D3.5: Public views of human enhancement technologies in 11 EU and non-EU countries

WP3 – Human Enhancement Technology: Ethical, legal and social analysis

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This report has been developed as a part of the SIENNA project funded by the European Commission; for the period October 2017 to March 2021 (http://www.sienna-project.eu). SIENNA involves the study of the ethical, legal and social issues (ELSI) of three different technology areas, namely Artificial Intelligence/Robotics, Human Enhancement and Human Genomics. The ELSI study of each of these technology areas was predominantly conducted by performing seven distinct tasks presented in as many reports. Herein is presented the results of one of these tasks, namely the quantitative investigation of public views and awareness of the three SIENNA technologies.

This report has been predominantly developed by a social and policy research company, Kantar (www.kantar.com/public), which was subcontracted to conduct this task for each technology area. Kantar conducted the fieldwork (e.g. pilot questionnaire, conduct telephone survey), while the academic partners provided, to varying degrees, the content for the questions for the telephone survey. Kantar performed the analyses and were responsible for the reports.

Important context: Obtaining lay publics' views on novel technologies poses many challenges; trying to obtain views on the ELSI of novel technologies is even more difficult and while the exercise may provide some insights on non-expert views it also has important limitations. First, challenges are related to the use of empirical approaches in Bioethics, which unfortunately often lack strong underlying methodology and critical review given the inter- and multidisciplinary nature of the field. This is particularly true here, as all three technological areas are large and ELSI studies are by definition multidisciplinary. Second, these characteristics also make the scientific and ethical issues discussed challenging to grasp to the broader public. Thirdly, using telephone interviews (aimed to last approximately 15 for all three technology areas) meant that very little time was available for obtaining respondents' answers (in some cases, five minutes or less were available for one technology area). Hence, due to time constraints, participants may not have had the time required to reflect on the questions posed. This should be considered when interpreting the results of this survey.

Due to space constraints, not all methodological details could be included to necessarily satisfy readers with different areas of expertise. To fully understand the results and their meaning, further analysis is needed, and it may be conducted by one of the academic partners in the project and communicated through academic publications.

Finally, it is important to emphasize that the results of empirical research about publics' views and preferences are not meant to answer policy questions, and we caution against the over-interpretation of these results outside of the research context. Indeed, we see such results as being able to inform policy questions (refine them, add to them, guide them) but not as answers per se since this is not the context in which the questions were posed.

Prof. Philip Brey, SIENNA Coordinator

Abstract

Based on a telephone survey of 1,000 people in each of 11 countries (*EU*: France, Germany, Greece, Netherlands, Poland, Spain, Sweden; *non-EU*: Brazil, South Africa, South Korea, USA), this report provides a snapshot of opinions in 2019 on human enhancement technologies and their impact on society. The report looks at overall feelings towards human enhancement technology as well as at four specific areas: technology to make people live to 120 years old; technology to make people more intelligent, technology to allow a person to choose a particular emotion; and technology to improve people's moral values. It displays self-reported support and opposition levels for the technology areas, perceptions of who they ought to be available to, as well as perceptions on whether they should be permanent or reversible. The report also looks at perceived responsibility for ensuring the safety of human enhancement technology, as well as perceptions of specific societal impact.

It should be noted that human enhancement technology is a complex topic, and that despite cognitive testing and a pilot we cannot fully assess how the terminologies were interpreted by respondents. Therefore, results should be treated as indicative of individuals' perceptions of the topic areas.

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Information in this report that may influence other SIENNA tasks

Linked task	Points of relevance
Task 2.7: Proposal for an ethical framework	Survey results will be consulted in the development of the ethical framework
Task 5.2: A code of responsible conduct for researchers in human enhancement technology	Survey results will be consulted in the development of the Code.
Task 6.5: Reconcile needs of researchers and the legitimate concerns of citizens	The survey results will be used as input for task 6.5.

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Executive summary

Introduction

As part of the SIENNA project, an exploratory public opinion survey by phone was conducted in 11 countries, including seven EU countries (France, Germany, Greece, Netherlands, Poland, Spain, Sweden) and four countries outside Europe (Brazil, South Africa, South Korea, USA). All countries were given equal weighting, and therefore the overall results are an average across all surveyed countries. Country specific data is representative of the national population of that country.

The survey aimed to determine self-reported levels of awareness of human enhancement technologies among the public and to assess the level of public acceptance of these technologies in relation to a range of applications.

Feelings towards human enhancement technology

Overall, looking at the average across all surveyed countries, respondents were more positive than negative about human enhancement technology when thinking about the impact on their country, with nearly half (47%) saying they felt positively about it, while a third (33%) said they felt negatively.

Overall, perceptions of human enhancement technology were most positive in South Africa, Greece and Brazil and least positive in Germany, the USA and France.

In most countries, men, younger people (aged 18-34) and people with university degrees were more positive about human enhancement technology.

Support for human enhancement technology

Respondents were asked whether they supported or opposed four specific human enhancement technologies.[1] Based on an all country average[2], opinion was divided for each of these:

- 56% supported technology to improve people's moral values, with 41% opposing
- 55% supported technology to make people more intelligent, with 43% opposing
- 52% supported technology to allow a person to choose a particular emotion, with 46% opposing
- 47% supported technology to make people live to 120 years old, with 50% opposing

There was some variation between countries in levels of support for these human enhancement technologies.

[1] Each respondent was asked about two of these four technologies (selected at random), meaning that for each technology approximately half of all respondents interviewed were asked about this.
[2] The average result across the 11 countries surveyed. This means that all 11 countries surveyed contribute equally towards the average, regardless of the number of surveys completed in that country or the population total of the country.

Respondents in Brazil were most likely to support each of the four human enhancement technologies, with support ratings ranging between 67% and 78%.

Respondents in Germany and France tended to be less likely to support the technologies: in Germany support levels ranged between 23% and 43%; in France they ranged between 26% and 38%.

For each technology area, respondents who supported it were asked who they thought it ought to be available to. Based on the all country average, the most common responses for all four areas were that they should be available to all adults over 18 or to everyone, including babies and children.

Only for technology to make people live to 120 years old did a majority of respondents supporting it say it should be available to everyone (including babies and children).

For technology to improve people's moral values and for technology to make people more intelligent, respondents who supported each technology were asked whether, if developed, they thought it ought to be reversible or permanent.

Perceptions differed a little between the technologies. For technology to improve people's moral values, slightly more respondents thought that the technology should be reversible (54%) than permanent (42%). For technology to make people more intelligent respondents were split, with 49% thinking the technology should be reversible, and 47% thinking it should be permanent.

For technology to make people more intelligent and technology to improve people's moral values, respondents who said they opposed them were asked whether their views would change if the technology were made reversible. For both technologies, a large majority of respondents said the technology being made reversible would not have an impact on their views, with 71% of respondents saying they would still oppose technology to make people more intelligent, and 67% saying they would still oppose technology to improve people's moral values.

Impact of human enhancement technology on society

All respondents were asked questions about the impact they thought human enhancement technology would have on society.

Looking at the all country average, a large majority of respondents (81%) thought that their country would be different in 20 years as a result of human enhancement technology, of which a third (35%) thought it would be very different.

For all countries, a large majority of respondents expected their country to be different (from 72% to 89%). Respondents in the Netherlands (89%), USA (89%) and South Africa (86%) were most likely to think their country will be different if human enhancement technology becomes more widespread.

Delving into more specific areas, respondents were asked whether they agreed or disagreed with:

- parents being allowed to enhance certain features of their healthy baby
- employers in certain professions should be able to require that new employees be technologically enhanced

Responses varied. Based on an all country average, far more respondents disagreed (62%) than agreed (36%) that parents should be allowed to enhance certain features of their healthy baby. Responses here also varied substantially between countries, with 72% of respondents in South Africa agreeing with this compared with 15% in Sweden and 17% in Germany.

Again, based on an all-country average, respondents were more evenly split about employers in certain profession being able to require that new employees be technologically enhanced (48% agreed, 50% disagreed).

As for the previous statement, agreement was higher in South Africa (78%). Respondents in the Netherlands (27%) were least likely to agree with this statement.

Respondents were also asked whether they agreed or disagreed with people on a low salary being offered financial help to use human enhancement technology. Here, nearly twice as many respondents agreed (61%) than disagreed (36%).

Again, responses varied between countries. Those in South Africa (85%), Brazil (73%) and Greece (70%) were most likely to agree with the statement, and those in Germany (47%), the USA (48%) and France (50%) least likely to agree.

Responsibility for ensuring the safety of human enhancement technology

Finally, respondents were asked who they thought should be most responsible for ensuring the safety of human enhancement technology. Looking at the average across all surveyed countries respondents were split, with around a quarter thinking that scientists (26%) or the government (24%) should be most responsible. Slightly smaller proportions thought that companies who make and / or sell the technology should be responsible (18%) or that individuals who use the technology should be (15%).

In all countries apart from the USA, respondents most commonly thought either scientists or the government should be responsible for ensuring the safety of human enhancement technology. Respondents in the USA were most likely to say that individuals who use the technology should be most responsible.

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Table 1: List of acronyms/abbreviations

Abbreviation	Explanation
CATI	Computer Assisted Telephone Interviewing
EC	European Commission
EU	European Union
HET	Human enhancement technology
RDD	Random digit dialling
SIENNA	Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact

Glossary of terms

Table 2: Glossary of terms

Term	Explanation
All country average	The average result across the 11 countries surveyed. This means that all 11 countries surveyed contribute equally towards the average, regardless of the number of surveys completed in that country or the population total of the country.
CATI surveys	A survey conducted by telephone (CATI stands for 'Computer Assisted Telephone Interviewing').
Cognitive testing	A qualitative questionnaire testing technique that examines how well questions perform when asked of respondents. It aims to explore how respondents understand, mentally process and respond to questions and identify where problems are experienced.
Confidence interval	The range of values that is likely to include the true population value of a survey estimate. For example, if a survey estimate is 50% and a confidence interval is +/-4%, then based on a 95% confidence interval, we can be 95% certain that the true population value is between 46% and 54%. The size of the confidence interval is impacted by the size of the survey sample and the impact of weighting on the results.
Demographic subgroup	A sub-sample without the overall survey sample based on demographic characteristics – for example, women, 35 to 54-year olds or people with a university degree.
Design effect	A value which shows the impact of weighting on the survey results.
Design weighting	A stage of weighting that corrects for different probabilities of selection. For this survey this was based on telephone types the respondent had access to (landline/mobile) and the number of adults aged 18+ living in the household.
Dual frame design	A telephone survey sample design that includes both landline and mobile phone numbers.

Term	Explanation
EU average	The average result across the 7 EU countries surveyed. This means that all 7 EU countries surveyed contribute equally towards the average, regardless of the number of surveys completed in that country or the population total of the country.
Human enhancement/ human enhancement technology	A modification aimed at improving human performance and brought about by science-based and/or technology-based interventions in or on the human body. In the survey questionnaire, human enhancement technology was introduced to respondents as referring to "technology or drugs to improve the natural abilities of healthy human beings beyond normal levels".
Pilot	A fieldwork test of the survey with a small number of respondents conducted prior to the main fieldwork period.
Random digit dialling (RDD)	A method for selecting people for involvement in telephone surveys by generating numbers at random (for this survey, using country numbering plans as a frame).
Response rate	The number of respondents to complete a survey divided by the total sample of phone numbers attempted (excluding any numbers known to be eligible).
Rim weighting	A stage of weighting that adjusts key sample demographics (e.g. age band, gender, level of education) to be reflective of the target population.
Rizzo method	An approach to select one adult at random in sampled households commonly used in telephone surveys.
Significance test	A statistical test which determines whether relationships (e.g. differences) observed between two survey variables or groups are likely to exist in the population from which the sample is drawn.
Weighting	An adjustment to the survey data to account for different probabilities of selection and differences in likelihood to complete the survey between different population groups.

1. Introduction

1.1 Background: overview of the SIENNA project

SIENNA (Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact) is a three-and-a-half-year project (October 2017 – March 2021) that has received funding under the European Union's H2020 research and innovation programme under grant agreement No 741716. It has 11 core partners and 2 associate partners. The project focusses on ethical and human rights challenges posed by human genomics, human enhancement and AI and robotics.

While technologies used in human genomics, human enhancement and AI and robotics might offer significant benefits to individuals and society, they also present significant ethical challenges, e.g., in relation to human autonomy, equality, personal liberty, privacy, and accountability. In collaboration with a variety of stakeholders, SIENNA is identifying and assessing the ethical and socio-economic issues, public opinions, legal and human rights implications of each of these technology areas.

SIENNA will produce a framework for each of the three technologies that will form the basis for the development of research ethics protocols, professional ethical codes, and better ethical and legal frameworks. Before developing their recommendations, the partners are gathering views of experts and citizens towards the three technologies in four ways: (1) a major survey of citizens in 11 countries within and outside the EU; (2) panels of citizens in five countries; (3) interviews with experts and stakeholders; (4) workshops with stakeholders including scientists, ethicists, research ethics committees, professional organisations, civil society organisations, industry and policy makers. This report presents the results of the survey.

1.2 Objectives of the survey

A key feature of the SIENNA project is that stakeholders, including the general public, will be engaged throughout the process. The involvement of the general public is particularly important; research and innovation into new and emerging technologies carries an ongoing risk of being in tension with public concerns. It is therefore crucial to gain insights into and consider such concerns. One method of exploring the general publics' views of the SIENNA project is through empirical research.

SIENNA commissioned Kantar to conduct telephone public opinion surveys in 11 countries.[3] This included seven EU countries (France, Germany, Greece, Netherlands, Poland, Spain and Sweden) and four countries outside of Europe (Brazil, South Africa, South Korea and the United States). The survey aimed to obtain information about the publics' perceptions of human genomics, human enhancement and AI and robotics in relation to a range of applications as well as self-reported levels of awareness.

[3] We explain the reasons for selecting these 11 countries in section 2.2.

1.3 Structure of the report

This report sets out the findings from the public opinion survey on artificial intelligence (AI) and robotics across 11 countries. The report is structured as follows:

- In section 2, we provide an overview of the survey methodology.
- In section 3, we look at overall awareness of robots and artificial intelligence.
- In section 4, we look at perceptions of robots.
- In section 5, we look at perceptions of intelligent machines (AI and robots combined).
- In section 6, we look at the perceived impact of intelligent machines on society.
- In section 7, we draw conclusions from the results across all sections of the survey.

1.4 Scope and limitations

The survey was designed to deliver information in relation to AI and robotics. While data was successfully obtained from 11,000 respondents, there were limits to the scope and approach of the survey that should be considered when interpreting the results:

- Some of the topics and questions planned for inclusion in the survey were felt to be too complex based on current levels of public understanding. This was found in the cognitive testing phase conducted in the Netherlands, Poland and South Africa (see section 2.3), with several changes made to simplify question content following this. While simplifications were made to the questionnaire following testing, and definitions were added to help guide respondents, we cannot fully assess how well respondents understood all of the concepts and questions covered in the final questionnaire. Furthermore, the need to simplify the survey content may have resulted in questions lacking details or specificity. This should be considered when judging the use of the results for any policy-oriented work.

- Due to the budget allotted to the empirical work (approx. €1 million for both the panels, reported in D2.6, and the surveys reported here), the target questionnaire length to cover all three technology areas was very short (an average of 15 minutes in total and 5 minutes per technology area). In such a short time, we could only cover a few areas of use and for each use we could only ask a few relatively simple questions with simple close ended answers.

- The questionnaire was originally drafted in English and translated into each of the languages used for the survey. While attempts were made to ensure equivalent understanding of terms between languages (for example, providing translators with notes to convey the meaning of certain terms), we cannot be sure that all questions and response options were interpreted in completely comparable manner between languages.

- While attempts were made to deliver a representative sample in each country (see section 2.4), it is possible that those with more interest or awareness of the survey topics were more likely to agree to participate and to complete the survey. For example, we found in most countries that the proportion of the surveyed sample with a university degree was higher than we would expect for a nationally representative sample. Any observable bias in the surveyed sample was corrected through weighting (see section 2.6).

- As shown in section 2.5, the responses rates achieved in each country ranged between 2% and 8%. While these response rates are similar to those achieved for similar surveys, they do show that only a minority of those selected to take part in the survey chose to do so. This may limit the extent to which the results can be seen as representative of the views of the adult population in each country.

- The survey was conducted by telephone in all countries. This meant that responses needed to be provided immediately in response to the survey questions and respondents could not spend much time considering their options.

- "Don't know" and "Refused" options were available at every question but were not read out to respondents. They were therefore only selected by interviewers when respondents offered these responses spontaneously. Levels of "Don't know" and "Refused" responses were low for most survey questions. However, it is possible that this partly reflects the way these response options were administered, and the levels may have been higher if the options were read out to respondents.

- Any 'all country' results included in the report are based on averages across the 11 countries included in the survey. These figures should be interpreted in this way and not as global results, as we cannot generalise these results to other countries not included in the survey. We have also included an EU country average for each question. This reflects the SIENNA project being funded by the EU and, as such, the EU level results being of particular interest. As with the 'all country' results, the EU average results are based on an average of the EU countries included in the survey and cannot be generalised to other EU countries.

- The objective of this report is to provides a descriptive overview of the survey findings. As such, it does not follow common academic standards for publishing survey results. For example, it does not include introduction and discussion sections, which contextualize the results with relevant academic literature in order to further understand the meaning of the results for the field. There is scope to analyse the results more deeply to fully understand their meaning and how this pushes our understanding of public views toward AI and robotics further. Such, further analysis may be conducted by academic partner, University of Twente, through academic publications.

