



# COVID-19

| empirical study on vaccine skeptics and strategies  
to increase the take-up of COVID-19 vaccines



## PREFACE

As a public benefit foundation supporting research-based innovation in the wider health industries for societal benefit, it is of utmost importance to us to identify obstacles to the dissemination of health innovation. This study showed that the cohort of vaccine-deniers has significantly grown during the COVID-19 pandemic due to the fast approval process and fear of adverse health effects related to the novel vaccines. We need to act swiftly to address the concerns of this massive cohort of new vaccine skeptics, before people retract into domains outside of participatory democracy. Now is the time to communicate to everyone that EMA-approved SARS-CoV-2 vaccines are safe, efficacious and do not alter the human genes.

Now that COVID-19 vaccination campaigns worldwide have started and are building momentum it is of utmost importance to increase the uptake and willingness to be vaccinated against the coronavirus. This study offers important insights into the cohort of vaccine skeptics and the specific areas of need for communication and information as the survey reveals concerning societal divisions that public health officials need to address. Finally, the study can also serve as a starting point for strengthening policymaking towards reaching and maintaining herd immunity and hence long term strategies to overcome the pandemic.

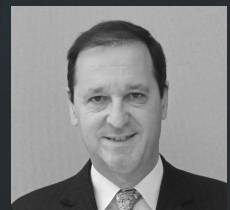
Why do people refuse to take a vaccine that could save them from a pandemic? The EIB Institute, the philanthropic arm of the EIB, has partnered with the Swiss Academies of Sciences and the kENUP Foundation to shed light on what could become an obstacle to successfully completing the ongoing COVID-19 vaccination campaigns. I am confident that this survey on Germany and similar initiatives in other countries will contribute to the fight against the pandemic, allowing for a swift and sustainable transition to normal life. The EIB Institute was set up within the EIB Group to promote and support social, cultural and academic initiatives with European stakeholders and the public at large. It is a key pillar of the EIB Group's community and citizenship engagement.



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## empirical study on COVID-19 vaccine skeptics —————

# 1. EXECUTIVE SUMMARY

Vaccination is one of the public health measures that has had the greatest impact on the reduction of the burden from infectious diseases. Vaccines prevent up to 3 million deaths worldwide each year<sup>1</sup>. Therefore, vaccines are the most important tool in exiting the ongoing COVID-19 pandemic. Yet, anti-vaccination sentiments are highest in Europe compared to other regions in the world, potentially undermining vaccination and herd immunity efforts. kENUP Foundation, the Swiss Academies of Arts and Sciences and the EIB Institute have conducted a study to contribute to a better understanding of COVID-19 vaccine skepticism and outright rejection. The study



identifies the socioeconomic and consumer behavior profile, as well as the dominant values and positions of the current COVID-19 anti-vaccination cohort in Germany and examines potential strategies to increase willingness to get a COVID-19 vaccine in that cohort.

- Overall, 19.6% of the German population make up the COVID-19 vaccine skepticism group, those unlikely or very unlikely to take the jab once offered to them. Almost 84.2% of that group were not opposed to vaccines before the corona crisis. This means that 13.7 million new skeptics drive the high COVID-19 anti-vaccine sentiments.
- COVID-19 vaccine skepticism is mainly driven by the fear of long-term damage (66.0%), the fast approval process (54.7%) and fear of adverse health effects (53.0%). It correlates with corona virus denial: 21.7% of vaccine skeptics and 36.8% of long-term anti-vaccinationists disagree that COVID-19 causes serious adverse health effects. Denial that the virus has infected many people worldwide is 21.8% and 40%, respectively for new skeptics and long-term anti-vaccinationists.
- While 69.3% of all vaccine skeptics claim that they could be convinced to take the COVID-19 vaccine through factual assurances, 69.4% of long-term anti-vaccinationists state that nothing would convince them. On the assurances needed for attitudinal change within the overall cohort, exclusion of long-term damage (52.0%), proven effectiveness (40.8%) and the evidence that genes are not changed (32.0%) top the list. Also, neither celebrity endorsement nor prospects of long-distance travel are convincing skeptics to be vaccinated. Finally, vaccine skeptics seem to have more trust in vaccines originating from Germany, the United States, and the United Kingdom. Vaccines from Russia, China and especially India would have low chances to convince skeptics.
- A prevailing lack of life meaning and political participation defines the cohort of vaccine skeptics: 89.2% feel that they have no influence over politics. Of the long-term anti-vaccinationists, 35.2% express existential fears and financial worries, with life lacking any perspective for 35.6% of them. In terms of political affiliation, the anti-vaccination group is predominantly AfD-leaning (43.0%, far-right), with

support of FDP (liberal) and Die Linke (left) also over-represented, while affinity to the established parties remains significantly underrepresented. Anti-vaccination sentiments are much higher in people of non-Christian religions.

- Vaccine skeptics predominantly do not work, or if they do, they are not employed but pursue independent activities. 44.8% of them left secondary school without any certification or attained the lowest degree. The group predominately lives in households with children and in low density areas with lower purchasing power, with a strong spike in the Eastern German States.
- The classical news channels, including television and curated authoritative content in the internet, do not reach the anti-vaccinationists group, as their media consumption is dominated by YouTube and Facebook. On the other hand, they are predominantly late adopters to technology. The group is further characterized by a high affinity to brands, having fun with friends, DIY, and a low kinship to eco-friendly products.

The survey was carried out by Civey, a Berlin based market research and public opinion start-up, from January 18 to February 2, 2021. The final sample size of vaccine skeptics was 2.500. First, the anti-vaccination cohort was identified by including only respondents who will definitely not or rather not get a COVID-19 vaccine. The anti-vaccination cohort was asked to answer up to twelve follow-up questions asking for their positions towards COVID-19 vaccines and potential ways to increase acceptance of these vaccines.







empirical study on COVID-19 vaccine skeptics

## 2. METHODOLOGY

The survey was carried out by Civey GmbH, a Berlin based market research and public opinion start-up, from January 18 to February 2, 2021. The final sample size of vaccine skeptics was 2.500 of respondents from Germany.

