



# Cell4Chem

Results of the international survey

20.01.2023

## Project profile

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Method: Online survey  
descriptive, inductive and multivariate statistics

Processing status: 20.01.2023

All information on the number of cases relates to the survey from 2022.

# Content



**METHODOLOGY AND FIELD REPORT**



**INTRODUCTION AND RELATIONSHIP TO SCIENCE**



**INFORMATION MATERIAL**



**INFORMATION NEEDS, OPPORTUNITIES AND RISKS**



**STAKEHOLDER**



**SUMMARY**

# Methodology and field report



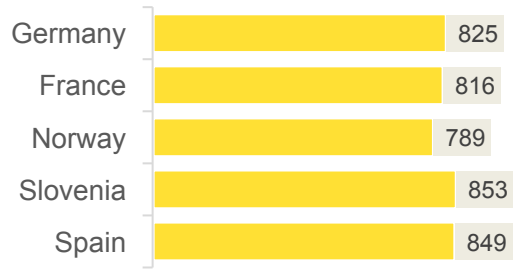
Online survey with 28 questions

11/21/2022-12/09/2022

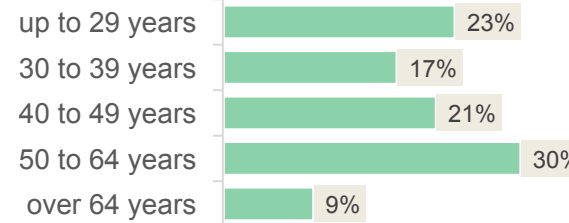
n=4,179

Ø Population: Uninformed 9.1 minutes, Informed 12.5 minutes

Ø Stakeholder: 17.7 minutes



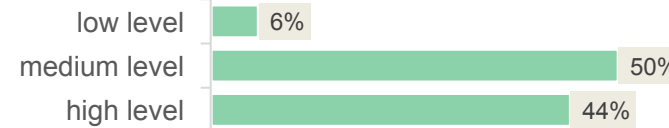
## Age



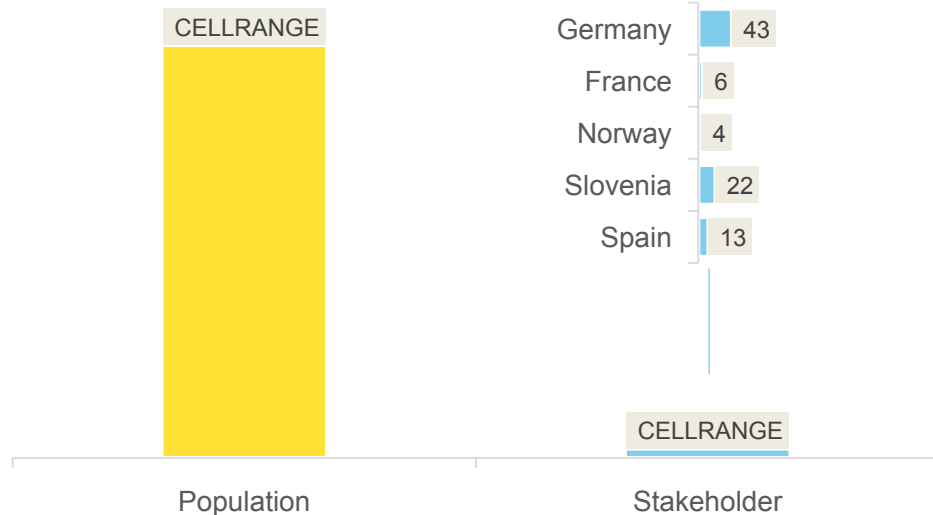
## Gender



## Education



## Group (only population)

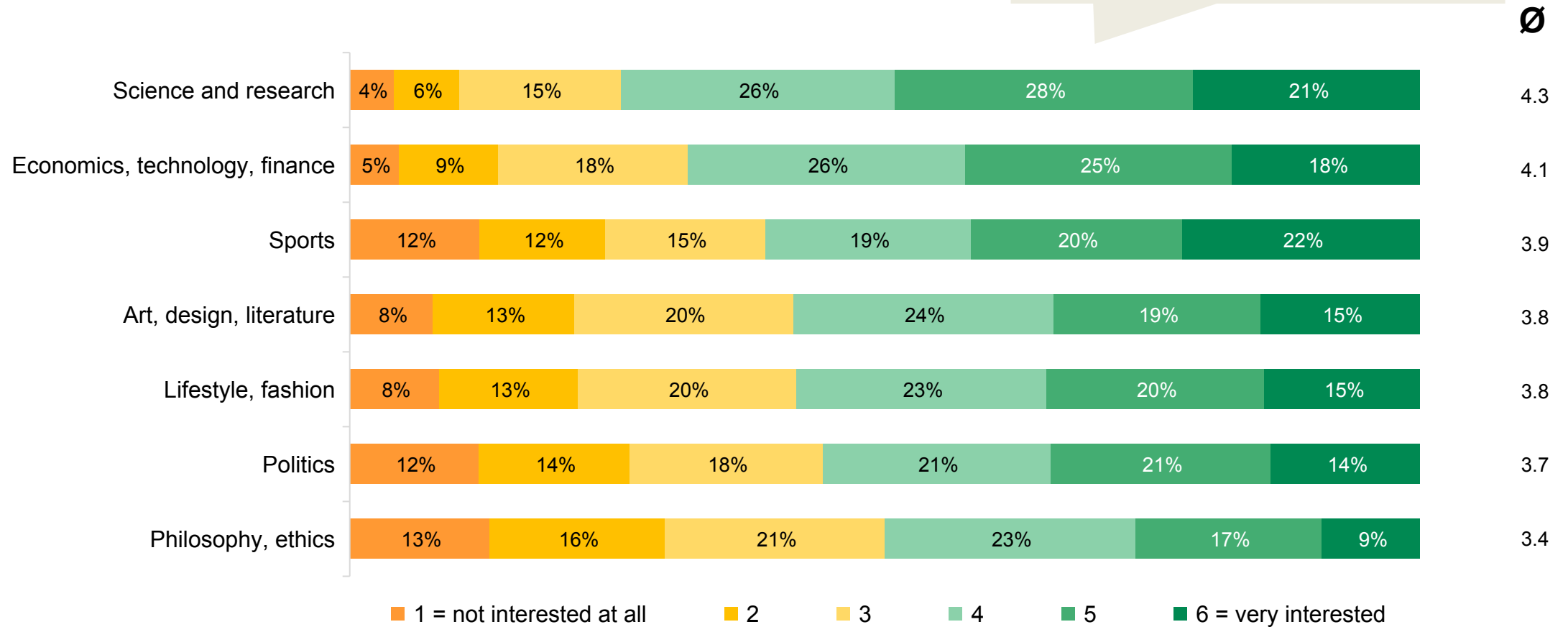


# **Introduction and relationship to science**

## Interest of the respondents

How interested are you in the following topics?

Most of the participants are interested in science and research, followed by economics, technology and finance.



## Interest of the respondents

How interested are you in the following topics?

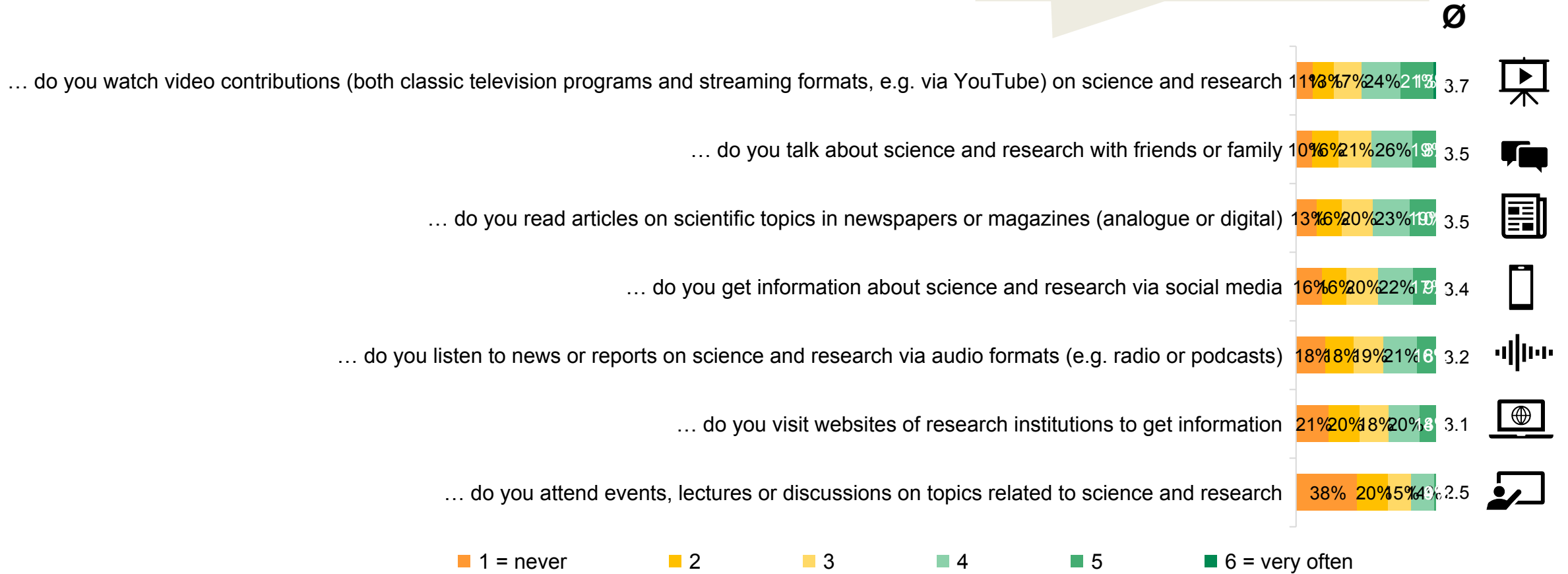
The stakeholder are even more interested in science and research than the population.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
Science and research	4.3	4.3	5.5	4.4	4.4	4.1	4.3	4.4
Economics, technology, finance	4.1	4.1	4.7	4.3	4.0	4.0	4.3	3.9
Sports	3.9	3.9	3.3	3.8	4.1	3.7	4.1	3.7
Art, design, literature	3.8	3.8	3.9	3.6	4.0	3.6	3.9	3.8
Lifestyle, fashion	3.8	3.8	2.5	3.4	4.3	3.7	4.0	3.5
Politics	3.7	3.6	4.4	4.2	3.8	3.9	3.3	3.1
Philosophy, ethics	3.4	3.4	4.0	3.4	3.6	3.5	3.4	3.3
N	4,139	4,049	89	853	814	811	833	823

# Behavior of the respondents

How often...?

Videos and talking with friends and families are the most commonly used source of information.





## Behavior of the respondents

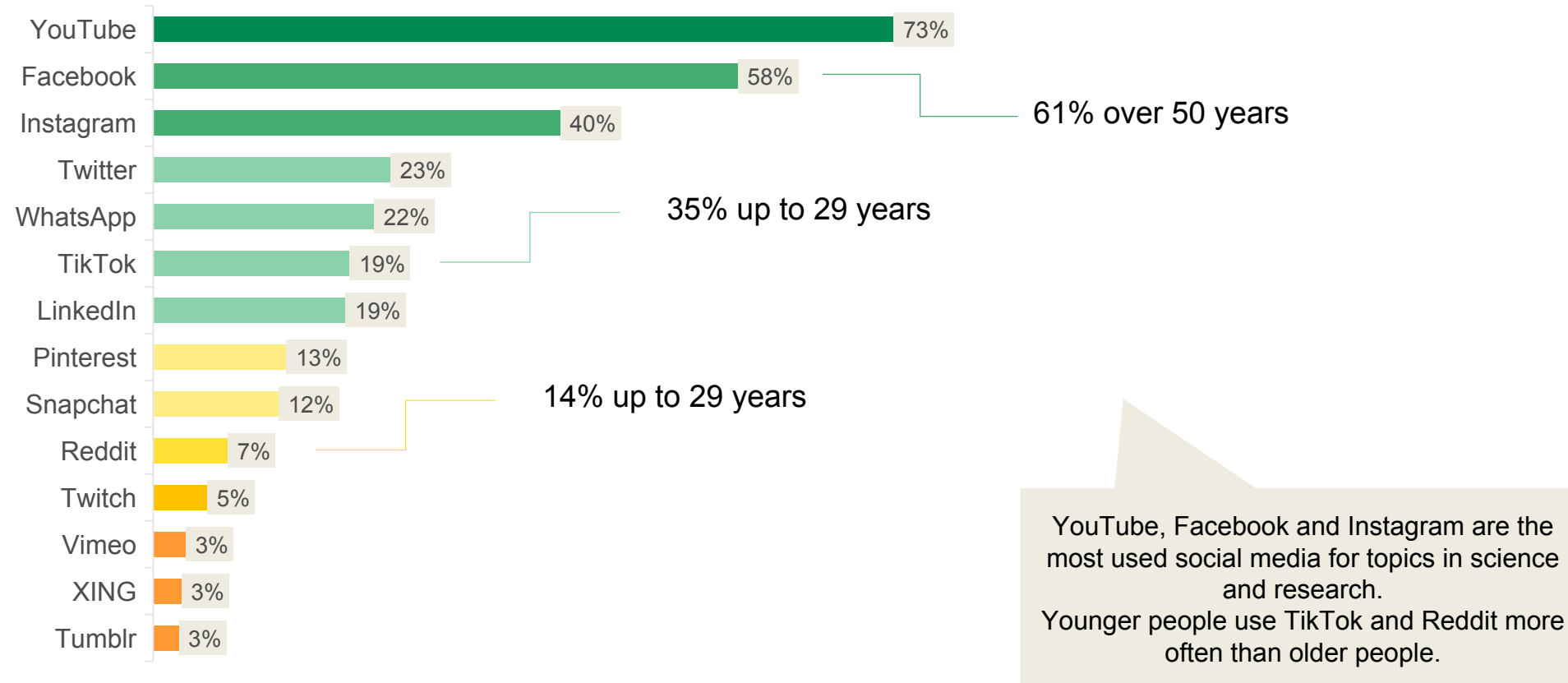
How often...?