2. Methodology

This section provides insights on the methodology for the survey. This includes information about:

- The collection methodology
- The countries surveyed
- The questionnaire development
- The sampling
- The fieldwork method
- The weighting

2.1 Data collection methodology

The survey was conducted by Computer Assisted Telephone Interviewing (CATI) across all countries. It was decided to adopt a CATI approach for a number of reasons:

- It reflected the objective to attempt to deliver a representative sample of adults in each country. An online approach would have excluded people without internet access. Telephone samples have the advantage of being unclustered, unlike face-to-face designs.
- A CATI approach was more cost effective compared with face-to-face interviewing. If a face-to-face approach was adopted, the number of survey countries and/or respondents to survey per country would have needed to be reduced. An online survey would have been cheaper but would not be feasible for some of the countries included in the survey given lower levels of internet access in some countries.
- It was important to adopt a single mode of data collection for all 11 countries, to support comparative analysis. This consistency would have been difficult to achieve based on alternative modes: for example, face-to-face surveys are rarely conducted in the United States and South Korea.

2.2 Countries surveyed

The survey was conducted in 11 countries; in each country, the target sample size was 1,000 adults aged 18 or over. These countries were selected to include a range of cultures, financial standing and geographic locations across the EU, as well as being countries where consortium members worked and where Kantar could conduct the surveys. Due to the purpose of the research, which is aimed at informing the development of an ethical framework at the European level, seven of the surveyed countries were within the European Union:

- France
- Germany
- Greece
- Netherlands
- Poland
- Spain
- Sweden

The remaining four countries were selected in different regions of the world, to provide comparative insights:

- Brazil
- South Africa
- South Korea[4]
- USA

Kantar Public Division surveyed at least 1,000 adults across all 11 countries. The number of completed surveys in each country at an overall and demographic sub-group level can be found in section 2.5.

2.3 Survey development

The questionnaire development was an iterative process done in collaboration between Kantar UK Public Division and the SIENNA consortium (see questionnaire in Appendix 2). The questions were developed taking into consideration: 1) the results of a scoping review of surveys on genetics and genomics published to date (the review was conducted by UU), 2) the experience of UU team members in ethical, legal and social issues in genetics and genomics, 3) and technologies and applications as well as related social and ethical issues identified during the work on the SIENNA task 2.1. (The questions are presented in the Appendix 2). As well as the questions, short explanations of a technology or applications were also included and read out for some sections.

The specific wording of the questionnaire and some content was further informed by cognitive testing and a pilot. The cognitive testing was conducted face-to-face by local Kantar teams in the Netherlands, Poland and South Africa. The budget could not cover cognitive testing in all countries. These three countries were selected to provide a mix of cultures and geographies while also being countries where Kantar has experience in cognitive testing. In each of these countries, 10 participants were selected

[4] Originally, the plan was to conduct the surveys in countries where SIENNA is represented by partners. However, because of new legislation in China that prohibits conducting surveys for social purposes without prior governmental consent, it was decided to conduct the Asian survey in South Korea instead.

across a mix of gender, age and education level. The purpose of the cognitive testing was to assess understanding of the questions and terminologies used in the countries.

Following the cognitive testing, the questionnaire was amended, and tested again during the pilot.

The pilot was conducted using the same approach as outlined for the main survey elsewhere in this section (see sections 2.4 and 2.5). As such, it was conducted by telephone using a Random Digit Dialling sample design (more information about this methodology can be found in section 2.4 of the report). The pilot consisted of 30 completed surveys conducted in each of the 11 countries. Following the pilot fieldwork, the Kantar team in each country provided feedback in the form of a written report including recommendations. Further changes to the questionnaire were made based on this feedback.

The translation of the questionnaires was managed by the Kantar team in Brussels. All translators were native speakers in the language in which the survey was to be translated. Verification of the translation followed a two-step process. First, each translation was proofread by a second translator before being reviewed by a project manager. The final translation was then "back-translated" into English by a third translator and this version was verified against the original English version by a fourth translator to ensure they match. Verifications of the translations were made by members of the Kantar teams in each survey country, who reviewed the translations against the original English questionnaire.

The final questionnaire included sections for each of the three technology areas and demographic questions. The order that the three technology areas were included was randomised between respondents, with each area being included 1st, 2nd and 3rd in approximately a third of all surveys completed. Within each section, questions were always presented to respondents in the same order. In a few places, the order of statements was randomised in batteries. This is noted in the questionnaire (see Appendix 2).

2.4 Sampling

The survey used a dual frame (mixed landline and mobile) Random Digit Dialling (RDD) sample design in all countries. This was to ensure full coverage of the population (mobile only, landline only and dual phone users) and to help minimise observable biases seen in the responding profiles of dual phone users by responding phone. By this we mean the propensity for dual phone users to respond to a survey by their mobile or landline phone differs by observable characteristics such as gender, age, working status and education.

In all countries, we generated a random sample of numbers using as our frame of the country numbering plans. Prior to generating the samples, the landline frame was stratified by region and the mobile frame by operator. Within each region and operator stratum, a random samples of telephone numbers were generated such that the final landline sample was proportionally representative by region and mobile sample by operator.

Using the country numbering plans as the frame from which to generate our samples ensures full coverage of the phone owning population in each country. The telephone owning population make up more than 95% of the total 18+ population, with most countries being much closer to 100%.

The target percentage of the achieved sample from the landline and mobile frames is provided in Table 3. These ratios are designed to optimise the representativeness of the sample with respect to the following demographics: age, gender, working status and phone ownership.

Table 3: Target landline and mobile sample ratios per country

Country	Target landline %	Target Mobile %
Brazil	20%	80%
France	50%	50%
Germany	50%	50%
Greece	50%	50%
Netherlands	40%	60%
Poland	70%	30%
South Africa	5%	95%
South Korea	20%	80%
Spain	40%	60%
Sweden	30%	70%
USA	20%	80%

In all countries except South Africa, these targets were met or were very close to being met (within a few percentage points). The landline sample in South Africa was problematic, with a much higher percentage of numbers than expected being non-active. Whilst every effort was made to obtain the target number of completed surveys through the landline frame, it was clear that this was not going to be feasible in South Africa. Therefore, the decision was taken to reach all respondents through the mobile frame.

This change in approach is unlikely to have any significant impact on the results in South Africa, partly due to the very small target of 5%, but also due to the fact that our design may have over-estimated the percentage of the residential (non-business) South African population with a landline phone given the very high inactive rates we observed.[5]

In all 11 countries, a minimum of five call backs were made to numbers with non-final outcomes. Calls were made at different times and on different days of the week to maximise the chances of making contact. Most calls were made in the evening and at the weekend to avoid biasing the sample towards the non-working population. To maximise acceptance, appointments were made if needed to allow individuals contacted an opportunity to take part even if they were unavailable during the initial call.

[5] For South Africa, we had used the International Telecommunication Union (ITU) statistics on landline and mobile subscribers to help determine the sample design. In 2016, the ITU estimated there were just over 3.5 million landline subscriber and almost 77 million mobile subscribers (this figure is higher than the population of South Africa and reflects that some people have multiple phones as well as including phones used for business as well as personal use). However, what isn't clear from these figures is what percentage of the landline subscriber count is for business phones. This could also help explain the low productivity as these were not in scope for this study.

The person answering the phone was asked to participate in the mobile sample. In landline households one adult aged 18 or over was randomly selected from all adults in the household, based on the Rizzo method.[6] Only the selected person could participate; no replacement was permitted.

No incentives were offered for participation in the survey in any of the countries.

2.5 Fieldwork

Fieldwork was conducted over a period of approximately six weeks in March and April 2019.

Fieldwork teams from each country were briefed by the lead UK-based team prior to the start of fieldwork. They then briefed their interviewers on the survey background and requirements.

After contact was made with respondents, interviewers read out a brief introduction to the survey and asked the respondent for their consent to participate. The introduction included the approximate survey length and a statement that respondents could choose not to answer any questions they did not wish to.

Table 4 shows number of completed surveys (overall and split by landline and mobile sample frames) and response rates achieved in each country. The response rate is the percentage of completed surveys from all eligible phone numbers attempted.

Table 4: Survey numbers and response rates achieved by country

Country	Completed surveys	Completed by landline	Completed by mobile	Response rate
Brazil	1,000	167	833	2%
France	1,002	501	501	4%
Germany	1,002	495	507	2%
Greece	1,001	491	510	4%
Netherlands	1,011	399	612	7%
Poland	1,070	264	806	7%
South Africa	1,000	0	1,000	3%
South Korea	1,000	200	800	3%
Spain	1,000	394	606	4%
Sweden	1,000	294	706	8%
USA	1,002	200	802	2%

The target average survey length was 15 minutes. The median length across all completed surveys in each country slightly exceeded this in all countries, ranging from a minimum of 16 minutes in Greece to 22 minutes in Sweden. The median length of each section across all completed surveys was: 4.2

[6] https://www.webdepot.umontreal.ca/Enseignement/SOCIO/Intranet/Sondage/public/exemples_public/Rizzo_Minimally_intrusive_method.pdf

minutes for AI and robotics; 5.5 minutes for human enhancement; and 6.3 minutes for human genomics.[7]

2.6 Weighting

The survey data for each country were weighted to account for different probabilities in selection and non-response (e.g. where certain demographic groups were more or less likely to participate in the survey). Weights were calculated using two stages.

The first stage of weighting (design weighting) corrected for the different probabilities of selection based on the telephone types the respondent had access to and the number of adults in the household. This weighting also adjusted for the overlapping landline and cell frames and the relative size of each frame and each sample.[8]

A probability weight was calculated based on the probability of selections from the landline and mobile frames and then standardised by taking the mean of the probability weights to give the design weight.[9]

The second stage of weighting (rim weighting) adjusted key sample demographics to be reflective of the population using the design weight as a pre-weight and rim weighting on the key demographics.[10]

The key demographics for non-response were identified as being age by gender (12 bands – see table below), educational attainment (2 bands – university degree or above vs. other) and working status (2 bands – working vs. non-working). Population targets for the key demographics were sourced from official population sources for each country.[11]

Respondents were rim weighted to the population based on these key demographics using the design weight as a pre-weight at a country level. All countries were weighted to the same total weight, meaning that all countries contribute equally to the 'All country average' results included in this report.

[7] In addition to these sections, a median time of 1.4 minutes was spent introducing the survey and carrying out a person selection (where required) and 1.0 minutes was spent collecting demographic information.

[8] A design weight is used to account for differences in the probability of being selected into the sample. With dual frame telephone surveys, a respondent who owns a mobile and fixed line phone has a higher chance of being selected than a person who just has a fixed line phone or just a mobile. Also, a person living in a household with multiple eligible people has a lower probability of selection than a person living on their own. We need to account for these differences in the probability of selection through our design weight.

[9] By this we mean that the design weights were recalibrated so that they had a mean of 1 and summed to the total sample size prior to running non-response weighting.

[10] Rim (or post stratification) weighting is a method for calculating weights that ensure the marginal totals match population targets. It is a standard method to weight survey data where you are using multiple variables to weight on, e.g. age, working status, educational attainment, region. Rim weighting uses an iterative proportional fitting method to calculate a weight for each respondent that ensures the survey data when weighted replicates the population targets e.g. the % of people aged 18-24 is the same in the sample as the population. For further information, please refer to: https://www.europeansocialsurvey.org/methodology/ess_methodology/data_processing_archiving/weighting.html

[11] For further information on weighting of dual frame telephone surveys please refer to: http://www.aapor.org/Education-Resources/Reports/Cell-Phone-Task-Force-Report/Weighting.aspx and https://surveyinsights.org/?p=5291

Tables 5 and 6 includes a comparison of the demographic of the achieved survey sample in each country against the population profile in that country.

Table 7 includes the overall design effect for each country and maximum confidence interval for estimates based on the full sample in each country and at a 95% confidence level.

The design effect is calculated based on the impact of weighting on the survey results for each country; the larger the design effect, the larger the confidence interval around the survey results. The maximum confidence interval is based on an estimate of 50%.[12] For example, if 50% of people in Brazil gave a particular response to a question, we can be 95% confident that the true population value is between 46% and 54%.[13]

[12] The confidence interval reduces as estimates get closer to 0% or 100%. For example, the confidence interval for an estimate of 10% or 90% in Brazil is +/- 2.4%, compared with +/- 4.0% for an estimate of 50%.

[13] The design effect due to weighting is calculated using the Kish approximation. (Reference: Kish, L. (1990). Weighting: Why, when, and how? Proceedings of the Joint Statistical Meetings, Section on Survey Research Methods, American Statistical Association, 121-129. Kish proposed the "design effect due to weighting" as a measure to quantify the loss of precision due to using unequal and inefficient weights.)

Table 5: Profile of achieved sample versus population – age by gender

	Survey %												Population %											
	M 18-24	M 25-34	M 35-44	M 45-54	M 55-64	M 65+	F 18-24	F 25-34	F 35-44	F 45-54	F 55-64	F 65+	M 18-24	M 25-34	M 35-44	M 45-54	M 55-64	M 65+	F 18-24	F 25-34	F 35-44	F 45-54	F 55-64	F 65+
Brazil	7%	17%	12%	9%	6%	4%	8%	12%	11%	8%	7%	3%	8%	11%	10%	8%	6%	5%	8%	11%	11%	9%	7%	7%
France	4%	7%	9%	10%	10%	12%	2%	5%	6%	7%	10%	17%	5%	7%	8%	9%	8%	11%	5%	8%	8%	9%	8%	14%
Germany	5%	8%	8%	11%	11%	12%	4%	5%	7%	8%	10%	11%	5%	8%	7%	9%	8%	11%	4%	7%	7%	9%	9%	14%
Greece	5%	9%	12%	11%	7%	7%	4%	8%	11%	13%	7%	5%	4%	7%	9%	9%	7%	12%	4%	7%	9%	9%	8%	15%
Netherlands	4%	6%	7%	10%	11%	16%	2%	4%	5%	9%	9%	15%	6%	8%	7%	9%	8%	11%	5%	8%	7%	9%	8%	13%
Poland	6%	12%	12%	6%	5%	8%	5%	9%	9%	6%	8%	13%	5%	9%	10%	7%	8%	8%	5%	9%	9%	8%	9%	13%
South Africa	15%	22%	10%	5%	3%	2%	12%	15%	7%	5%	2%	1%	9%	14%	11%	7%	5%	4%	9%	14%	10%	7%	5%	5%
South Korea	4%	15%	14%	12%	11%	8%	5%	11%	7%	5%	5%	4%	6%	8%	10%	10%	9%	8%	5%	7%	9%	10%	9%	10%
Spain	4%	7%	11%	13%	6%	5%	4%	7%	10%	13%	12%	6%	4%	7%	10%	10%	8%	10%	4%	7%	10%	10%	8%	13%
Sweden	3%	7%	9%	11%	8%	19%	2%	4%	8%	8%	6%	16%	5%	9%	8%	9%	7%	12%	5%	8%	8%	8%	7%	13%
USA	6%	8%	7%	8%	12%	16%	3%	4%	5%	5%	7%	16%	6%	9%	8%	8%	8%	9%	6%	9%	8%	8%	9%	12%

Table 6: Profile of achieved sample versus population – educational attainment and working status

	Educational attainment				Working status			
	Survey %		Population %		Survey %		Population %	
	Degree or above	Other	Degree or above	Other	Working	Not-working	Working	Not-working
Brazil	33%	67%	20%	80%	64%	36%	54%	46%
France	61%	39%	32%	68%	53%	47%	52%	48%
Germany	40%	59%	26%	74%	67%	32%	60%	40%
Greece	60%	39%	27%	73%	61%	34%	43%	57%
Netherlands	42%	57%	32%	68%	56%	41%	62%	38%
Poland	50%	49%	25%	75%	62%	36%	55%	45%
South Africa	36%	64%	11%	89%	49%	49%	43%	57%
South Korea	76%	23%	36%	64%	71%	28%	61%	39%
Spain	45%	55%	32%	68%	63%	37%	50%	50%
Sweden	64%	36%	23%	77%	60%	39%	63%	37%
USA	61%	38%	32%	68%	55%	42%	59%	41%

Table 7: Design effects for each country

Country	Design effect	Maximum confidence interval
Brazil	1.69	+/- 4.0%
France	1.78	+/- 4.1%
Germany	1.29	+/- 3.5%
Greece	2.40	+/- 4.8%
Netherlands	1.33	+/- 3.6%
Poland	1.63	+/- 3.8%
South Africa	1.93	+/- 4.3%
South Korea	3.63	+/- 5.9%
Spain	1.39	+/- 3.7%
Sweden	2.31	+/- 4.7%
USA	1.92	+/- 4.3%

2.7 Notes on analysis and interpretation

In this report we present the results from all survey questions based on an overall (all countries) and individual country level. As noted above, the overall results are based on the average results across all countries. This means that all countries contribute equally towards the average, regardless of the number of surveys completed in that country or the population total of the country. The same applies to the EU average results; these are based on the average across the seven EU countries surveyed, regardless of the number of interviews achieved in each country.

Results are also compared between demographic sub-groups. The results at all questions were analysed by gender, age group, and level of education. Selected questions were also analysed based on working status, importance of religion and parental status. We only include comparisons between demographic subgroups in this report where there were significant differences based on two criteria. First, that there was a significant difference in results at an 'all country' level: for example, on average across all countries, men were more likely to hold a certain view than women. And second, that these significant differences hold for the majority of countries surveyed (at least 6 out of the 11 countries). Where one or both of these criteria do not hold, we do not include the subgroup comparisons in the report. If a significant difference holds for most, but not all, countries, we note the exceptions in the report.

Significance tests (t-tests) were conducted on the country level and demographic subgroup results based on a 95% confidence interval. This means we can be 95% certain that any significant differences reported between countries or demographic subgroups reflect true differences in the populations.

Any differences reported are significant at a 95% confidence level.

Due to rounding, charts may not always add to 100%.