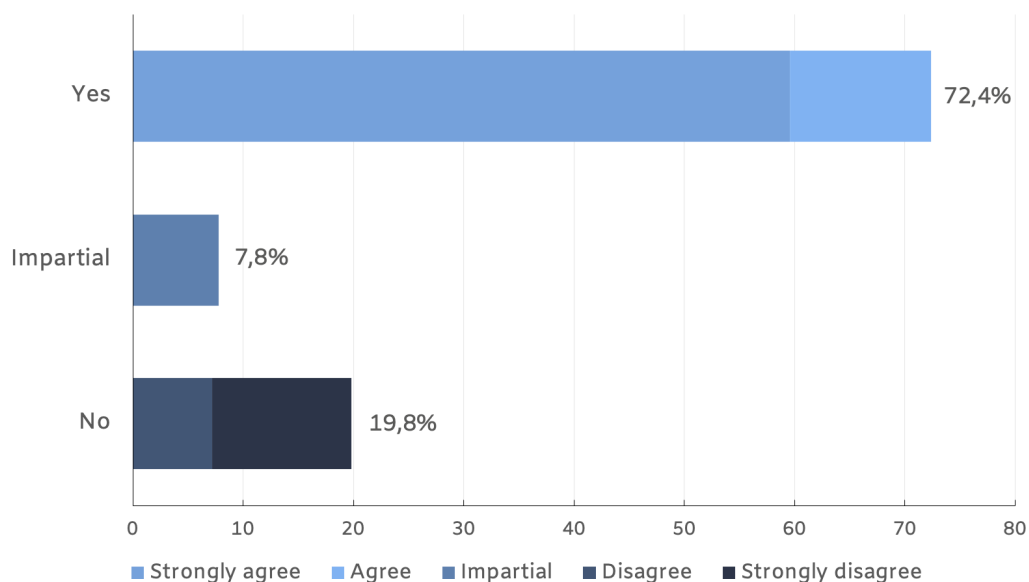
First, the anti-vaccination cohort was identified by including only respondents who will definitely or rather not get a COVID-19 vaccine. The anti-vaccination cohort was asked to answer up to twelve follow-up questions.



Currently, only 59.6% of respondents are willing to get a COVID-19 vaccine. Another 12.8% are somewhat willing to get a jab. Almost one in five Germans is very unlikely or somewhat unlikely to get a vaccine shot. That group is the foundation of the following analysis and forms the cohort of vaccine skeptics and anti-vaccinationists.

## Will you get vaccinated against the coronavirus as soon as you can get a vaccine?

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### 2.2 Civey methodology

Civey conducts all surveys in real time on more than 25,000 URLs of high-reach websites such as DER SPIEGEL, DIE WELT or T-Online.de. Through this process, Civey recruits participants with a wide range of interests and characteristics for its own panel. The questions cover, for example, politics, business, technology, sports and consumer behaviour and serve as an introduction to the verification process for panelists. A special algorithm ensures that all surveys are conducted evenly across the URLs and within the survey time. Every month, around 15 million participant responses are determined in this way. Before a participant's response is included in the sample, participants are

verified. The verification includes a low-threshold registration where participants provide three socio-demographics and their consent to data processing. For further verification, Civey carries out technical, statistical and content plausibility checks. These include, for example, the click behaviour of the participants and the speed of participation as well as contradictions in given answers. Targeted manipulation of the results is thus ruled out. From the verified participant responses, another algorithm draws quota-based samples on all surveys around the clock. In addition to quoting by socio-demographics, such as gender or age, the algorithm ensures that any possible content bias in voting is compensated for. Polls that are displayed to a user via the recommendation algorithm are included in the sample. Responses to a poll that are directly embedded in an article are usually not included due to a possible content bias. In the final step before the results are determined, possible demographic imbalances are eliminated using classic methods of survey statistics. This is done on the basis of official figures, for example from the Federal Statistical Office or the Federal Election Commissioner. Depending on the availability of the official data, weighting is carried out via the marginal distributions (ranking) or via the joint distributions (poststratification). Small Area Methods with Multilevel Regression with Poststratification (MRP) are used to determine regional results.<sup>1</sup>

An in-depth discussion on the methodology can be found at <https://civey.com/whitepaper>.

## **2.3 Limitations**

The survey was conducted in Germany. The data shown here is representative for the German population only and is not necessarily representative for the whole of Europe. In addition, the survey covered only respondents with access to the internet, possibly skewing the results slightly.

While the survey is technically representative for Germany only and was conducted through widgets embedded in German online media, results of Civey-surveys generally correlate well with the German-speaking Cantons of Switzerland and Austria, due to similar socioeconomics at large.

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<sup>1</sup> <https://civey.com/ueber-civey/unsere-methode>







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## 3. BACKGROUND

Since December 2019, the coronavirus pandemic has had a firm grip on the world. The economic and social consequences are immense. Only through the development and deployment of diagnostics, therapeutics and vaccines can infections be detected, treated and prevented, thus ending the health crisis. Within the last eleven months, governments around the world have spent more than €93 billion on development and procurement of vaccines and therapeutics against COVID-19. More than 95%, about €88.3bn, was spent on the development of vaccines, while just 5% of public COVID-19 funds were spent on therapeutics.<sup>1</sup>

<sup>1</sup> <https://www.businesswire.com/news/home/20210110005098/en/Governments-Spent-at-Least-%E2%82%AC93bn-on-COVID-19-Vaccines-and-Therapeutics-During-the-Last-11-Months>

These numbers underline the importance society attaches to vaccines as a key instrument in exiting the corona crisis: Vaccines usually prevent infection from and transmission of the pathogen and are cheaper than treatments. If a sufficient percentage of the population has been vaccinated, the likelihood of infection for individuals who lack immunity is reduced. Herd immunity protects those who cannot be inoculated i.e., due to health issues. Herd immunity against COVID-19 can be reached if 60-70% of the population has been vaccinated.<sup>2</sup>

Consequently, it is important to reach a high level of confidence and trust in the safety and effectiveness of COVID-19 vaccines to secure sufficient participation of the population in the vaccination campaigns and to interrupt transmission of the virus.

### **3.2 Anti-vaccination sentiment**

Currently, only 59.5% of Germans are clearly prepared to get a COVID-19 vaccine. Another 13.6% are somewhat willing to get a jab. Almost one in five Germans is very unlikely or somewhat unlikely to get a vaccine shot. Taking into account that the vaccine efficacy of approved COVID-19 vaccines ranges between 60-95%, acceptance rates of COVID-19 vaccines need to increase to reach the herd immunity threshold.

People in high-income countries are less likely to agree that vaccines are safe, compared to people in low and middle income countries (LMICs). Vaccine skepticism is highest in Western Europe and even before the corona crisis, Europe was the center of anti-vaccination attitudes: In France, 33% of people disagree that vaccines are safe, putting it on top of the list of countries worldwide.<sup>3</sup>

With this study, KENUP Foundation, the Swiss Academies of Arts and Sciences, and the EIB Institute have joined forces to contribute to a better understanding of COVID-19 vaccine skepticism and outright rejection. The study identifies the socioeconomic profile of the current COVID-19 anti-vaccination cohort and examines potential strategies to increase public willingness to get a COVID-19 vaccine.