Stakeholder use all sources more often than the population.  
The Spanish participants inform themselves less than the participants in the other countries.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
... do you watch <b>video contributions</b> (both classic television programs and streaming formats, e.g. via YouTube) on science and research	3.7	3.7	4.4	3.8	4.0	3.5	3.8	3.4
... do you <b>talk</b> about science and research with friends or family	3.5	3.5	4.6	3.7	3.7	3.4	3.5	3.2
... do you <b>read articles</b> on scientific topics in newspapers or magazines (analogue or digital)	3.5	3.4	5.0	3.7	3.5	3.4	3.4	3.2
... do you get information about science and research via <b>social media</b>	3.4	3.3	4.0	3.3	3.6	3.4	3.3	3.2
... do you listen to news or reports on science and research via <b>audio formats</b> (e.g. radio or podcasts)	3.2	3.2	4.1	3.2	3.3	3.2	3.3	3.1
... do you visit <b>websites of research institutions</b> to get information	3.1	3.1	4.3	3.1	3.6	2.9	3.2	2.8
... do you attend <b>events, lectures or discussions</b> on topics related to science and research	2.5	2.4	4.2	2.7	2.5	2.5	2.5	2.2
N	4,136	4,044	92	849	813	813	833	824

## Social media usage

Which social media do you use to inform yourself about topics in science and research?



## Social media usage – TOP 5 per country

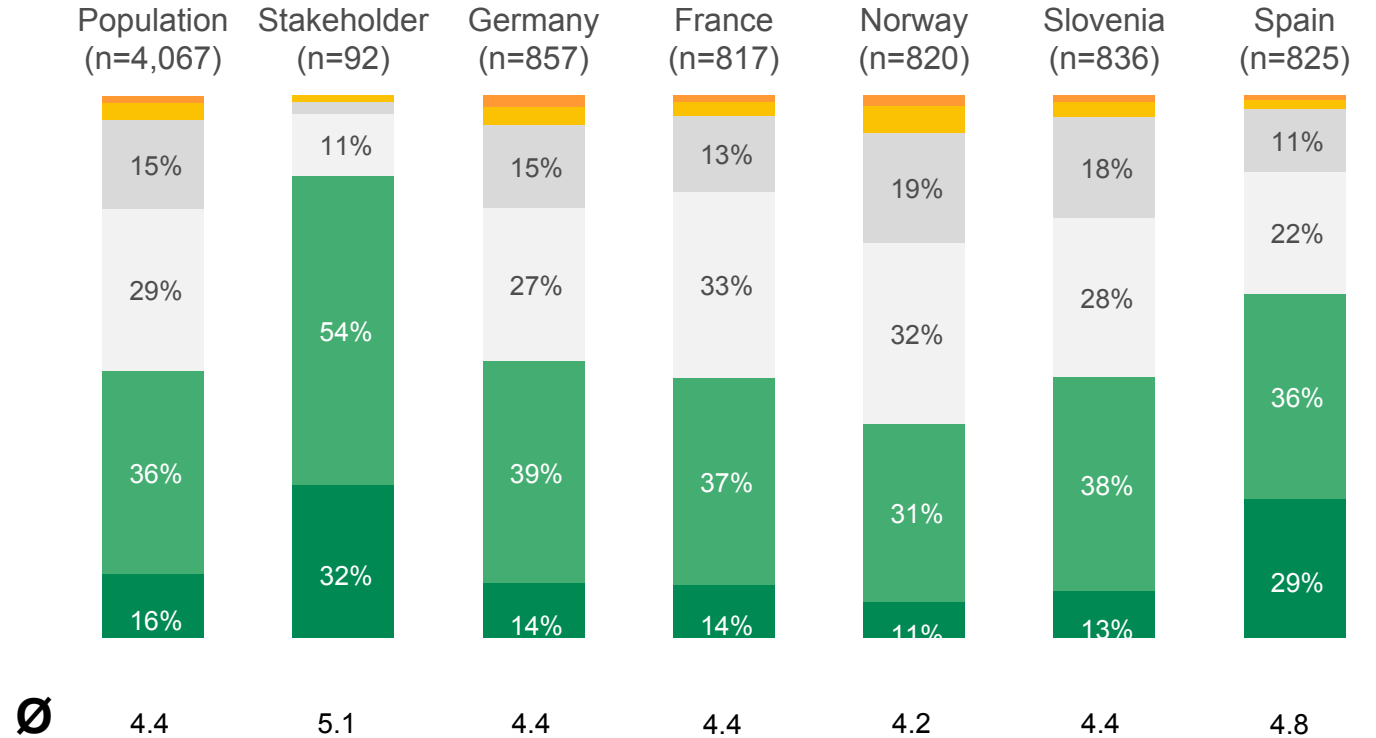
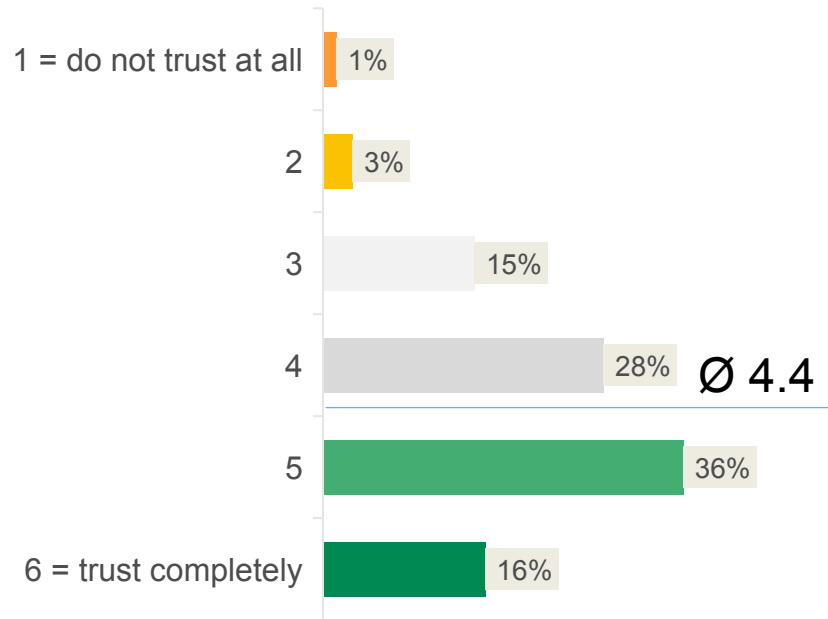
Which social media do you use to inform yourself about topics in science and research?

Germany	France	Norway	Slovenia	Spain
Youtube	Youtube	Youtube	Youtube	Youtube
Facebook	Facebook	Facebook	Facebook	Facebook
Instagram	Instagram	Instagram	Instagram	Instagram
Whatsapp	Whatsapp	TikTok	LinkedIn	Twitter
Twitter	Twitter	Snapchat	TikTok	Whatsapp

# Trust science and research

How much do you trust science and research?

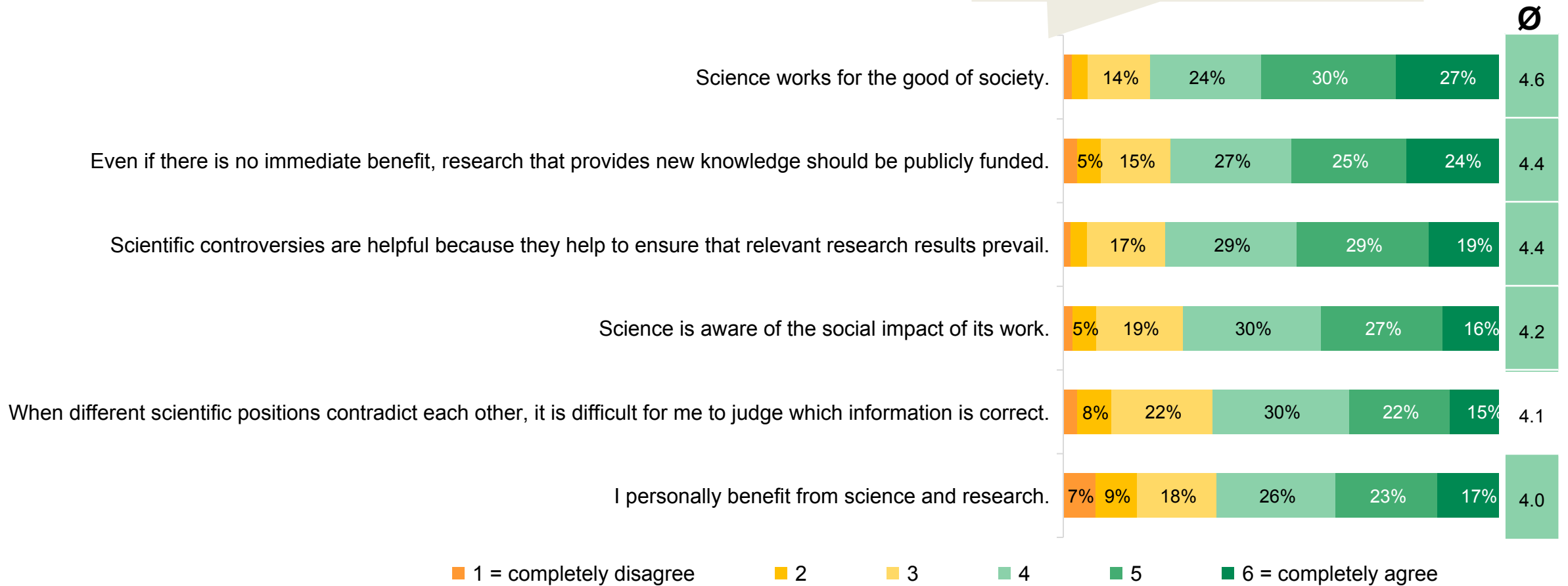
Half of the participants trust in science and research.  
The stakeholder and the spanish participants have more trust than the others.



## Relationship between science and society

With regard to the relationship between science and society: to what extent do you agree with the following statements?

Most of the participants agree with the positive statements about the relationship between science and society.

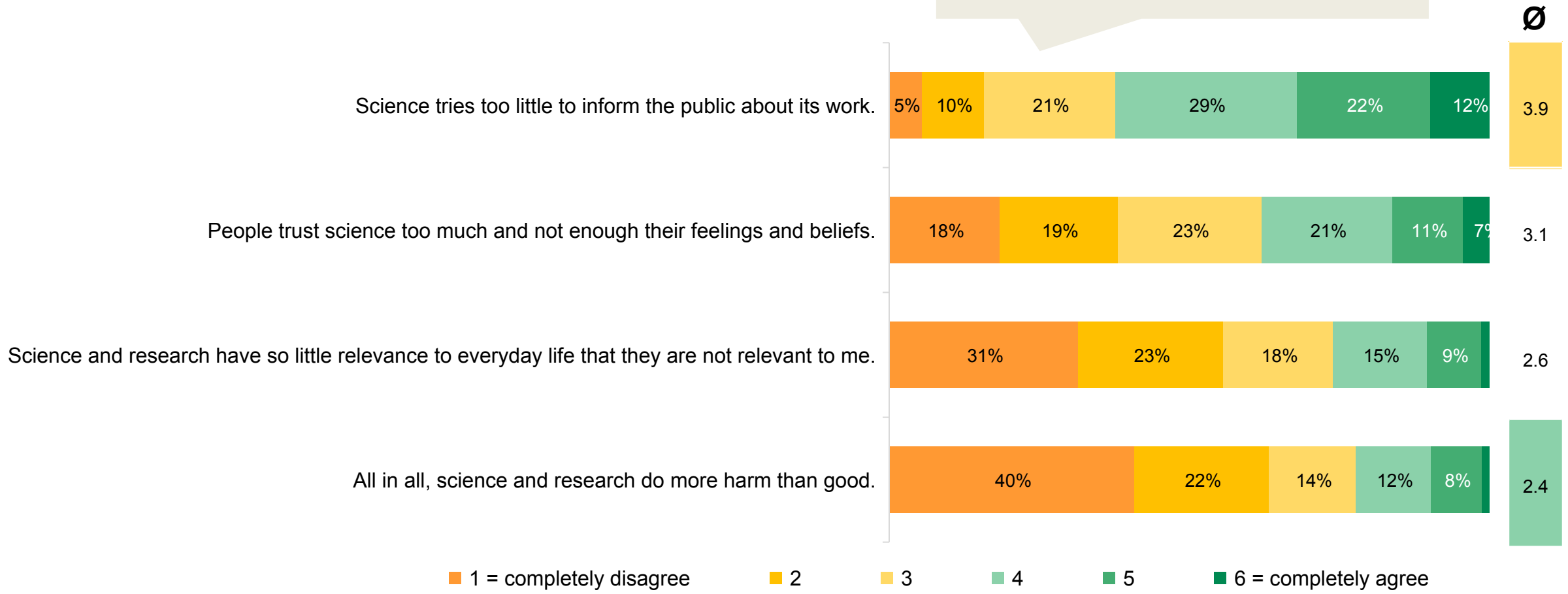


## Relationship between science and society

With regard to the relationship between science and society: to what extent do you agree with the following statements?

Nearly two thirds of the participants agree that science informs the public too little about its work.

Only 24% of the participants think that science and research do more harm than good.



## Relationship between science and society

With regard to the relationship between science and society: to what extent do you agree with the following statements?