3. Feelings towards human enhancement technology

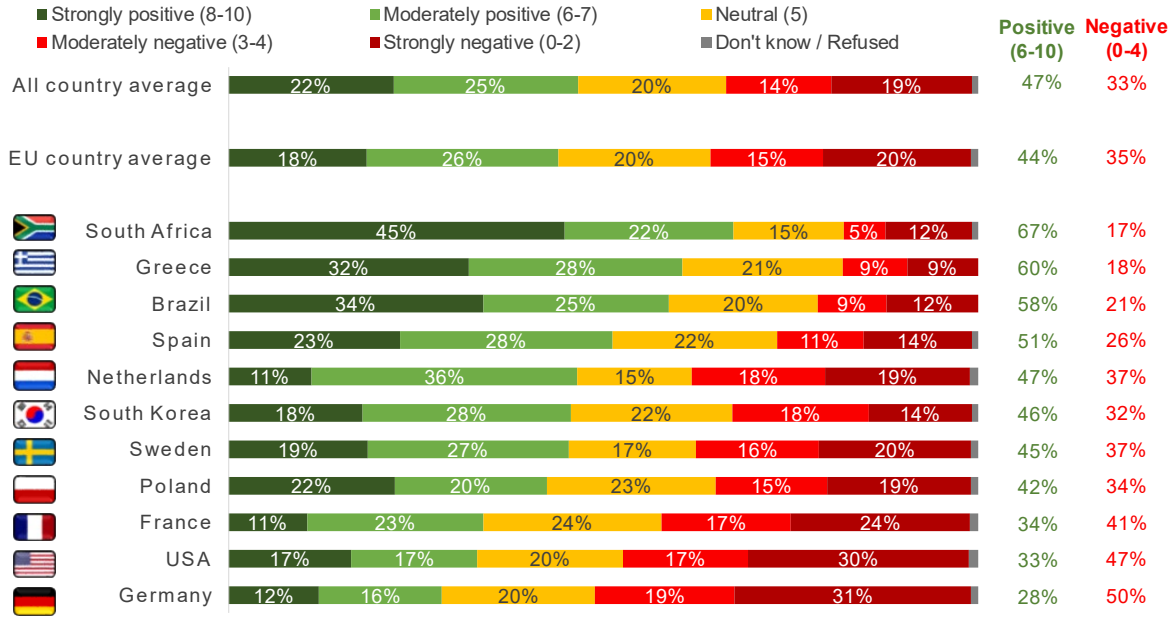
Respondents were asked how positively they felt about human enhancement technology. They were asked to rate their feeling on a scale 0 to 10, where 0 was '*not at all positive*' and 10 was '*completely positive*'.

Overall, more respondents felt positively than negatively about human enhancement technology, with an average of 47% across all countries surveyed saying they felt positively, while 33% said they felt negatively (ratings of 6-10 and 0-4, respectively). A fifth of respondents (20%) said they felt neither positively nor negatively about human enhancement technology (rating of 5). Responses were similar when looking at the average for surveyed EU countries, with 44% of respondents saying they felt positively about human enhancement technology, and 35% saying they felt negatively.

Feelings varied by country, although respondents in most countries felt more positively (ratings of 6-10) than negatively (ratings of 0-4) about human enhancement technology. Positive feelings were highest in South Africa (67%), Greece (60%) and Brazil (58%). In particular, the proportion of respondents in South Africa who felt strongly positive (ratings of 8-10) was much higher than in other countries, at 45% compared with 34% in Brazil, which had the second highest rating.

France (34%), the USA (33%) and Germany (28%) had the lowest self-reported positive feelings towards human enhancement technology and were the only countries with a higher proportion of respondents reporting negative than positive feelings. This was strongest in Germany, where the proportion of respondents who felt negatively about human enhancement technology was nearly twice the size of those who felt positively about it (50% compared with 28%, respectively).

Figure 1: Feelings towards human enhancement technology



Q056: HET_Q56. Overall how positive do you feel about human enhancement technology? Please answer on a scale of zero to 10, where zero is 'not at all positive' and 10 is 'completely positive'.
Base: all respondents.

4. Support for human enhancement technology

4.1 Overview

Respondents in each surveyed country were asked whether they supported or opposed different types of human enhancement technologies. Each adult was asked about two types of human enhancement technology, randomly selected among four technology areas. The four types of enhancement technology asked about were:

- Technology allowing people to live to 120 years old
- Technology to make people more intelligent
- Technology to improve people's moral values
- Technology to allow a person to choose a particular emotion

Not all respondents were asked about their feelings on all four types of technology. For all randomly selected technology areas, respondents were asked further questions based on whether they said they supported or opposed the technology. If they said they supported the technology, they were asked who they thought the technology should be available to.

For technology to make people more intelligent and for technology to improve people's moral values, respondents who supported the technology were also asked whether it ought to be permanent or reversible. Respondents who opposed the technology were asked whether their opinion would change if the technology was reversible.

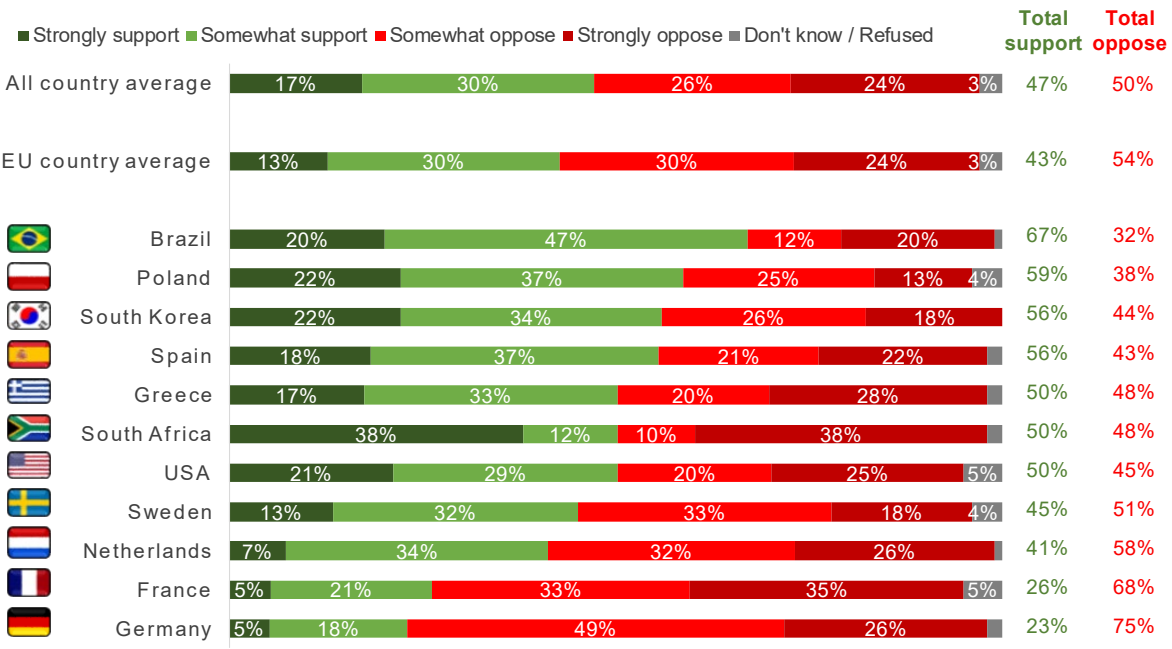
4.2 Perceptions around technology to make people live to 120 years

4.2.1 Support for longevity enhancement technology

Around half of respondents across all countries surveyed were asked whether they supported or opposed technology to make people live to 120 years. Based on an average across all countries, a similar proportion of respondents said that they '*strongly*' or '*somewhat*' supported (47%) or '*strongly*' or '*somewhat*' opposed (50%) a technology to make people live to 120 years. Despite this, and again based on an average across all survey countries, respondents were less likely to '*strongly support*' (17%) than '*strongly oppose*' (24%) this technology. Results were similar when looking at the average across surveyed EU countries, with 43% of EU respondents saying that they would support technology to make people live to 120 years old, while 54% said they would oppose it.

Support varied by country. Focussing on those who '*strongly*' or '*somewhat*' support a technology to make people live to 120 years, respondents in Brazil were most likely to say they supported the technology (67%), followed by Poland (59%), South Korea (56%) and Spain (56%). The countries with the lowest level of support were France (26%) and Germany (23%), far behind the Netherlands, which had the third lowest level of self-reported support, at 41%.

Figure 2: Support for technology to make people live to 120 years



Q041: HE_Q3A Firstly, thinking about technology to make people live to 120 years old. Do you…?
Base: random selection of around half the sample in each country. A full breakdown of sample sizes can be found in the appendix.

Based on an equal-weighted country average, men were overall more likely than women to support a technology to make people live to 120 years old (54% compared with 41%, respectively). The only countries were this was not the case were Spain, Sweden, the USA and South Africa, where results were similar between both gender groups.

4.2.2 Perceptions of who a longevity enhancement technology should be available to

Respondents who said they supported technology to make people live to 120 years were asked who they thought this technology should be available to. Looking at the average across all surveyed countries, a majority of respondents said it should be available to everyone, including babies and children (56%). A quarter of respondents (28%) said it should only be available to adults aged over 18 years old, while 8% said it should be available to adults over 18, but only if this can help in their profession. Results are consistent when looking at the average across surveyed EU countries, with over half of respondents (55%) thinking that technology to make people live to 120 years old should be available to everyone, including babies and children and a third (30%) thinking it should only be available to adults aged 18 or over.

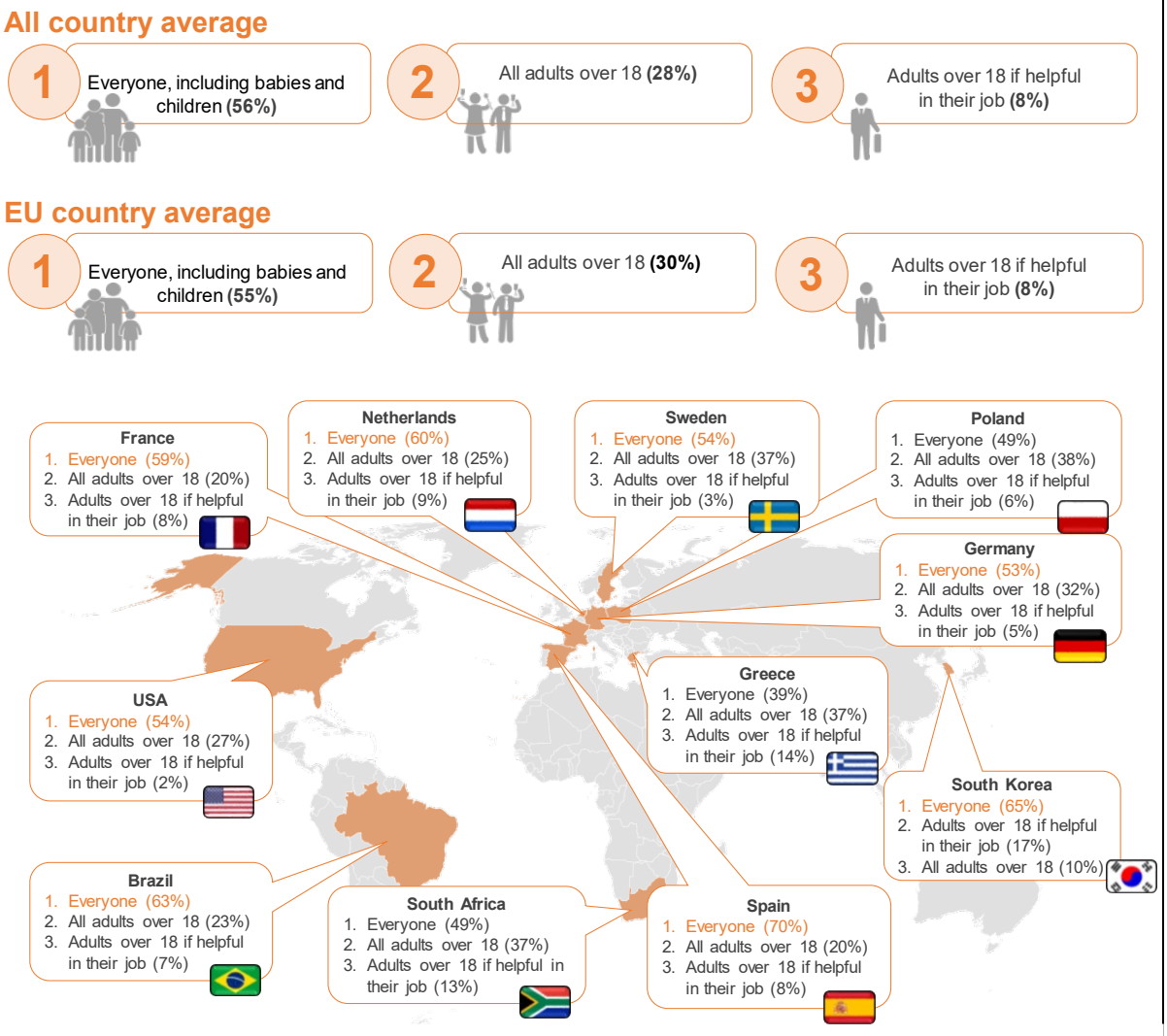
Perceptions were fairly consistent between countries. In all countries, it was most commonly thought that technology to make people live to 120 years old should be available to everyone, including children and babies. However, the proportion of respondents thinking that greatly varied. In all countries except Greece (39%), around half of respondents thought that the technology should be available to everyone. Respondents in Spain were most in favour of this, with 70% of them thinking that the technology should be available to all, followed by South Korea (65%) and Brazil (63%).

Greece was split between respondents who favoured availability for everyone, including babies and children (39%), and those who thought it should only be available to adults aged 18 or over (37%). In

other countries, the proportion of respondents who thought that technology to live to 120 years should only be available to everyone aged over 18 years old varied between 38% (in Poland) and 10% (in South Korea).

Only in Greece did more than 10% of respondents think that the technology should only be available to adults aged 18 or over if it was helpful in their work.

Figure 3: Perceptions of who technology to make people live to 120 years should be available to…



Note: perceived availability mentioned by 50% or more of respondents in each country displayed in orange text
Q042: HET_Q42. Still thinking about technology to make people live to 120 years old, who do you think this technology should be available to?
Base: all respondents who support technology to make people live to 120 years. A full breakdown of answers and sample sizes can be found in the appendix.

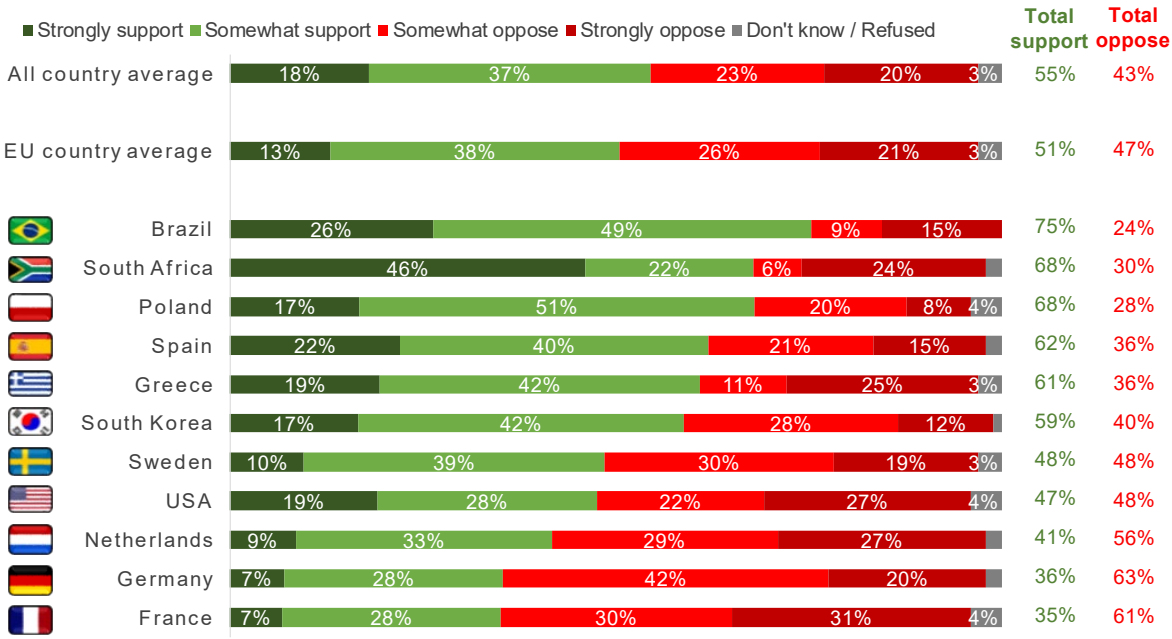
4.3 Perceptions around technology to make people more intelligent

4.3.1 Support for technology to make people more intelligent

Around half of respondents surveyed across all countries were asked whether they supported or opposed technology to make people more intelligent. More respondents reported '*strongly*' or '*somewhat*' supporting the technology (55%) than '*strongly*' or '*somewhat*' opposing it (43%). Looking at both ends of the scale, a similar proportion of respondents reported '*strongly supporting*' (18%) or '*strongly opposing*' (20%) a technology to make people more intelligent. Looking at the average across surveyed EU countries, respondents are nearly split about technology to make people more intelligent, with 51% saying they would support it and 47% saying they would oppose it.

Levels of support varied between countries and were similar to those for longevity enhancement technology. Focussing on those who '*strongly*' or '*somewhat*' support a technology to make people more intelligent, respondents in Brazil were again most likely to say they supported it (75%). Slightly behind were Poland (68%) and South Africa (68%). The countries with the lowest level of support were Germany (36%) and France (35%), again slightly behind the Netherlands, which had the third lowest level of self-reported support, at 41%.

Figure 4: Support for technology to make people more intelligent



Q043: HE_Q4A Thinking about technology to make people more intelligent. Do you…
Base: random selection of around half the sample in each country. A full breakdown of sample sizes can be found in the appendix.