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2 <https://www.nature.com/articles/d41586-020-02948-4>

3 <https://wellcome.org/sites/default/files/wellcome-global-monitor-2018.pdf>





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# 4. RESULTS OF THE STUDY

The analysis of the target group profile is based on data gathered by Civey on key characteristics expressed by that group. An index value of  $> 1$  indicates that the target group is overrepresented in terms of the corresponding characteristic compared to the total population, while values  $< 1$  are accordingly underrepresented. The higher the index value, the more pronounced the characteristic. Another indicator is the target group share for the individual characteristics.

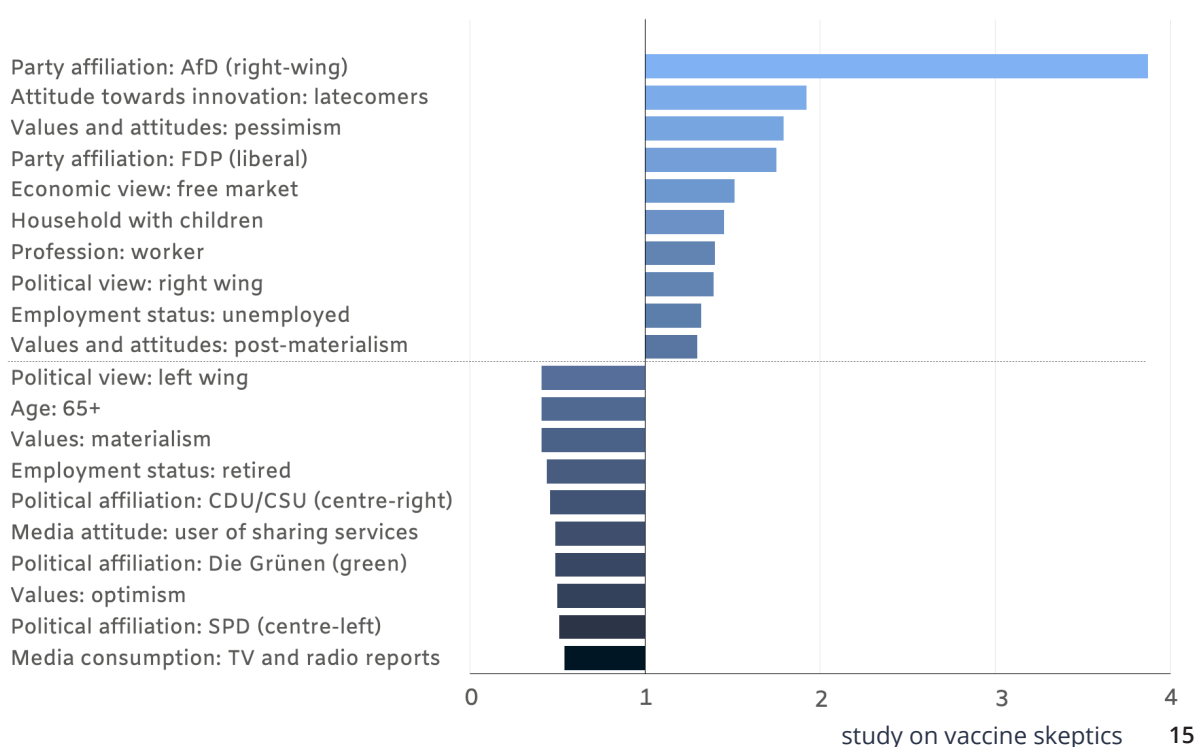
### 4.1.1 Socioeconomics

Vaccine skeptics and anti-vaccinationists are predominantly between 18 and 49 years of age, with a spike in the age group of 30 to 39 years. People above 65 years of age are significantly underrepresented. They are often divorced and living in households with children and three people or above. Households without children are underrepresented. Only 12.8% of Protestants, 17.8% of Catholics, and 19.4% of respondents without religious affiliation do not want to be vaccinated against COVID-19. However, some 32.3% of people belonging to other faiths do not want to get the jab.

The cohort predominantly lives in rented houses in low density areas with lower purchasing power. People living in densely populated areas and in areas with high purchasing power are significantly underrepresented. Vaccine skepticism is higher in East Germany.

In general, the higher the education, the more willing people are to be vaccinated against COVID-19. Respondents with University entrance qualification are significantly underrepresented in the anti-vaccination cohort, which is predominantly not working or pursues independent activities. Students, retired people, white collar workers and public servants are significantly underrepresented.

### Most over- and underrepresented characteristics of vaccines skeptics



#### **4.1.2 Values and Positions**

The anti-vaccination group is predominately pessimistic, post-materialistic and fun-oriented, with low affinities to optimism, materialism, openness to the world, environmental consciousness and general happiness.

In terms of political affiliation, the German target group is predominantly supporting AfD (far-right), followed by FDP (liberal) and Die Linke (left). Affinity to CDU (centre-right), SPD (centre-left) and Die Grünen (green) is significantly underrepresented in the anti-vaccination group. The target group predominately claims to be right, conservative or neutral. Self-reporting of being left or liberal are significantly underrepresented. Free market proponents are overrepresented in the anti-vaccinationists group.

#### **4.1.3 Consumer behavior**

Media consumption of those who are not willing to be vaccinated against COVID-19 is dominated by YouTube and Facebook. Consumption of print-media (incl. of their digital off-springs), television and radio are underrepresented.

The target group is affine to brands and online retail, while the interest in environment and sustainable products is underrepresented. In general, the anti-vaccination group consists of late adaptors to innovation. Early adaptors are significantly underrepresented. People who are not going to be vaccinated like to meet friends, whereas interest in theaters, museums, concerts, board games and excursions, as well as foreign cultures, sports and nutrition is significantly underrepresented.



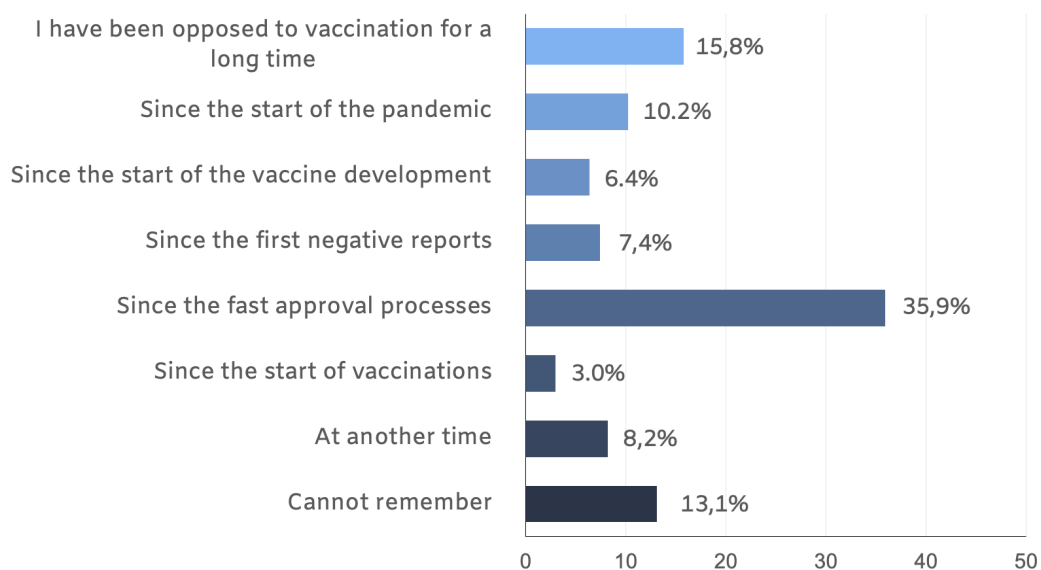
## 4.2 Attitudes towards COVID-19 vaccines