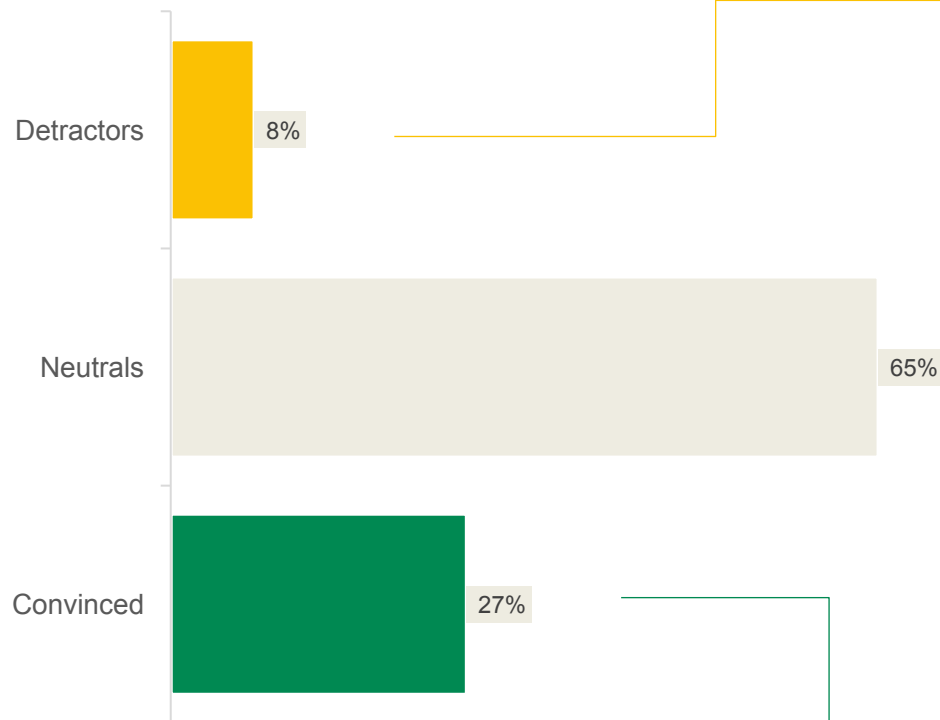
The stakeholder also think that the information from science about their work is too less.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
Science works for the good of society.	4,6	4,6	4,8	4,4	4,7	4,7	4,4	4,7
Even if there is no immediate benefit, research that provides new knowledge should be publicly funded.	4,4	4,4	5,2	4,4	4,1	4,3	4,6	4,6
Scientific controversies are helpful because they help to ensure that relevant research results prevail.	4,4	4,4	5,1	4,5	4,5	4,2	4,5	4,3
Science is aware of the social impact of its work.	4,2	4,2	4,0	4,2	4,5	4,1	4,2	4,2
When different scientific positions contradict each other, it is difficult for me to judge which information is correct.	4,1	4,1	3,3	4,0	4,4	4,1	3,9	4,0
I personally benefit from science and research.	4,0	4,0	5,0	4,3	4,1	4,2	3,3	4,1
Science tries too little to inform the public about its work.	3,9	3,9	3,9	3,9	4,1	4,0	4,2	3,4
People trust science too much and not enough their feelings and beliefs.	3,1	3,1	1,7	3,2	3,2	3,1	3,2	2,8
Science and research have so little relevance to everyday life that they are not relevant to me.	2,6	2,6	1,3	2,9	2,8	2,7	2,4	2,3
All in all, science and research do more harm than good.	2,4	2,4	1,3	2,5	2,5	2,7	2,3	2,0
N	4,054	3,962	92	824	796	793	822	814

## Belief in science and research

With regard to the relationship between science and society: to what extent do you agree with the following statements?

How much do you trust science and research?



### Do not trust in science and research

Agree to the following statements:

- Science tries too little to inform the public about its work.
- People trust science too much and not enough their feelings and beliefs.
- Science and research have so little relevance to everyday life that they are not relevant to me.
- All in all, science and research do more harm than good.

### Trust in science and research

Agree to the following statements:

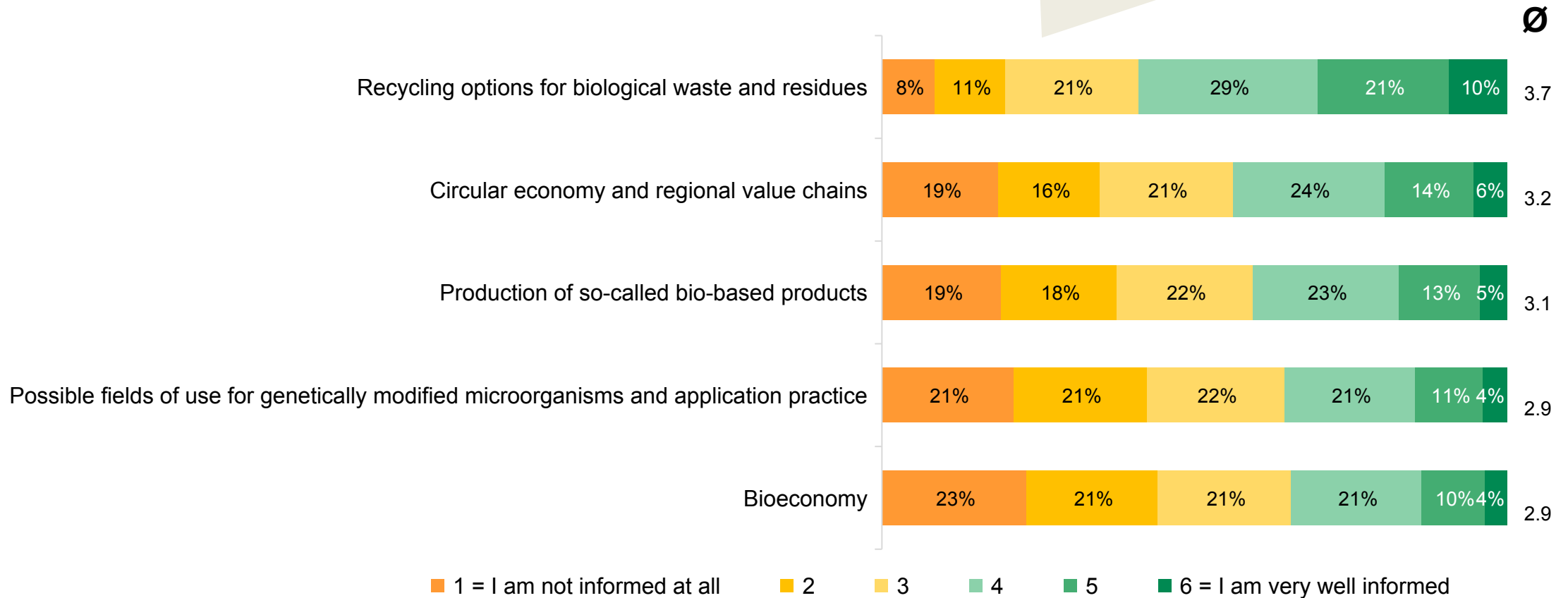
- Science works for the good of society.
- Even if there is no immediate benefit, research that provides new knowledge should be publicly funded.
- Scientific controversies are helpful because they help to ensure that relevant research results prevail.
- Science is aware of the social impact of its work.
- I personally benefit from science and research.



# Knowledge about specific topics

How well do you know the following topics?

The participants know best about recycling and circular economy and less about GMOs and bioeconomy.



## Knowledge about specific topics

How well do you know the following topics?

The stakeholder have more information in all topics than the population. The spanish participants are the least informed.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
Recycling options for biological waste and residues	3.7	3.7	4.7	3.5	4.0	3.4	4.1	3.6
Circular economy and regional value chains	3.2	3.1	4.8	3.5	3.2	3.0	3.1	3.0
Production of so-called bio-based products	3.1	3.0	4.4	3.2	2.9	2.9	3.6	2.7
Possible fields of use for genetically modified microorganisms and application practice	2.9	2.9	4.0	3.0	3.0	2.9	3.0	2.8
Bioeconomy	2.9	2.8	4.4	3.0	2.8	2.9	3.0	2.5
N	4,055	3,962	92	825	792	793	825	815

# Information material

## What is bioeconomy?

The bioeconomy aims to replace a large part of the fossil raw materials used worldwide, such as coal, oil and natural gas, with alternative raw materials. Not only plants, wood and livestock are used for this, but also organic residues, microorganisms, algae or insects. (Source)

## What is circular economy?

The circular economy looks at the economy from the point of view of waste: The material cycles should be closed as far as possible by making waste available to the economy as secondary raw materials. Waste is a valuable raw material that can be used effectively to conserve natural resources. (Source)

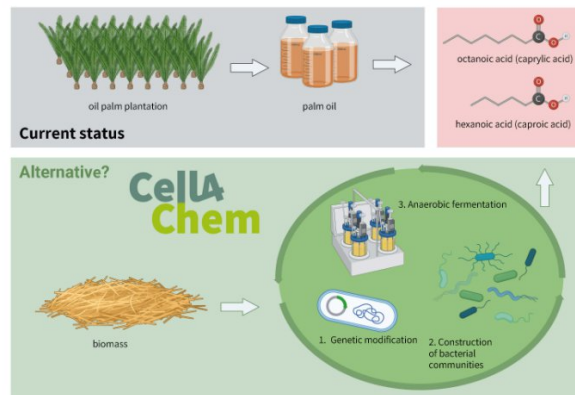
## What are genetically modified organisms (GMOs)?

Since humans have been cultivating plants and breeding animals for food, they have selected plants and animals with beneficial traits for further breeding. These traits reflected naturally occurring genetic variations and resulted in, for example, higher yields or resistance to disease or environmental stress.

Modern technology makes it possible to modify the genome in such a way that novel characteristics can be generated in plants, animals, bacteria and fungi. This technology has been used primarily in crops to increase insect resistance and herbicide tolerance, and in microorganisms to produce enzymes.

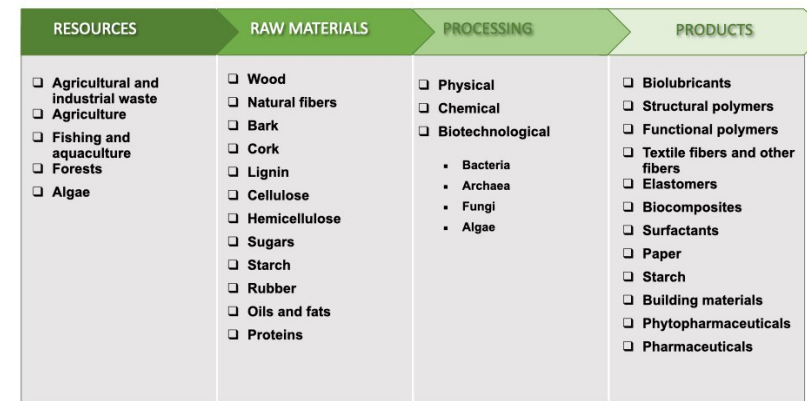
Organisms whose genetic material has been modified in this way are referred to as genetically modified organisms (GMO). Food and feed that contain, consist of or are produced by GMOs are referred to as genetically modified (GM) food or feed. (Source)

With the help of a new anaerobic fermentation process, palm oil could be dispensed with by using locally available residues such as straw as a resource. Strategies and tools are being researched and developed in the project with the help of which the new process for the production of green chemicals can be used. In addition to naturally occurring bacteria, genetically modified bacteria can also be used in bioreactors, which are particularly effective in producing medium-chain carboxylates from straw.



The Cell4Chem research project investigates and optimizes the suitability of certain bacteria and mixed cultures (i.e. mixtures of different types of bacteria) to produce high-quality chemicals from plant-based biomass. The aim is to use an environmentally friendly process to obtain medium-chain carboxylates from locally available residues.

Medium-chain carboxylates (such as caproate and caprylate) are in demand as specialty chemicals with a wide range of applications (see figure). So far, they have mainly been obtained from palm oil.



The stakeholder and one half of the participants (by random selection) got some information about the research project and specific questions about this material afterwards.



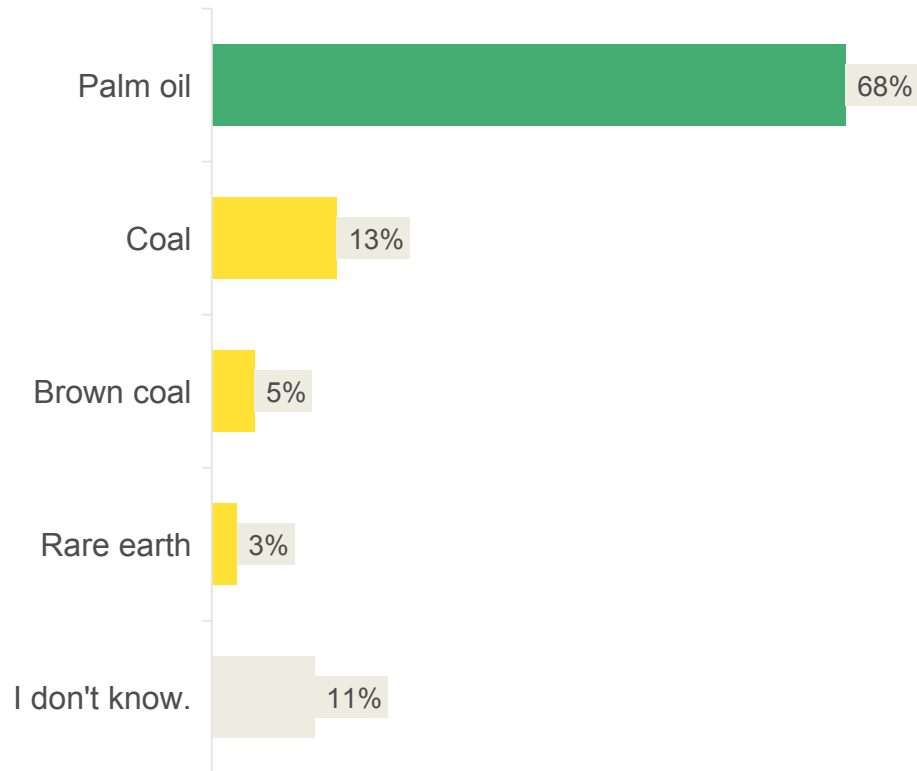
For further questions the population can be separated in the informed and not informed ones.

In order to get an impression of how attentively the material was read, the respondents were asked short knowledge questions.

## Knowledge questions

The new development means that one particular raw material in particular can be dispensed with. Which ecologically critical raw material is it?

What can medium-chain carboxylates be used for?



