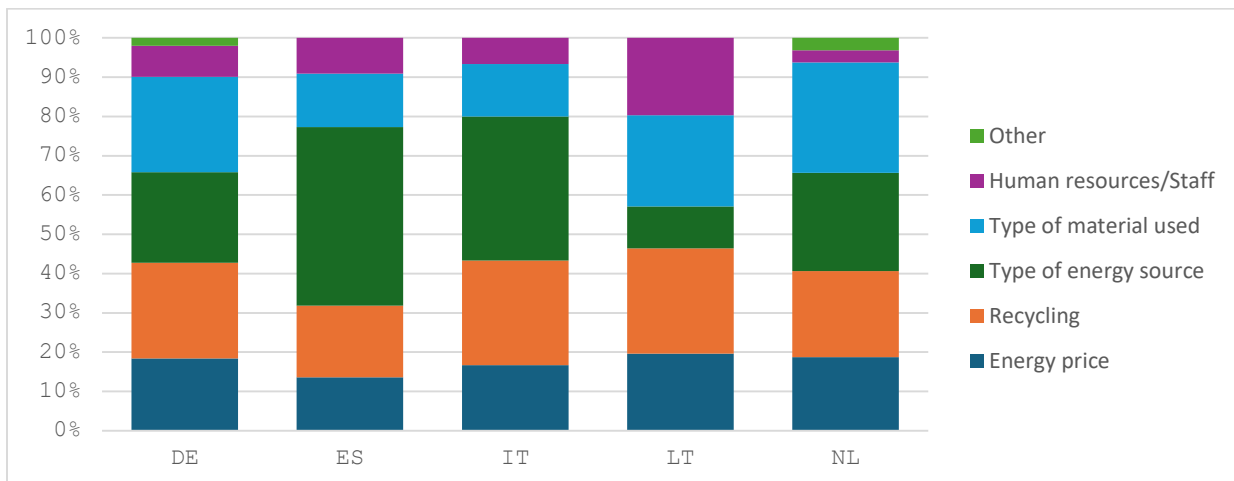


6. When you think about sustainability, which aspect comes first to your mind? (multiple answers possible)

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.



### Distribution of responses by country

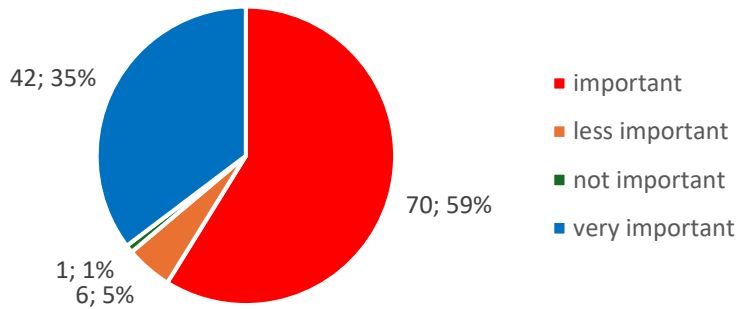


	Total	DE	ES	IT	LT	NL	FI
Energy price	45%	53%	25%	38%	44%	46%	33%
Recycling	62%	70%	33%	62%	60%	54%	100%
Type of energy source	60%	66%	83%	85%	24%	62%	33%
Type of material used	57%	70%	25%	31%	52%	69%	67%
Human resources/Staff	25%	23%	17%	15%	44%	8%	67%
Other	3%	6%	0%	0%	0%	8%	0%

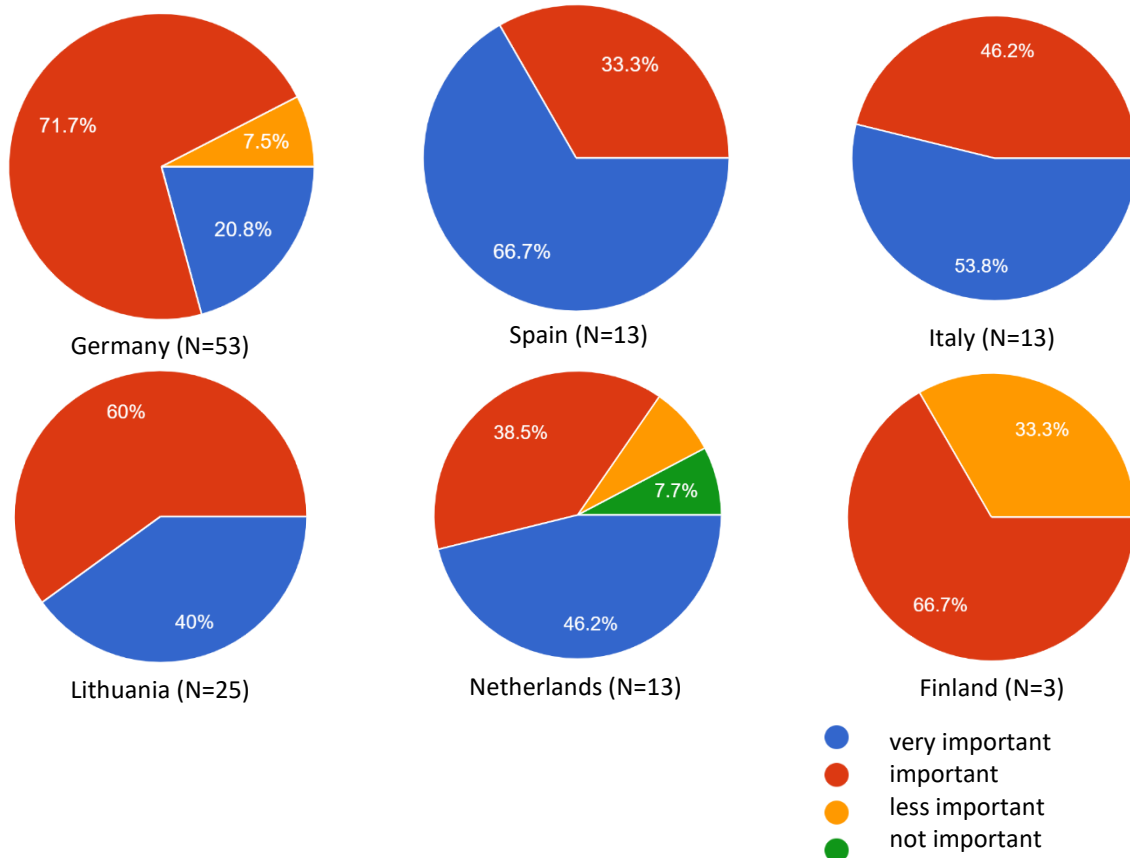


7. How important do you think sustainability certification is for new buildings?

94% of respondents believe that sustainability certification for new buildings is very important and important. Respondents from Germany, Lithuania and the Netherlands are somewhat less convinced that it is very important.

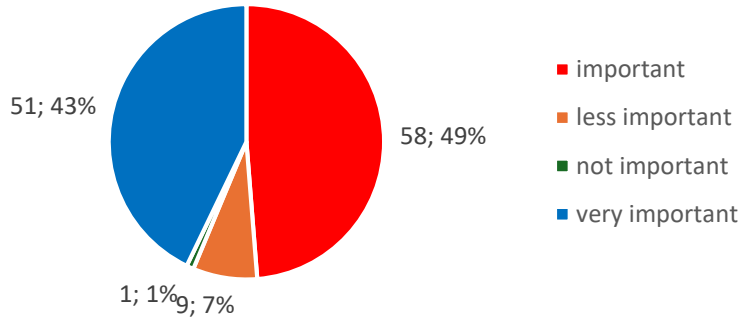


Distribution of responses by country

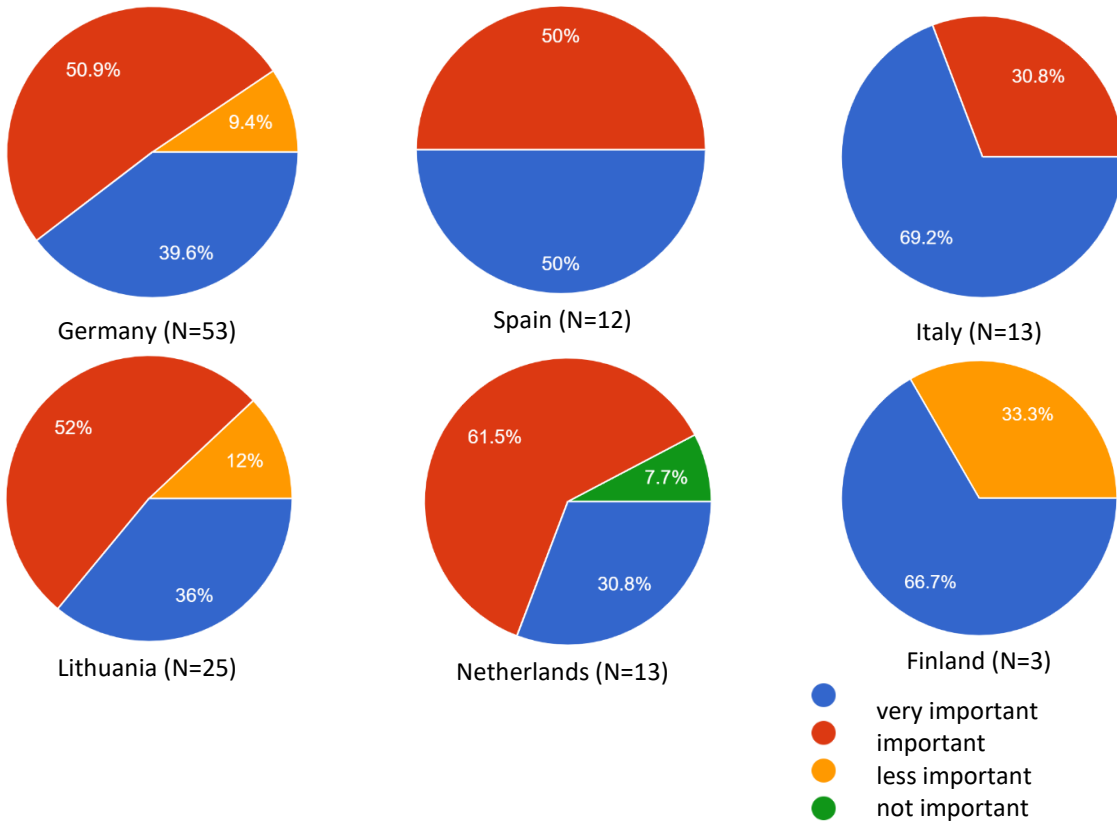


8. How important is it to foster interdisciplinary collaboration to address sustainability challenges in the field of Building Service Engineering?

92% of respondents believe that it is very important and important to foster interdisciplinary collaboration to address sustainability challenges in the field of Building Service Engineering. Respondents from Lithuania and the Netherlands and Germany, are somewhat less convinced that it is “very important”.

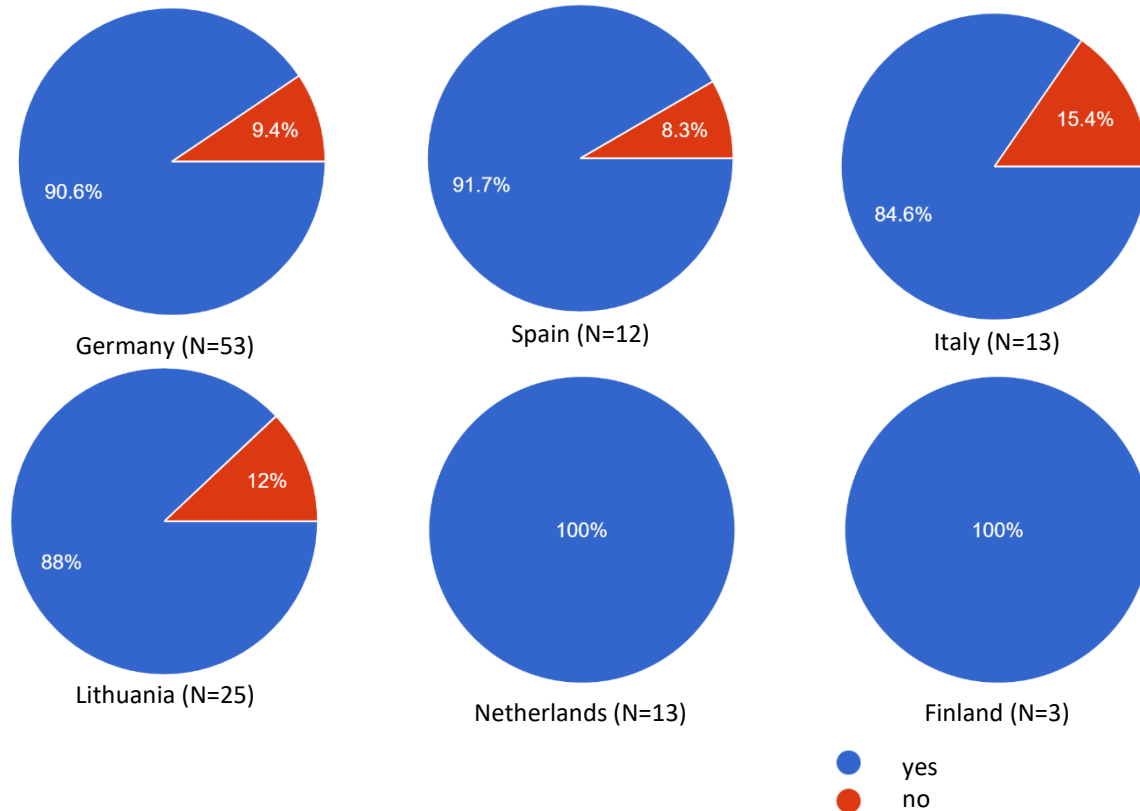


Distribution of responses by country



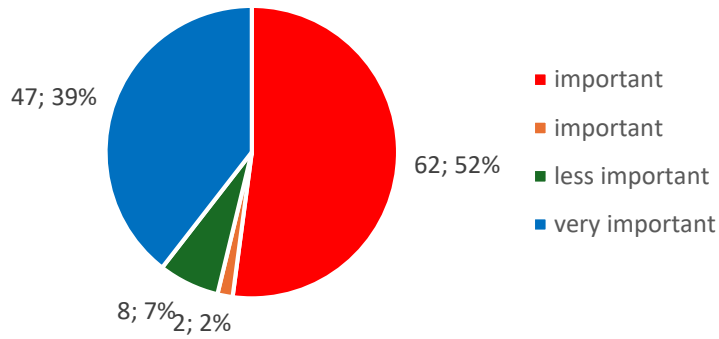
9. Does your company actively promote sustainable solutions to clients?