### 4.2.1 Skepticism is driven by fast approval process and fear of adverse effects on health

More than one in three respondents of the anti-vaccination group have decided to abstain from being vaccinated because of the quick development of vaccines and the fast vaccine approval process. On the other hand, more than 15.8% of respondents have already been 'against' vaccines before the beginning of the ongoing pandemic.

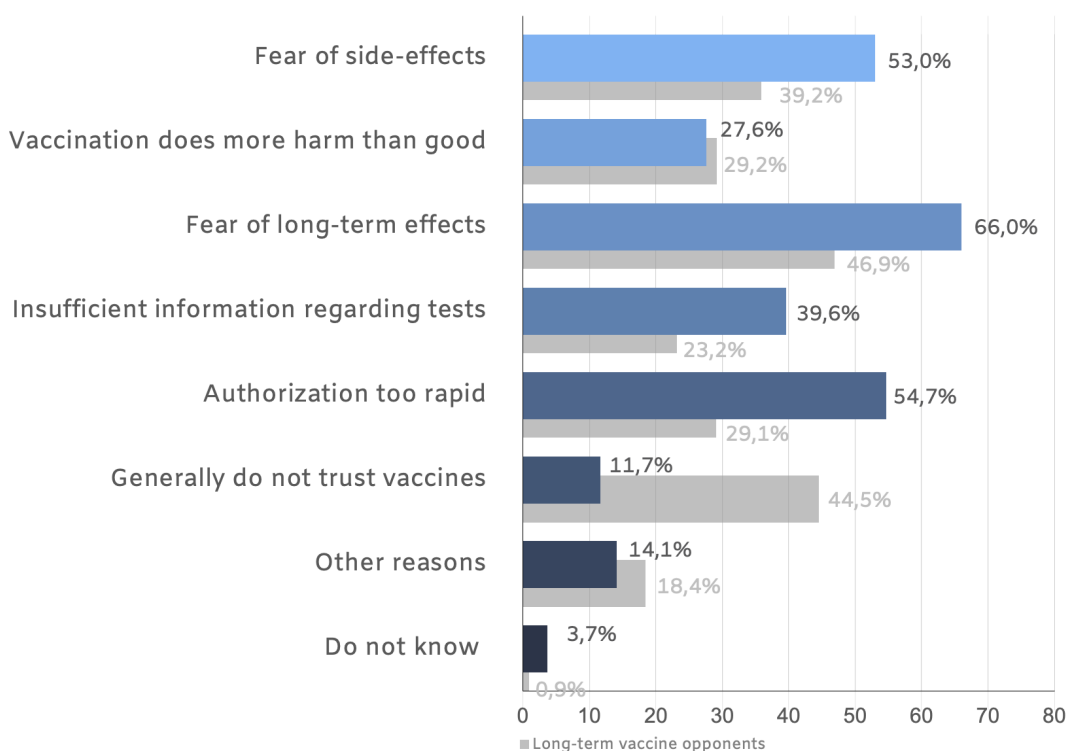
### When did you decide not to get vaccinated against the coronavirus?

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The main reasons for not trusting a COVID-19 vaccine are the speedy approval processes, fear of long-term damages, fear of side effects and a lack of proper information.

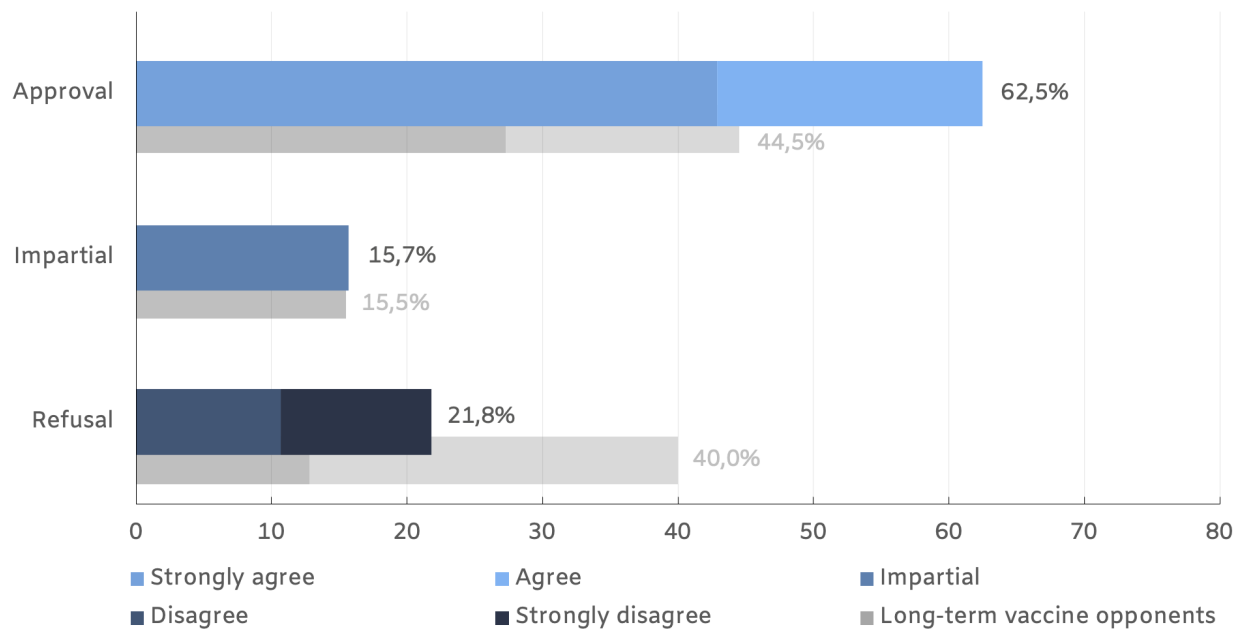
## What are the reasons you do not believe in a vaccine against the coronavirus?