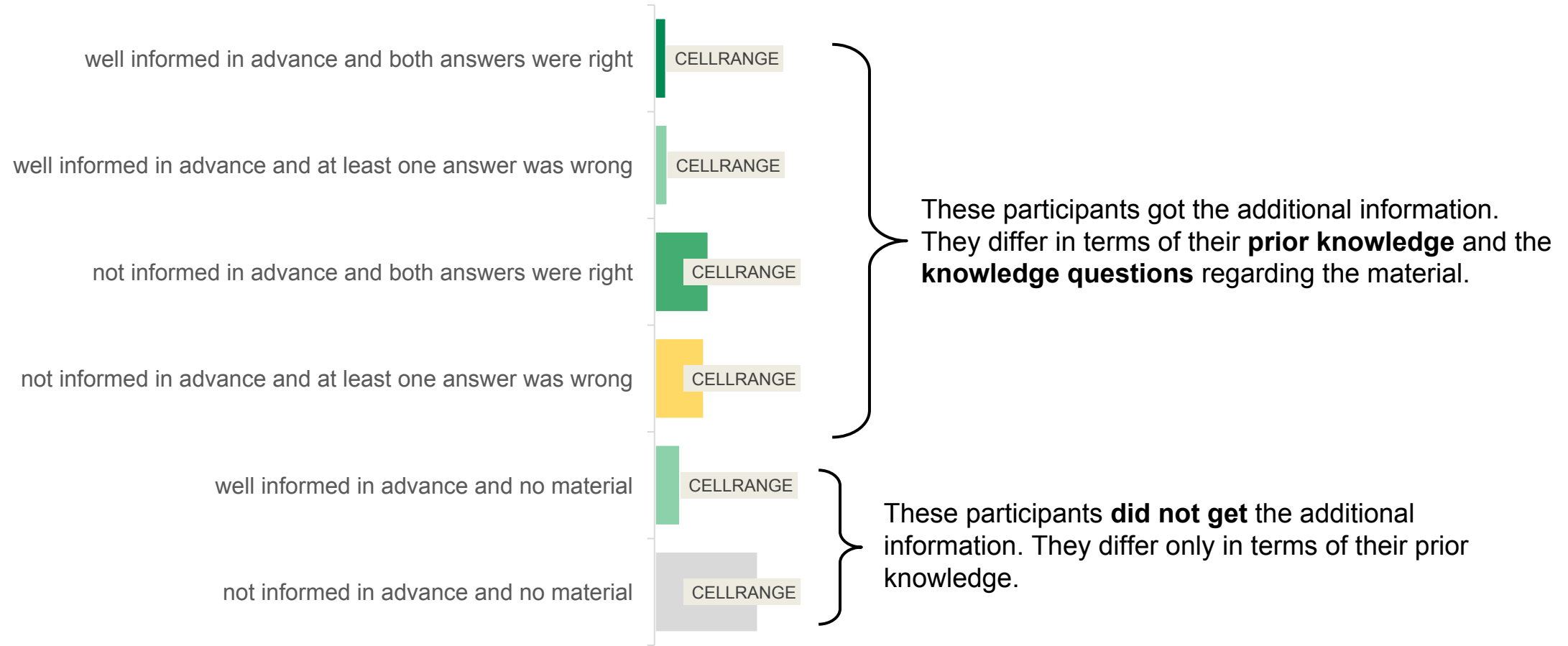
Many different products such as feed additives, lubricants, cosmetics and others 64%

Medium-chain carboxylates can only be used 9%

Medium-chain carboxyl. 4%

24%

# Level of knowledge

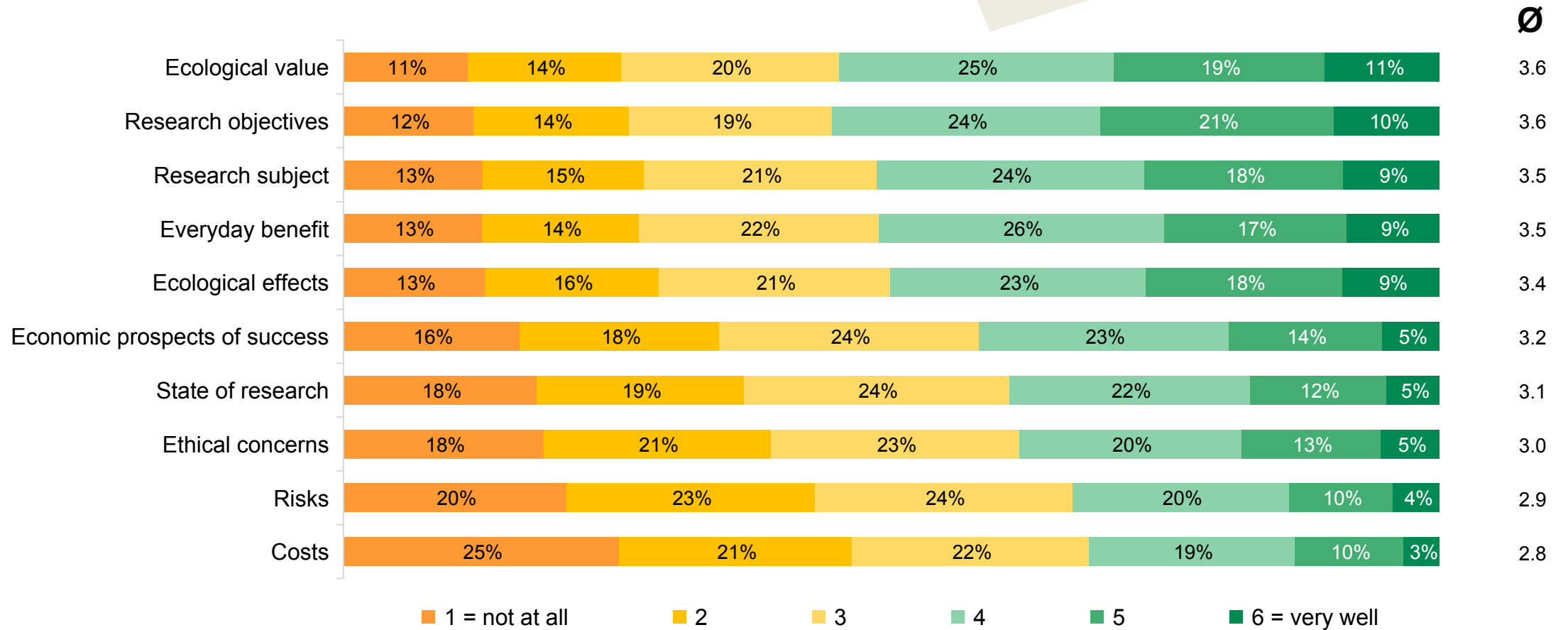


## Level of information

How well informed do you feel about the content shown on the research topic?

The participants feel best informed about the ecological value and the research objectives and the subject.

There should have been more information about ethical concerns, risks and costs.



## Level of information

How well informed do you feel about the content shown on the research topic?

The stakeholder rate the level of information a bit better, but regarding the costs they are more critical.

The participants from slovenia and spain are more critical regarding the level of information.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
Ecological value	3.6	3.6	4.2	3.9	3.9	3.5	3.1	3.5
Research objectives	3.6	3.5	4.6	4.1	3.7	3.5	3.2	3.4
Research subject	3.5	3.4	4.5	3.9	3.6	3.4	3.2	3.3
Everyday benefit	3.5	3.4	4.0	3.9	3.7	3.5	3.1	3.1
Ecological effects	3.4	3.4	3.6	3.6	3.8	3.4	3.1	3.3
Economic prospects of success	3.2	3.2	2.9	3.4	3.4	3.2	3.0	2.9
State of research	3.1	3.1	3.0	3.4	3.2	3.2	2.7	2.9
Ethical concerns	3.0	3.1	2.9	3.2	3.3	3.1	2.8	2.9
Risks	2.9	2.9	2.7	3.0	3.0	3.0	2.6	2.7
Costs	2.8	2.8	2.3	2.8	2.9	3.0	2.5	2.6
N	2,065	1,973	92	422	392	405	429	412

## Level of information

How well informed do you feel about the content shown on the research topic?

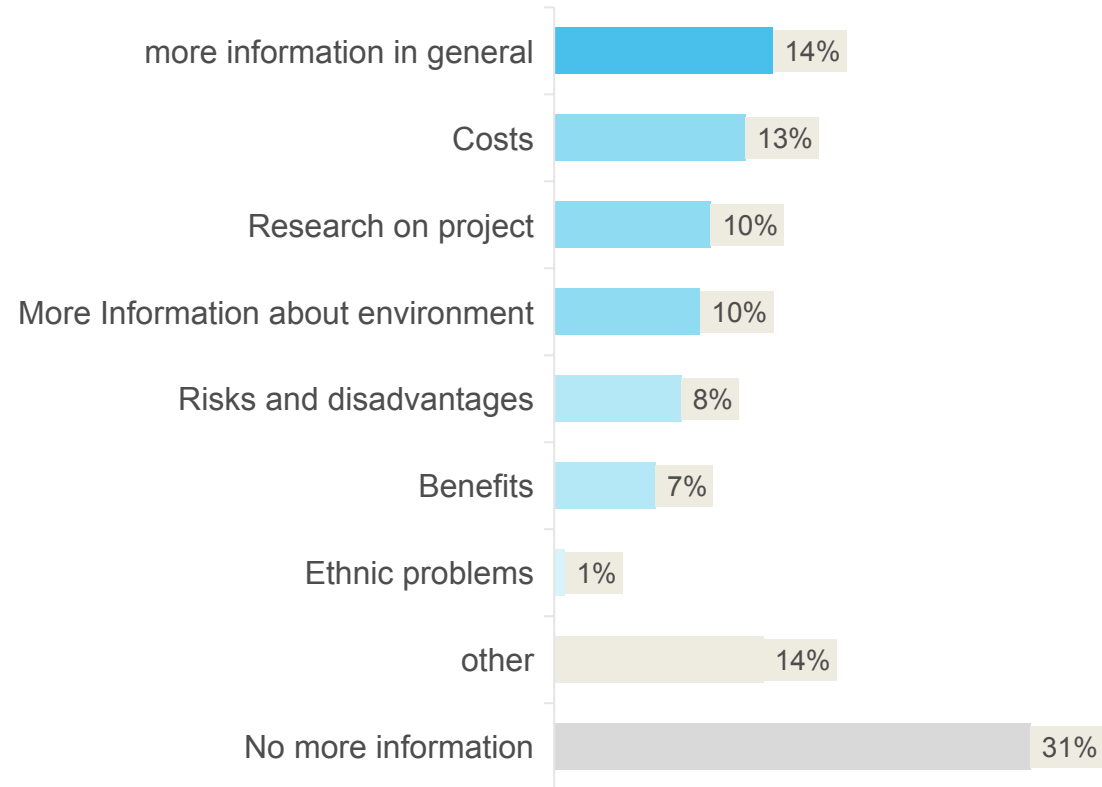
The participants who were informed in advance feel much better informed than the others.

	All	well informed in advance and both answers were right	well informed in advance and at least one answer was wrong	not informed in advance and both answers were right	not informed in advance and at least one answer was wrong
Ecological value	3,6	4,2	4,4	3,4	3,0
Research objectives	3,6	4,4	4,5	3,6	3,0
Research subject	3,5	3,5	4,2	2,6	2,7
Everyday benefit	3,5	3,9	4,3	2,8	2,7
Ecological effects	3,4	4,2	4,5	3,4	3,0
Economic prospects of success	3,2	4,0	4,5	3,0	2,8
State of research	3,1	4,4	4,4	3,6	3,1
Ethical concerns	3,0	4,3	4,4	3,4	2,9
Risks	2,9	3,8	4,4	2,8	2,8
Costs	2,8	3,4	4,1	2,4	2,7
N	2,065	188	208	851	725



## Further information

What other information would you have liked to see/to get?

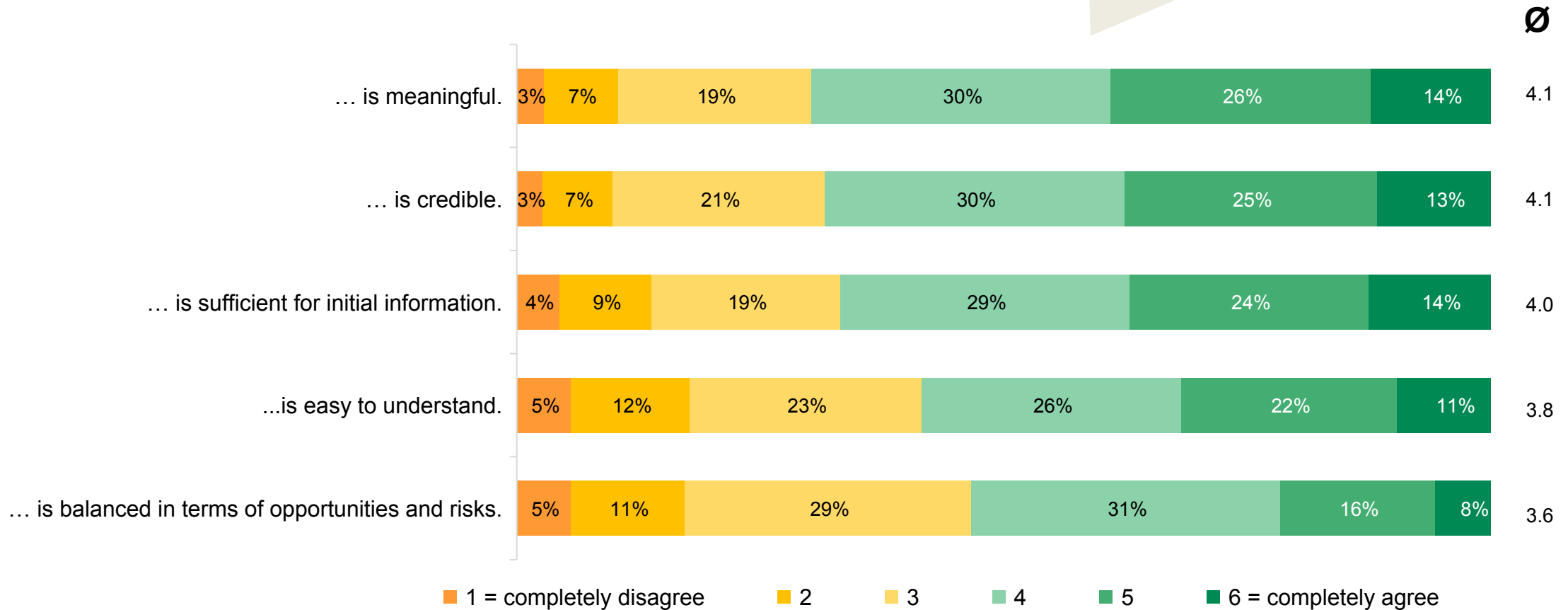


The participants don't want to have other information but they need more information, especially about the costs, environment and risks.

## Evaluation of the content

To what extent do you agree with the following statements?  
The information shown...

Most of the participants think that the content shown is meaningful and credible.  
They are less convinced of the balanced presentation of opportunities and risks.



## Evaluation of the content

To what extent do you agree with the following statements?

The information shown...

It seems that the stakeholder could handle the given information better than the population.

	All	Population	Stakeholder	Germany	France	Norway	Slovenia	Spain
... is meaningful.	4,1	4,1	4,4	4,2	4,1	4,3	4,1	3,8
... is credible.	4,1	4,1	4,7	4,4	4,3	4,0	3,8	4,0
... is sufficient for initial information.	4,0	4,0	4,5	4,3	4,1	3,9	4,0	3,8
...is easy to understand.	3,8	3,8	4,7	4,2	3,7	3,7	3,8	3,6
... is balanced in terms of opportunities and risks.	3,6	3,6	3,3	3,7	3,8	3,7	3,5	3,5
N	2,077	1,985	91	433	396	407	426	411

## Evaluation of the content

To what extent do you agree with the following statements?