91% of respondents (108 from 119) claim to actively promote sustainable solutions to clients, with all respondents from the Netherlands and Finland claiming to do so.

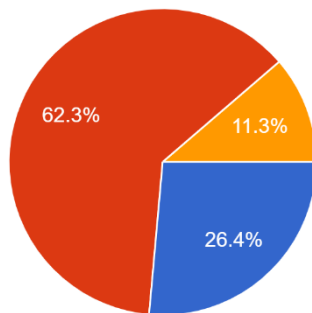


10. How important is it to promote the usage of heating systems which do not use fossil fuels in new buildings?

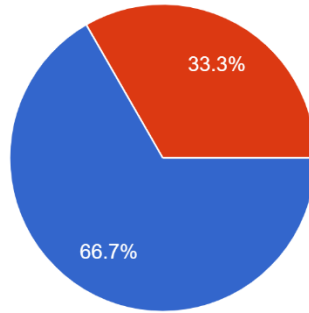
91% of respondents (109 from 119) agree that it is very important and important to promote the usage of heating systems which do not use fossil fuels in new buildings. In particular respondents in Spain and in the Netherlands stress the importance.



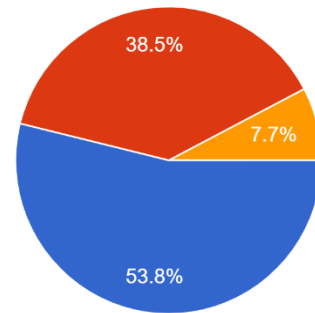
Distribution of responses by country



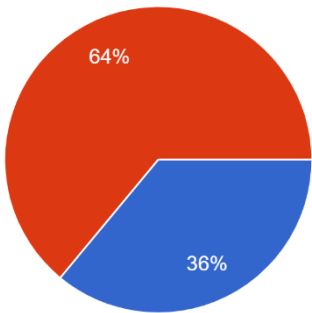
Germany (N=53)



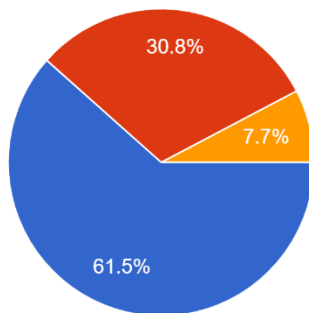
Spain (N=12)



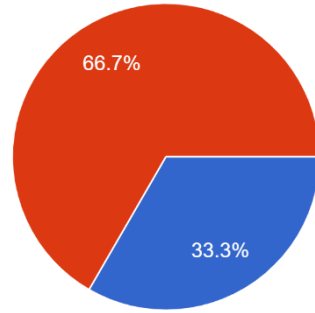
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

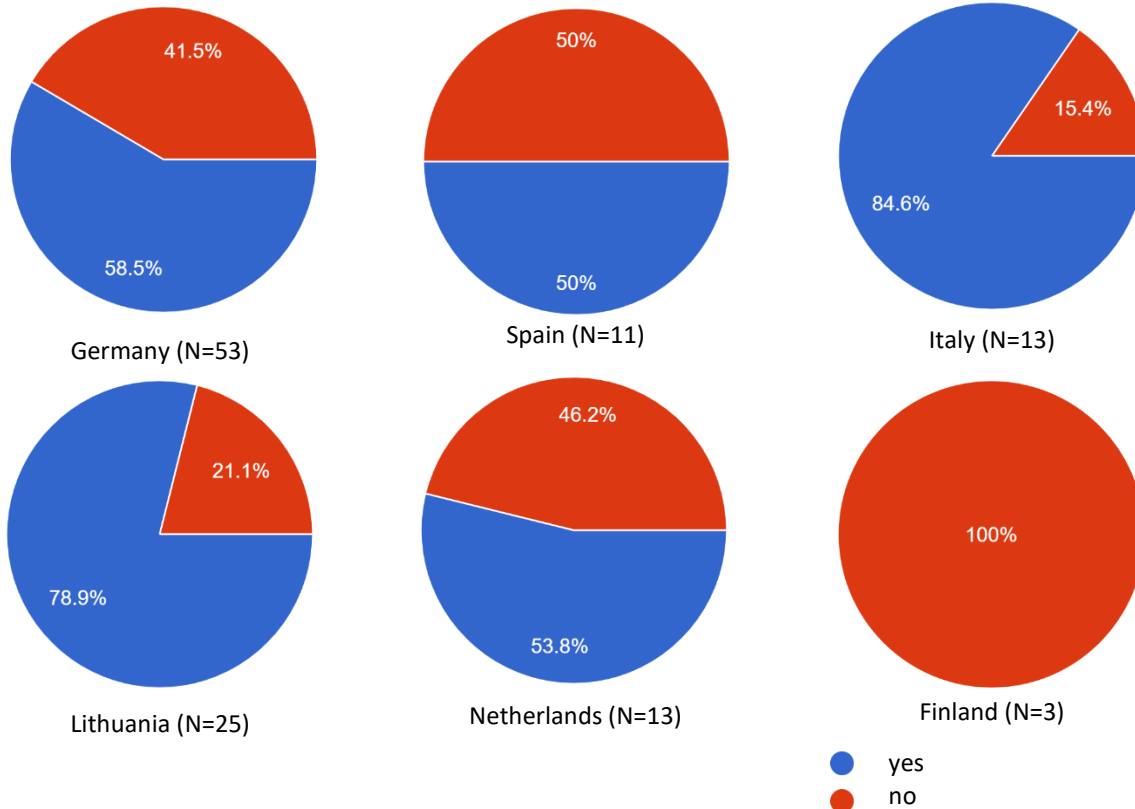


Finland (N=3)

- very important
- important
- less important
- not important

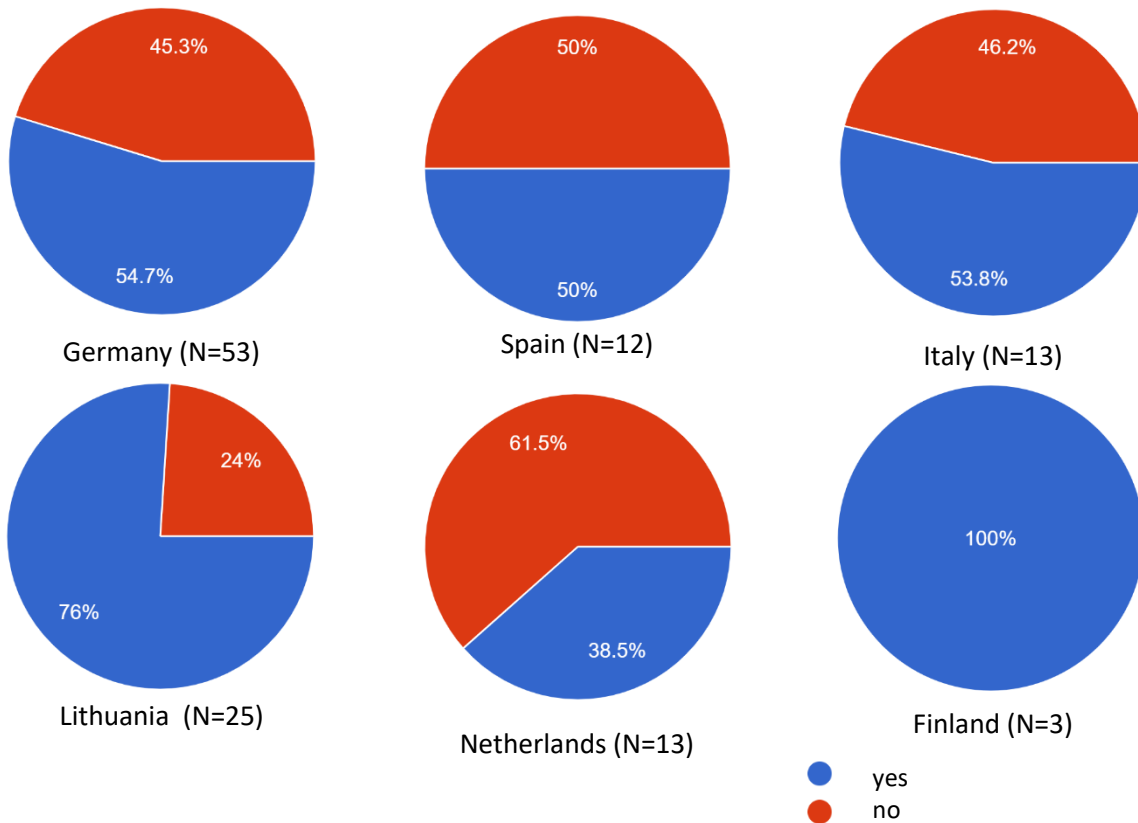
11. Does the type of energy generation play a role for you when choosing your supplier of electrical energy (e.g. high or exclusive share of electricity from renewable energy sources)?

Respondents have mixed opinion about the importance of energy generation type when choosing suppliers of electrical energy. Although a majority (62%) consider this factor to be important, it is only in Italy and Lithuania where respondents who prioritize it are in clear majority, with 85% and 79% respectively.



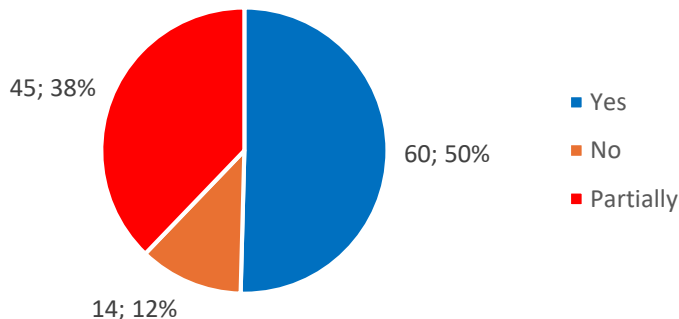
12. Does your company have procedures in place to minimize journeys to customers or suppliers and thus save fuel and energy?

Slightly more respondents (58%, 69 out of 119), claim to have procedures in place to minimize journeys to customers or suppliers and thus save fuel and energy. 62% of Dutch respondents don't agree that they have such procedures in place.

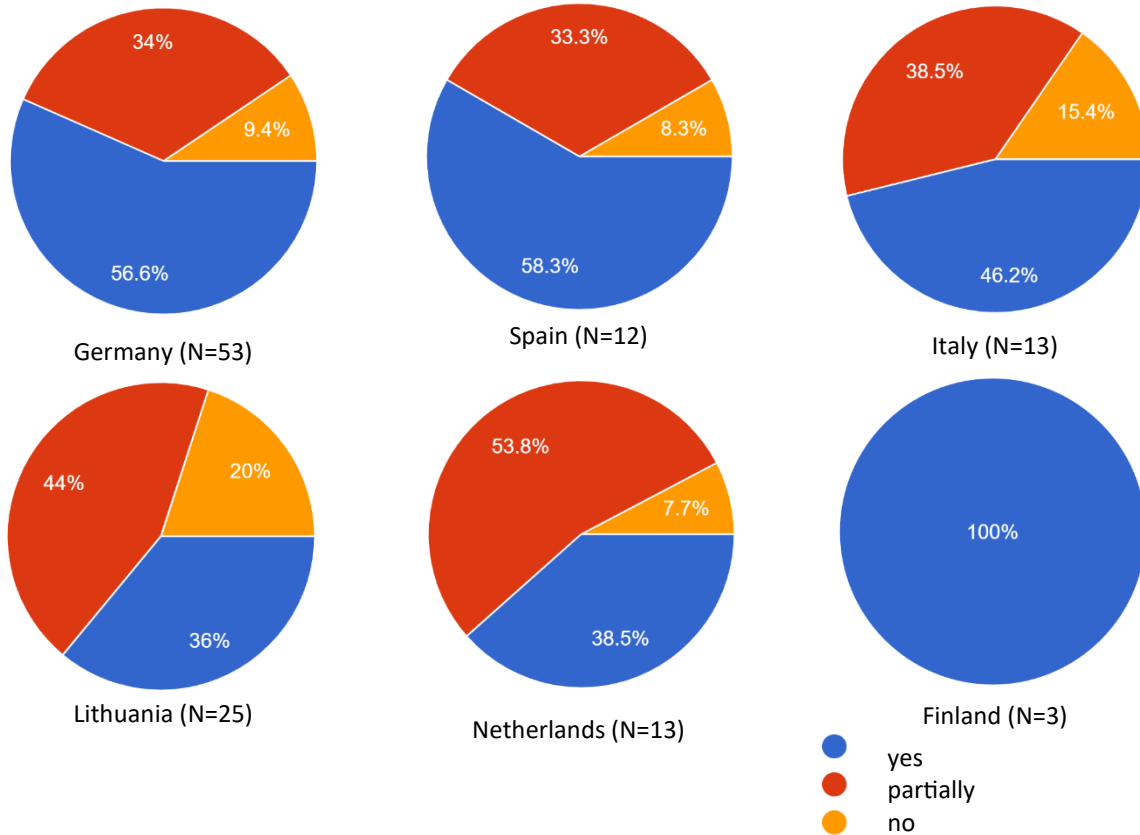


13. Are materials such as metals, plastic or paper fed into the recycling process in your company?

In overall, half of respondents recycle or partially recycle metals, plastic or paper. From the survey it seems that only respondents from Spain and Finland may confirm that metals, plastic or paper are fed into the recycling process in company. In other countries, recycling is only partial, meaning that it is not always the case, or that only a part of materials is recycled.