4.2.2 Desired access for technology to make people more intelligent

Based on an equal weighted average across all surveyed countries, respondents who said they supported technology to make people more intelligent were asked who they thought this technology should be available to. Contrary to technology to make people live to 120 years, where a clear majority favoured the technology being available to everyone, respondents were more split about who technology to make people more intelligent should be available to. A similar proportion of respondents thought that it should only be available to adults aged 18 or over (38%) and that it ought to be available to everyone, including babies and children (35%). A fifth (20%) of respondents thought the technology should only be available to adults aged 18 or over if helpful in their profession. Results were similar when looking at the average across all surveyed EU countries, with 41% thinking that the technology should only be available to all adults aged 18 or over, and 31% saying it should be available to everyone, including babies and children.

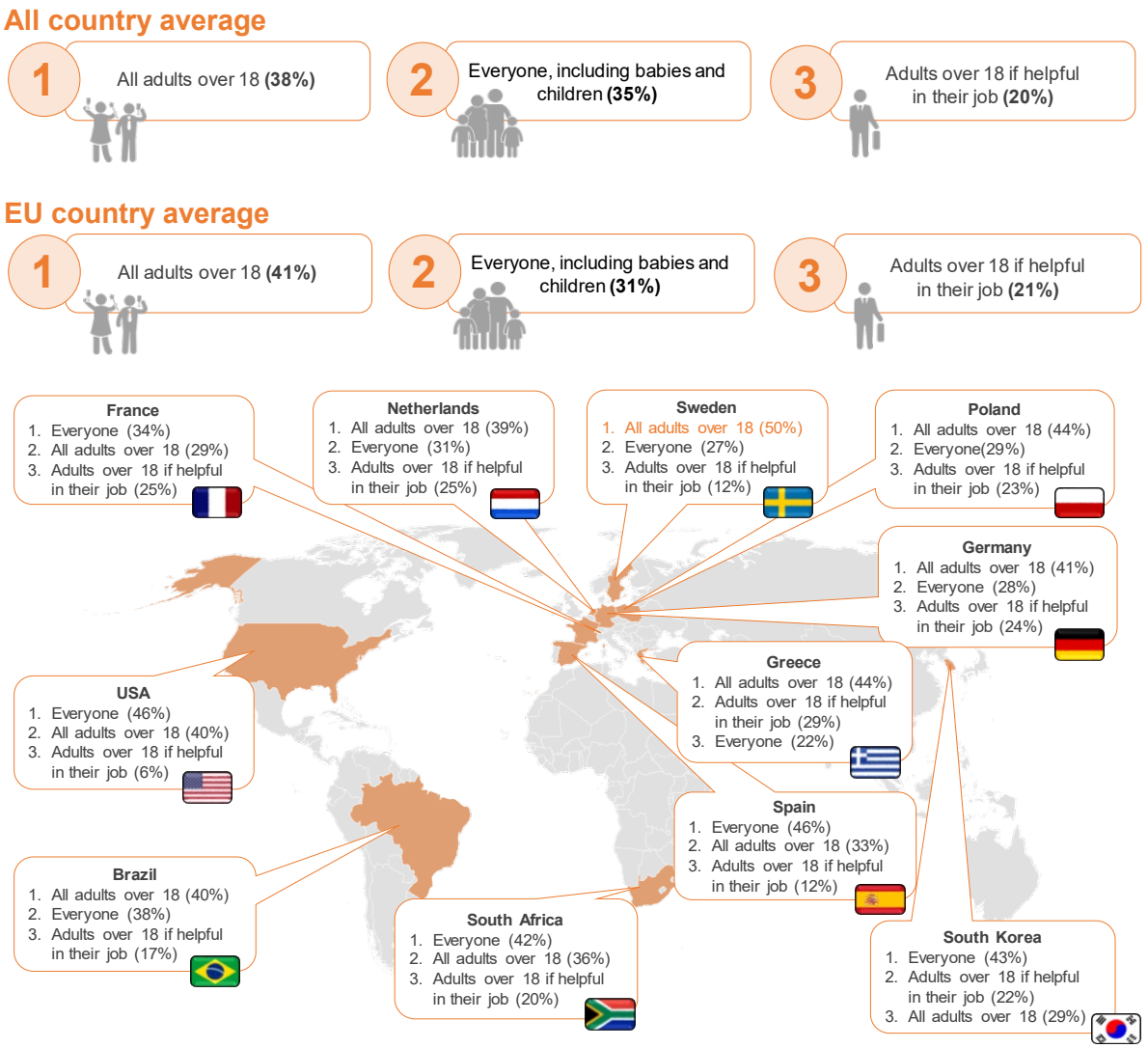
Perceptions of who technology to make people more intelligent should be available to varied by country. Looking at the most mentioned responses, there was a split between countries, with half most commonly selecting 'everyone, including babies and children', and half selecting 'adults aged 18 or over only'.

Countries where 'everyone' was most selected were: USA (46%), Spain (46%), South Korea (43%), South Africa (42%), France (38%).

Countries where 'all adults aged 18 or over' was most selected were: Sweden (50%), Greece (44%), Poland (44%), Germany (41%), Netherlands (39%).

Except for Greece, of the options offered, respondents in each country were least likely to think that technology to make people more intelligent should only be available to adults if it helped in their profession. Despite, this, it was selected by over a fifth of respondents in most countries, expect for the USA (6%), Sweden (12%), Spain (12%), and Brazil (17%).

Figure 5: Desired access for technology to make people more intelligent



Note: availability mentioned by 50% or more of respondents in each country is in orange text.
Q044: HET_Q44. Still thinking about technology to make people more intelligent, who do you think this technology should be available to?
Base: all respondents who support technology to make people more intelligent. A full breakdown of answers and sample sizes can be found in the appendix.

4.2.3 Perceptions on reversibility of technology to make people more intelligent

Respondents who supported technology to make people more intelligent were asked whether, if developed, this technology should be permanent of reversible. Looking at the averaged across surveyed EU countries, respondents were slightly more divided, with 52% saying they would support technology to make people more intelligent, while 44% said they would oppose it.

Respondents who said they supported technology to make people more intelligent were split in their views. Looking at the average across all countries surveyed, 49% of respondents thought the technology should be reversible while 47% thought it should be permanent.

Results varied between countries. In 6 of the 11 countries surveyed, over half of respondents thought the technology should be reversible (Netherlands, South Korea, Greece, USA, Germany, Sweden). The Netherlands had the highest proportion of respondents thinking it should be reversible, at 66%.

In South Africa (64%), Brazil (63%) and Spain (58%) over half of respondents surveyed thought that the technology should be permanent.

Results were split in Poland and France, where a similar proportion of respondents thought that the technology should be reversible and permanent (49% vs 48% respectively in Poland; 43% vs 49% respectively in France).

Table 8: Perceptions of reversibility of technology to make people more intelligent among supporters

	Reversible	Permanent	Don't know / Refused
All country average	49%	47%	4%
EU country average	52%	44%	5%
Netherlands	66%	31%	3%
South Korea	61%	36%	3%
Greece	59%	36%	5%
USA	56%	41%	3%
Germany	55%	40%	5%
Sweden	53%	38%	9%
Poland	49%	48%	3%
France	43%	49%	7%
Spain	38%	58%	4%
Brazil	36%	63%	1%
South Africa	34%	64%	2%

Note: highlighted cells represent a proportion of 50% of respondents or more
Q045: HE_Q4C If technology to make people more intelligent was developed, do you think this enhancement should be...
Base: all respondents who support technology to make people more intelligent. A full breakdown of sample sizes can be found in the appendix.

4.2.4 Impact of reversibility on support for technology to make people more intelligent

Respondents who said they opposed technology to make people more intelligent were asked whether their views would change if the impact of the technology was reversible.

Nearly three quarters (71%) of respondents across the surveyed countries who opposed technology to make people more intelligent said they would still not support the technology even if it were made reversible. A quarter (26%) said they would support it if it were made reversible. Results were similar when looking at the average across surveyed EU countries, with three quarters (73%) of respondents who opposed technology to make people more intelligent saying that making the technology reversible would not impact their support for it, while a quarter (24%) said they would support the technology if it were reversible.

Responses were consistent across most of the countries surveyed. In all but South Africa, over half of respondents who initially opposed the technology said they would still oppose it if it were made

reversible. Proportions varied between these countries, being highest in France (80%) and Sweden (79%) and lowest in Poland (60%). In South Africa, a majority of respondents who initially opposed technology to make people more intelligent say they would support it if it were made reversible (60%).

Table 9: Impact of reversibility on support among opponents of technology to make people more intelligent

	Yes	No	Don't know / Refused
All country average	26%	71%	3%
EU country average	24%	73%	3%
South Africa	60%	39%	1%
Poland	35%	60%	5%
Greece	31%	66%	2%
South Korea	28%	71%	2%
Spain	27%	70%	3%
Netherlands	24%	73%	3%
Germany	22%	76%	2%
Brazil	21%	79%	-
USA	21%	74%	6%
Sweden	19%	79%	2%
France	16%	80%	4%

Note: highlighted cells represent a proportion of 50% of respondents or more
Q046: HE_Q46 And would you support technology to make people more intelligent if the enhancement was reversible?
Base: all respondents who oppose technology to make people more intelligent. A full breakdown of sample sizes can be found in the appendix.

4.4 Perceptions around technology to improve people's moral values

4.4.1 Support for technology to improve people's moral values

Around half of respondents across all surveyed countries were asked whether they supported or opposed technology to improve people's moral values, defined as '*helping people make better choices in difficult situations*'. The examples provided were technology to help decide '*whether to be honest about a mistake people have made, or helping a politician make the fairest decision when there is a disagreement*'.

Looking at the all country average, more respondents said they would '*strongly*' or '*somewhat*' support (56%) than '*strongly*' or '*somewhat*' oppose (41%) technology to improve people's moral values. Responses were slightly more split when looking at the average across all EU surveyed countries, with 51% of respondents saying they would support technology to improve people's moral values, while 45% said they would oppose it.

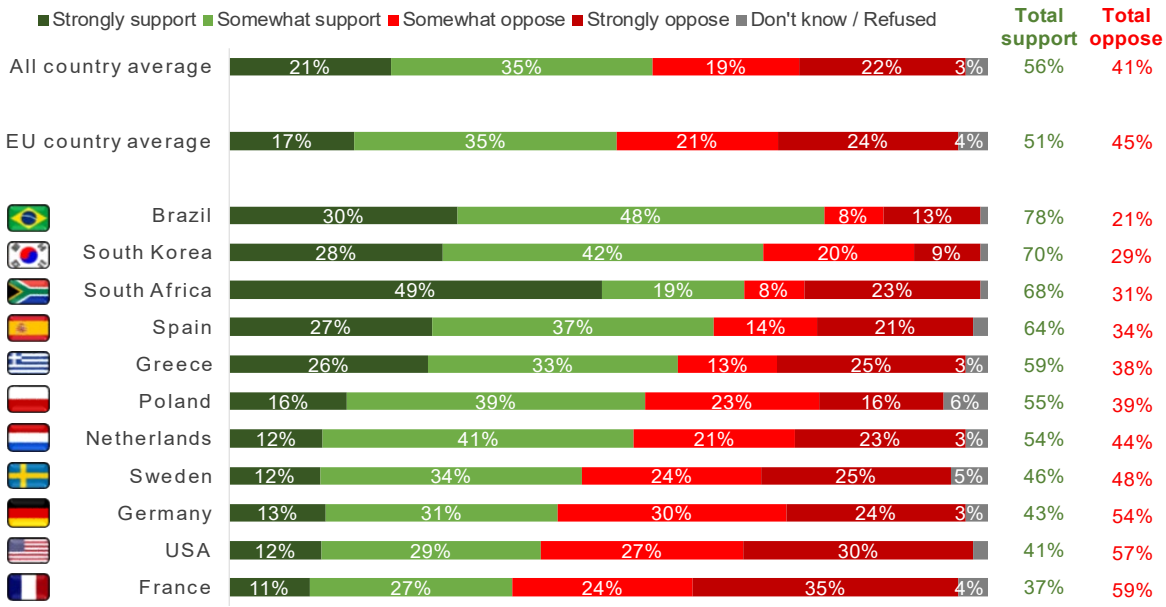
Focussing on those who '*strongly*' or '*somewhat*' support and '*strongly*' or '*somewhat*' oppose a technology to improve people's moral values, responses greatly varied between countries, although more countries would support than oppose technology to improve people's moral values.

Among the countries where more respondents would support than oppose this technology, Brazil has the highest level of support, at 78%, followed by South Korea (70%), South Africa (68%) and Spain (64%). As was the case for other technology areas surveyed, South Africa had the highest level of '*strong*' support, at 49%.

In three countries, France, the USA and Germany, more respondents reported opposing technology to improve people's moral values than supporting it. Levels of oppositions were highest in France (59%).

Sweden was the country with the most evenly split views, with a similar proportion of respondents saying they would support (46%) technology to improve people's moral values and saying they would 'oppose it (48%).

Figure 6: Support for technology to improve people's moral values



Q047: HE_Q5A Thinking about technology to improve people's moral values. This could help them make better choices in morally difficult situations. For example, whether to be honest about a mistake they have made, or helping a politician make the fairest decision when there is a disagreement. Do you…?
Base: random selection of around half the sample in each country. A full breakdown of sample sizes can be found in the appendix.

4.4.2 Desired access for technology to improve people's moral values

Respondents who supported technology to improve people's moral values were asked who they thought the technology should be available to.

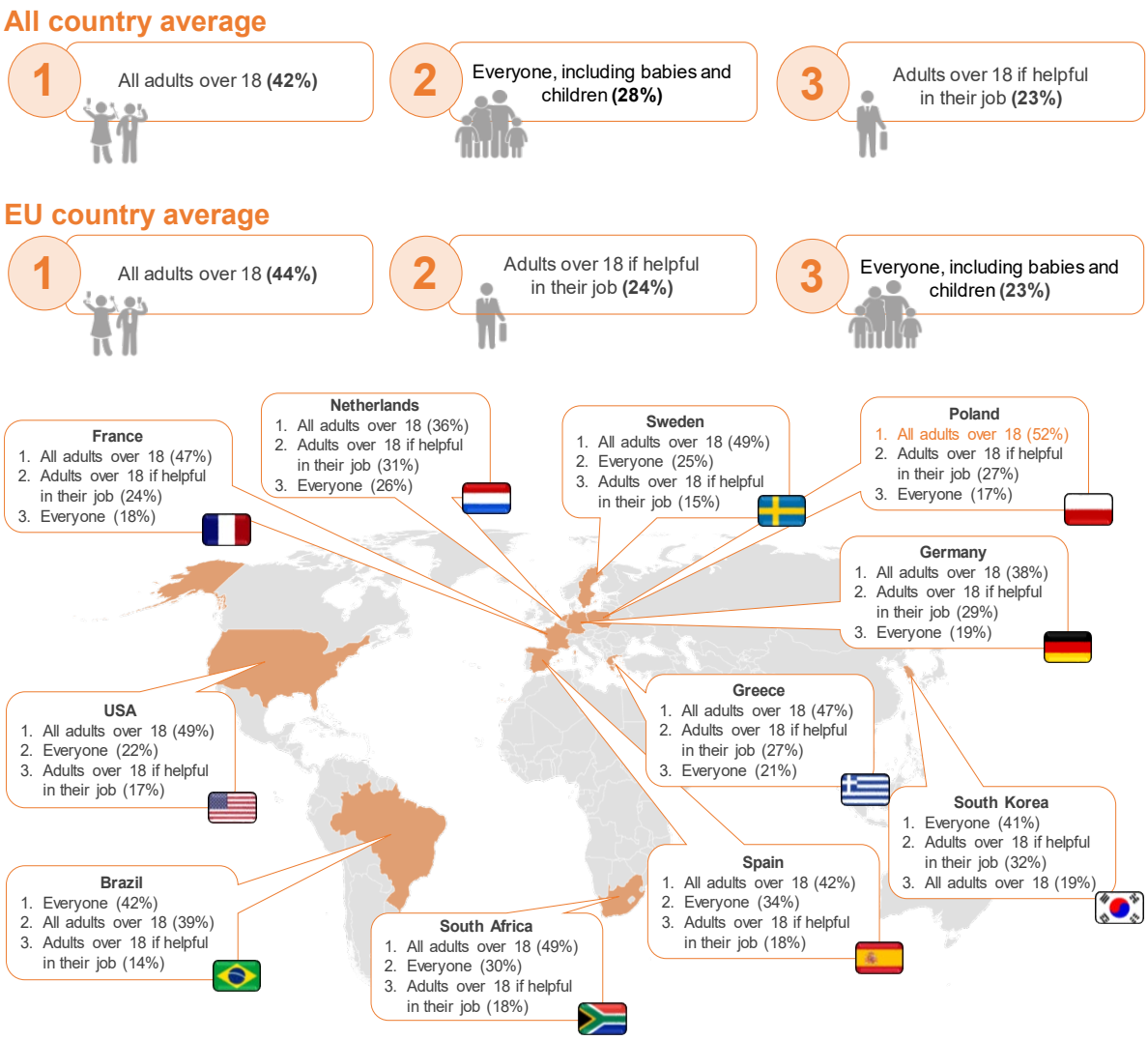
Looking at the average for all countries surveyed, under half (42%) thought that the technology should only be available to adults aged 18 or over. There was a near split in the proportion of respondents who thought the technology should be available to everyone (28%) and to adults aged 18 or over if helpful in their profession (23%). Responses are similar when looking at the surveyed EU countries,

with 44% of respondents thinking it should only be available to adults aged 18 or over, and 23% thinking it should be available to everyone, including babies and children.

In all countries except South Korea and Brazil, respondents most commonly thought that technology to improve people's moral values should only be available to adults aged 18 or over. The second most selected option varied between countries, with half most commonly selecting everyone, and half most commonly selecting adults aged 18 or over if helpful in their profession.

In Brazil and South Korea, most respondents thought that the technology should be available to everyone, including babies and children (42% and 41%, respectively).

Figure 7: Desired access for technology to make improve people's moral values



Q048: HET_Q48. Still thinking about technology to improve people's moral values, who do you think this technology should be available to?
Base: all respondents who support technology to improve people's moral values. A full breakdown of answers and sample sizes can be found in the appendix.