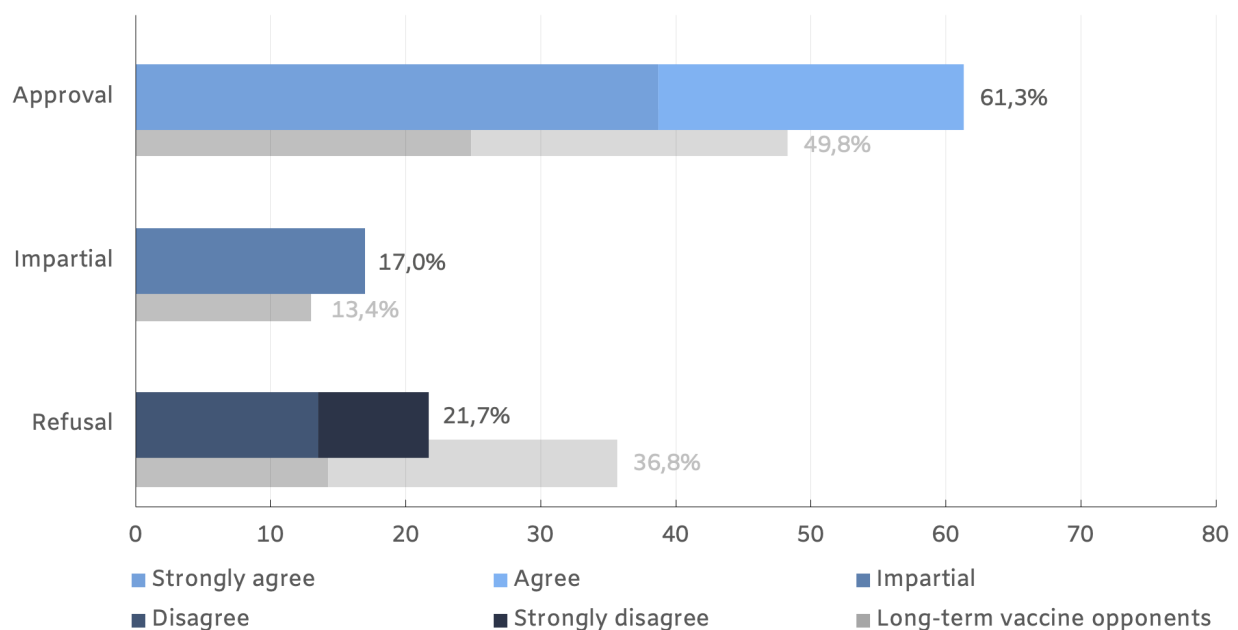
### 4.2.2 Large part of vaccine skeptics tend to dispute commonly accepted facts

While 62.5% of respondents acknowledge that many people around the world have been infected with the coronavirus, 21.8% deny that fact. Of the respondents who have already been 'against' vaccines before the beginning of the ongoing pandemic, more than 40% refute the infection numbers. Similar results can be observed when asking the anti-vaccination group if they agree with the statement that a coronavirus infection can cause serious harm to health. 21.7% of vaccine skeptics and 36.8% of long-term anti-vaccinationists disagree that COVID-19 causes serious health issues or death.

To what extent do you agree with the statement:  
"Many people around the world have already been  
infected with the coronavirus"?



To what extent do you agree with the statement:  
"A corona-virus infection can cause severe health  
damage"?