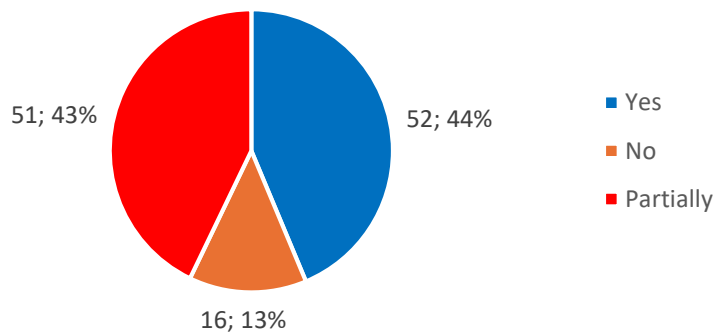


Distribution of responses by country

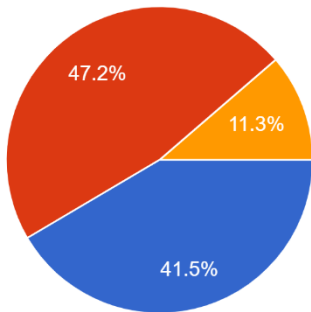


14. Are appliances and system components such as electronic devices or heaters fed into the recycling process in your projects?

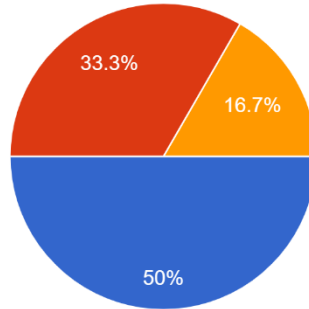
Recycling of appliances and system components such as electronic devices or heaters seems to be less developed than recycling of metals, plastic or paper. This is particular evident in Italian respondents responses.



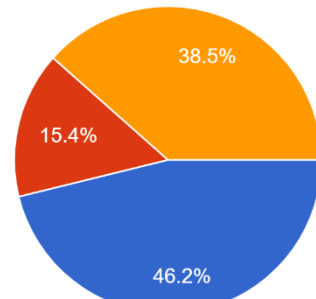
Distribution of responses by country



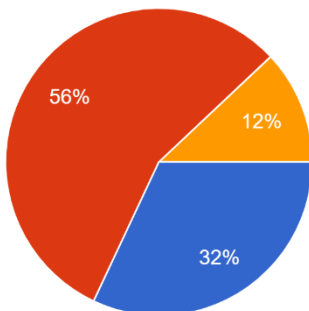
Germany (N=53)



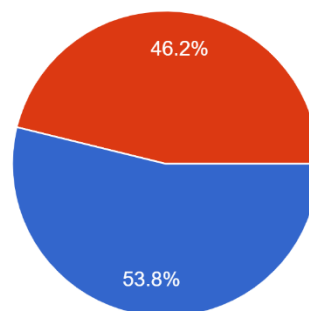
Spain (N=12)



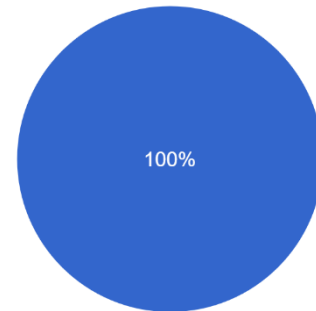
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

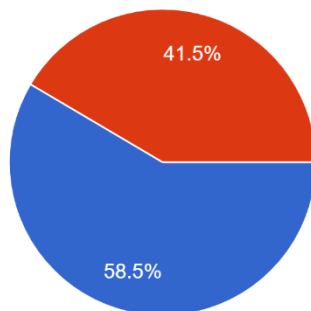


Finland (N=3)

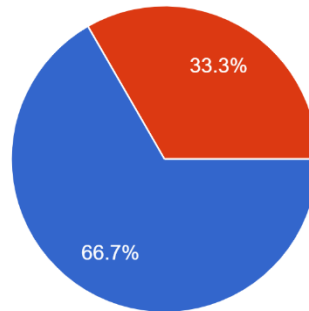


15. Does the possibility of later recycling play a role in the procurement of materials, parts and system components in your projects?

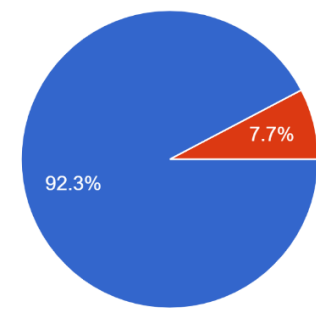
For 69% (82) of respondents the possibility of later recycling play a role in the procurement of materials, parts and system components in your projects, less so in Germany.



Germany (N=53)

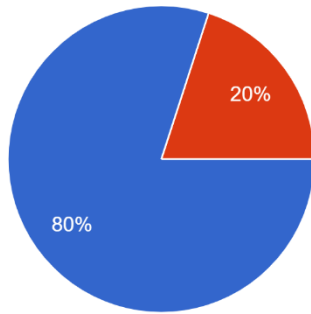


Spain (N=12)

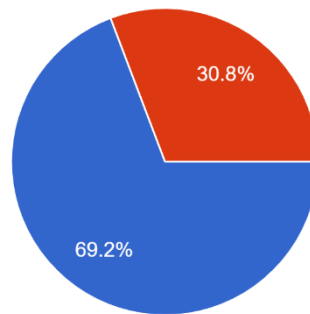


Italy (N=13)

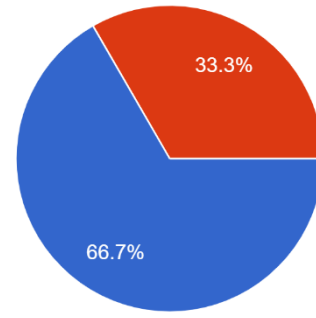




Lithuania (N=25)



Netherlands (N=13)

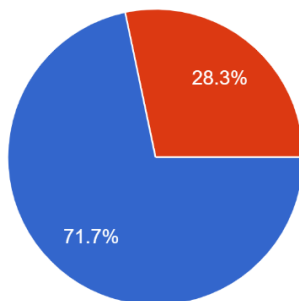


Finland (N=3)

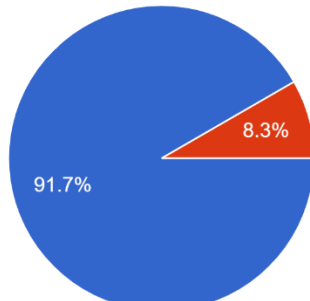


16. Do sustainability criteria play a role for your company when purchasing materials, components and system parts?

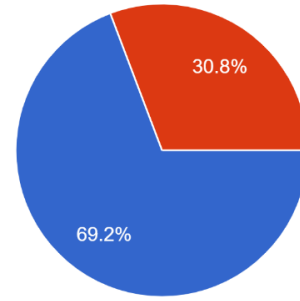
Sustainability criteria play a role for significant share of companies when purchasing materials, components and system parts (78%, 93). This factor is more important for resources acquisition decisions compared to the possibility of later recycling of materials, parts and system components.



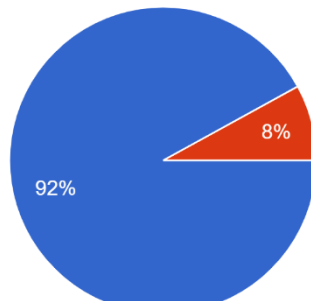
Germany (N=53)



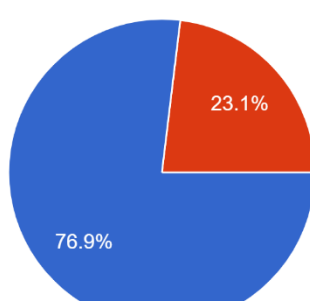
Spain (N=12)



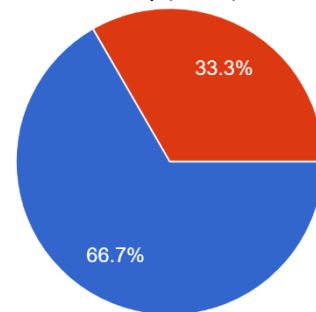
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

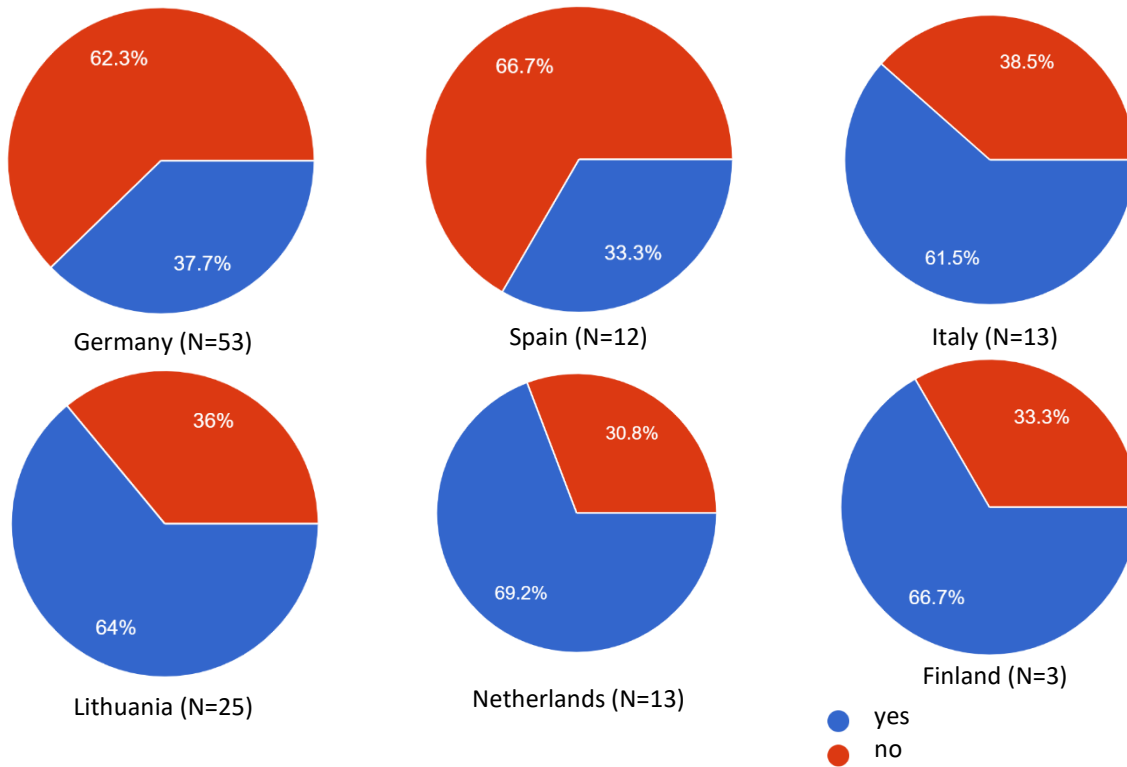


Finland (N=3)



17. Does this also apply if this results in higher purchasing costs?

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%) disagree. It can be speculated that the price is more important factor for German and Spanish respondents.