The information shown...

The convinced people evaluate the information better than the others, but in case of the opportunities and risks they are also reserved.

The people who are well informed in advance evaluate the given information better than the others.

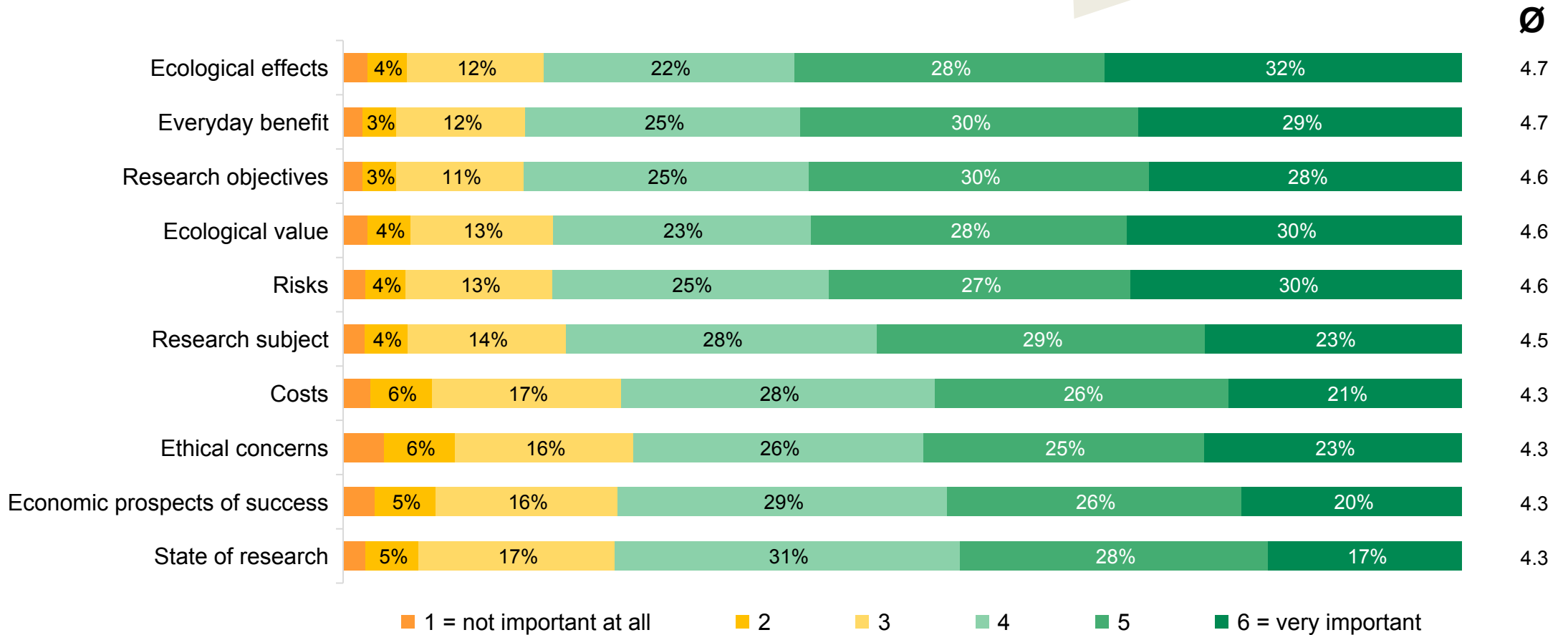
	All	Detractor	Neutrals	Convinced	well informed in advance and both answers were right	well informed in advance and at least one answer was wrong	not informed in advance and both answers were right	not informed in advance and at least one answer was wrong
... is meaningful.	4,1	3,1	4,0	4,6	4,7	4,5	4,2	3,7
... is credible.	4,1	3,1	3,9	4,7	4,7	4,5	4,2	3,6
... is sufficient for initial information.	4,0	3,2	3,9	4,5	4,7	4,5	4,1	3,6
...is easy to understand.	3,8	3,2	3,7	4,1	4,5	4,4	3,8	3,3
... is balanced in terms of opportunities and risks.	3,6	3,0	3,6	3,9	4,2	4,4	3,5	3,4
N	2,077	123	1,355	599	190	210	849	736

**Information needs, opportunities and risks**

## Importance of information

How important are the following contents of information on research projects to you?

All of the topics are important to the participants. In addition to the ecological effects, the everyday benefit is also the most important.



## Importance of information

How important are the following contents of information on research projects to you?

The stakeholder as well as the participants in France, Germany and Slovenia see a higher importance in the topics.

	All	Population	Stakeholder	Uninformed	Informed	Germany	France	Norway	Slovenia	Spain
Ecological effects	4,7	4,6	5,3	4,7	4,6	4,8	4,9	4,3	4,8	4,5
Everyday benefit	4,7	4,7	4,8	4,7	4,6	4,9	4,8	4,4	4,8	4,4
Research objectives	4,6	4,6	5,4	4,7	4,5	4,8	4,8	4,3	4,8	4,5
Ecological value	4,6	4,6	5,3	4,6	4,6	4,8	4,8	4,2	4,7	4,6
Risks	4,6	4,6	5,0	4,7	4,5	4,8	4,7	4,3	4,7	4,4
Research subject	4,5	4,5	5,1	4,5	4,4	4,7	4,7	4,1	4,6	4,4
Costs	4,3	4,3	4,4	4,3	4,3	4,5	4,5	4,1	4,4	4,1
Ethical concerns	4,3	4,3	4,6	4,4	4,2	4,5	4,5	4,1	4,5	4,0
Economic prospects of success	4,3	4,3	4,7	4,3	4,3	4,5	4,3	4,0	4,5	4,1
State of research	4,3	4,3	4,8	4,3	4,2	4,5	4,4	4,0	4,3	4,2
N	4,056	3,967	89	1,995	1,972	826	805	788	828	805

## Importance of information

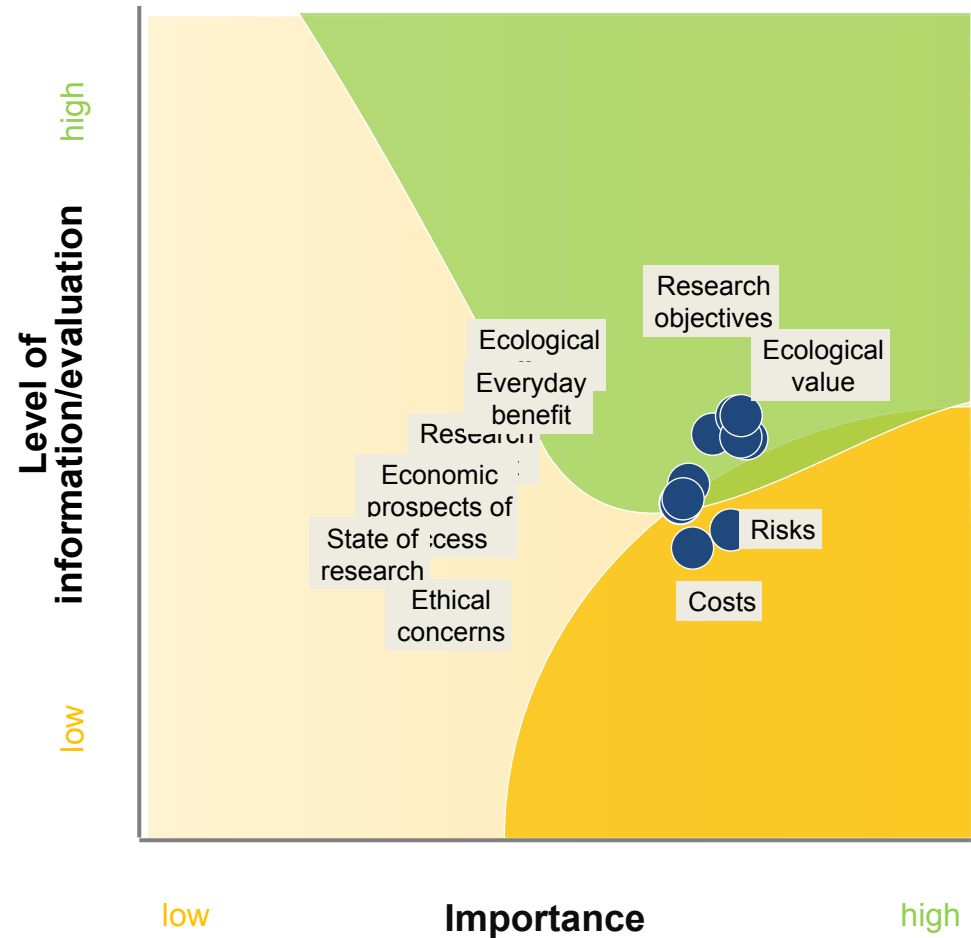
How important are the following contents of information on research projects to you?

Also the „Convinced“ and the people with information in advance see a higher importance in the topics.

	All	Detractors	Neutrals	Convinced	well informed in advance and both answers were right	well informed in advance and at least one answer was wrong	not informed in advance and both answers were right	not informed in advance and at least one answer was wrong	well informed in advance and no material	not informed in advance and no material
Ecological effects	4,7	3,7	4,3	5,0	4,9	4,8	4,5	4,1	4,9	4,4
Everyday benefit	4,7	3,8	4,5	5,1	5,1	4,9	4,7	4,1	5,1	4,6
Research objectives	4,6	4,1	4,5	5,0	4,9	4,8	4,7	4,2	5,0	4,6
Ecological value	4,6	3,7	4,2	4,7	4,7	4,7	4,3	4,0	4,8	4,3
Risks	4,6	3,8	4,5	5,2	5,2	4,8	4,8	4,2	5,1	4,6
Research subject	4,5	3,7	4,2	4,6	4,8	4,7	4,3	4,0	4,8	4,2
Costs	4,3	3,8	4,5	5,1	5,1	4,8	4,8	4,2	5,0	4,5
Ethical concerns	4,3	4,0	4,5	5,1	4,9	4,8	4,8	4,3	5,0	4,6
Economic prospects of success	4,3	3,6	4,2	4,7	4,8	4,7	4,2	4,0	4,9	4,2
State of research	4,3	4,2	4,3	4,5	4,7	4,7	4,3	4,1	4,7	4,2
N	4,056	252	2,680	1,123	189	209	852	721	409	1,586



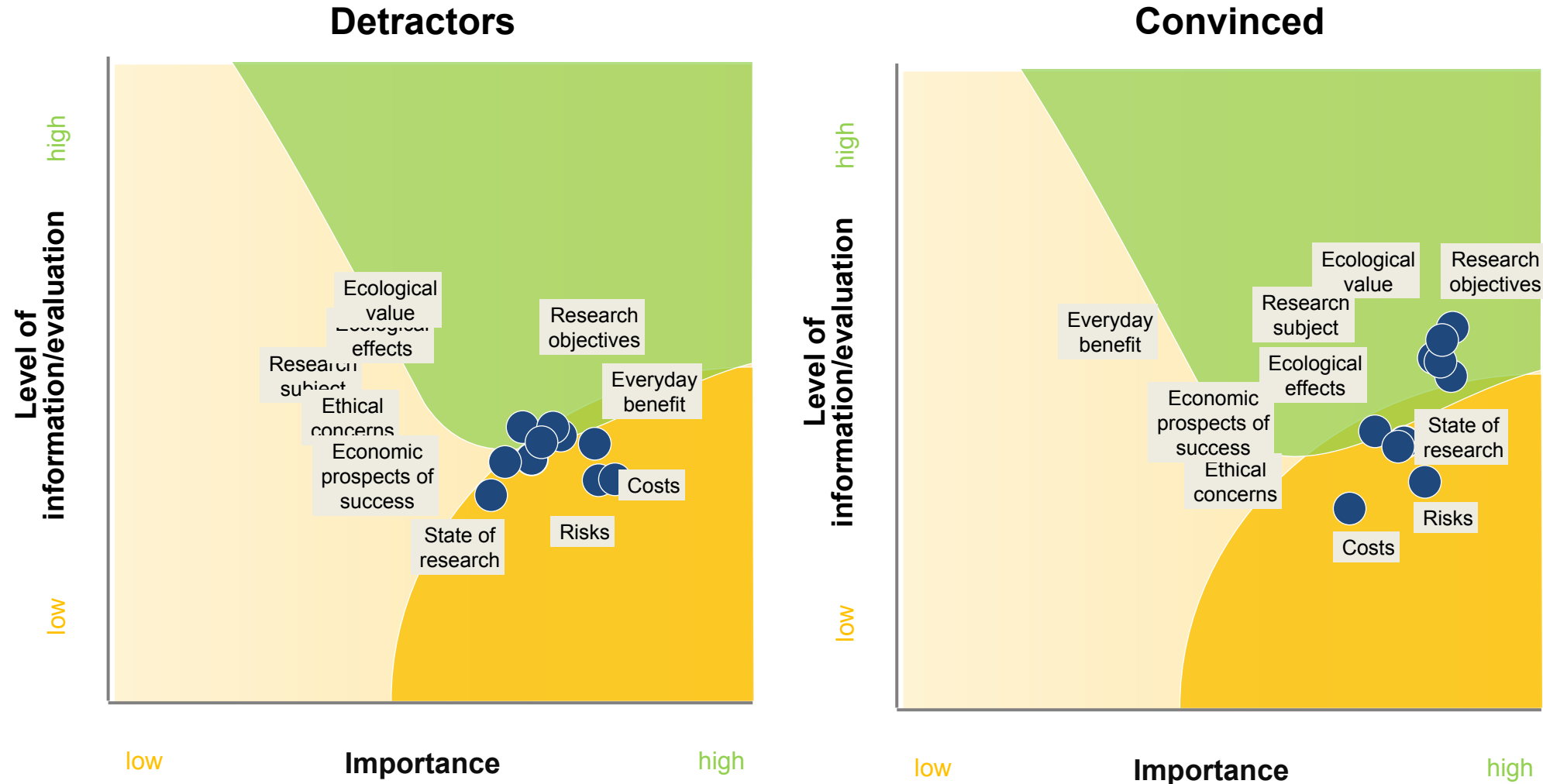
# Matrix of evaluation and importance of information



All of the topics are important for the participants. On the other hand they are not completely satisfied with the information they got.

There is still a need for information, especially with regard to **costs and risks** of the project.