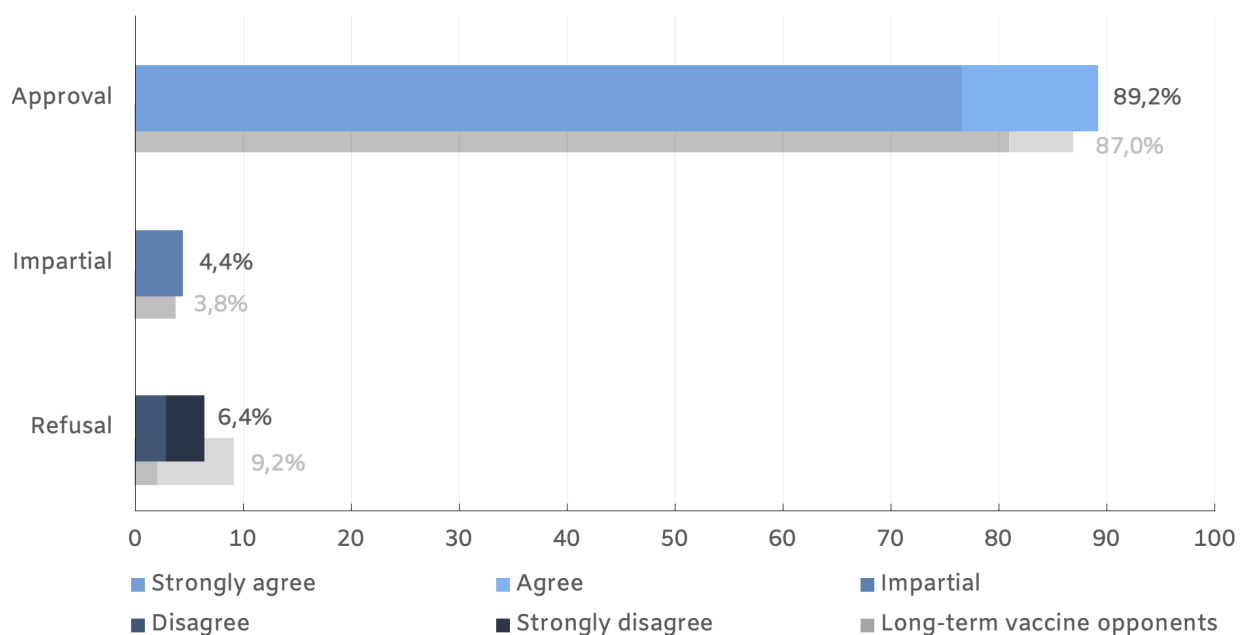




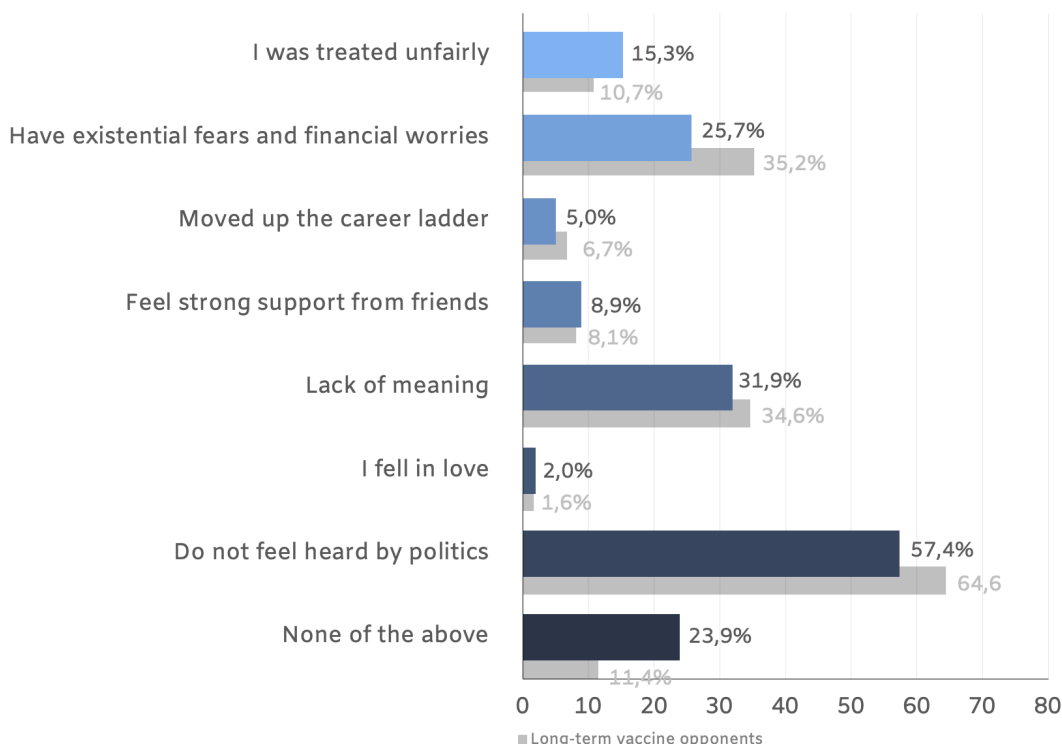
### 4.2.3 COVID-19 vaccine opponents experience lack of meaning and political participation

When respondents were asked to what extent they agree that politics decides things that affect them but over which they have no influence, almost 9 in 10 people agreed. Only 6.4% disagreed. In addition, the study examined which experiences the anti-vaccination cohort have made recently. More than 57.4% responded that they feel politicians do not listen to them, 31.9% reported lacking meaning in their lives and 25.7% have existential fears and financial worries. When only looking at long-term anti-vaccinationists, these numbers increase to 64.4%, 34.6%, and 35.2% respectively.

**To what extent do you agree with the statement:  
"Politics decides things that affect me, but over  
which I have no influence?"**



## Which of the following experiences have you had recently?

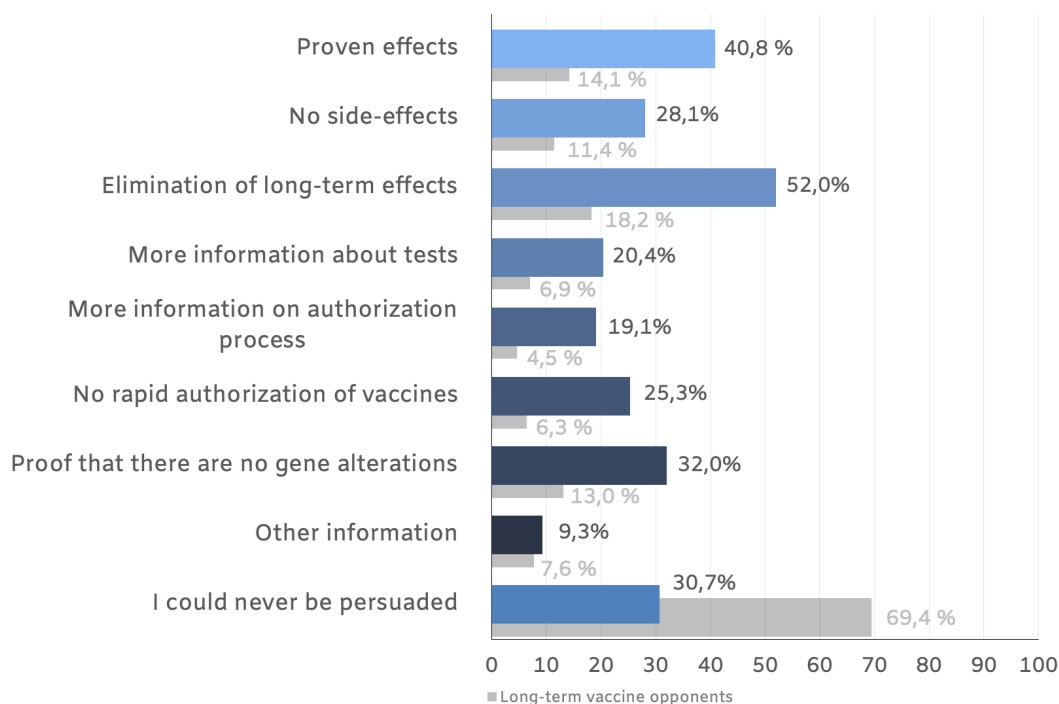


### 4.3 Strategies to increase vaccination take up

#### 4.3.1 Proven effect and safety of vaccines drive willingness to be vaccinated

Definite exclusion of negative long-term effects could convince 52.0% of vaccine skeptics to get vaccinated against the coronavirus. Proven efficacy would convince 40.8% and proof that the vaccine does not interfere with genes would convince 32.0% to get vaccinated. However, 3 in 10 respondents say that nothing would convince them. Interestingly, a total of 30.6% of long-term anti-vaccinationists could be convinced to get vaccinated against COVID-19 by, inter alia, excluding negative long-term effects (18.2%), proof that the vaccine does not interfere with genes (13%) and proven efficacy (14.1%).