4.4.3 Perceptions on reversibility of technology to improve people's moral values

Respondents who supported technology to improve people's moral values were asked whether they thought the technology should be reversible or permanent. Overall, respondents were more likely to think that the technology should be reversible (54%) than permanent (42%). Looking at the average across surveyed EU countries, the gap is responses was slightly wider, with a majority (57%) saying that technology to improve people's moral values should be reversible, while 38% said it should be permanent.

Responses varied between countries. In 8 of the 11 countries surveyed, a majority of respondents who said they supported technology to improve people's moral values thought that it should be reversible. This view was most widely held among respondents in the Netherlands (75%), the USA (67%) and South Korea (65%). Only in Spain, Brazil and South Africa did a majority think that it should be permanent, with the view being most widely shared in South Africa (62%) and Brazil (60%).

Table 10: Perceptions of reversibility of technology to improve people's moral values among supporters

	Reversible	Permanent	Don't know / Refused
All country average	54%	42%	3%
EU country average	57%	38%	4%
Netherlands	75%	24%	2%
USA	67%	26%	7%
South Korea	65%	34%	1%
Sweden	60%	30%	9%
Greece	58%	36%	6%
Germany	58%	40%	2%
Poland	53%	43%	4%
France	53%	42%	6%
Spain	46%	50%	4%
Brazil	39%	60%	1%
South Africa	37%	62%	1%

Note: highlighted cells represent a proportion of 50% of respondents or more
Q049: HE_Q5C If technology to improve people's moral values was developed, do you think this enhancement should be...
Base: all respondents who support technology to improve people's moral values. A full breakdown of sample sizes can be found in the appendix.

4.4.4 Impact of reversibility on support for technology to improve people's moral values

Respondents who said they would oppose technology to improve people's moral values were asked whether their views would change if the technology was reversible. Looking at the all country average, two thirds (67%) of respondents said they would still oppose technology to improve people's moral values even if it were reversible. Under a third of respondents (29%) said they would support it. Looking at the average across surveyed EU countries, results were similar, with a large majority 70% saying

they would still oppose technology to improve people's moral values even if it were made reversible, while 26% said they would support it.

As for other technology areas looked at, the majority of respondents who initially opposed technology to improve people's moral values did not change their perceptions, except in South Africa. South Africa was the only country surveyed where over half of respondents who initially opposed the technology (56%) said they would support it if it were reversible, against 43% who said they would still oppose it.

In all other countries surveyed, a majority said they would still oppose the technology, although the proportion of respondents saying that varied greatly between countries, being highest in Germany (76%), South Korea (76%), Sweden (75%), the Netherlands (73%) and France (72%).

Table 11: Impact of reversibility on support among opponents of technology to improve people's moral values

	Yes	No	Don't know / Refused
All country average	29%	67%	4%
EU country average	26%	70%	4%
South Africa	56%	43%	1%
Brazil*	45%	53%	2%
Greece	39%	55%	6%
Poland	36%	62%	2%
Spain	28%	68%	5%
USA	25%	69%	6%
South Korea	23%	76%	-
France	23%	72%	5%
Netherlands	22%	73%	5%
Germany	21%	76%	4%
Sweden	20%	75%	5%

*Caution low sample size
Note: highlighted cells represent a proportion of 50% of respondents or more
Q050: HE_Q5D And would you support technology to improve people's moral values if the enhancement was reversible?
Base: all respondents who oppose technology to improve people's moral values. A full breakdown of sample sizes can be found in the appendix.

4.5 Technology to allow people to choose a particular emotion

Around half of respondents across all countries surveyed were asked whether they supported or opposed technology to allow a person to choose a particular emotion. An example was provided, saying it referred to technology to '*better understand the feelings of a friend going through a difficult time, or to feel more confident in stressful situations*'.

Looking at the all country average, slightly more respondents said they would support (52%) than oppose (46%) technology to allow a person to choose a particular emotion. Responses are split when

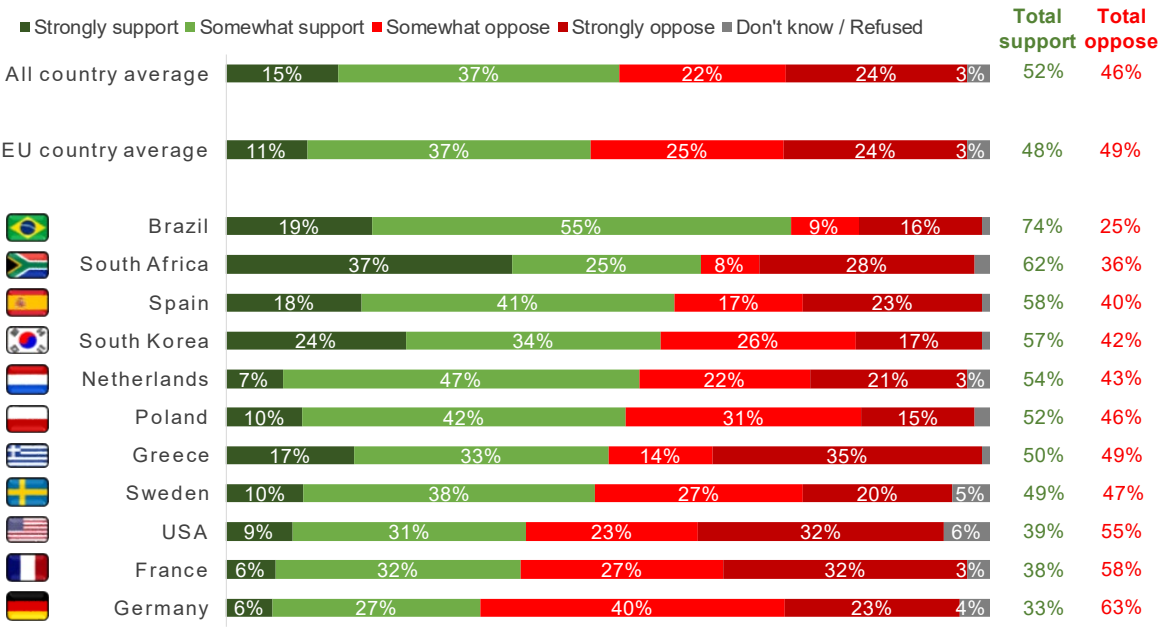
looking at the average across all EU surveyed countries, with 48% saying they would support technology to allow people to choose a particular emotion, while 49% said they would oppose it.

Responses again varied by country. Brazil was by far most supportive, with 74% of respondents saying they would '*strongly*' or '*somewhat*' support it. South Africa followed, at 62%. As with other technologies looked at, South Africa had the highest level of '*strong support*' for the technology (37%).

Only in three countries did more respondents oppose than support the technology. Germany had the highest level of opposition, at 63%. It was followed by France (58%) and the USA (55%).

As with other technologies looked at, Swedish respondents had a near split view, with 49% being in support and 47% opposing technology to allow a person to choose a particular emotion.

Figure 8: Support for technology to allow a person to choose a particular emotion



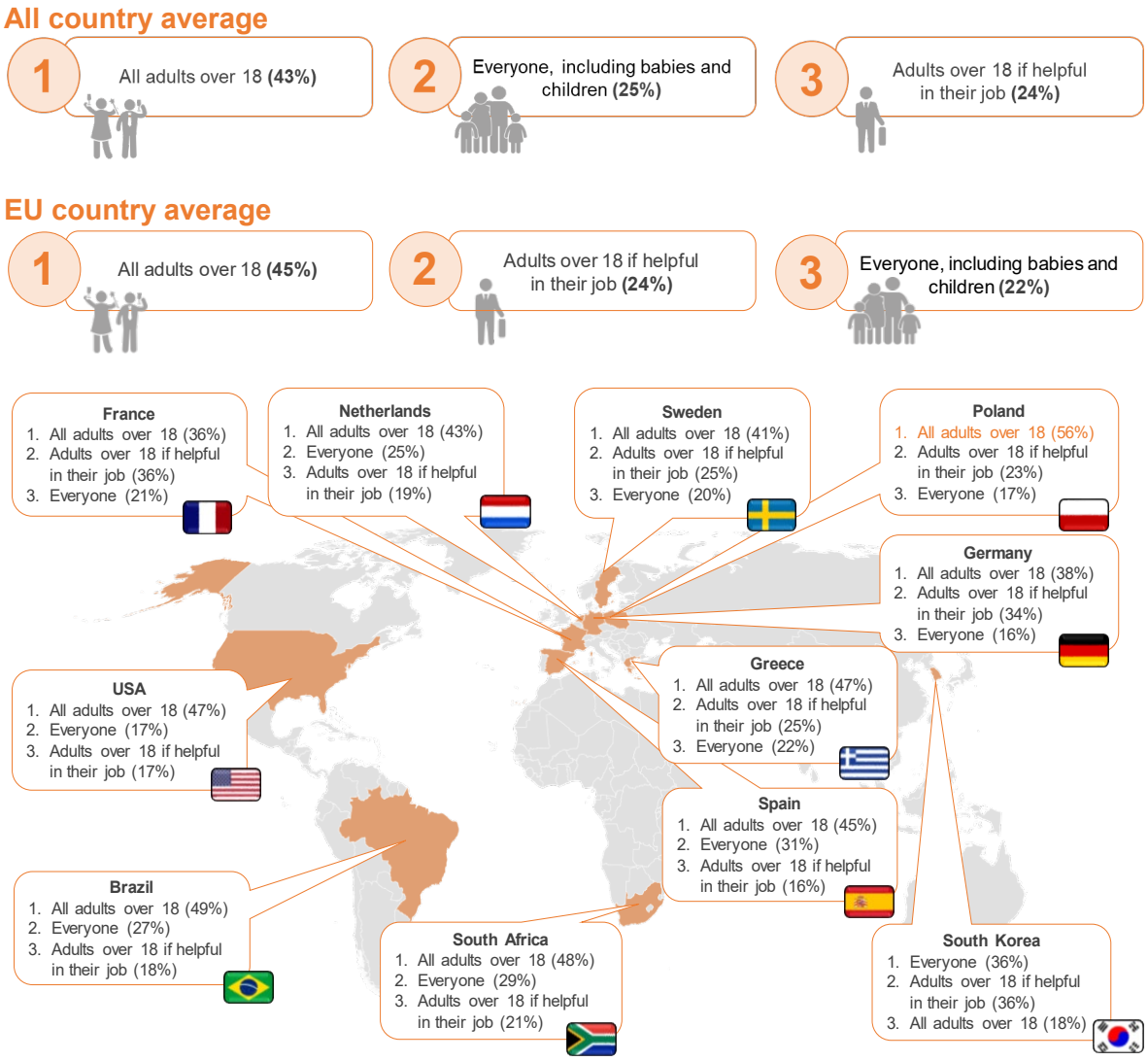
Q051: HE_Q6A Thinking about technology to allow a person to choose a particular emotion. For example, to better understand the feelings of a friend going through difficult time, or to feel more confident in stressful situations. Do you…?
Base: random selection of around half the sample in each country. A full breakdown of sample sizes can be found in the appendix.

Desired access for technology to allow a person to choose a particular emotion

Respondents who supported technology to allow a person to choose a particular emotion were asked who they thought this technology should be available to. Looking at the all country average under half of respondents (43%) thought that it should only be available to adults aged 18 or over. The rest of respondents were split, with a quarter (25%) thinking it should be available to everyone, including babies and children, while another quarter (24%) thought it should only be available to adults aged 18 or more if it can help in their profession. Responses are similar when looking at the average across surveyed EU countries, with 45% thinking technology to allow a person to choose a particular emotion should only be available to all adults age 18 or over, while the rest are split between those who thought it should be available only to adults if helpful in their job (24%) and those who thought it should be available to everyone, including babies and children (22%). The proportion of respondents thinking that it should only be available to adults aged 18 or over greatly varies between countries, being highest in Poland (56%) and lowest in South Korea and France (36% in both). In France and South Korea,

a similar proportion of respondents thought that the technology should only be available to all adults aged 18 or over and to adults aged 18 or over only if helpful in their profession.

Figure 9: Desired access for technology to make allow a person to choose a particular emotion



Q052: HET_Q52. Still thinking about technology to allow a person to choose a particular emotion, who do you think this technology should be available to?
Base: all respondents who support technology to allow a person to choose a particular emotion. A full breakdown of answers and sample sizes can be found in the appendix.

5. Impact of Human Enhancement Technology on society

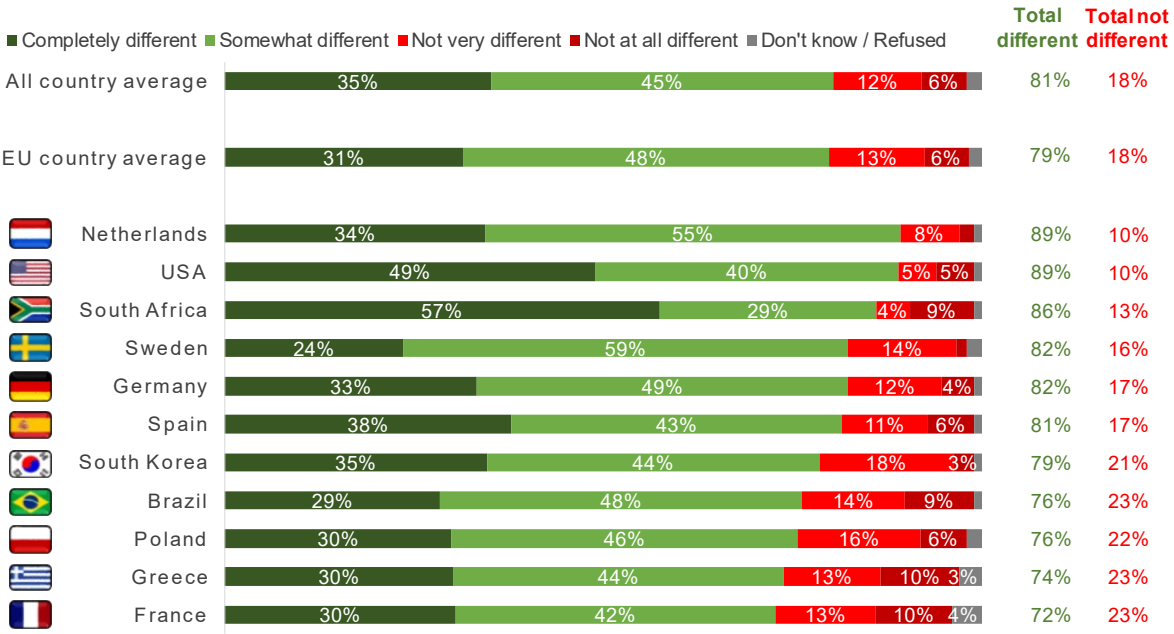
5.1 Societal change due to human enhancement technology

Respondents in all surveyed countries were asked whether they agreed or disagreed that if human enhancement technology became more widespread, in 20 years their country would be different.

Looking at the all country average, a large majority of respondents thought that their country would look different. Indeed, 81% of respondents thought their country would be '*completely*' or '*somewhat*' different, while 18% thought it would be '*not very different*' or '*not different at all*'. A third of respondents (35%) thought their country would be '*completely different*'. Responses were similar when looking at the average across surveyed EU countries, with 79% thinking their country would be different, and 18% thinking it would not be different.

This is the only question asked about human enhancement technology where a majority in all countries – and a large majority with that – shared the same perception. Indeed, in six of the eleven countries survey, over eight in ten respondents thought that their country would be '*completely*' or '*somewhat*' different in 20 years if human enhancement technology became widespread. The Netherlands and the USA had the highest proportion of respondents who thought this, at 89% for both. In the remaining five countries, over 7 in 10 respondents thought that their country would be '*completely*' or '*somewhat*' different. France had the lowest proportion of respondents thinking this, at 72%. In South Africa (57%) and the USA (49%), around half of respondents thought that their country would be '*completely different*'.

Figure 10: Perceptions of societal change due to human enhancement technology



Q055: HET_Q2 If human enhancement technology becomes more widespread, in 20 years do you think that [COUNTRY] will be…
Base: all respondents.

5.2 Specific use of Human Enhancement Technology

5.2.1. Agreement with parents being allowed to enhance certain features of their healthy baby

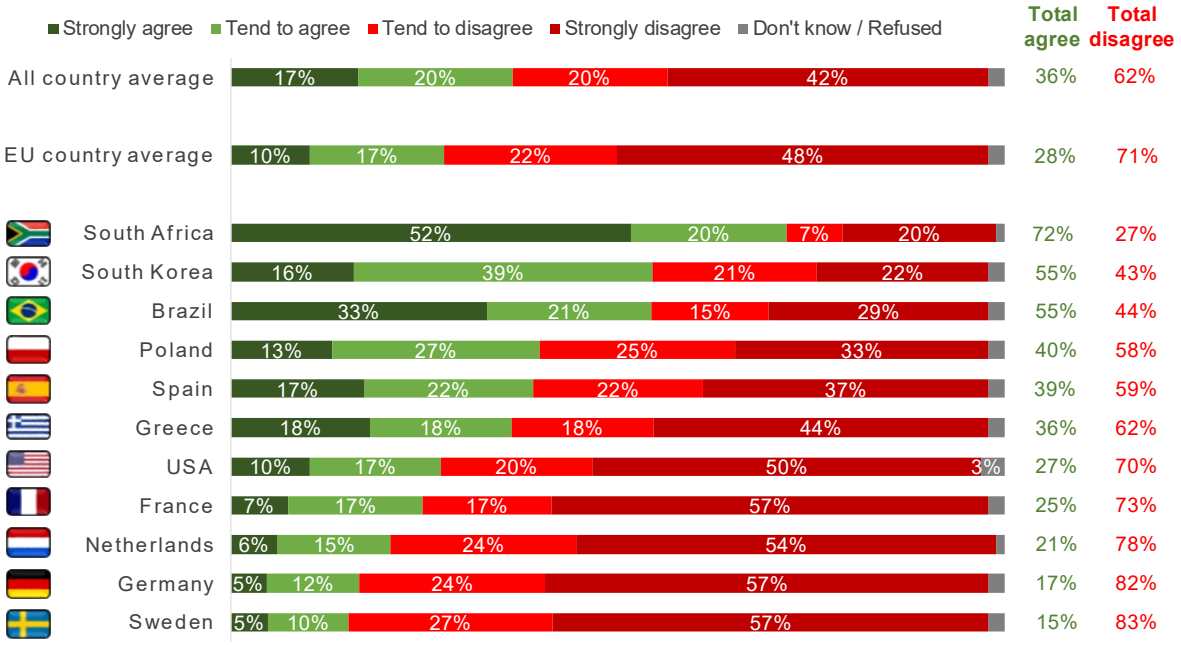
Respondents in all surveyed countries were asked whether they agreed or disagreed with parents being allowed to enhance certain features of their healthy baby, with '*future intelligence or strength*' given as examples.