# Matrix of evaluation and importance of information



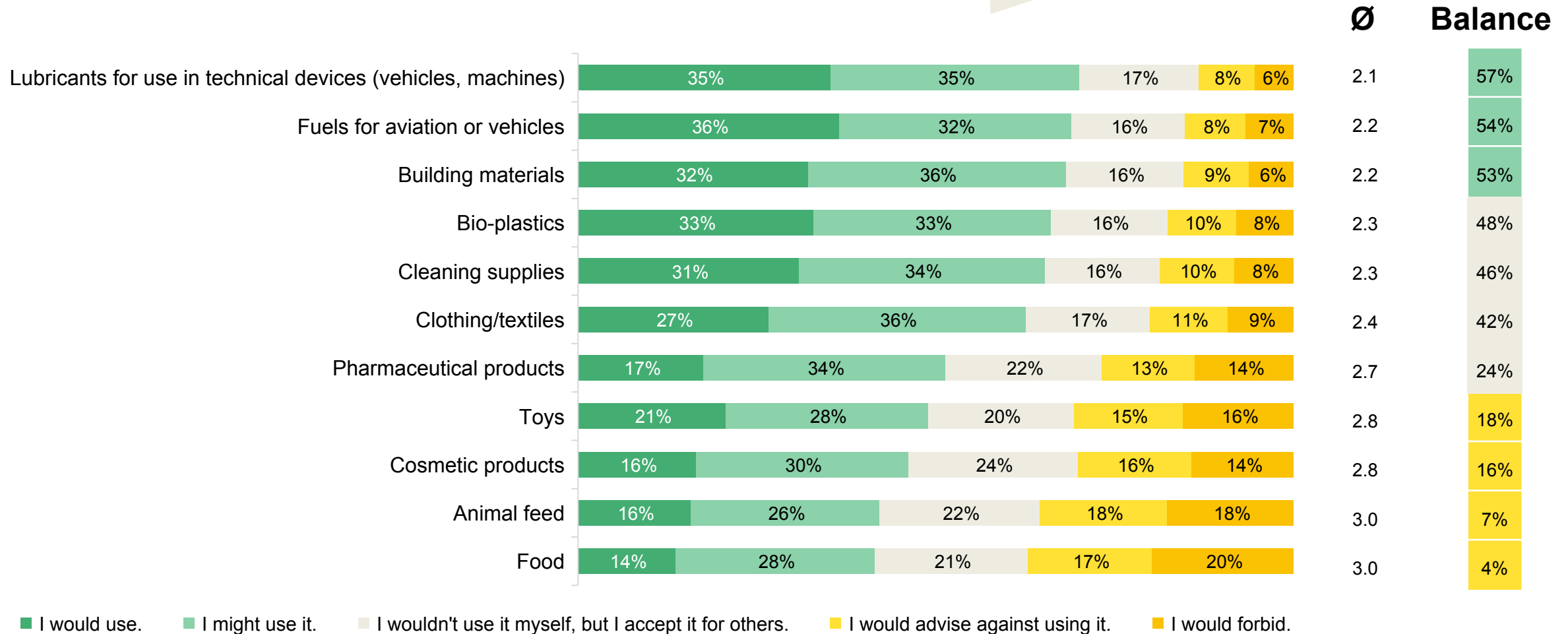
Both groups rate the importance of the topics on the same level.

The convinced participants feel better informed than the detractors.

## Products made with genetically modified bacteria

What is your attitude towards products made with genetically modified bacteria?

It is acceptable for participants to use products made with GMOs as long as they do not come into direct contact with the body.



## Products made with genetically modified bacteria

What is your attitude towards products made with genetically modified bacteria?

The stakeholder as well as the Spanish participants accept these products a bit more.

	All	Population	Stakeholder	Uninformed	Informed	Germany	France	Norway	Slovenia	Spain
Lubricants for use in technical devices (vehicles, machines)	2,1	2,2	1,6	2,2	2,1	2,3	2,2	2,3	2,0	2,0
Fuels for aviation or vehicles	2,2	2,2	1,5	2,2	2,1	2,3	2,2	2,4	2,1	2,0
Building materials	2,2	2,2	1,6	2,3	2,2	2,4	2,2	2,4	2,1	2,0
Bio-plastics	2,3	2,3	1,7	2,3	2,2	2,4	2,3	2,4	2,1	2,0
Cleaning supplies	2,3	2,3	1,8	2,4	2,3	2,5	2,4	2,5	2,2	2,0
Clothing/textiles	2,4	2,4	1,8	2,5	2,4	2,6	2,5	2,5	2,4	2,0
Pharmaceutical products	2,7	2,7	1,8	2,8	2,7	2,8	2,9	2,7	2,8	2,4
Toys	2,8	2,8	2,2	2,9	2,7	2,9	2,9	2,8	2,9	2,3
Cosmetic products	2,8	2,8	2,3	2,9	2,8	2,9	3,0	2,8	2,9	2,5
Animal feed	3,0	3,0	2,2	3,0	2,9	3,1	3,1	2,9	3,1	2,6
Food	3,0	3,0	2,5	3,1	3,0	3,2	3,2	2,8	3,2	2,7
N	4,056	3,967	89	1,995	1,972	826	805	788	828	805

## Products made with genetically modified bacteria

What is your attitude towards products made with genetically modified bacteria?

The participants who were well informed in advance and have read the given information have fewer reservations about the products.

	All	Detractors	Neutrals	Convinced	well informed in advance and both answers were right	well informed in advance and at least one answer was wrong	not informed in advance and both answers were right	not informed in advance and at least one answer was wrong	well informed in advance and no material	not informed in advance and no material
Lubricants for use in technical devices (vehicles, machines)	2,1	2,8	2,3	1,7	1,9	2,5	1,8	2,3	2,8	3,1
Fuels for aviation or vehicles	2,2	2,9	2,3	1,7	2,0	2,6	1,9	2,4	2,8	2,9
Building materials	2,2	2,9	2,4	1,8	2,0	2,6	1,9	2,5	2,3	2,4
Bio-plastics	2,3	3,1	2,4	1,8	2,0	2,7	1,9	2,5	2,2	2,2
Cleaning supplies	2,3	3,0	2,5	1,8	2,0	2,6	2,0	2,5	2,7	2,8
Clothing/textiles	2,4	3,2	2,5	1,9	2,2	2,7	2,1	2,6	2,4	2,3
Pharmaceutical products	2,7	3,5	2,8	2,3	2,5	2,8	2,6	2,9	2,9	3,1
Toys	2,8	3,5	2,9	2,3	2,6	2,8	2,5	2,9	2,5	2,5
Cosmetic products	2,8	3,5	2,9	2,4	2,7	2,9	2,6	2,9	2,3	2,2
Animal feed	3,0	3,7	3,0	2,6	2,7	2,9	2,8	3,1	2,8	2,9
Food	3,0	3,6	3,1	2,7	2,9	2,9	2,9	3,1	2,3	2,3
N	4,056	244	2,426	1,066	186	195	780	648	385	1454

## Benefits

The research team expects the following benefits in the technical implementation and application of the research results. In your opinion, how relevant are these for society?

The benefits are all relevant for the participants. The most relevant are: reduction of transportrelated environmental pollution, reduction in the use of palm oil and increasing the sustainability of many everyday products.



## Benefits

The research team expects the following benefits in the technical implementation and application of the research results. In your opinion, how relevant are these for society?

The stakeholder as well as the participants in France and Slovenia rate the benefits as more relevant.

	All	Population	Stakeholder	Uninformed	Informed	Germany	France	Norway	Slovenia	Spain
Reduction of transport-related environmental pollution, since the products are created at the place of use	4,7	4,7	5,2	4,8	4,7	4,7	4,9	4,3	4,9	4,8
Reduction in the use of palm oil	4,7	4,7	5,1	4,7	4,7	4,8	5,0	4,5	4,5	4,8
Increasing the sustainability of many everyday products	4,7	4,7	5,4	4,7	4,6	4,8	4,8	4,3	4,6	4,8
Increasing independence from global supply chains	4,6	4,6	5,1	4,6	4,6	4,8	4,6	4,3	4,8	4,6
Findings and detailed knowledge for further research	4,5	4,5	4,8	4,5	4,4	4,5	4,5	4,2	4,6	4,5
Supporting the expansion of regional value chains	4,5	4,5	5,3	4,5	4,5	4,6	4,6	4,2	4,5	4,5
Increasing the profitability of industrial biogas plants	4,3	4,3	4,8	4,4	4,3	4,4	4,5	4,1	4,2	4,5
N	4,056	3,967	89	1,995	1,972	826	805	788	828	805

## Benefits

The research team expects the following benefits in the technical implementation and application of the research results. In your opinion, how relevant are these for society?

The participants who got their information from the shown material rate the benefits on the same level as the participants with information they had before the survey.

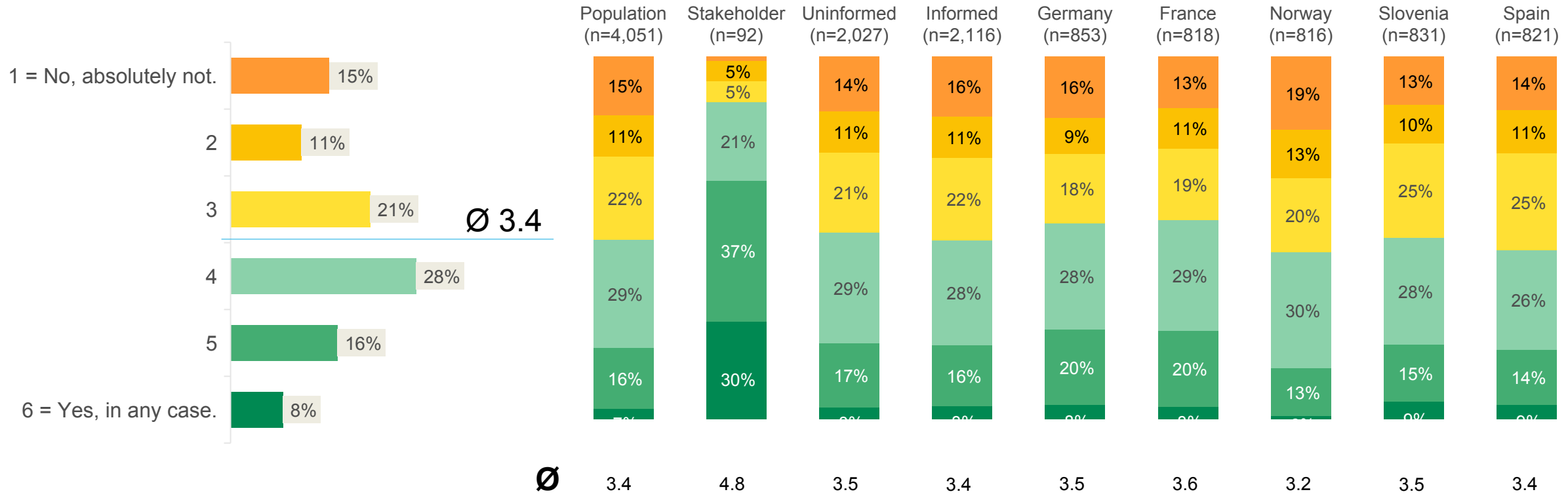
	All	Detractor	Neutrals	Convinced	well informed in advance and both answers were right	well informed in advance and at least one answer was wrong	not informed in advance and both answers were right	not informed in advance and at least one answer was wrong	well informed in advance and no material	not informed in advance and no material
Reduction of transportrelated environmental pollution, since the products are created at the place of use	4,7	3,9	4,6	5,4	5,0	4,6	5,0	4,3	5,0	4,7
Reduction in the use of palm oil	4,7	3,9	4,5	5,3	5,0	4,7	5,0	4,3	4,8	4,7
Increasing the sustainability of many everyday products	4,7	3,7	4,5	5,3	5,0	4,5	4,9	4,3	4,9	4,6
Increasing independence from global supply chains	4,6	3,8	4,4	5,2	4,9	4,6	4,8	4,2	4,8	4,6
Findings and detailed knowledge for further research	4,5	3,6	4,3	5,1	4,9	4,7	4,6	4,1	4,9	4,4
Supporting the expansion of regional value chains	4,5	3,6	4,3	5,0	5,0	4,6	4,7	4,1	4,7	4,4
Increasing the profitability of industrial biogas plants	4,3	3,4	4,2	4,9	4,8	4,5	4,5	4,0	4,6	4,3
N	4,056	238	2,603	1,062	187	203	845	699	402	1,568



# Willingness to buy

Would you be willing to pay a higher price because of the improved sustainability of the products?

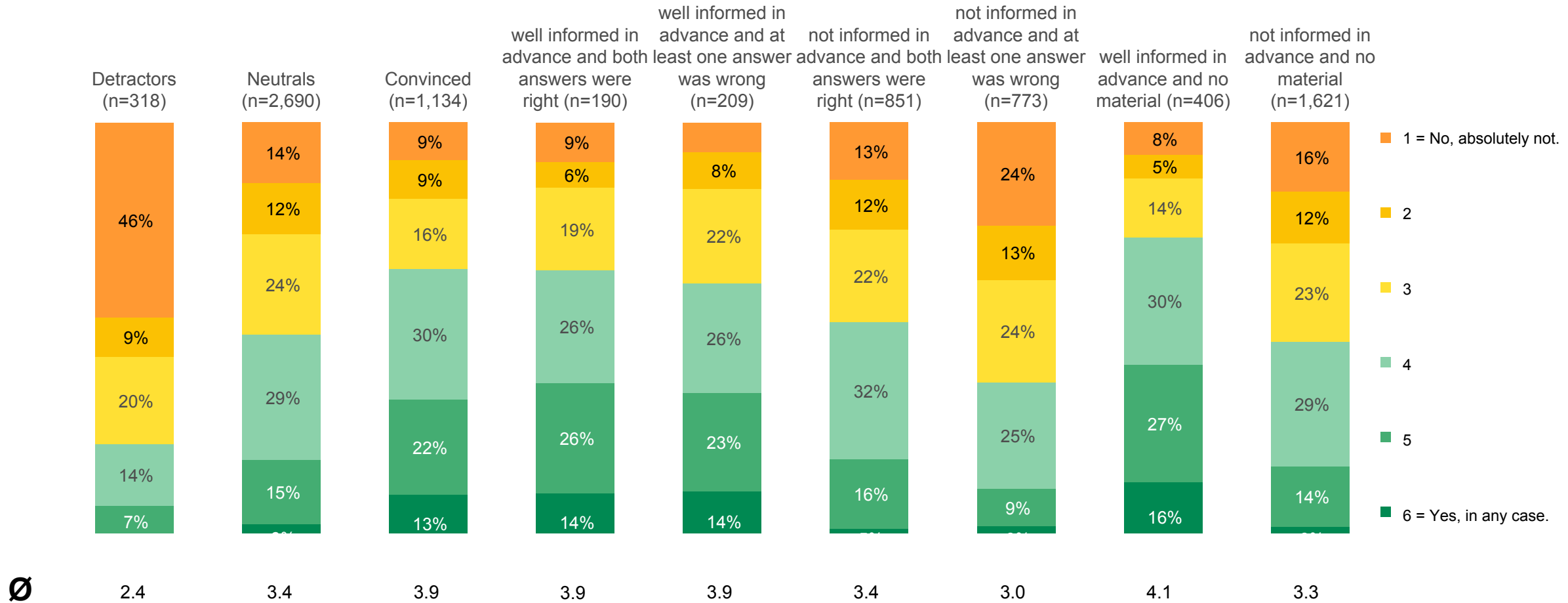
The willingness to pay a higher price is quite balanced. Stakeholder would rather pay a higher price.