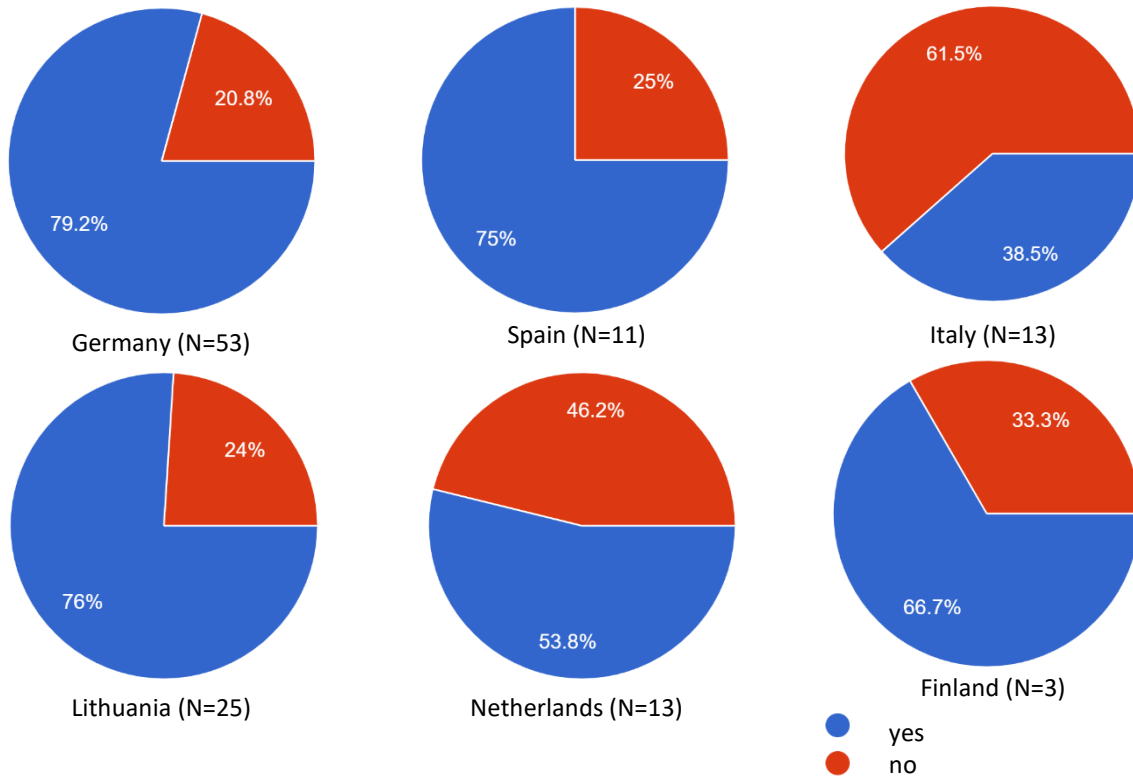


### Part 3 – Questions against the background of core working processes in Building Service Engineering

#### Part A: Questions against the background of assembly, disassembly, maintenance and commissioning of building systems and their components

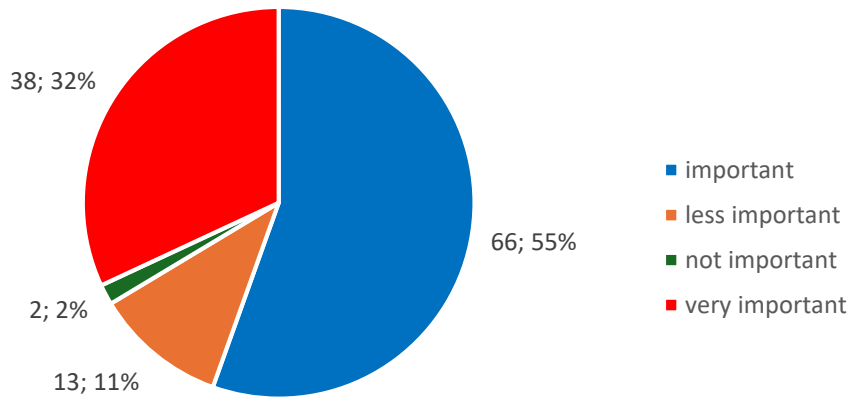
18 Does your company have instructions for the economical and resource-conserving use of materials and raw materials?

71% of respondents claim that their companies have instructions for the economical and resource-conserving use of materials and raw materials. This was indicated by more than 75% respondents from Germany, Spain and Lithuania, whereas in Netherlands this share is 54% and in Italy – 38.5%.

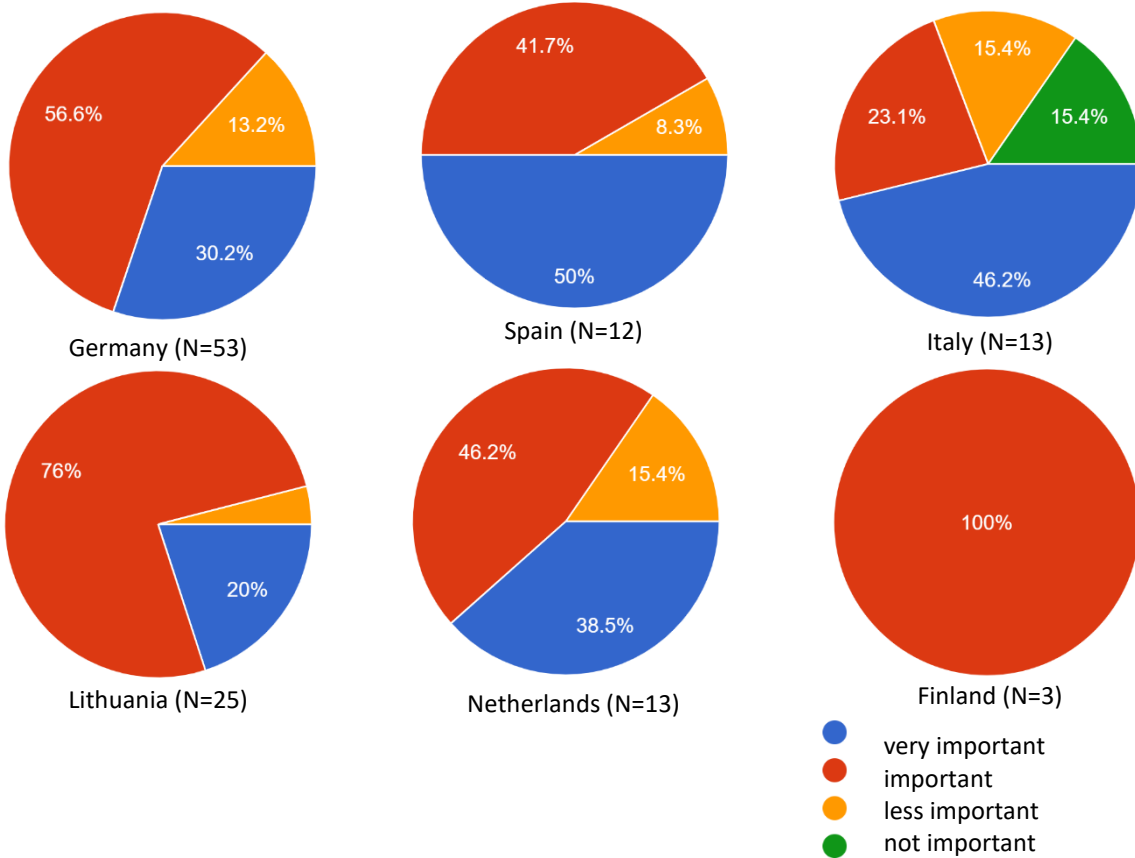


19. How important is the use of environmentally and health-friendly resources in your company?

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

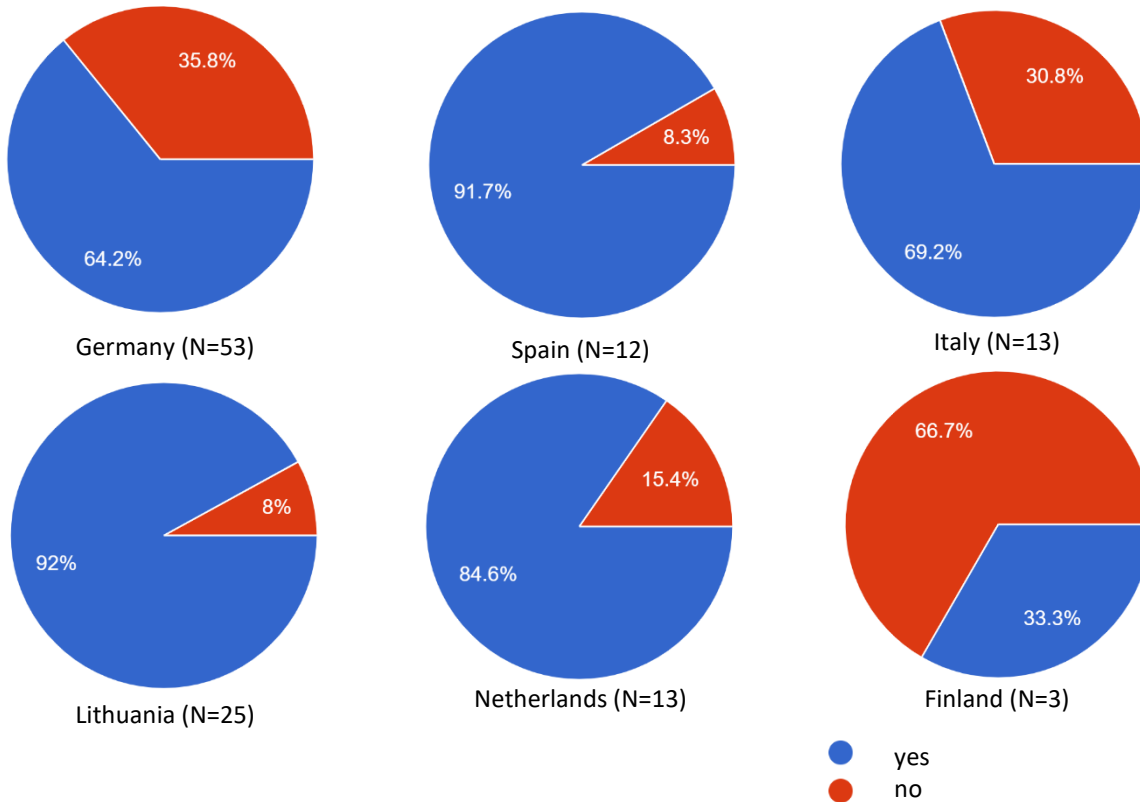


Distribution of responses by country



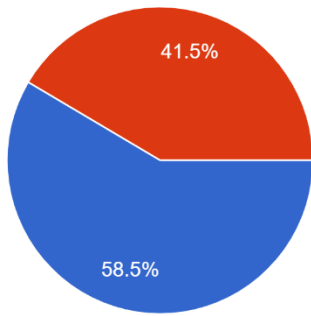
20. Is there a law in your country about using materials and raw materials in an eco-friendly way?

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 and Lithuania (92%), the Netherlands (85%).

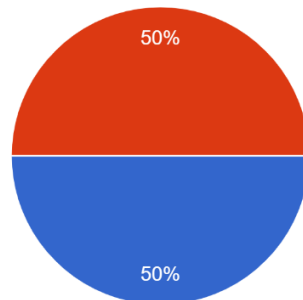


21. Apart from legal requirements (question 20) does your company have a policy for the sustainable use of materials and resources? (e.g. guidelines for saving energy, producing less waste etc.)?

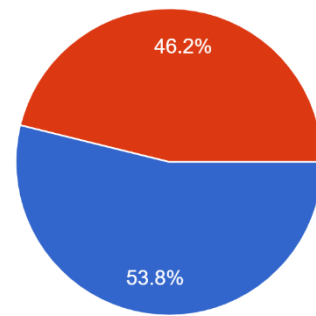
61% of respondents report that their company has a policy for the sustainable use of materials and resources apart from legal requirements. On the country level, responses do not clearly confirm this fact with responses from respondents from Germany Spain, Italy and Netherlands splitting almost equally. In Lithuanian case the share of respondents reporting so is 72%.



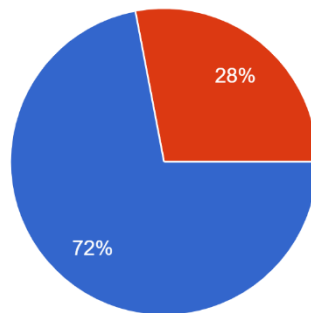
Germany (N=53)



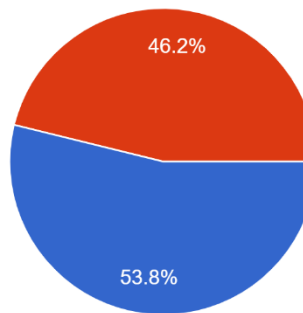
Spain (N=12)



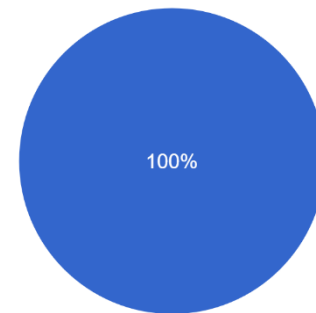
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

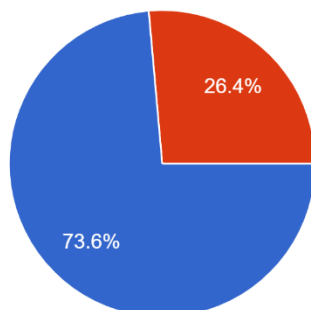


Finland (N=3)

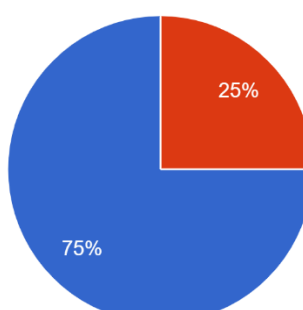


22. Does the commissioning of building systems or their components also include advice to the customer on how to operate the systems or their components in an energy-efficient and resource-saving manner?