Looking at the all country average, two thirds of respondents (62%) said they '*strongly*' or *'tended to'* disagree with parents being allowed to enhance certain features of their healthy bay, while a third (36%) '*strongly*' or *'tended to'* agreed. Notably, four in ten respondents (42%) said they '*strongly disagreed*'. Responses differ when looking at the average across surveyed EU countries, with a higher proportion of respondents saying that they disagreed with parents being allowed to enhance certain features of their healthy baby (71% vs 28% agreeing).

Responses greatly varied between countries. All non-EU countries surveyed had a greater proportion of respondents who '*strongly*' or *'tended to'* agree compared to disagree that parents should be allowed to enhance certain features of their healthy baby, with the exception of the USA. The difference was particularly high in South Africa, where two thirds (72%) of respondents said they '*strongly*' or *'tended to'* agreed while a quarter (27%) said they '*strongly*' or *'tended to'* disagreed.

In all other countries a majority of respondents disagreed that parents should be allowed to enhance certain features of their healthy baby. The level of disagreement varied between them, with Sweden (83%) and Germany (82%) being most against, while Poland (58%) and Spain (59%) were more divided.

Figure 11: Agreement with parents being allowed to enhance certain features of their healthy baby



Q054: HET_Q7 To what extent do you agree or disagree with each of the following statements? "Parents should be allowed to enhance certain features of their healthy baby, such as their future intelligence or strength"
Base: all respondents.

Based on an equal-weighted country average, there were various differences in agreement levels when looking at gender, education level, and employment status.

Men (40%) were more likely than women (33%) to agree that parents should be allowed to enhance certain features of their healthy baby, except in Brazil, Greece, Poland, South Korea and the USA where results are similar between gender.

Respondents without a university degree (40%) were also more likely than those who had one (27%) to agree with this statement, except in Germany, the Netherlands and the USA, where results a similar between groups. The level of '*strong*' agreement was particularly different between these two groups, with 19% of respondents without a university degree '*strongly*' agreeing that parents should be allowed to enhance certain features of their healthy baby, compared with 9% of respondents with a university degree. The exceptions were Netherlands, Germany and Poland.

5.2.2. Agreement with employers in certain profession requiring that new employees be technologically enhanced

Respondents in all survey countries were asked whether they agreed or disagreed that employers in certain professions should be able to require that new employees are technologically enhanced to increase their performance at work. Examples of professions included the military, medicine, or police.

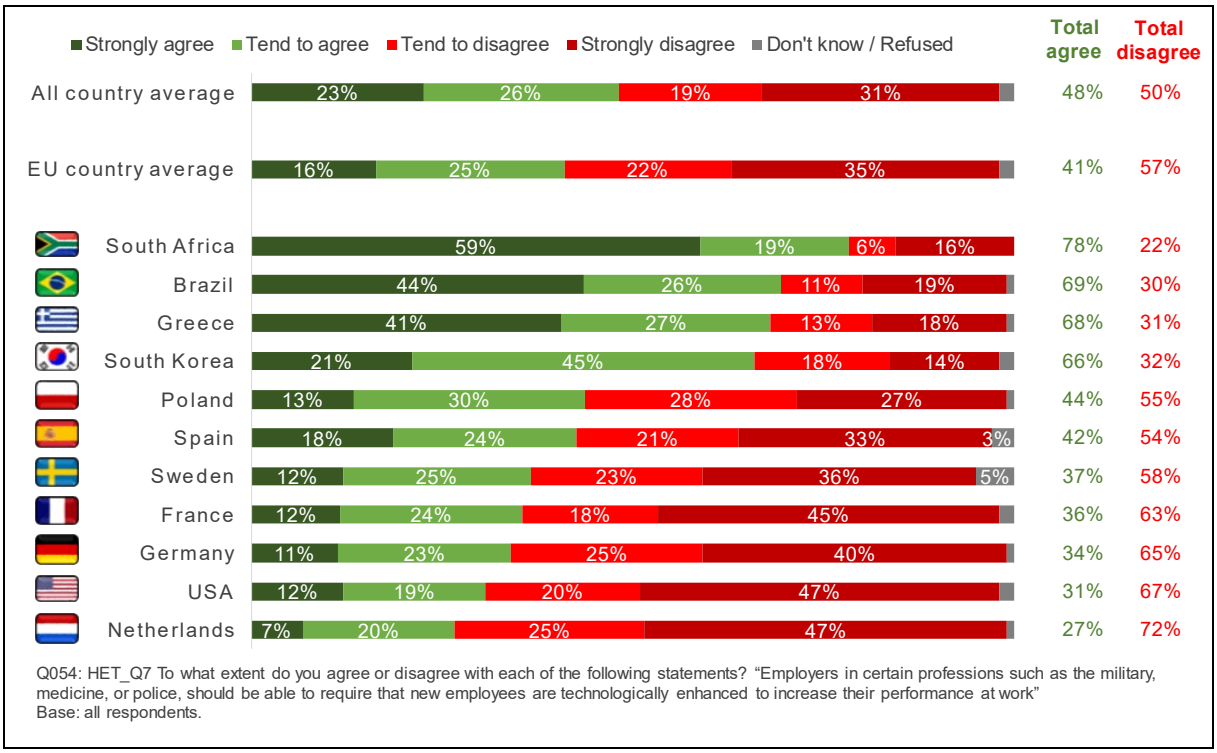
Looking at the all country average, respondents were split, with 48% '*strongly*' or '*tending to*' agree with employers in certain profession requiring that new employees be technologically enhanced, while 50% '*strongly*' or '*tended to*' disagree. Looking at the full breakdown however, more respondents '*strongly disagreed*' (31%) than '*strongly agreed*' (23%). Responses were again more negative when looking at the average across surveyed EU countries, with 57% disagreeing with employers in certain profession requiring that new employees be technologically enhanced, while 41% agreed**.**

Responses greatly varied between countries and were similar to agreement and disagreement with parents being allowed to enhance certain features of their healthy baby. Indeed, except for the USA, most respondents in all non-EU countries reported '*strongly*' or '*somewhat*' agreeing with employers in certain profession requiring that new employees be technologically enhanced. More Greek respondents also agreed than disagreed with the statement. South Africa again had the highest proportion of respondents who *strongly*' or '*somewhat*' agreed, at 78%.

In all other EU countries surveyed, as well as in the USA, a majority of respondents said they '*strongly*' or '*somewhat*' disagreed with employers in certain profession requiring that new employees be technologically enhanced. The Netherlands, the USA and Germany had the highest level of overall disagreement, at 72%, 67% and 65%, respectively.

Noticeably, responses were very polarised. Indeed, among countries with a majority of overall agreement, the level of '*strong*' agreement tended to be high, reaching 59% in South Africa, 44% in Brazil and 41% in Greece. Similarly, among countries with a majority of overall disagreement, the level of '*strong*' disagreement tended to be high, at 47% for the USA and the Netherlands, 45% for France and 40% for Germany.

Figure 12: Agreement with employers in certain profession requiring that new employees be technologically enhanced



Q054: HET_Q7 To what extent do you agree or disagree with each of the following statements? "Employers in certain professions such as the military, medicine, or police, should be able to require that new employees are technologically enhanced to increase their performance at work"
Base: all respondents.

Based on an equal-weighted country average, younger respondents (18-34) and older respondents (55+) were split between those who agreed and disagreed that employers in certain profession should be able to require new employees to be technology enhanced. Poland and Sweden were exceptions, with results being similar between all groups.

Looking at the all country average, respondents without a university degree (53%) were more likely to agree with employers in certain profession requiring that new employees be technologically enhanced than respondents with a university degree (36%), with the exception of South Africa where results were consistent between groups. This trend was true in all countries and most apparent in Spain. Similarly, unemployed respondents (54%) were more likely than those in employment (43%) to agree with this statement, except in Brazil and South Korea were results were similar between groups.

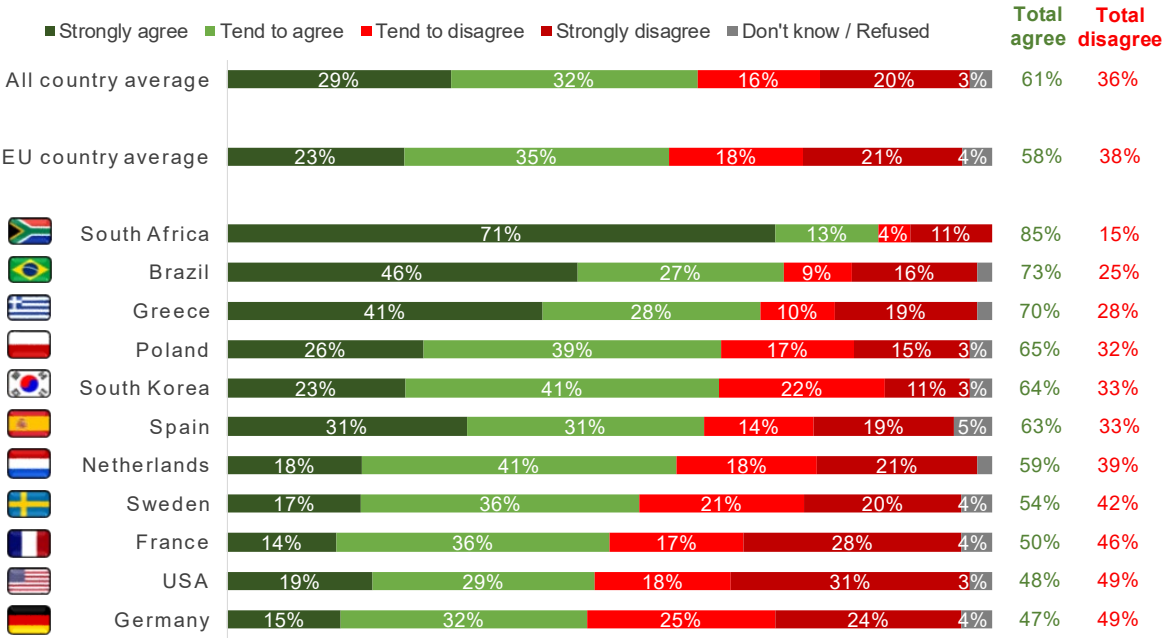
5.3 Support for financial help to access Human Enhancement Technology

Respondents in all surveyed countries were asked whether they agreed or disagreed that people on a low salary should be offered financial help should they want to use human enhancement technology.

Looking at the all country average, under two thirds (61%) of respondents agreed with the statement while a third (36%) disagreed. Results were similar when looking at the average across surveyed EU countries, with 58% agreeing that people on a low salary should be offered financial help to use human enhancement technology while 38% disagreed.

In nearly all countries surveyed, a majority of respondents '*strongly*' or '*tended to*' agree that people on a low salary should be offered financial help should they want to use human enhancement technology. South Africa again had the highest level of agreement, at 85%, including seven in ten respondents (71%) who '*strongly agreed*'. Brazil and Greece also had a high level of overall agreement, at 73% and 70%, respectively.

Figure 13: Agreement with people on a low salary being offered financial help to use human enhancement technology



Q054: HET_Q7 To what extent do you agree or disagree with each of the following statements? "People on a low salary should be offered financial help should they want to use human enhancement technology"
Base: all respondents.

Again based on all surveyed countries, respondents without a university degree (65%) were again more likely to '*strongly*' or '*tend to'* agree people on a low salary should be offered financial help should they want to use human enhancement technology than respondents with a university degree (52%). The only exceptions were Greece and South Africa where responses were similar between groups.

6. Responsibility for ensuring the safety of human enhancement technology

Respondents across all countries surveyed were asked who they thought should be most responsible for ensuring the safety of human enhancement technology. There was no consensus, with around a fifth of respondents selecting each of the four options displayed.

Respondents across all surveyed countries most selected scientists (26%) and the government (24%), closely followed by companies that make and sell the technology (18%) and individuals or organisations who use the technology (15%). Responses were similar when looking at the average across all surveyed EU countries, with respondents also thinking that scientists should be most responsible for ensuring the safety of human enhancement technology (31%). This was followed by the government (24%) and companies that make / sell the technology (15%).

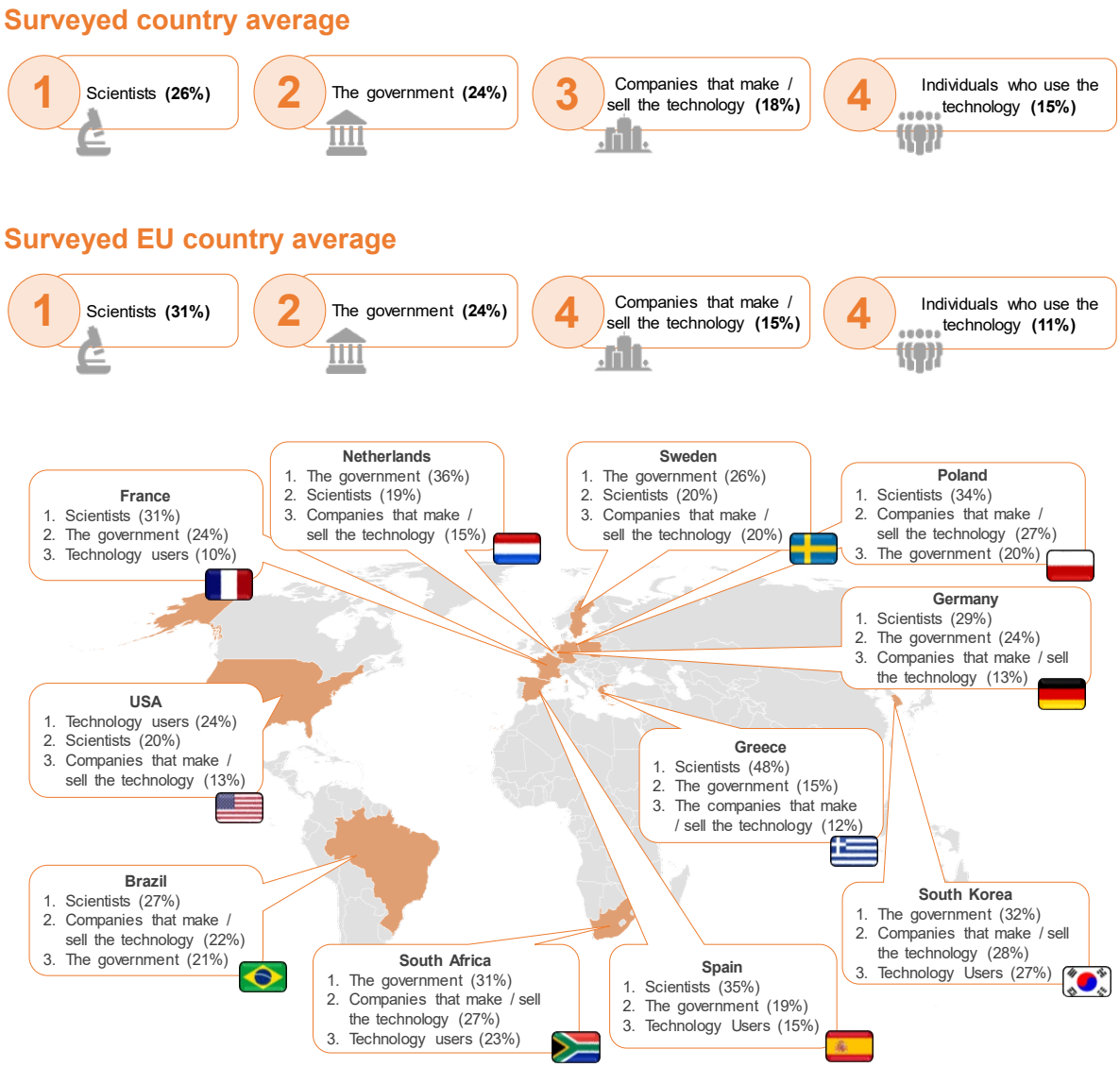
Views about who respondents thought should be most responsible varied between countries, with six of the countries surveyed thinking that scientists should be most responsible and four thinking that it ought to be the government. Only in the United States did perceptions differ, with more respondents thinking that individuals who use the technology should be most responsible (24%).

Countries where more respondents thought that scientists should be most responsible were: Greece (48%), Spain (35%), Poland (34%), France (31%), Germany (29%), Brazil (27%). Greece stood out as being the only country having a near majority selecting this answer. In these countries, the government or companies that make or sell the technology came as the second most selected answer.

Countries where more respondents thought that 'the government' should be most responsible were: Netherlands (36%), South Korea (32%), South Africa (31%), Sweden (26%). In these countries, scientists or companies that make or sell the technology came in second place.

Respondents were least likely to say that individuals who use the technology should be more responsible for ensuring its safety in all countries apart from the USA.

Figure 14: Perceived responsibility for ensuring the safety of human enhancement technology



Q053: HET_Q6 Who do you think should be MOST responsible for ensuring the safety of human enhancement technology?
Base: all respondents. A full breakdown of answers and sample sizes can be found in the appendix.