## What information would convince you to get vaccinated against the coronavirus?

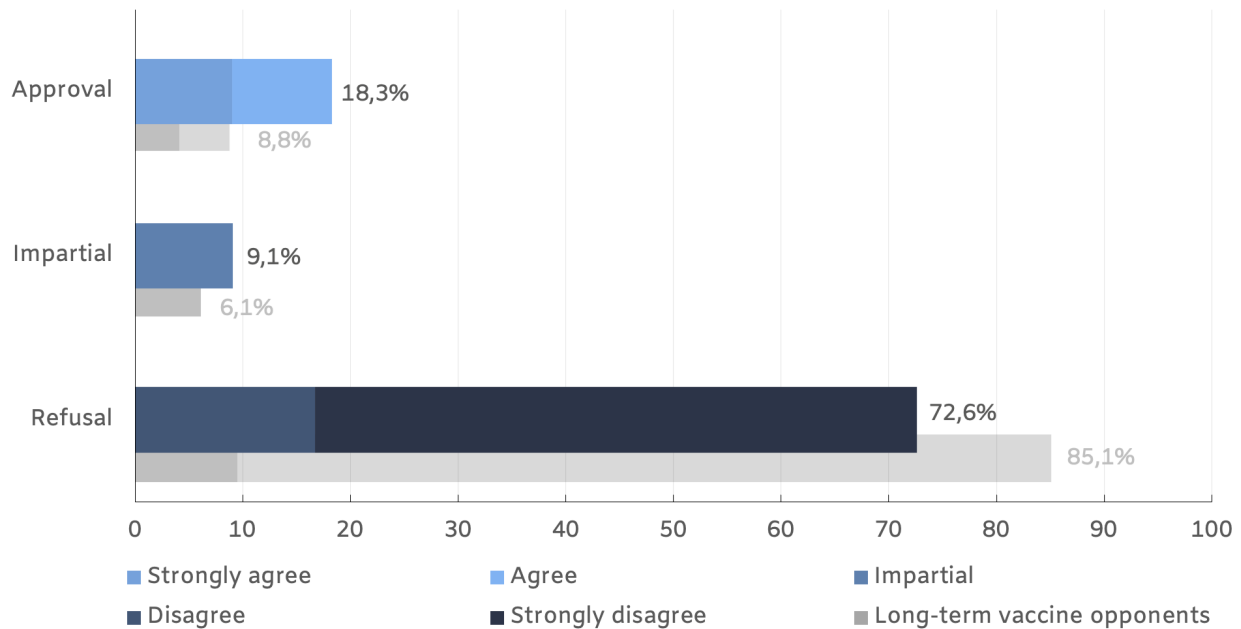


### 4.3.2 Neither celebrity endorsement nor prospects of long-distance travel are convincing skeptics

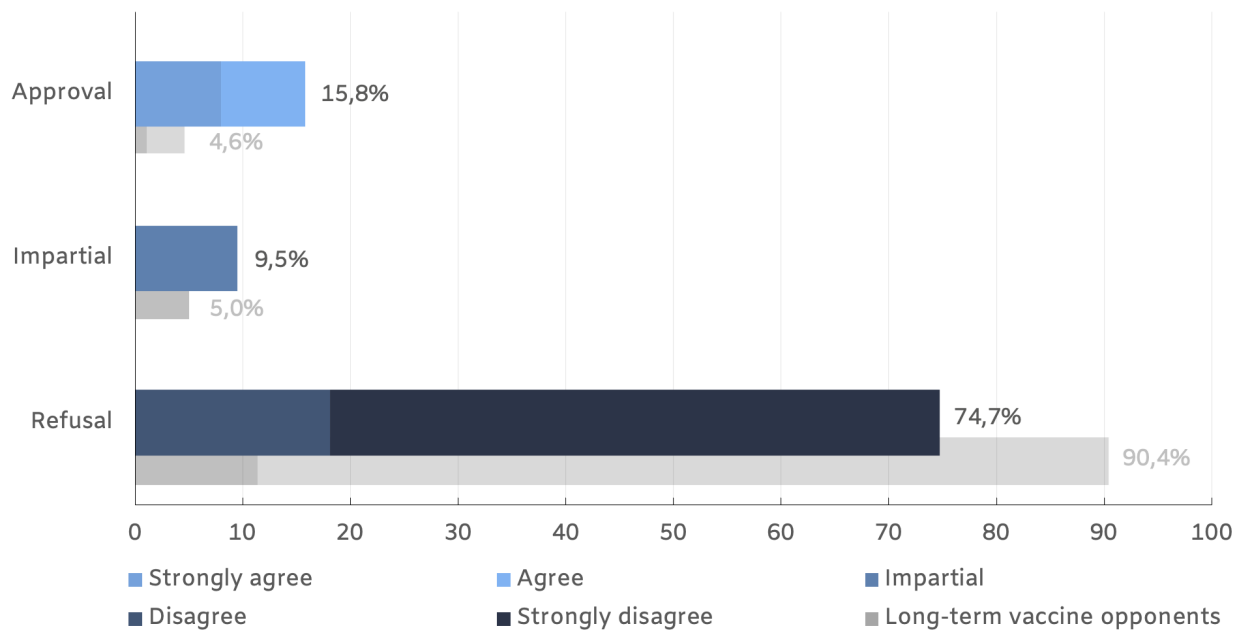
Three possible countermeasures have been probed separately to check if they could increase vaccine take-up of vaccine skeptics. First, will early public vaccinations of celebrities and political figures increase the willingness to be vaccinated? Second, would the prospect of long-distance travel increase vaccination rates? The data suggests that these are not very convincing factors. While they might work for undecided respondents, 72.6% of anti-vaccinationists will not change their opinion on COVID-19 vaccines based on celebrity endorsement and 75.7% of skeptics would not get the jab even if that would allow them to resume long-distance travel. On the flip side, it seems that 18.3% would be convinced by early vaccination of public figures. 15.8% of vaccine skeptics would be convinced if being vaccinated against COVID-19 would allow for long-distance travel.



## Would you rather get vaccinated against the coronavirus if public figures were vaccinated first?



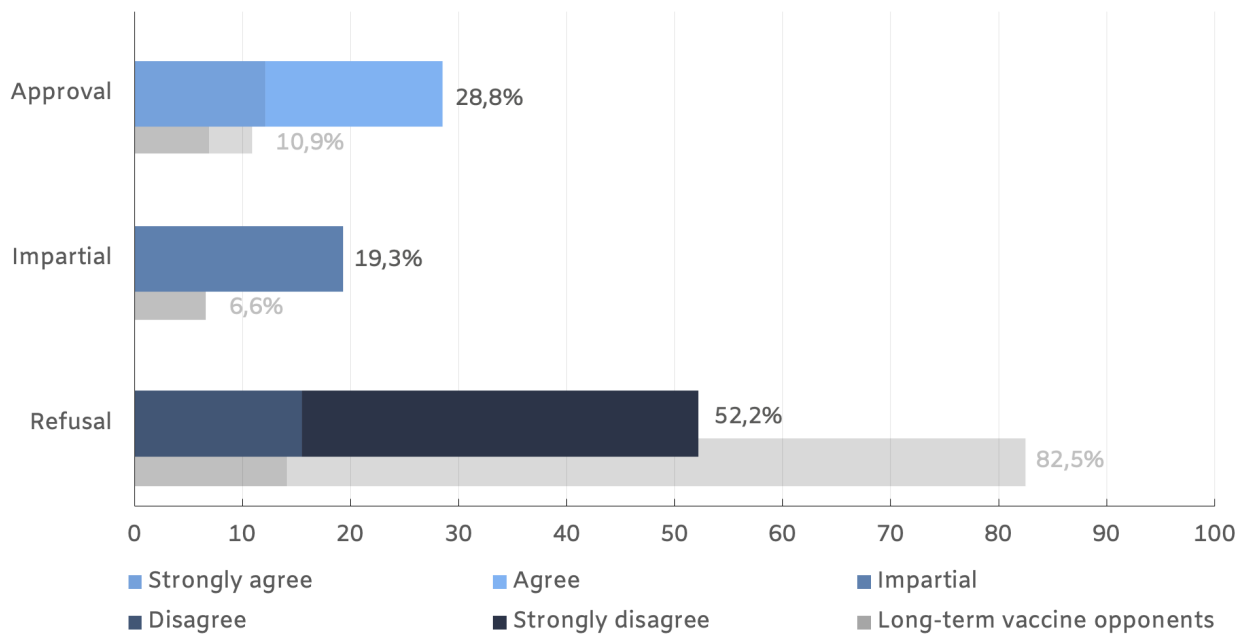
## Would you rather get vaccinated against the coronavirus if it allowed you to go to far-away vacation destinations again?