# Willingness to buy

Would you be willing to pay a higher price because of the improved sustainability of the products?

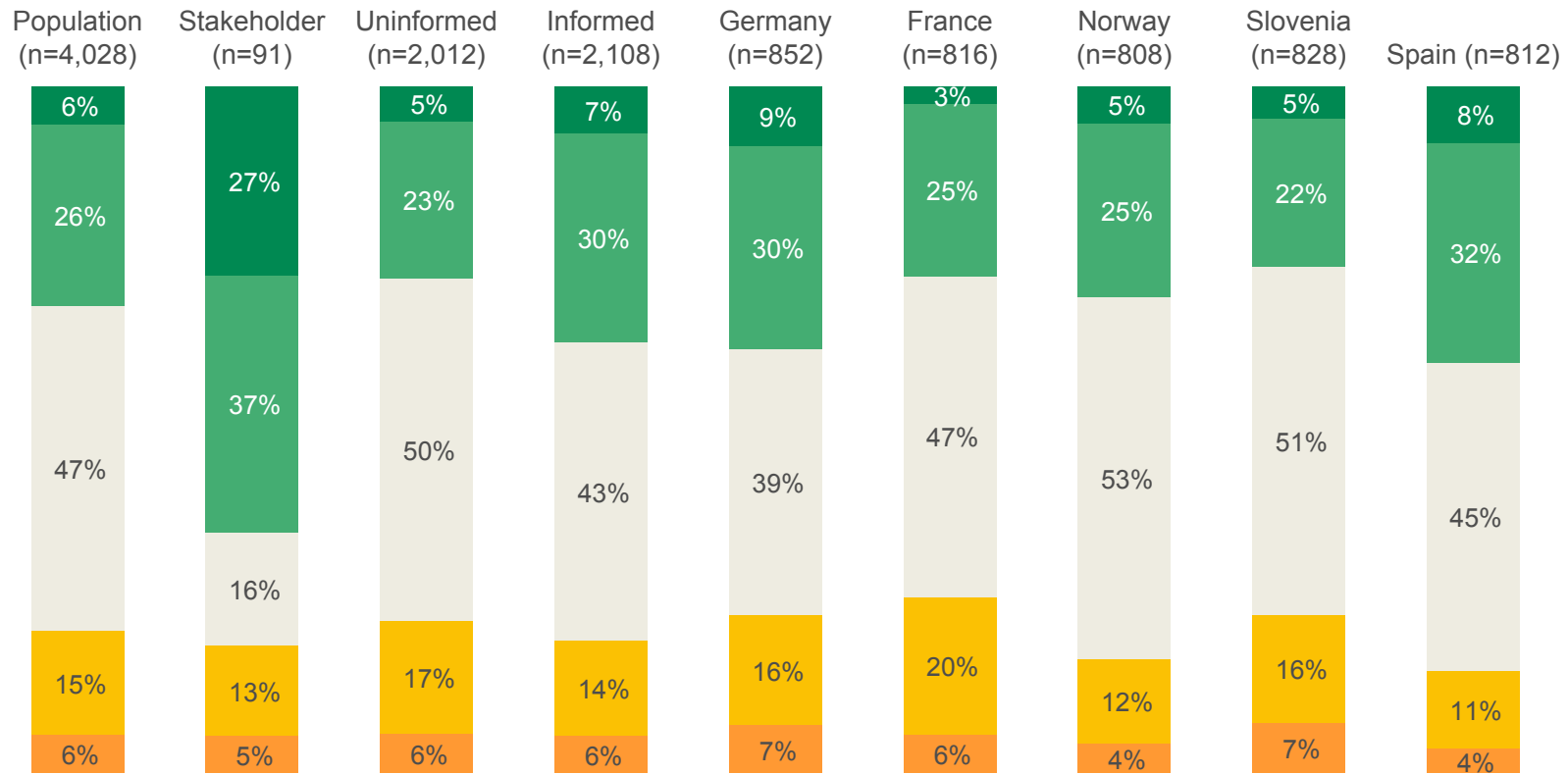
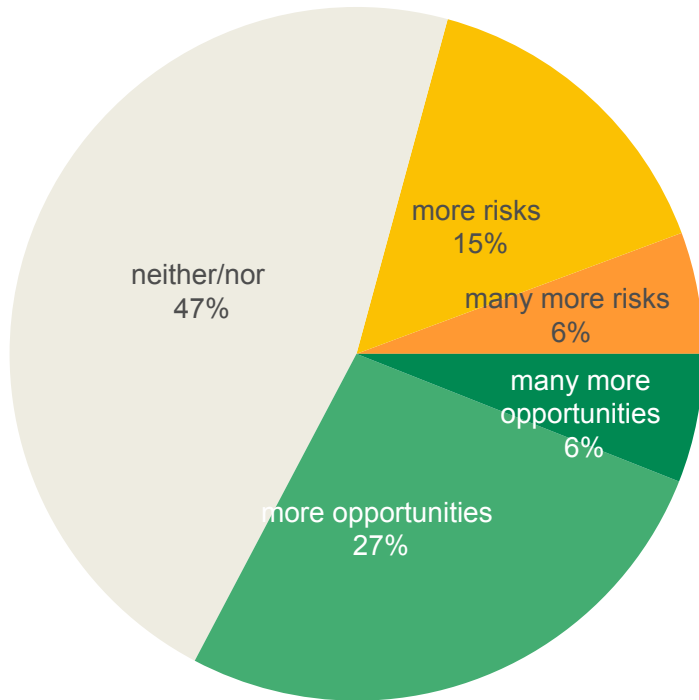
The willingness to pay a higher price is higher for the “Convinced” and for participants with information about the topic or project.



## Opportunities and risks

In your opinion, do the opportunities outweigh the risks associated with products manufactured using genetically modified bacteria?

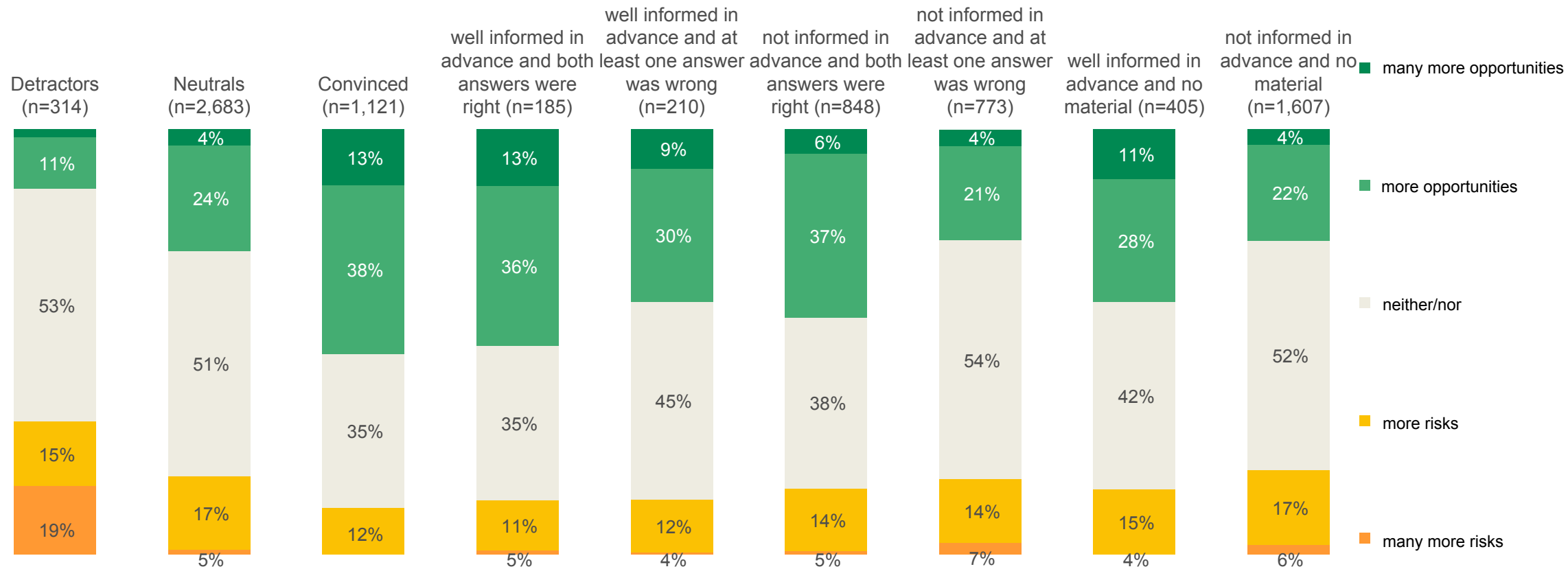
For the participants the opportunities easily outweigh the risks. The stakeholder see definitely more opportunities than risks.



## Opportunities and risks

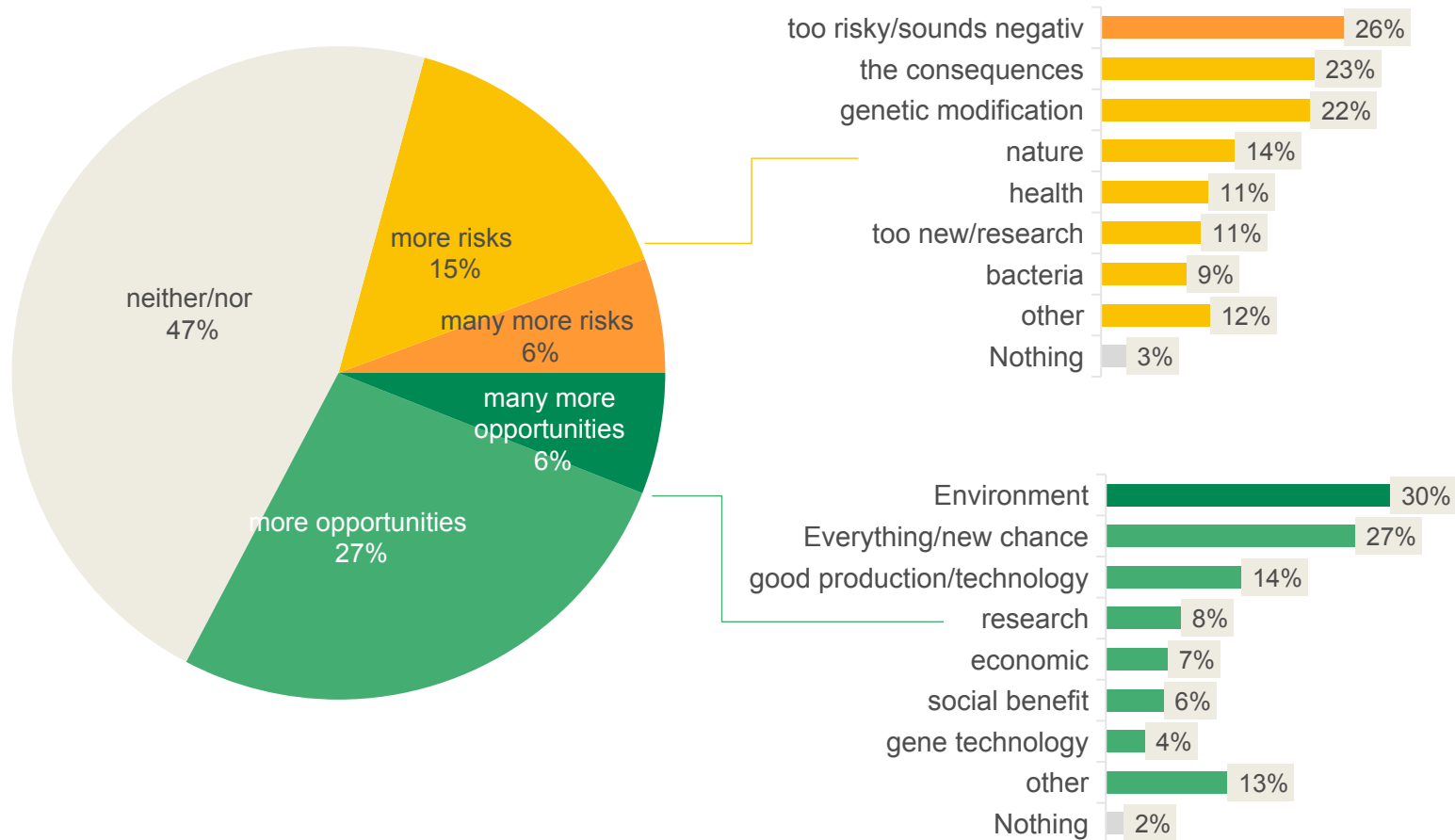
In your opinion, do the opportunities outweigh the risks associated with products manufactured using genetically modified bacteria?

For those participants with information, either from what they had in advance or from what was shown as part of the survey, the opportunities outweigh the risks.



# Opportunities and risks

Please explain to us briefly why the [opportunities/risks] outweigh for you:



Participants remain skeptical about GMOs.