Looking at demographic differences at an all country average level, more men (28%) than women (20%) thought that the government should be most responsible for ensuring the safety of human enhancement technology. Exceptions were Brazil, Netherland, South Africa, South Korea and Sweden where results were similar between groups.

7. Conclusion

All country-average findings

Overall, respondents have mixed views about human enhancement technologies and its potential societal impact.

Looking at the average across all surveyed countries, respondents were more positive than negative about human enhancement technology when thinking about the impact on their country, with nearly half (47%) saying they felt positively about it, while a third (33%) said they felt negatively.

When asked about their support for four specific applications, opinion was split or nearly split for each:

- 56% supported technology to improve people's moral values, with 41% opposing
- 55% supported technology to make people more intelligent, with 43% opposing
- 52% supported technology to allow a person to choose a particular emotion, with 46% opposing
- 47% supported technology to make people live to 120 years old, with 50% opposing

For each technology area, respondents who supported it were asked who they thought it ought to be available to. Based on the all country average, the most common responses for all four areas were that they should be available to all adults over 18 or to everyone, including babies and children. The only technology where a majority of respondents supporting it selected any of the answers was for a technology to make people live to 120 years old, where 56% said it should be available to everyone, including babies and children.

For technology to improve people's moral values and for technology to make people more intelligent, respondents who supported each technology were asked whether, if developed, they thought it ought to be reversible or permanent. Perceptions differed a little between the technologies. For technology to improve people's moral values, slightly more respondents thought that the technology should be reversible (54%) than permanent (42%). For technology to make people more intelligent respondents were split, with 49% thinking the technology should be reversible, and 47% thinking it should be permanent.

Again, for technology to improve people's moral values and technology to make people more intelligent, respondents who said they opposed them were asked whether their views would change if the technology were made reversible. For both technologies, a large majority of respondents said the technology being made reversible would not have an impact on their views, with 71% of respondents saying they would still oppose technology to make people more intelligent, and 67% saying they would still oppose technology to improve people's moral values.

Looking at perceived societal impact, all respondents were asked how different they thought their country would be in 20 years as a result of human enhancement technology. Looking at the all country average, a large majority of respondents (81%) thought that their country would be different, of which a third (35%) thought it would be very different.

Delving into more specific areas, respondents were asked whether they agreed or disagreed with:

- parents being allowed to enhance certain features of their healthy baby
- employers in certain professions should be able to require that new employees be technologically enhanced

Based on an all country average, far more respondents disagreed (62%) than agreed (36%) that parents should be allowed to enhance certain features of their healthy baby. Respondents were more evenly split about employers in certain profession being able to require that new employees be technologically enhanced (48% agreed, 50% disagreed).

Respondents were also asked whether they agreed or disagreed with people on a low salary being offered financial help to use human enhancement technology. Here, nearly twice as many respondents agreed (61%) than disagreed (36%).

Finally, respondents were asked who they thought should be most responsible for ensuring the safety of human enhancement technology. Looking at the average across all surveyed countries, respondents were split, with around a quarter thinking that scientists (26%) or the government (24%) should be most responsible. Slightly smaller proportions thought that companies who make and / or sell the technology should be responsible (18%) or that individuals who use the technology should be (15%).

Country specific findings

Overall perceptions of human enhancement technology were most positive in South Africa, Greece and Brazil and least positive in Germany, the USA and France. Respondents in South Africa (85%), Brazil (73%) and Greece (70%) were also most likely to agree with people on a low salary being offered financial help to use human enhancement technology, and those in Germany (47%), the USA (48%) and France (50%) least likely to agree.

Positive and negative sentiment towards human enhancement technology reflected opinions in relation to specific applications. Indeed, respondents in Brazil were most likely to support each of the four human enhancement technologies, with support ratings ranging between 67% and 78%. Respondents in Germany and France again tended to be less likely to support the technologies: in Germany support levels ranged between 23% and 43%; in France they ranged between 26% and 38%.

Across all countries, a large majority of respondents expected their country to be different in 20 years as a result of human enhancement technology, with results ranging from 72% to 89%. Respondents in the Netherlands (89%), USA (89%) and South Africa (86%) were most likely to think their country would be different if human enhancement technology becomes more widespread.

Looking at specific use, respondents in South Africa were most likely to agree that parents should be allowed to enhance certain features of their healthy baby (72%) and that employers in certain professions should be able to require that new employees be technologically enhanced (78%).

Respondents in Sweden (15%) and Germany (17%) were least likely to agree that parents should be allowed to enhance certain features of their healthy baby, while respondents in the Netherlands (27%) were least likely to agree that employers in certain professions should be able to require that new employees be technologically enhanced.

In all countries apart from the USA, respondents most commonly thought either scientists or the government should be responsible for ensuring the safety of human enhancement technology. Respondents in the USA were most likely to say that individuals who use the technology should be most responsible.

Appendix

Appendix 1 – Sample size for routed questions and answer statements for maps

Q041 - Thinking about technology to make people live to 120 years old. Do you...?

Base: random selection of around half the sample in each country.

Country	Sample size
Surveyed country average	5647
Surveyed EU country average	3646
Brazil	506
France	523
Germany	521
Greece	507
Netherlands	521
Poland	546
Spain	520
South Africa	510
South Korea	485
Sweden	508
USA	500

Q042. Still thinking about technology to make people live to 120 years old, who do you think this technology should be available to?

Base: all who supported longevity enhancement technology.

Country	Sample size	Everyone including babies and children	All adults aged over 18	Adults over 18 but only if helpful in their job	Another group	Refused	Don't Know
Surveyed country average	2789	56%	28%	8%	5%	-	2%
Surveyed EU country average	1624	55%	30%	8%	4%	1%	2%
Brazil	355	63%	23%	7%	5%	-	1%
France	139	59%	20%	8%	5%	2%	6%
Germany	120	53%	32%	5%	5%	-	5%
Greece	276	39%	37%	14%	7%	1%	2%

Netherlands	217	60%	25%	9%	4%	-	2%
Poland	326	49%	38%	6%	5%	1%	-
Spain	300	70%	20%	8%	2%	-	1%
South Africa	267	49%	37%	13%	1%	-	-
South Korea	299	65%	10%	17%	6%	-	2%
Sweden	246	54%	37%	3%	2%	-	4%
USA	244	54%	27%	2%	14%	-	3%

Q043 - Now thinking about technology to make people more intelligent. Do you...?

Base: random selection of around half the sample in each country.

Country	Sample size
Surveyed country average	5496
Surveyed EU country average	3485
Brazil	476
France	494
Germany	483
Greece	490
Netherlands	502
Poland	537
Spain	489
South Africa	512
South Korea	522
Sweden	490
USA	501

Q044. Still thinking about technology to make people more intelligent, who do you think this technology should be available to?

Base: all who supported technology to make people more intelligent.

Country	Sample size	Everyone including babies and children	All adults aged over 18	Adults over 18 but only if helpful in their job	Another group	Refused	Don't Know
Surveyed country average	3045	35%	38%	20%	5%	-	1%
Surveyed EU country average	1749	31%	41%	21%	5%	-	2%

Brazil	361	38%	40%	17%	3%	1%	1%
France	178	34%	29%	25%	7%	1%	4%
Germany	170	28%	41%	24%	5%	-	2%
Greece	293	22%	44%	29%	5%	-	-
Netherlands	213	31%	39%	25%	5%	1%	-
Poland	361	29%	44%	23%	3%	-	1%
Spain	296	46%	33%	12%	5%	-	4%
South Africa	352	42%	36%	20%	2%	-	-
South Korea	319	43%	22%	29%	5%	-	1%
Sweden	238	27%	50%	12%	10%	-	2%
USA	264	46%	41%	6%	7%	-	1%

Q045 - If technology to make people more intelligent was developed, do you think this enhancement should be...

Base: all respondents who supported technology to make people more intelligent.

Country	Sample size
Surveyed country average	3045
Surveyed EU country average	1749
Brazil	361
France	178
Germany	170
Greece	293
Netherlands	213
Poland	361
Spain	296
South Africa	352
South Korea	319
Sweden	238
USA	264

Q046 - And would you support technology to make people more intelligent if the enhancement was reversible?

Base: all respondents who oppose technology to make people more intelligent.

Country	Sample size
Surveyed country average	2303
Surveyed EU country average	1629
Brazil	113
France	288
Germany	304
Greece	184
Netherlands	275
Poland	159
Spain	182
South Africa	154
South Korea	196
Sweden	237
USA	211

Q047 - Now thinking about technology to improve people's moral values. This could help them make better choices in morally difficult situations. For example, whether to be honest about a mistake they have made, or helping a politician make the fairest

Base: random selection of around half the sample in each country.

Country	Sample size
Surveyed country average	5543
Surveyed EU country average	3570
Brazil	485
France	503
Germany	506
Greece	513
Netherlands	494
Poland	536
Spain	506
South Africa	492
South Korea	496
Sweden	512
USA	500

Q048. Still thinking about technology to improve people's moral values, who do you think this technology should be available to?

Base: all respondents who support technology to improve people's moral values.

Country	Sample size	Everyone including babies and children	All adults aged over 18	Adults over 18 but only if helpful in their job	Another group	Refused	Don't Know
Surveyed country average	3017	28%	42%	23%	6%	-	1%
Surveyed EU country average	1758	23%	44%	24%	5%	-	2%
Brazil	383	42%	39%	14%	4%	-	-
France	182	18%	47%	24%	4%	1%	6%
Germany	212	19%	38%	29%	11%	1%	2%
Greece	290	21%	47%	27%	3%	1%	2%
Netherlands	266	26%	36%	31%	5%	-	2%
Poland	276	17%	52%	27%	4%	-	-
Spain	305	34%	42%	18%	4%	-	2%
South Africa	338	30%	49%	18%	4%	-	-
South Korea	339	41%	19%	32%	7%	-	-
Sweden	227	25%	50%	15%	8%	-	3%
USA	199	22%	49%	17%	9%	-	2%

Q049 - If technology to improve people's moral values was developed, do you think this enhancement should be...

Base: all respondents who support technology to improve people's moral value.

Country	Sample size
Surveyed country average	3017
Surveyed EU country average	1751
Brazil	383
France	182
Germany	212
Greece	290
Netherlands	266
Poland	276
Spain	305

South Africa	338
South Korea	339
Sweden	227
USA	199

Q050 - If technology to improve people's moral values was developed, do you think this enhancement should be...

Base: all respondents who oppose technology to improve people's moral value.

Country	Sample size
Surveyed country average	2352
Surveyed EU country average	1679
Brazil*	98
France	299
Germany	278
Greece	208
Netherlands	217
Poland	233
Spain	187
South Africa	145
South Korea	150
Sweden	257
USA	280

*Caution low sample size

Q051 - Now thinking about technology to allow a person to choose a particular emotion. For example, to better understand the feelings of a friend going through a difficult time, or to feel more confident in stressful situations. Do you...?

Base: random selection of around half the sample in each country.

Country	Sample size
Surveyed country average	5490
Surveyed EU country average	3471
Brazil	533
France	484
Germany	494
Greece	492

Netherlands	505
Poland	521
Spain	485
South Africa	486
South Korea	497
Sweden	490
USA	503

Q052. Still thinking about technology to allow a person to choose a particular emotion, who do you think this technology should be available to?

Base: all respondents who support technology to allow people to choose a particular emotion.

Country	Sample size	Everyone including babies and children	All adults aged over 18	Adults over 18 if helpful in their job	Another group	Refused	Don't Know
Surveyed country average	2785	25%	43%	24%	6%	-	2%
Surveyed EU country average	1607	22%	45%	24%	5%	-	3%
Brazil	384	27%	49%	18%	5%	1%	1%
France	180	21%	36%	36%	3%	1%	3%
Germany	155	16%	38%	34%	5%	1%	7%
Greece	244	22%	47%	25%	2%	-	4%
Netherlands	264	25%	43%	19%	11%	1%	1%
Poland	263	17%	56%	23%	2%	-	2%
Spain	275	31%	45%	16%	5%	-	3%
South Africa	314	29%	48%	21%	2%	-	-
South Korea	275	36%	18%	36%	9%	-	1%
Sweden	226	20%	41%	25%	10%	-	4%
USA	205	17%	48%	17%	16%	-	3%

Q053. Who do you think should be MOST responsible for ensuring the safety of human enhancement technology?

Base: all respondents.

Country	Surveyed country average	Surveyed EU country average	Brazil	France
Sample size	11088	7086	1000	1002
Companies that make and sell the technology	18%	15%	22%	8%
Individuals or organisations who use the technology	15%	11%	17%	11%
Scientists	26%	31%	27%	31%
The government	24%	24%	21%	24%
Another person or organisation	11%	12%	8%	14.%
No one should be responsible	1%	1%	-	2%
Don't agree with human enhancement at all	1%	1%	-	1%
Refused	1%	-	2%	1%
Don't know	4%	5%	2%	9%

Country	Germany	Greece	Netherlands	Poland
Sample size	1002	1001	1011	1070
Companies that make and sell the technology	13%	12%	15%	27%
Individuals or organisations who use the technology	7%	11%	13%	9%
Scientists	29%	48%	19%	34%
The government	24%	15%	36%	20%
Another person or organisation	19%	6%	13%	5%
No one should be responsible	2%	3.%	1%	-
Don't agree with human enhancement at all	2%	-	1%	1%
Refused	1%	1%	-	-
Don't know	4%	3%	2%	3%

Country	Spain	South Africa	South Korea	Sweden	USA
Sample size	1000	1000	1000	1000	1002
Companies that make and sell the technology	11%	27%	28%	20%	13%
Individuals or organisations who use the technology	15%	23%	27%	9%	24%
Scientists	35%	15%	11%	20%	20%
The government	19%	31%	32%	26%	12%
Another person or organisation	12%	2%	1%	17%	21%
No one should be responsible	-	-	-	-	3%
Don't agree with human enhancement at all	1%	-	-	1%	2%
Refused	1%	-	-	-	-
Don't know	7%	2%	-	6%	5%

Appendix 2 - Questionnaire

Q001 - Q001: INTRODUCTION **Single coded**

Not back

Good morning / afternoon / evening. My name is ... and I am calling from [NAME OF NATIONAL INSTITUTE] on behalf of Kantar Public, an independent research company. We are conducting a global survey funded by the European Union about some technologies and their impact on society.

IF NEEDED: The European Union is an organization comprising 28 European countries and governing over their economics, social and security policies.

Your participation in this survey is entirely voluntary. You can choose not to answer any questions if you do not wish to. Your answers will remain confidential.

IF ASKED: The survey will take about 15 minutes.

IF NECESSARY: If now is not convenient, I can call back at another time, but it would be helpful if I could ask you a couple of questions now, to check if you are the person we need to speak to.

IF NECESSARY: If you would like any more information about the survey, please contact [INSERT NAME, EMAIL AND PHONE NUMBER OF LOCAL KANTAR FIELD TEAM MEMBER].

[EACH COUNTRY SHOULD ADD ANY RELEVANT ADDITIONAL LOCAL INFORMATION SUCH AS GDPR PRIVACY NOTICES.]

INTERVIEWER: CONFIRM RESPONDENT IS AGED 18 OR OVER. IF NOT, ASK TO SPEAK TO SOMEONE AGED 18+, MAKING AN APPOINTMENT IF NECESSARY. IF NO ONE AGED 18+ LIVES IN HOUSEHOLD OR PHONE BELONGS TO SOMEONE AGED UNDER 18, CODE AS UNPRODUCTIVE OUTCOME.

May I ask you a few questions?

CODE OUTCOME FROM LIST BELOW
DO NOT READ OUT

Normal

1	Continue
2	Book appointment
3	Refuses to participate [GO TO OUTCOMES]

Q083 - Q083: **Text**

Not back

For quality control and training purposes this interview may be monitored.

Q002 - Q002: Landline or mobile sample - dummy **Single coded**

Not back | Dummy

Landline or mobile sample

Normal

1	Mobile
2	Landline

Ask only if **Q002 - Q002**,1

Q007 - Q007: M1 **Single coded**

Not back

For safety reasons, could you please confirm that you are not driving and that you are in a safe position to answer the survey?

DO NOT READ OUT UNLESS NECESSARY – IF NEEDED, READ OUT 'YES' OR 'NO'

Normal

1	Yes, the respondent is in a safe position to answer the survey
2	No, the respondent is not in a safe position to answer the survey [GO TO OUTCOMES]

Ask only if **Q002 - Q002**,1

Q008 - Q008: M2 **Single coded**

Not back

Is this your phone?

INTERVIEWER: SELECT 'YES' IN CASES WHERE RESPONDENT SAYS THIS IS A WORK PHONE THEY USE.
DO NOT READ OUT UNLESS NECESSARY

Normal

1	Yes
2	No

Ask only if **Q008 - Q008**,2

Q009 - Q009: M3 **Open**

Not back

INTERVIEWER: ASK FOR PERSON WHO THE PHONE BELONGS TO. IF NOT AVAILABLE, ARRANGE TO CALL BACK.

Ask only if **Q002 - Q002**,2

Q011 - Q011: S1 **Numeric**

Not back | Max = 100

How many people aged 18 or over currently live in your household **including yourself**?

INTERVIEWER: ENTER NUMBER. CHECK THE FOLLOWING IF NECESSARY:

INCLUDE:
- People who normally live at this address, but are away for less than 10 weeks.
- People away at work for whom this is the main address.
- Boarders and lodgers.

EXCLUDE:
- People away for 10 weeks or more
- People who live elsewhere due to work/study
- Spouses who are separated and no longer resident

ENTER NUMBER

Scripter notes: Scripter notes: ***SCRIPTING NOTE: MAKE SELECTION USING RIZZO METHOD HERE***

RIZZO METHOD WORKS AS FOLLOWS:

- NUMBER OF PEOPLE TO SELECT FROM = NUMBER ENTERED AT S1
- ALL HAVE AN EQUAL PROBABILITY OF SELECTION
- PERSON INTERVIEWING IS SPEAKING TO COUNTS AS 'PERSON 1'
- THE DATA SHOULD STORE THE PERSON NUMBER OF THE SELECTED PERSON

Q012 - Q012: S2 **Single coded**

Not back

To make sure we speak to a good cross section of the public, we are using a random method to select who takes part. On this occasion someone else has been selected to take part. Could I speak to the person aged 18 or over, not yourself, who has the most recent birthday?