#### 4.3.3 Rebuttal of gene modification rumors would increase vaccination uptake

The third separately probed countermeasure seems to be more effective in increasing vaccination rates in that group. Consistent with the result of an earlier question about what anti-vaccinationists worry most about, we found that 28.5% of skeptics would be willing to be vaccinated if it was ensured that the vaccines do not alter genes.

### Would you get vaccinated against the coronavirus if it was ensured that the vaccine did not alter the genes?

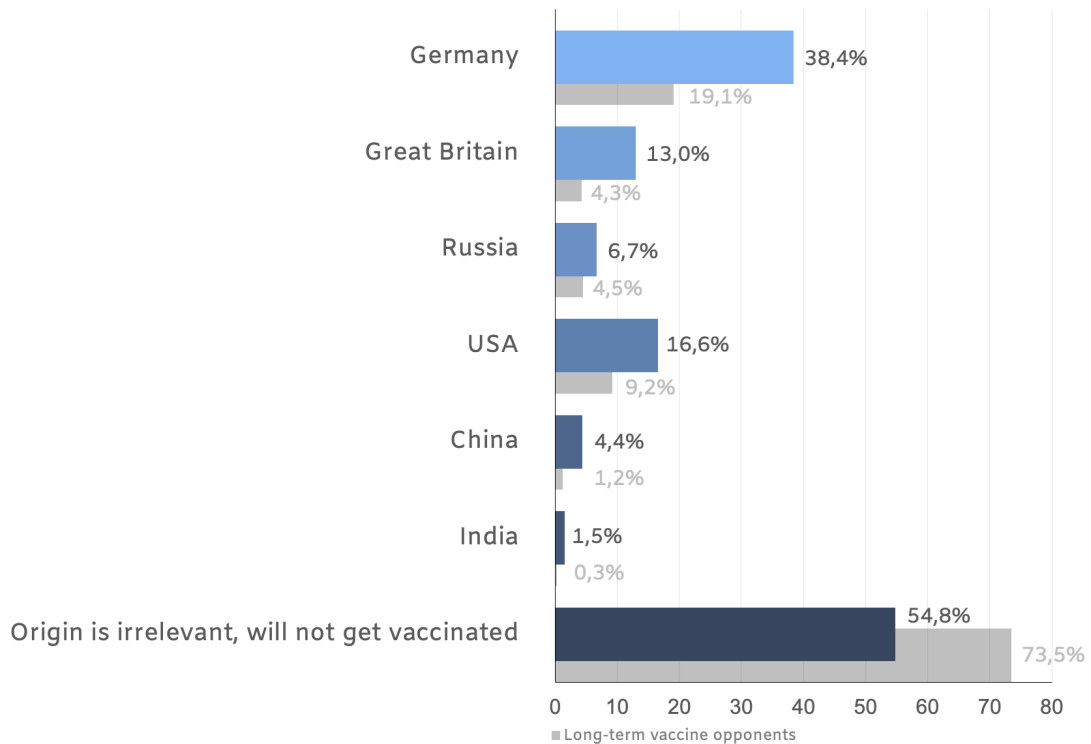


#### 4.3.4 Vaccine skeptics would rather trust vaccines originating from Germany/US/UK

The final question asked the target group in which country a vaccine would have to be developed in order for them to be vaccinated. In 38.4% of cases, respondents would trust a vaccine "Made in Germany", followed by the United States (16.6%), and the UK (13.0%). The willingness to get vaccinated decreases dramatically in the anti-vaccinationists group if the vaccine was developed in Russia (6.7%), China (4.4%), and India (1.5%).

## From which three countries which have developed vaccines would you consider vaccination?

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## 5. PARTNERS

kENUP Foundation is a non-profit public benefit foundation supporting research-based innovation in the wider health industries for societal benefit. kENUP initiates and facilitates public and private investment into innovations with the potential to improve the livelihood of every citizen. The development of such innovations is often hampered by failing markets. With its intervention, kENUP aims to change that by developing scientific innovations into sustainable business propositions and making them financeable by public and private institutions, and civil society partners.

Such financing is typically aimed at de-risking product development processes that otherwise cannot be pursued. kENUP focuses on vaccines, human monoclonal antibodies, nanobodies, therapeutics, cell therapies, diagnostics, and the production of biologicals. The platform technologies necessary for their deployment are at the center of our work. Through them, the foundation aims to make effective and affordable products globally available, including to the Global South. kENUP initiates novel financing instruments aimed at fighting a particular disease or supporting a specific industry, like the EU Malaria Fund or the co-investment scheme of the European Union with the State of Israel dedicated to bio-convergence.<sup>1</sup>

## **5.2 Swiss Academies of Arts and Sciences**

At their founding in 2006, the Swiss Academies of Arts and Sciences became the largest academic network in Switzerland. Over 110,000 members — active in more than 154 academic associations; 132 committees, working groups, and advisory boards; and 29 cantonal and regional associations — volunteer their time and expertise to build important bridges between science and society. Experts and interested laypeople from research, technology, business, politics and administration work together to formulate the basic principles, possible courses of action, and initiatives needed to overcome current and future challenges confronting us due to technological, societal, and environmental change.<sup>2</sup> The Swiss Academies of Arts and Sciences are a research funding institution for networking and dialogue in accordance with the Research and Innovation Promotion Act. They conduct and promote the early identification of socially relevant topics in the field of education, research and innovation, network the scientific community, are committed to the perception of ethical responsibility in research and teaching and shape the dialogue between science and society to promote mutual understanding.<sup>3</sup>

## **5.3 EIB Institute**

The EIB Institute was set up within the EIB Group (European Investment Bank and European Investment Fund) to promote and support social, cultural and academic initiatives with European stakeholders and the public at large. It is a key pillar of the EIB Group's community and citizenship engagement. The Institute notably aims at channeling support, through grants and sponsorships, to higher education and research activities.

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1 <https://www.kenup.eu>

2 <https://akademien-schweiz.ch/en/uber-uns/>

3 <https://akademien-schweiz.ch/en/uber-uns/mandat/>



# IMPRINT

Empirical study conducted online by Civey GmbH Berlin  
between January 18 to February 2, 2021.

This report was authored by Tobias MacLean and Holm Keller.

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