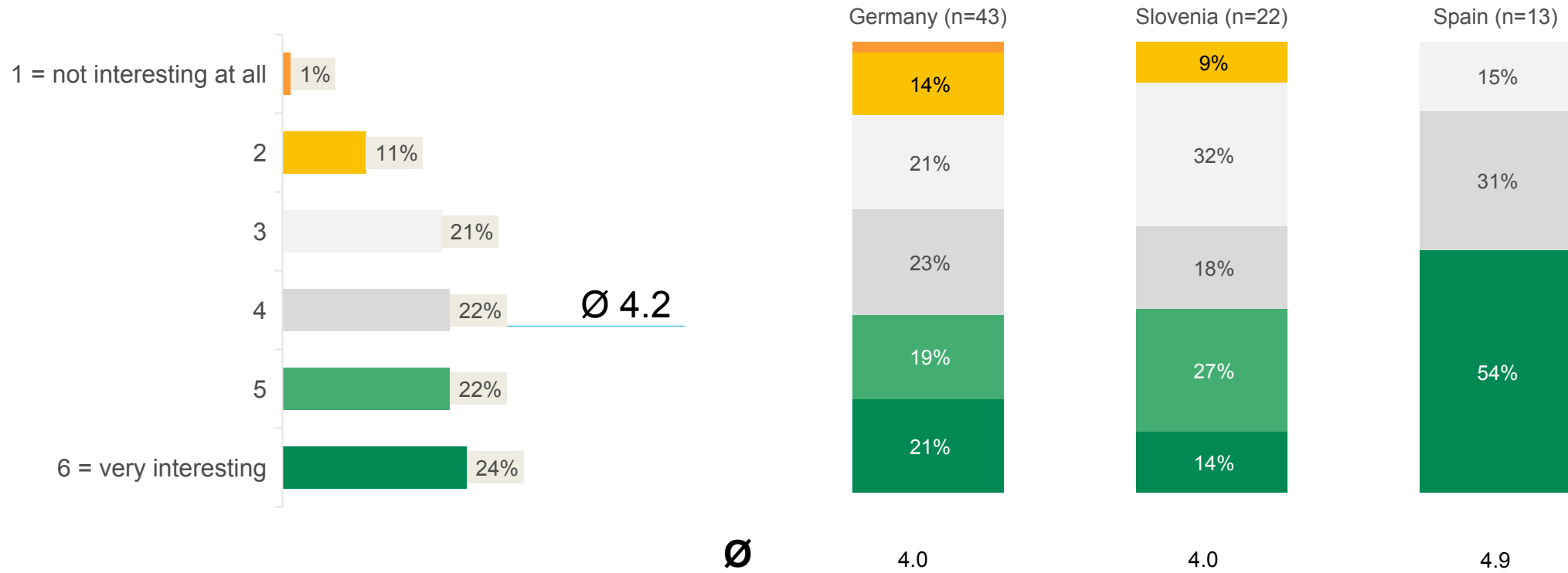
However, some see the opportunities that arise in terms of sustainability and technology.

**Stakeholder**

## Interest in the project

How interesting is the research project described for your current job?

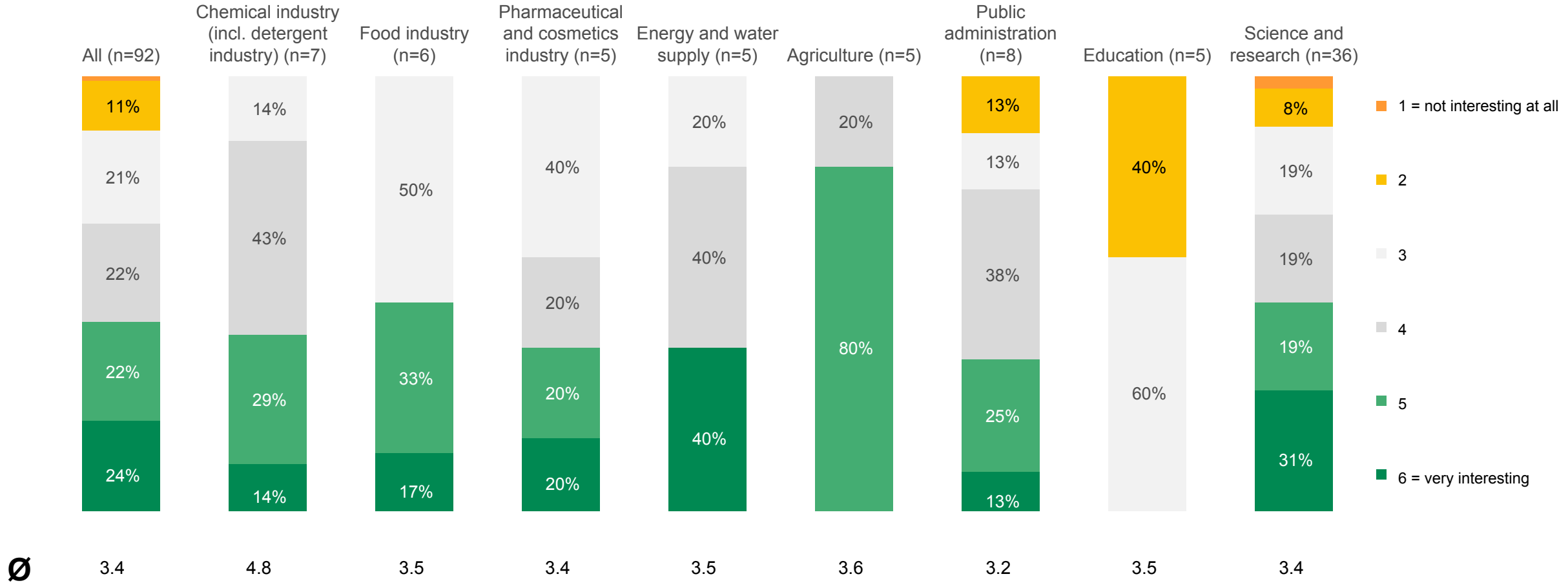
Half of the stakeholder think that the project is interesting for their job.



# Interest in the project

How interesting is the research project described for your current job?

Especially for stakeholder from the chemical industry the project is interesting.

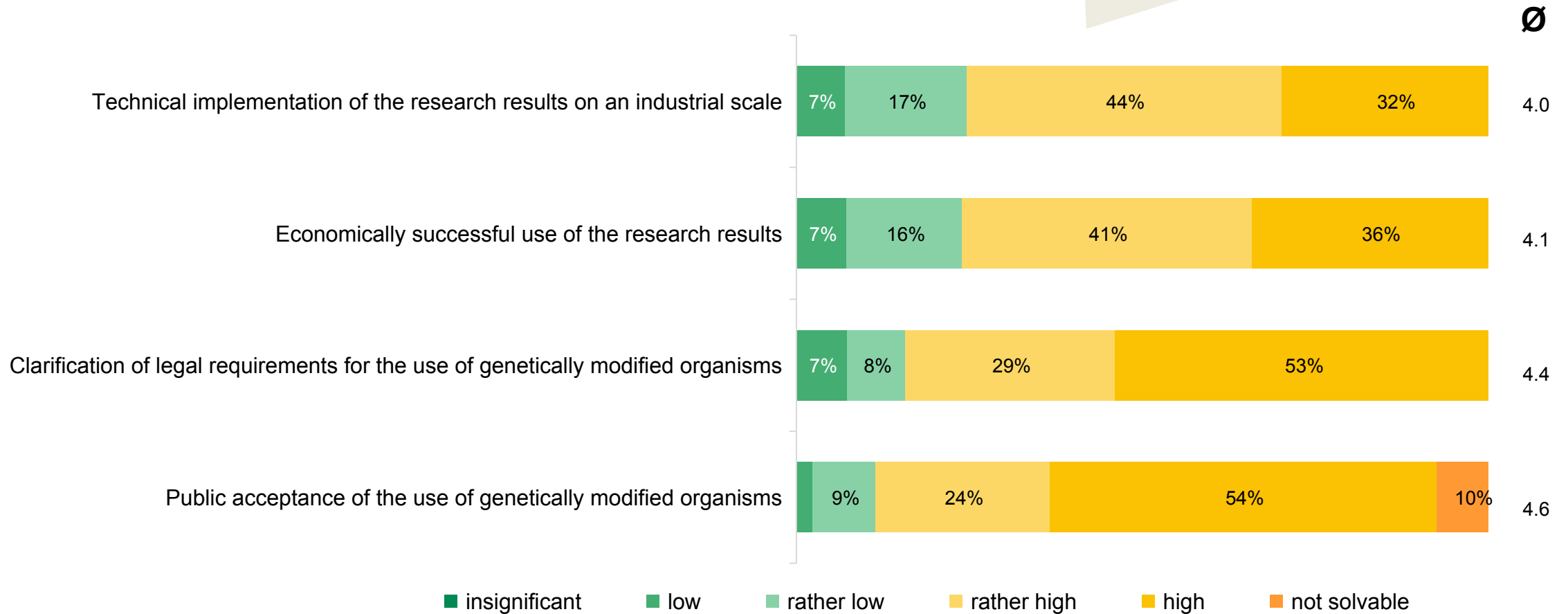




## Assessment of challenges

How do you assess the following challenges regarding the application of the specific research results achieved in the project?

The stakeholder rate all challenges as high. 10% think that the public acceptance of the use of GMOs is not solvable.



## Assessment of challenges

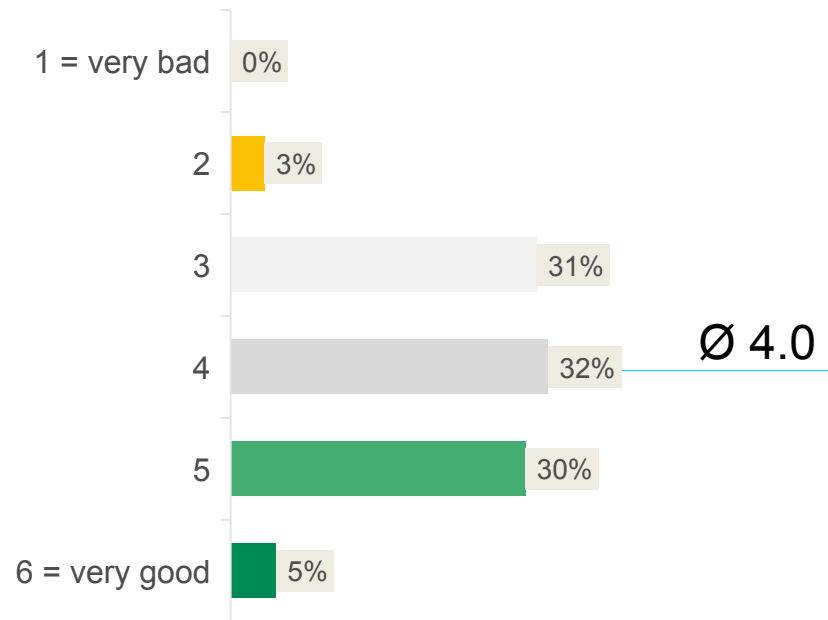
How do you assess the following challenges regarding the application of the specific research results achieved in the project?

The Spanish stakeholder seems to be a bit more reserved regarding the challenges.

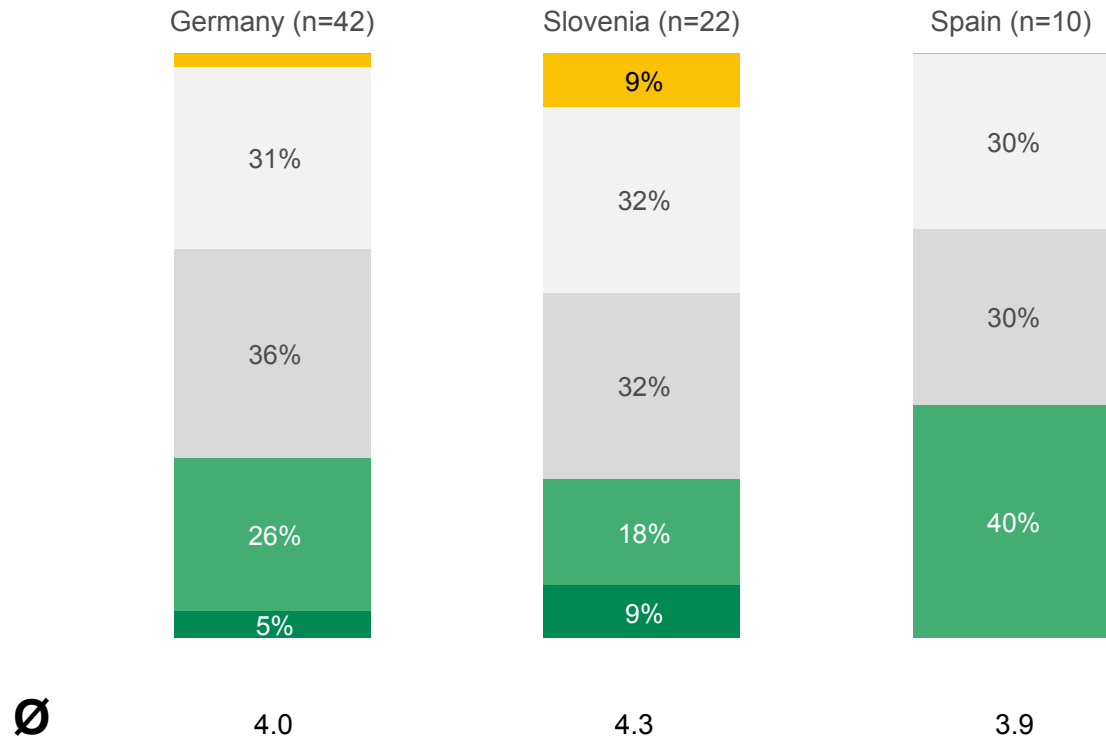
	All	Germany	Slovenia	Spain
Technical implementation of the research results on an industrial scale	4,0	4,0	3,9	4,3
Economically successful use of the research results	4,1	3,9	4,0	4,5
Clarification of legal requirements for the use of genetically modified organisms	4,4	4,6	3,9	4,5
Public acceptance of the use of genetically modified organisms	4,6	4,5	4,8	4,7
N	85	39	20	13

## Chances of success for the market

How do you assess the chances of success for implementing the process on the market?



The stakeholders are rather reluctant when it comes to the chances of success for implementing the process in the market.



# Summary

- It seems **possible to reduce reservations about the use of GMOs** through information.
- However, the information shown is **not necessarily sufficient**, especially when it comes to ethical issues, risks and costs.
- In general, the participants think that science and research **do not provide enough information** and would like to see **more simple and understandable** formats.
- Respondents use **video formats** the most to find out about science and research. These should be made available primarily on **YouTube**. Videos on **TikTok** are also suitable for the younger target group.
- The material shown seems **more accessible to stakeholders** and those with **prior knowledge**.
- It is important to the participants that the information material **illuminates all aspects** and **does not omit the negative ones**, such as risks and costs.
- **Acceptance** of products made with GMOs **varies depending on how close the product comes to my body**. It can be assumed that the last hurdle will be difficult to overcome.