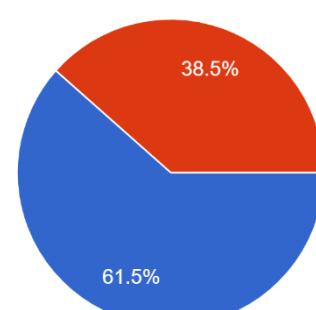
For majority of respondents (76%), the commissioning of building systems or their components also include advice to the customer on how to operate the systems or their components in an energy-efficient and resource-saving manner. This is less so for Italian respondents (38.5% claimed that this is not the case).



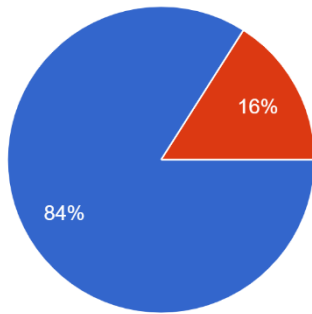
Germany (N=53)



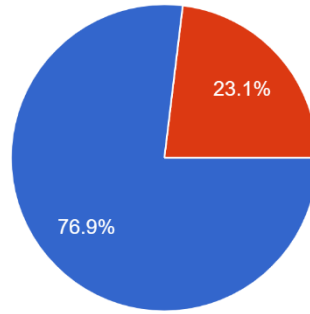
Spain (N=12)



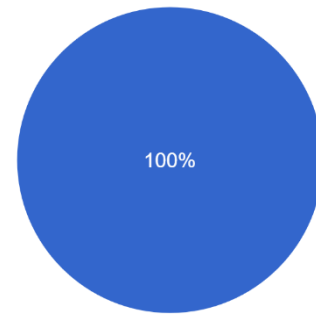
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

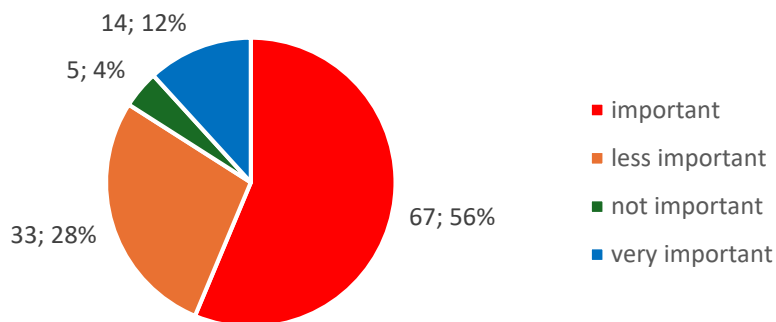


Finland (N=3)

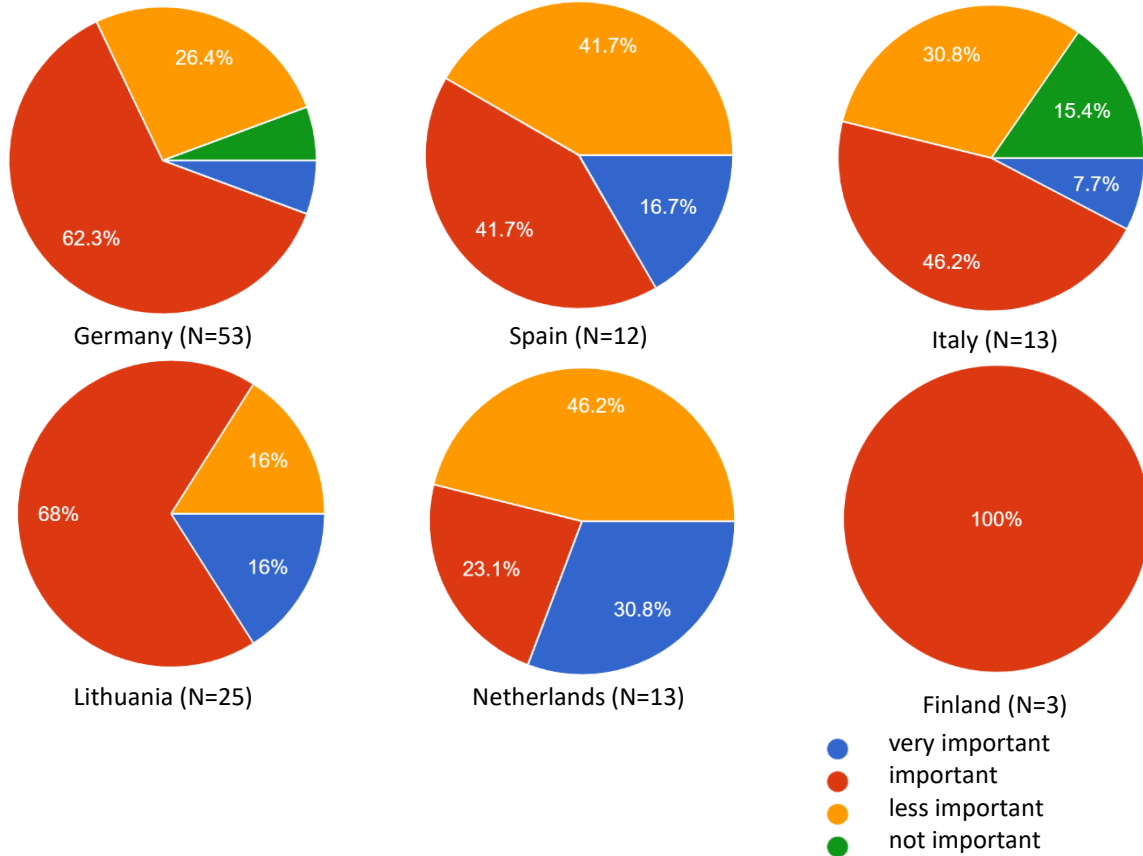


23. Do ecological criteria during manufacture or transport routes play a role in your company when selecting materials or system components?

The responses of the survey demonstrate mixed views and experiences in using ecological criteria during manufacture or transport routes in companies when selecting materials or system components. 56% claim that they are important and 28% - that they are less important. The share of respondents in Spain and the Netherlands is correspondingly 42 and 46%.



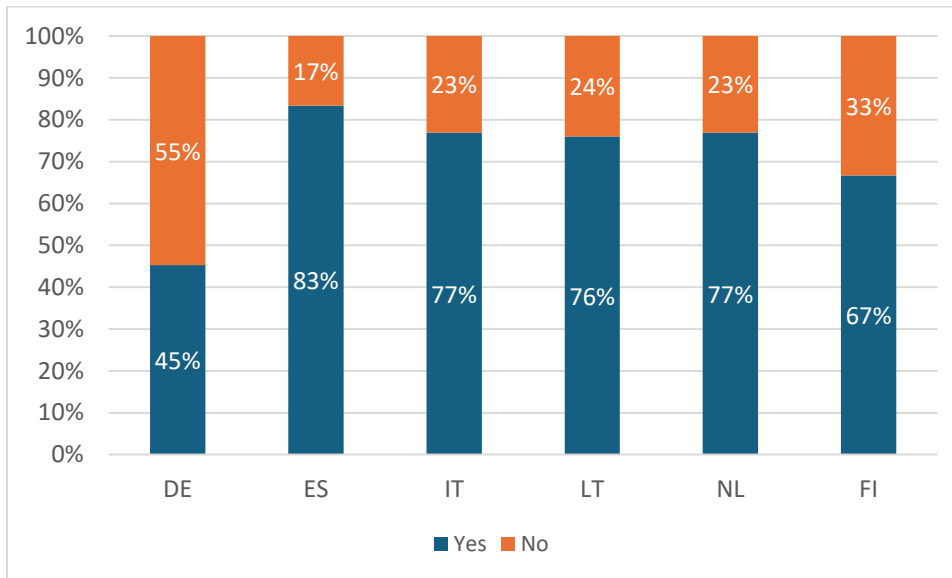
Distribution of responses by country



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?

The majority of respondents believe that graduates from VET programmes have sufficient knowledge and skills in the economical and resource-conserving use of materials and raw materials. This is not the case for Germany, where 55 % of respondents do not agree with this statement.





25. If not, from your experience, what do they lack the most?

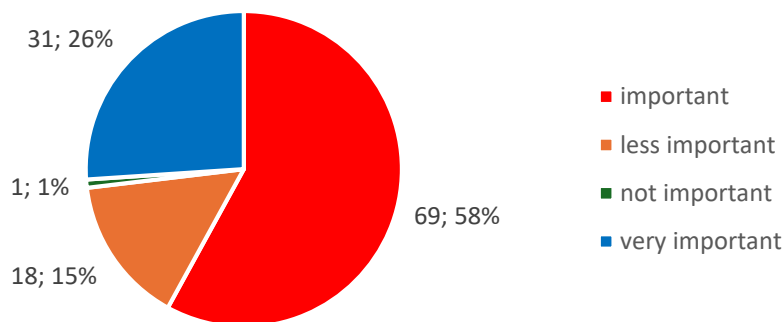
From the responses the following broad themes about gaps of VET graduates skills and knowledge emerge:

- Lack of a sense of responsibility and interest of the trainees;
- 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 more detailed knowledge (e.g., knowledge on alternative ways of generating energy);
- Lack of practical experience in the field.

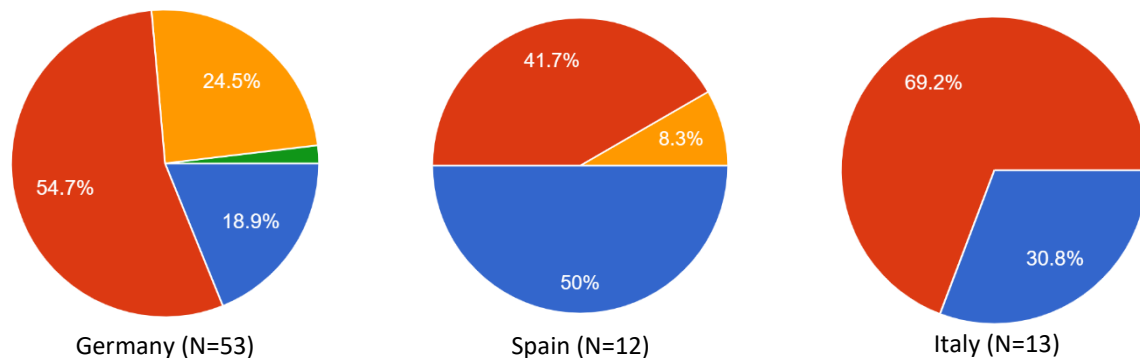
## Part B: Questions against the background of monitoring (and conception) of building systems and their components through building automation

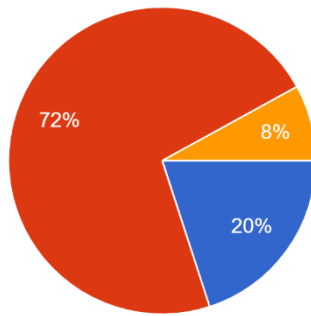
26. Do you think it is important to reduce energy consumption in building systems and its automatization even if this increases total cost?

Majority of respondents (84%) believe that it is very important or important to reduce energy consumption in building systems and its automatization even if this increases total cost. The highest percentage of respondents who think it is less important comes from Germany (24.5%).

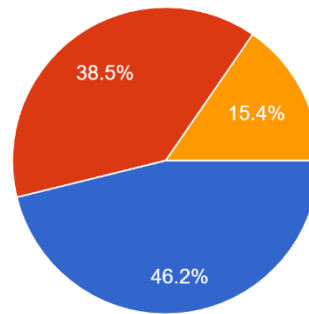


### Distribution of responses by country

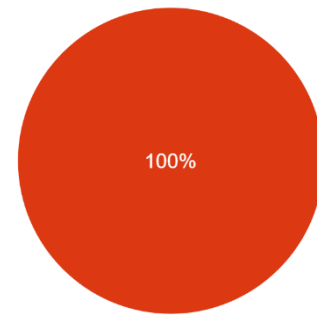




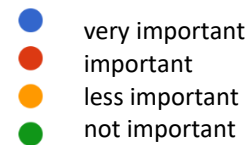
Lithuania (N=25)



Netherlands (N=13)

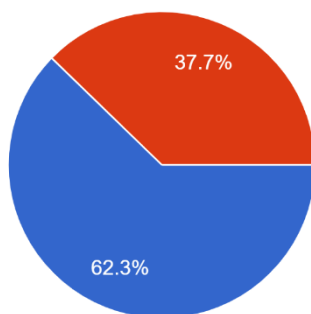


Finland (N=3)

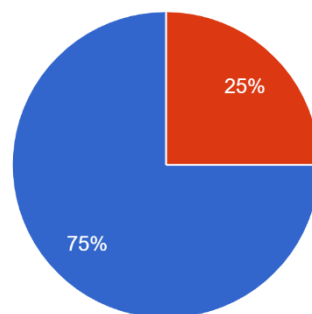


27. Do you use the data provided by building automation systems to monitor and reduce the energy consumption of buildings?