INTERVIEWER NOTE: THIS DOES NOT INCLUDE THE PERSON YOU ARE SPEAKING TO, IT MUST BE ANOTHER MEMBER OF THE HOUSEHOLD.

IF NECESSARY, SAY THE PERSON WITH THE MOST RECENT BIRTHDAY IS SELECTED TO ENSURE WE ACHIEVE A NATIONALLY REPRESENTATIVE SAMPLE OF ADULTS.

DO NOT READ OUT – IF NEEDED, READ OUT 'YES' OR 'NO'

Normal

1	Yes, available
2	No, not available [BOOK APPOINTMENT]
98	Refuses to participate [GO TO OUTCOMES]

Scripter notes: ROUTING CONDITIONS: ASK IF S1 > 2 AND PERSON 1 NOT SELECTED

Q013 - Q013: S3	Single coded

Not back

To make sure we speak to a good cross-section of the public, we are using a random method to select who takes part. On this occasion it is the other person that I would like to speak to. May I speak to that person?

IF NECESSARY, SAY WE NEED TO MAKE A RANDOM SELECTION TO ENSURE WE ACHIEVE A NATIONALLY REPRESENTATIVE SAMPLE OF ADULTS

DO NOT READ OUT

Normal

1	Yes, available
2	No, not available [BOOK APPOINTMENT]
98	Refuses to participate [GO TO OUTCOMES]

Scripter notes: ROUTING CONDITIONS: ASK IF S1 = 2 AND PERSON 1 NOT SELECTED

Q014 - Q014: S4	Single coded

Not back

Is it okay to continue with the interview now?

DO NOT READ OUT

Normal

1	Respondents willing – CONTINUE
2	Book appointment
98	Refuses to participate [GO TO OUTCOMES]

Scripter notes: ROUTING CONDITIONS: ASK IF PERSON 1 SELECTED

Ask only if **Q012 - Q012**,1 or **Q013 - Q013**,1

Q015 - Q015: S5 **Single coded**

Not back

Good morning / afternoon / evening. My name is ... and I am calling from [NAME OF NATIONAL INSTITUTE] on behalf of Kantar Public, an independent research company. We are conducting a global survey funded by the European Union about some technologies and their impact on society.

IF NECESSARY: The European Union is an organization comprising 28 European countries and governing over their economic, social, and security policies.

Your participation in this survey is entirely voluntary. You can choose not to answer any questions if you do not wish to. All your answers will remain confidential.

IF ASKED: The survey will take about 15 minutes.

IF NECESSARY: If now is not convenient, I can call back at another time, but it would be helpful if I could ask you a couple of questions now, to check if you are the person we need to speak to.

ADD IF NECESSARY: If you would like any more information about the survey, please contact [INSERT NAME, EMAIL AND PHONE NUMBER OF LOCAL KANTAR FIELD TEAM MEMBER].

[EACH COUNTRY SHOULD ADD ANY RELEVANT ADDITIONAL LOCAL INFORMATION SUCH AS GDPR PRIVACY NOTICES.]

Can we continue?

CODE OUTCOME FROM LIST BELOW

Normal

1	Continue
2	Book appointment
98	Refuses to participate [GO TO OUTCOMES]

Ask only if **Q012 - Q012**,1 or **Q013 - Q013**,1

Q085 - Q085: **Text**

Not back

For quality control and training purposes this interview may be monitored.

Ask only if **Q014 - Q014**,1 or **Q015 - Q015**,1

Q016 - Q016: S5a **Text**

Not back

Thank you for agreeing to participate.

THEN PROCEED TO INTERVIEW

B001 - B001: SECTION 1 - CONTACT SCRIPT	End block

B004 - B004: SECTION 4 - HUMAN ENHANCEMENT	Begin block

Scripter notes: THERE ARE FOUR LOOPS (BLOCKS) HERE Q3 to Q6. Most loops have 4 questions (a to d) while some have two questions (a to b).

PLEASE RANDOMISE SO EVERYONE GETS A RANDOM SELECTION OF TWO LOOPS ONLY.

ULTIMATELY ALL LOOPS WILL BE ASKED TO 50% OF THE SAMPLE.

Q032 - Q032: HUMAN ENHANCEMENT INTRO 2 **Text**

Not back

[TEXTFILL IF FIRST IN ROTATION: This first section is about**; IF SECOND IN ROTATION:** We are now moving onto the second part of this survey. This section is about**; IF THIRD IN ROTATION:** We are now moving onto the last part of this survey. The final section is about**]** human enhancement technology, which refers to technology or drugs to improve the natural abilities of healthy human beings beyond normal levels.

I am going to read out some technologies which scientists are working on.

READ OUT

Scripter notes: FOR LANGUAGE OVERLAYS USE THE FOLLOWING TEXTFILL RULE: [TEXTFILL IF FIRST IN ROTATION USE TEXT AT INTROROTb_1 IN LANGUAGE FILE; IF SECOND IN ROTATION USE TEXT AT INTROROTb_2; IF THIRD IN ROTATION USE TEXT AT INTROROTb_3]

B010 - B010: HE - LOOP 3 - LONGEVITY ENHANCEMENT	Begin block

Q041 - Q041: HE_Q3A	Single coded

Not back

[TEXTFILL IF FIRST ROTATION: Firstly**; IF SECOND ROTATION:** Now**]** thinking about technology to make people live to 120 years old.

Do you…?

READ OUT

Normal

1	Strongly support this
2	Somewhat support
3	Somewhat oppose
4	Strongly oppose
99	Don't know (DO NOT READ OUT)
98	Refused [DO NOT READ OUT]

Scripter notes: FOR LANGUAGE OVERLAYS USE THE FOLLOWING TEXTFILL RULE: [TEXTFILL IF FIRST IN ROTATION USE TEXT AT ROTHETa_1 IN LANGUAGE FILE; IF SECOND IN ROTATION USE TEXT AT IROTHETa_2]

Ask only if **Q041 - Q041**,1,2

Q042 - Q042: HE_Q3B	Single coded

Not back

Still thinking about technology to make people **live to 120 years old**, who do you think this technology should be available to?

READ OUT

Normal

1	Everyone, including babies and children
2	All adults over 18
3	Adults over 18 but only if helpful in their job
4	Another group [ASK TO SPECIFY] **Open *Fixed*
99	Don't know (DO NOT READ OUT) **Fixed*
98	Refused [DO NOT READ OUT] **Fixed*

B010 - B010: HE - LOOP 3 - LONGEVITY ENHANCEMENT	End block

B011 - B011: HE - LOOP 4 - INTELLIGENCE ENHANCEMENT	Begin block

Q043 - Q043: HE_Q4A **Single coded**

Not back

[TEXTFILL IF FIRST ROTATION: Firstly**; IF SECOND ROTATION:** Now**]** thinking about technology to make people more intelligent

Do you…?

READ OUT

Normal

1	Strongly support this
2	Somewhat support
3	Somewhat oppose
4	Strongly oppose
99	Don't know (DO NOT READ OUT)
98	Refused [DO NOT READ OUT]

Scripter notes: FOR LANGUAGE OVERLAYS USE THE FOLLOWING TEXTFILL RULE: [TEXTFILL IF FIRST IN ROTATION USE TEXT AT ROTHETa_1 IN LANGUAGE FILE; IF SECOND IN ROTATION USE TEXT AT IROTHETa_2]

Ask only if **Q043 - Q043**,1,2

Q044 - Q044: HE_Q4B **Single coded**

Not back

Still thinking about technology to **make people more intelligent**, who do you think this technology should be available to?

READ OUT

Normal

1	Everyone, including babies and children
2	All adults over 18
3	Adults over 18 but only if helpful in their job
4	Another group [ASK TO SPECIFY] **Open *Fixed*
99	Don't know (DO NOT READ OUT) **Fixed*
98	Refused [DO NOT READ OUT] **Fixed*

Ask only if **Q043 - Q043**,1,2

Q045 - Q045: HE_Q4C **Single coded**

Not back

If technology to make people more intelligent was developed, do you think this enhancement should be...

READ OUT

Normal

1	Reversible [IF NEEDED: By reversible, we mean the possibility to easily return their previous state]
2	Or permanent
99	Don’t know (DO NOT READ OUT)
98	Refused [DO NOT READ OUT]

Ask only if **Q043 - Q043**,3,4

Q046 - Q046: HE_Q4D **Single coded**

Not back

And would you support technology to make people more intelligent if the enhancement was reversible? [IF NEEDED: By reversible, we mean the possibility to easily return their previous state]

Normal

1	Yes
2	No
99	Don't know (DO NOT READ OUT)
98	Refused [DO NOT READ OUT]

B011 - B011: HE - LOOP 4 - INTELLIGENCE ENHANCEMENT **End block**

B012 - B012: HE - LOOP 5 - MORAL ENHANCEMENT **Begin block**

Q047 - Q047: HE_Q5A **Single coded**

Not back

[TEXTFILL IF FIRST ROTATION: Firstly**; IF SECOND ROTATION:** Now**]** thinking about technology to **improve people's moral values**. This could help them make better choices in morally difficult situations. For example, whether to be honest about a mistake they have made, or helping a politician make the fairest decision when there is a disagreement.

Do you…?

READ OUT

Normal

1	Strongly support this
2	Somewhat support
3	Somewhat oppose
4	Strongly oppose
99	Don't know (DO NOT READ OUT)
98	Refused [DO NOT READ OUT]

Ask only if **Q047 - Q047**,1,2

Q048 - Q048: HE_Q5B **Single coded**

Not back

Still thinking about technology to improve people's moral values, who do you think this technology should be available to?

READ OUT

Normal

1	Everyone, including babies and children
2	All adults over 18
3	Adults over 18 but only if helpful in their job
4	Another group [ASK TO SPECIFY] **Open *Fixed*
99	Don't know (DO NOT READ OUT) **Fixed*
98	Refused [DO NOT READ OUT] **Fixed*

Ask only if **Q047 - Q047**,1,2

Q049 - Q049: HE_Q5C **Single coded**

Not back

If technology to improve people's moral values was developed, do you think this enhancement should be:

READ OUT

Normal

1	Reversible [IF NEEDED: By reversible, we mean the possibility to easily return their previous state]
2	Or permanent
99	Don't know (DO NOT READ OUT)

Ask only if **Q047 - Q047**,3,4

Q050 - Q050: HE_Q5D **Single coded**

Not back

And would you support technology to improve people's moral values if the enhancement was reversible? [IF NEEDED: By reversible, we mean the possibility to easily return their previous state]

Normal

1	Yes
2	No
99	Don't know [DO NOT READ OUT]
98	Refused [DO NOT READ OUT]

B012 - B012: HE - LOOP 5 - MORAL ENHANCEMENT **End block**

B013 - B013: HE - LOOP 6 - AFFECTIVE ENHANCEMENT **Begin block**

Q051 - Q051: AE_Q6A **Single coded**

Not back

[TEXTFILL IF FIRST ROTATION: Firstly**; IF SECOND ROTATION:** Now**]** thinking about technology to allow a person to choose a particular emotion. For example, to better understand the feelings of a friend going through a difficult time, or to feel more confident in stressful situations.

Do you…?

READ OUT

Normal

1	Strongly support this
2	Somewhat support
3	Somewhat oppose
4	Strongly oppose
99	Don't know (DNRA)
98	Refused [DO NOT READ OUT]

Ask only if **Q051 - Q051**,1,2

Q052 - Q052: AE_Q6B **Single coded**

Not back

Still thinking about technology to allow a person to choose a particular emotion, who do you think this technology should be available to?

READ OUT

Normal

1	Everyone, including babies and children
2	All adults over 18
3	Adults over 18 but only if helpful in their job
4	Another group [ASK TO SPECIFY] *Open *Fixed
99	Don't know (DO NOT READ OUT) *Fixed
98	Refused [DO NOT READ OUT] *Fixed

B013 - B013: HE - LOOP 6 - AFFECTIVE ENHANCEMENT **End block**

Q053 - Q053: HET_Q6 **Single coded**

Not back

Who do you think should be MOST responsible for ensuring the safety of human enhancement technology?

READ OUT

Random

1	Companies that make and sell the technology
2	Individuals or organisations who use the technology
3	Scientists
4	The government
5	Another person or organisation (ASK TO SPECIFY] *Open *Fixed
6	No one should be responsible [DO NOT READ OUT] *Fixed
7	Don't agree with human enhancement at all (DO NOT READ OUT) *Fixed
99	Don’t know [DO NOT READ OUT] *Fixed
98	Refused [DO NOT READ OUT]

Q054 - Q054: HET_Q7 **Matrix**

Not back | Number of rows: 3 | Number of columns: 6

To what extent do you agree or disagree with each of the following statements?

Rows: Random | Columns: Normal

Rendered as Dynamic Grid

	Strongly agree]	Tend to agree	Tend to disagree	Strongly disagree	Don't know (DO NOT READ OUT) *Fixed	Refused [DO NOT READ OUT]
Parents should be allowed to enhance certain features of their healthy baby, such as their future intelligence or strength [READ OUT]	❍	❍	❍	❍	❍	❍
People on a low salary should be offered financial help should they want to use human enhancement technology[READ OUT]	❍	❍	❍	❍	❍	❍
Employers in certain professions such as the military, medicine, or police, should be able to require that new employees are technologically enhanced to increase their performance at work [READ OUT]	❍	❍	❍	❍	❍	❍

Q055 - Q055: HET_Q2 **Single coded**

Not back

If human enhancement technology becomes more widespread, in 20 years do you think that [COUNTRY] will be…

READ OUT

Normal

1	Completely different
2	Somewhat different
3	Not very different
4	Or not different at all
99	Don’t know [DO NOT READ OUT]
98	Refused [DO NOT READ OUT]

Q056 - Q056: HET_Q3 **Numeric**

Not back | Max = 10

Overall How positive do you feel about human enhancement technology? Please answer on a scale of zero to 10, where zero is 'not at all positive' and 10 is 'completely positive'.

ENTER VALUE BETWEEN 0 - 10

999	99 Don't know [DO NOT READ OUT] *Fixed *Exclusive
997	Refused [DO NOT READ OUT] *Fixed *Exclusive

Q057 - Q057: HET_Q8 **Open**

Not back

Briefly, in your own words, when thinking about human enhancement technology, what if anything are you most concerned about?

[FOR INTERVIEWERS: PROMPT ONCE. THEN IF DON'T KNOW OR REFUSED TO ANSWER CODE ACCORDINGLY AND MOVE ON]

999	97 No concerns [DO NOT READ OUT] *Fixed *Exclusive 99 Don't know [DO NOT READ OUT] *Fixed *Exclusive 98 Refused [DO NOT READ OUT] *Fixed *Exclusive

B004 - B004: SECTION 4 - HUMAN ENHANCEMENT	End block

B006 - B006: SECTION 6 - DEMOGRAPHICS PART 2	Begin block

Q073 - Q073: DEM_INTRO **Text**

Not back

We are nearly done with the survey, thank you very much for your time. Before we finish, we have a couple of questions about you.

READ OUT

Q074 - Q074: DEM_Q1 **Numeric**

Not back | Min = 16 | Max = 99

What is your age?

TYPE IN

Q075 - Q075: DEM_Q2 **Single coded**

Not back

Which of these age bands do you belong to?

READ OUT

Normal

1	18-24
2	25-34
3	35-44
4	45-54
5	55-64
6	65-74
7	75+
98	Refused (DO NOT READ)

Scripter notes: ASK IF DEM_Q1 = REFUSED

Q076 - Q076: DEM_Q3 **Single coded**

Not back

What is the highest level of education you have successfully completed?

READ OUT

Normal

1	University degree or above (or equivalent)
2	High school/senior school (or equivalent)
3	Below high school/senior school (or equivalent)
4	No educational qualifications

98	Refused (DO NOT READ)

Q077 - Q077: DEM_Q4 **Single coded**

Not back

What is your main current status. Are you...?

Normal

1	Working full-time or part-time
2	Unemployed
3	Retired
4	Full time student
5	Or doing something else (IF NECESSARY: for example looking after home/family, sick/disabled) [ASK TO SPECIFY] *Open *Fixed
99	Don't know (DO NOT READ)
98	Refused (DO NOT READ)

Q078 - Q078: DEM_Q5 **Single coded**

Not back

Have you ever been the parent of a child?

IF NECESSARY – IF SAY NO: Please include adult children, and any step-children or adopted children

READ OUT

Normal

1	Yes
2	No
98	Refused (DO NOT READ)

Q079 - Q079: DEM_Q6 **Single coded**

Not back

[GERMANY ONLY] The next question asks about the importance of religion in your life. You do not have to answer should you not wish to.]

How important, if at all, is religion in your life?

READ OUT

Normal

1	Very important
2	Somewhat important
3	Not very important
4	Not at all important
99	Don't know (DO NOT READ)
98	Refused (DO NOT READ)

B006 - B006: SECTION 6 - DEMOGRAPHICS PART 2	End block

Ask only if **Q002 - Q002**,1

Q081 - Q081: END_M	Single coded

Not back

Do you have a working landline telephone at home?

READ OUT

Normal

1	Yes
2	No
99	Don’t know (DO NOT READ)
98	Refused (DO NOT READ)

Ask only if **Q002 - Q002**,2

Q082 - Q082: END_L	Single coded

Not back

Do you have a working cell phone?

READ OUT

Normal

1	Yes
2	No
99	Don’t know (DO NOT READ)
98	Refused (DO NOT READ)

Q080 - Q080: END	Text

Not back

That's the end of the interview. Thank you very much for your time.