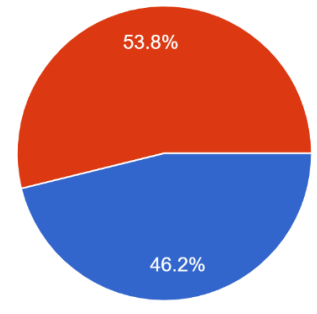
61% of respondents claim that they use the data provided by building automation systems to monitor and reduce the energy consumption of buildings. The survey revealed existing differences among countries. More than half of the respondents in Germany, Spain, Lithuania, and Finland report using data from building automation systems to monitor and reduce energy consumption (62.3%, 75%, 64%, and 100%, respectively). In contrast, this practice is less common in Italy and the Netherlands, where 46.2% of respondents in both countries utilize such data.



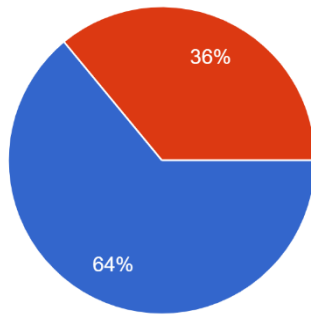
Germany (N=53)



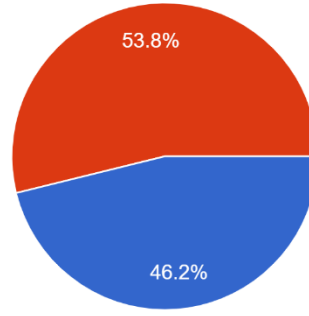
Spain (N=12)



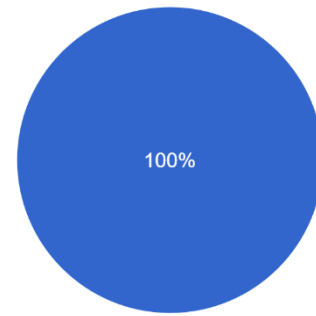
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

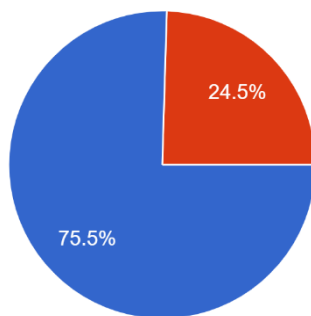


Finland (N=3)

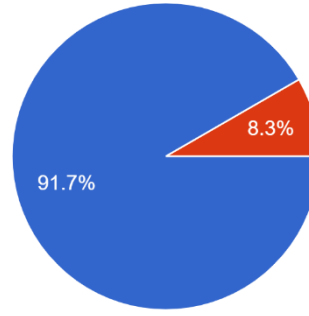


28. When planning projects, are the materials used also selected regarding durability and wear resistance?

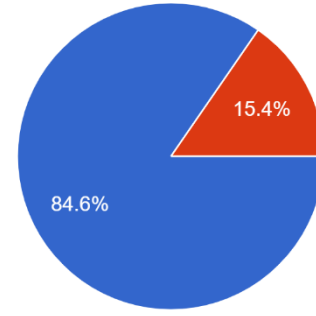
Majority of respondents (82% in total, from 75.5% in Germany to 92% in Spain and Lithuania) select materials when planning projects considering their durability and wear resistance when planning projects.



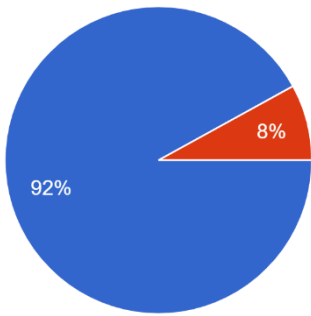
Germany (N=53)



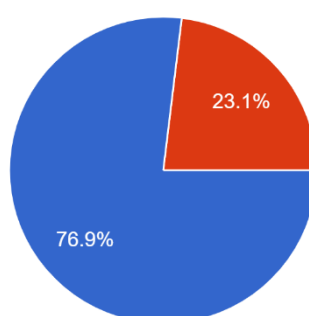
Spain (N=12)



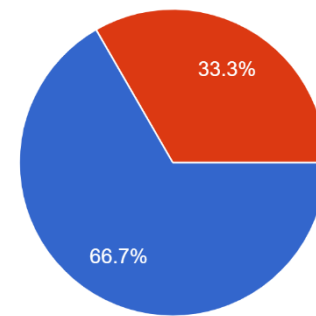
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)



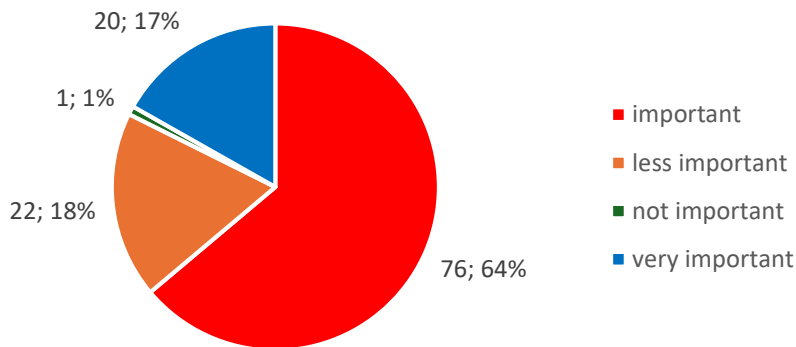
Finland (N=3)



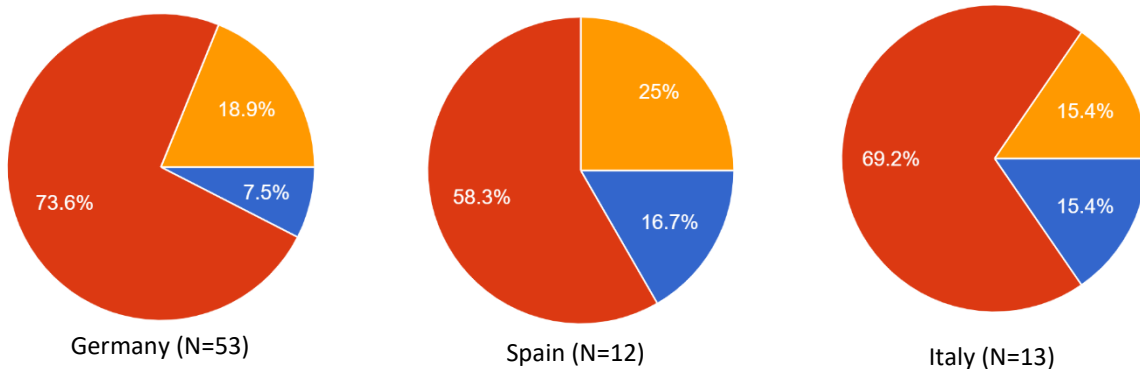
**Part C: Questions against the background of legal requirements, cost control and monitoring for the life cycle of a building system**

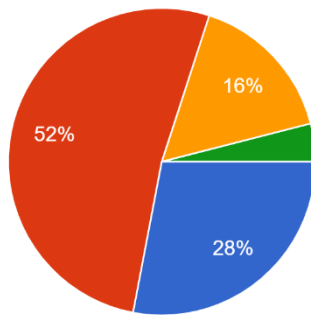
29. How important is it for you to apply internal standards which go beyond the legal regulations regarding sustainable aspects?

81% of respondents believe that applying internal standards which go beyond the legal regulations regarding sustainable aspects is important or very important. Still, a part of respondents believe that applying internal standards which go beyond the legal regulations regarding sustainable aspects is less important or unimportant (19% of respondents in total, 19% of respondents in Germany, 25% in Spain, 15% in Italy, 23% in the Netherlands, 20% in Lithuania).

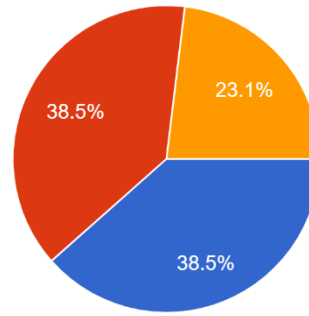


**Distribution of responses by country**

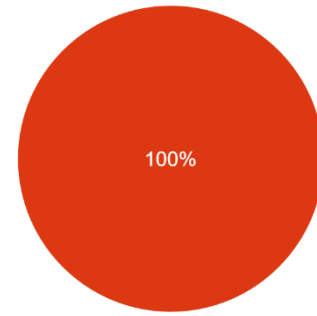




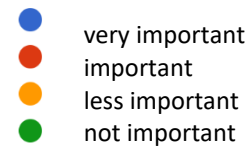
Lithuania (N=25)



Netherlands (N=13)

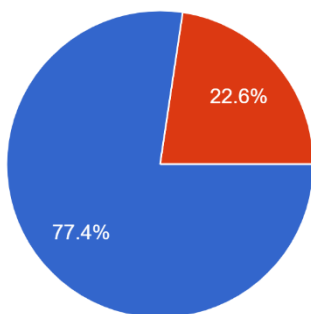


Finland (N=3)

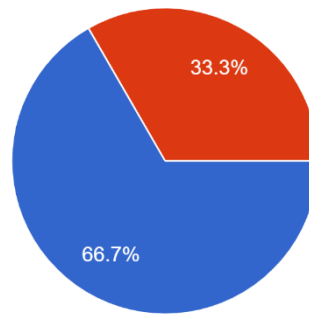


30. Does your company have a procedure for documenting the handling of hazardous substances?

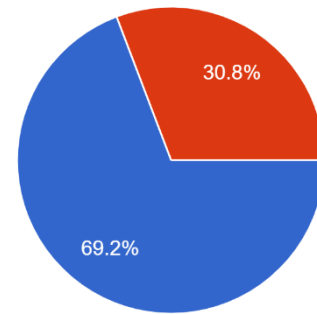
75% of respondents claim that their companies have a procedure for documenting the handling of hazardous substances, around one third of the respondents in Spain, Italy, Lithuania and 23% of the respondents in Germany claim that their companies don't have such a procedure.



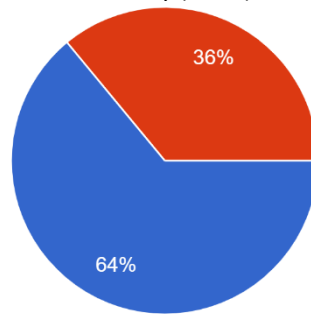
Germany (N=53)



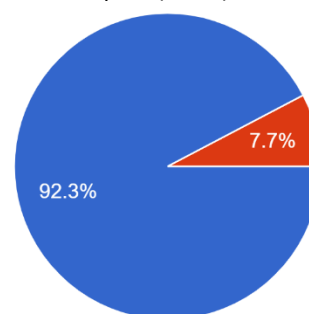
Spain (N=12)



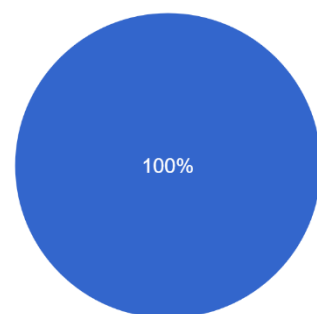
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

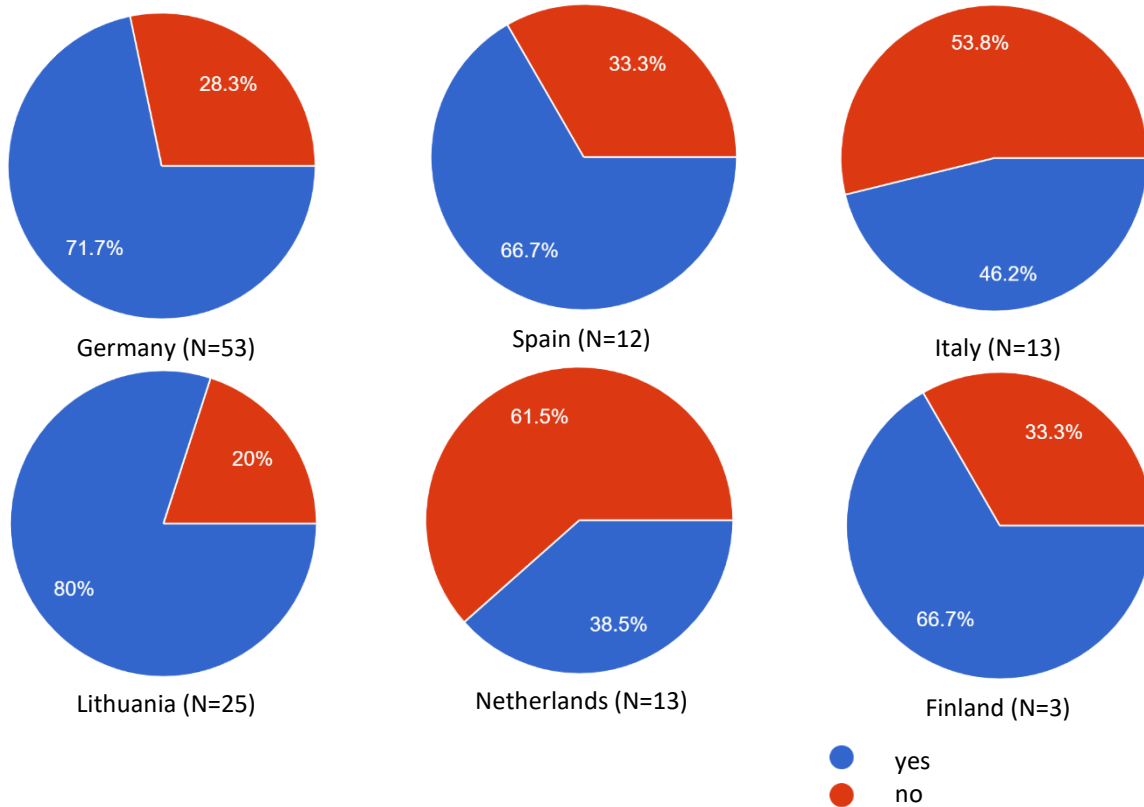


Finland (N=3)



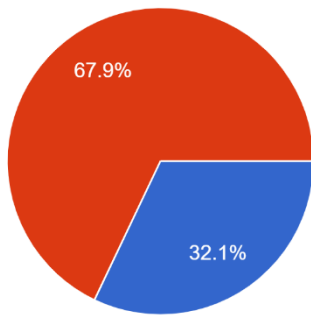
31. Are there instructions for your employees on the resource-saving use of energy and materials?

Instructions for employees on the resource-saving use of energy and materials appears to be a regular practice for 66% of respondents' companies. A larger proportion of respondents from Germany, Spain, Italy, Lithuania, and Finland confirm the presence of these guidelines. However, Dutch and Italian respondents are less confident about the prevalence of this practice, with only 38.5% of Dutch and 46% of Italian respondents reporting that such instructions are available at their workplaces.

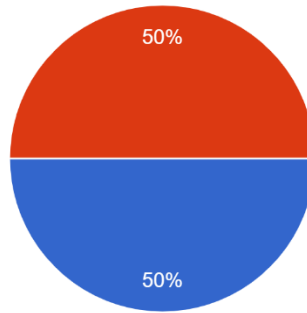


32. Are there any training courses for your employees on the resource-saving use of energy and materials?

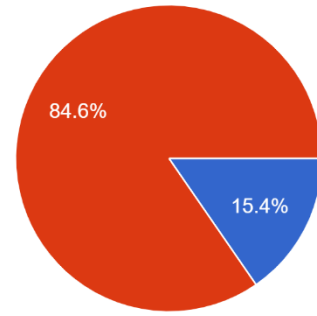
61% of respondents report that their companies do not offer any training courses for employees on the resource-saving use of energy and materials. The exception is Lithuanian respondents with 56% confirming the presence of these courses.



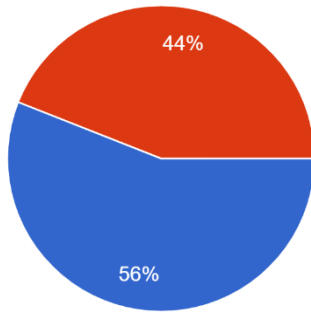
Germany (N=53)



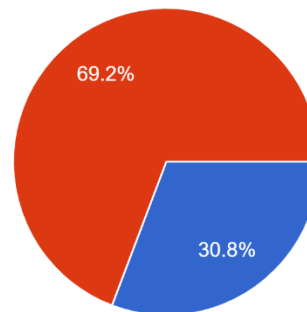
Spain (N=12)



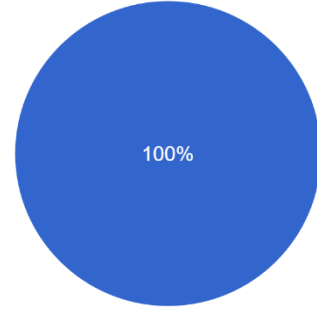
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

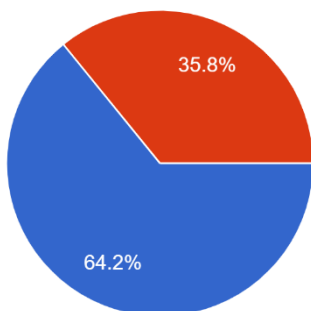


Finland (N=3)

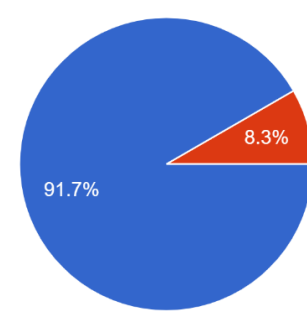
● yes  
● no

33. 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?

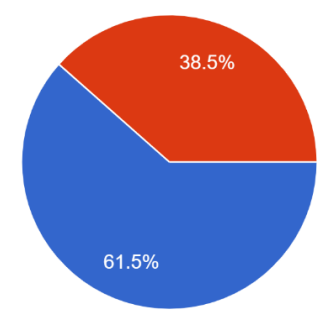
71% of respondents report that their companies have a process in place to document the continuous improvement of workplace conditions for your employees to increase workplace safety and employee satisfaction. In Germany, 35.8% of respondents, and in Italy, 38.5% report that such processes are not in place.



Germany (N=53)

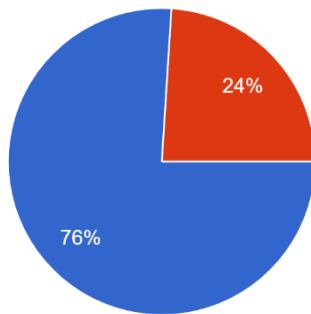


Spain (N=12)

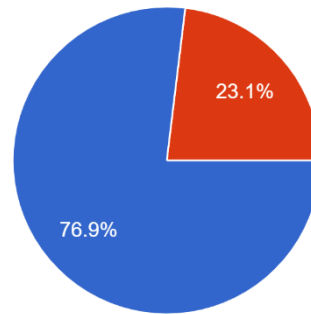


Italy (N=13)

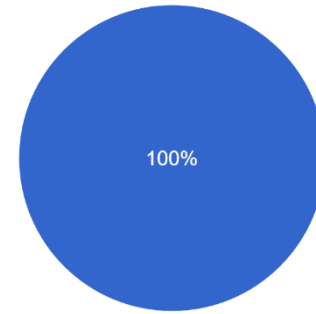




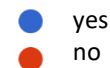
Lithuania (N=25)



Netherlands (N=13)

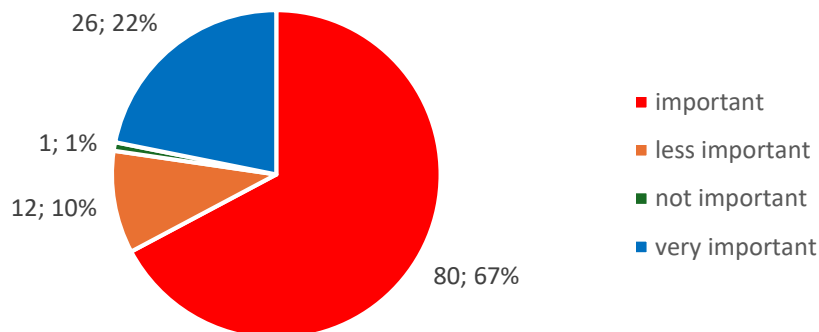


Finland (N=3)

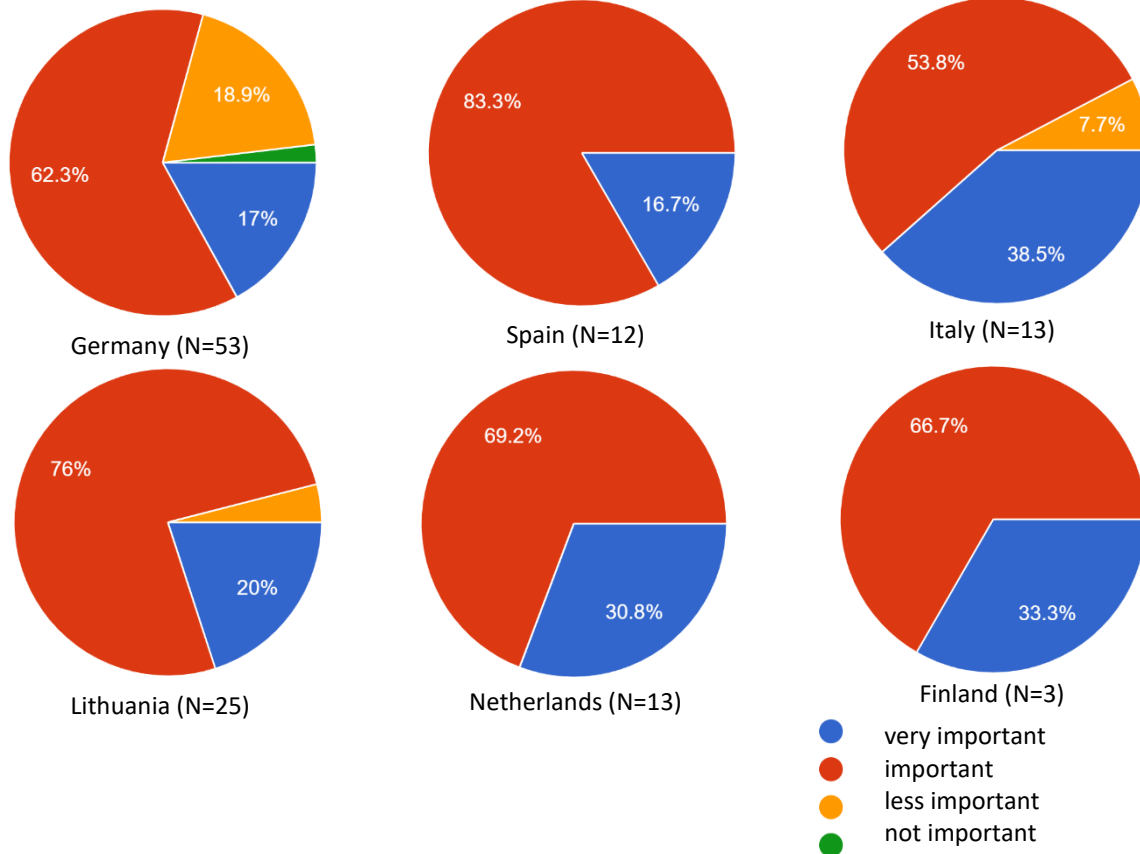


34. How important is sustainability during the process of estimating costs and optimizing building systems?

81% of respondents agree that sustainability during the process of estimating costs and optimizing building systems is important or very important. This is claimed by absolute majority of respondents in Spain, Italy, Lithuania, Netherlands and Finland. In Germany, around 20% of respondents claim that it is less important or not important.

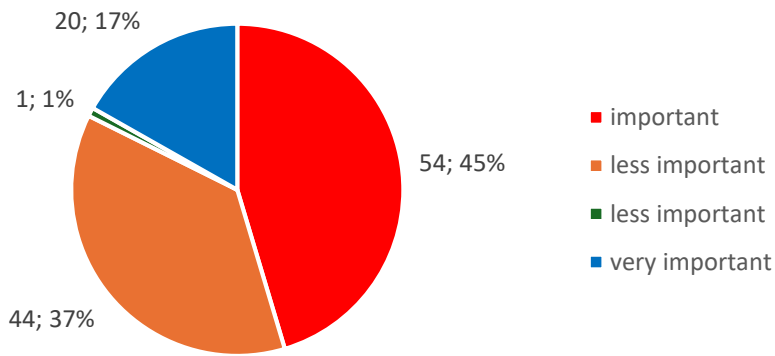


### Distribution of responses by country

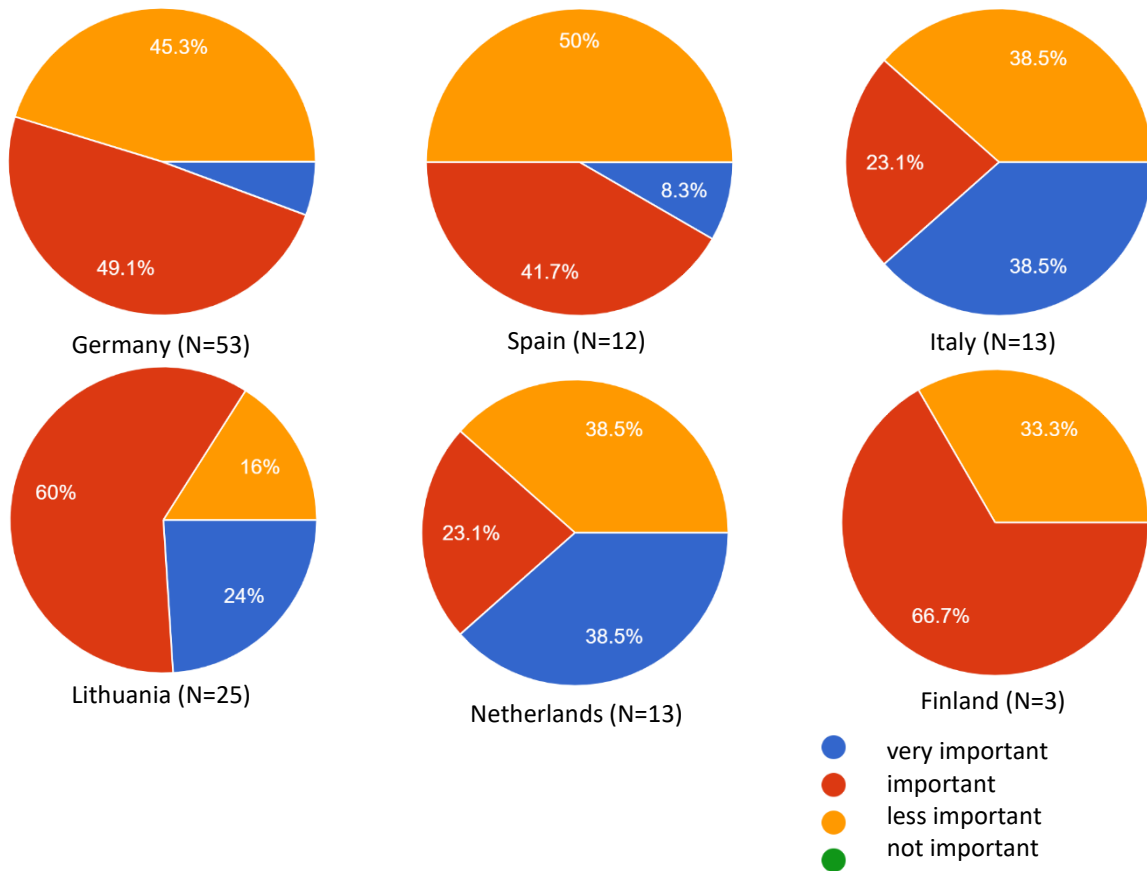


### 35. How important is it for you to reduce costs even if that reduces sustainability?

Respondents have mixed opinion about reducing costs even if that reduces sustainability. Around 62% of respondents claim that it is important or very important. In Germany and in Spain close to half respondents (45.3% and 50%) say that it is less important (i.e., they prioritise sustainability against reducing costs), whereas in Italy and the Netherlands for the same share of respondents (38.5%) reducing costs is less important or important. For Lithuanian and Finnish respondents reducing costs appears to be more important issue compared to other countries respondents.

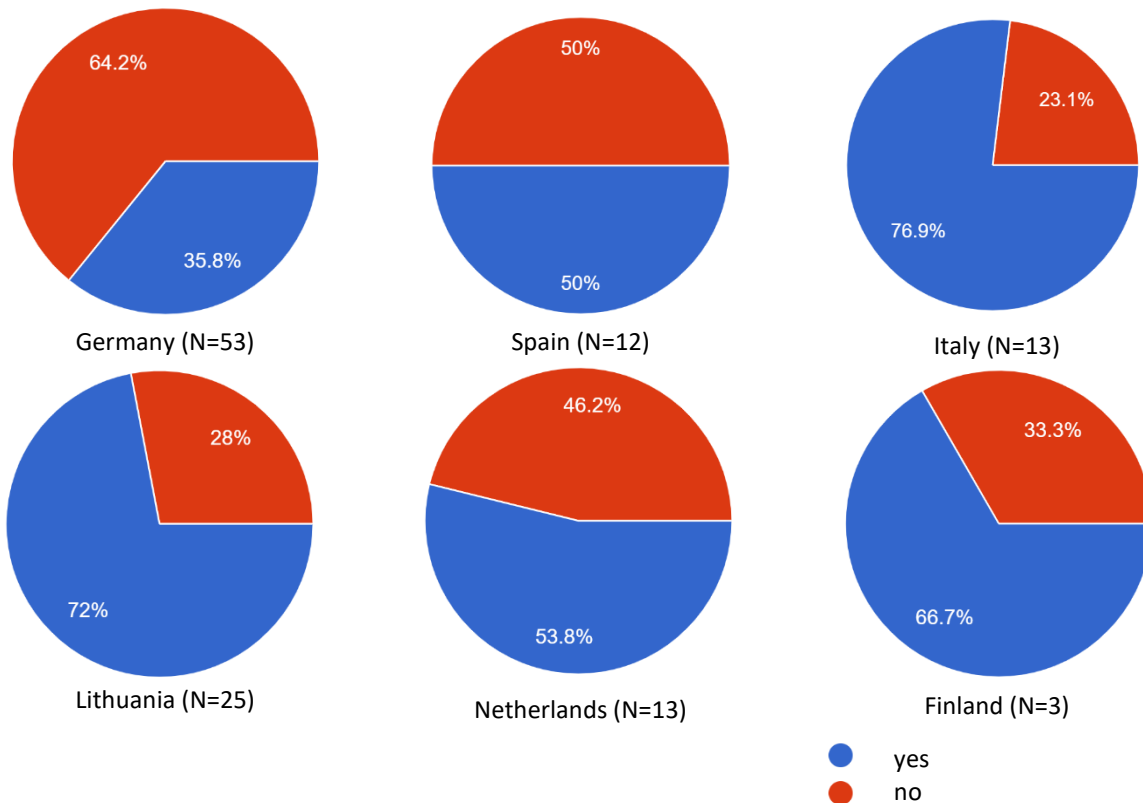


Distribution of responses by country



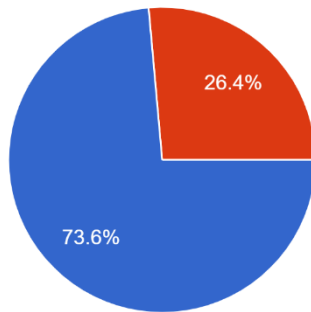
36. When planning a building or a building system, do you consider a later recycling of the materials used, such as building materials or insulation materials, even if this leads to higher construction costs?

The survey reveals mixed opinions on considering the future recyclability of materials, such as building or insulation materials, even if it results in higher construction costs. Among the respondents, 52% take this into account, while 48% do not. In Italy, the Netherlands, Finland and Lithuania, over half of respondents take into account the future recyclability of materials when planning a building or building system, even if this results in higher construction costs. In Spain, opinions are split evenly, with half of the respondents considering it and half not, while in Germany, only about 36% acknowledge consider i it when planning.

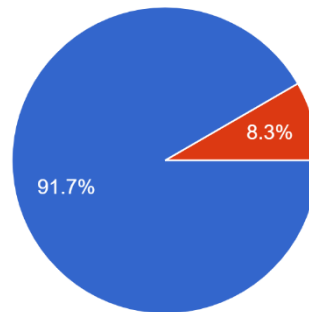


37. When planning building systems such as heating, air conditioning or lighting systems, do you consider the costs incurred for operation over the entire period of use?

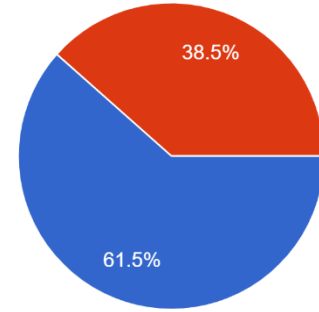
A larger share of respondents (75%) confirm that they consider the costs incurred for operation over the entire period of use when planning building systems. On the country level, this is less obvious in the Netherlands (54%) and Italy (61.5%).



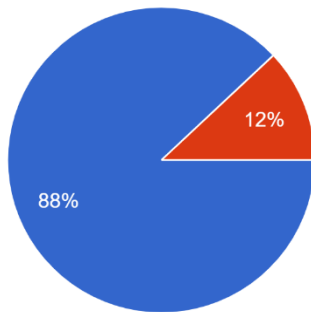
Germany (N=53)



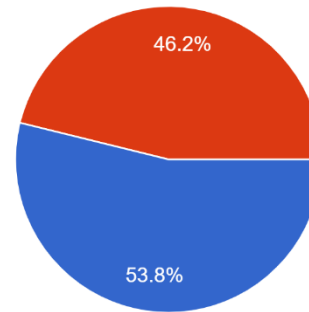
Spain (N=12)



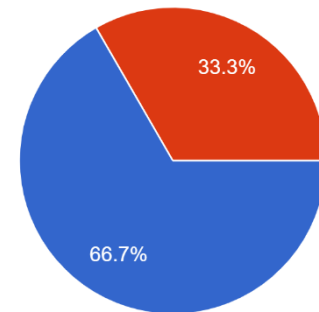
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

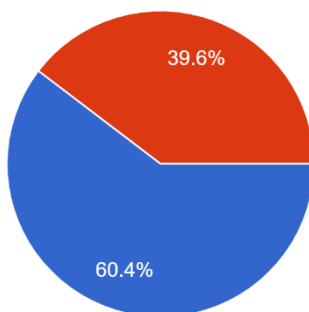


Finland (N=3)

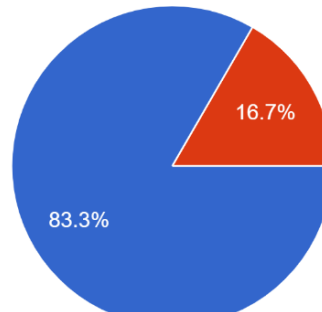


38. Does your company offer long-term optimization of building operations to achieve optimal resource consumption?

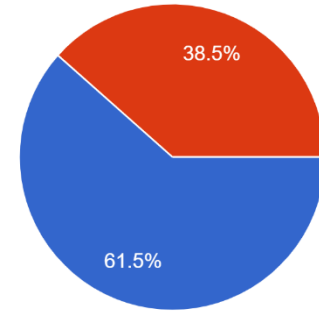
A larger proportion of respondents (69%) confirm that their companies provide long-term optimization of building operations to ensure optimal resource consumption.



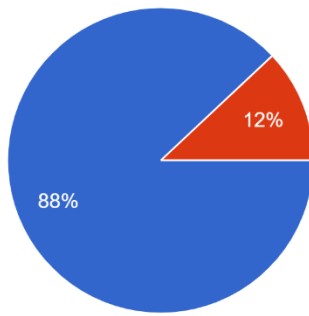
Germany (N=53)



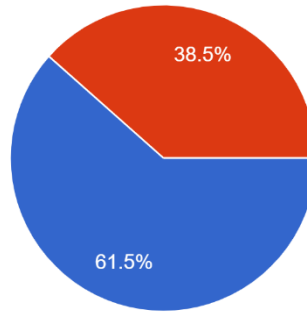
Spain (N=12)



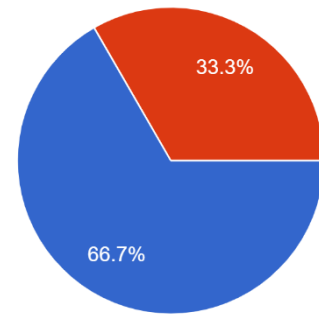
Italy (N=13)



Lithuania (N=25)



Netherlands (N=13)

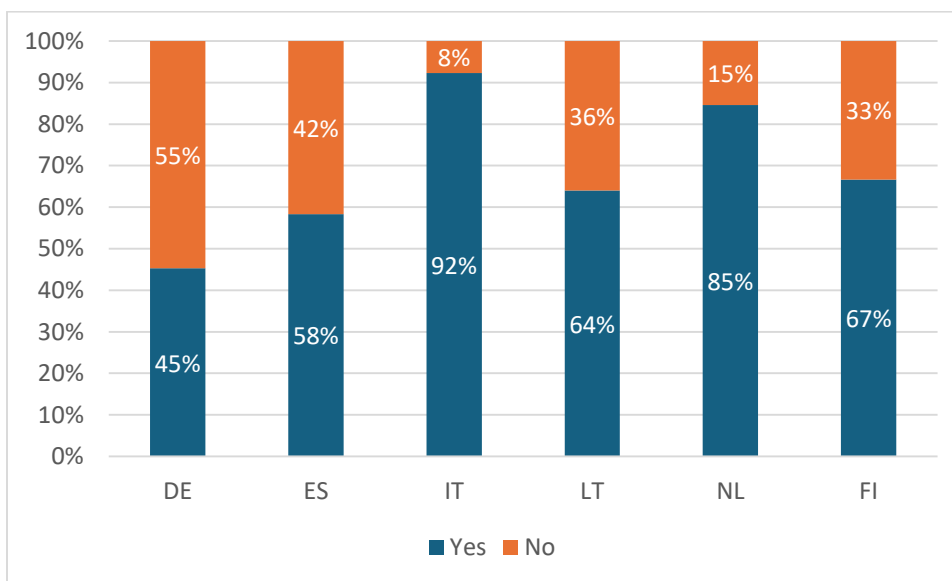


Finland (N=3)

● yes  
● no

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?

The majority of respondents believe that graduates from VET programmes have sufficient knowledge and skills in the technical solutions for monitoring and reducing the energy consumption of buildings. This is not exactly the case for Germany, where 55 % of respondents do not agree with this statement. Spanish, Lithuanian and Finnish respondents appear to be also more reserved about the relevance of VET graduates knowledge and skills in the area of technical solutions for monitoring and reducing the energy consumption of buildings



40. If not, from your experience, what do they lack the most?

From the responses the following broad themes about gaps of VET graduates skills and knowledge emerge:

- Lack of interest of trainees;
- Need for technical understanding, more 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; instead of religion and sport, which is a complete waste of time for this branch of education, more important topics such as energy policy or energy resources or recycling should be covered;*
- Too little practical experience (*“Theory can only awaken understanding”*);
- More cooperation between vocational schools and businesses is needed;
- Lack of cooperation and experience with other trades.