



Human Brain Project

Citizens' view on neuroscience and dual use

[Italy]

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Form_Activa



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Summary of results

In general participants were interested in the theme and there was a good openness and accessibility to the dialogue for all the meeting. The workshop was very useful to share information about neurosciences research in particular for laypersons. A lot of participants were sincerely satisfied to learn what neurosciences could do in the future. Even more, most of them asked clearly to continue in the next years the Human Brain Project citizens engagement activities. Some of the participants asked to receive more information about the progress of Human Brain Projects. That means, for instance, to provide the presence of the researchers in the next meeting, in order to argue and explain their point of view, or answer participant's technical questions. During the event, some participants did an evident request of more information to be able to answer with awareness to the template's question. Some others appreciated to change group after lunch because that action helped the "pollination" of ideas and information.

The majority of the participants affirmed that the research has to continue because the military use of the research it's inevitable. The ethic paradox was the most discuss issue, at the same time, there was the dehumanization's concern. Dehumanization means the drop of human relationship, like a consequences of machines and technologies increase and a less emphatic world because of the robots jobs increase. Some proposals to guarantee an ethical develop of the research were to stipulate international agreements based on ethical values or to create an international institution for protection and monitor the dual use in the neurosciences research.

A priority was to publicise the results of the research and to keep citizens informed. Participants yearn to separate military research from civil research. At least they want to guarantee that a civil research remain so, even if co-founded by military agencies. For this reason, most of the citizens asked that every country who becomes partner of a neurosciences project must respect the European Union policies.

Finally citizens were consistent about the importance of neurosciences in medical purpose to prevent and cure diseases and disabilities. At the same time, they said that it's necessary to share, here and now, rules and boundaries to manage the risks and responsibilities about future's neurosciences applications. Therefore it will be essential to propose a training program for politicians, in order to be conscious in the subject and in the relation developments. For example concerning the develop of brain computer interfaces: citizens considered this subject one of the most interesting for medical aspects and, at the same time, very interesting for military applications.

Analysis of morning and afternoon questionnaires compared to the results

The dual use and in particular political, security, intelligence and military purposes of Human Brain Project research moderately concern participants. Both in morning and afternoon questionnaire around 30 people on 36 chose answers which give a balanced position (slightly; moderately; somewhat). The main difference between morning and afternoon for the first question appears in the extreme positions where we find an opposite result: in the morning 1 person chose "extremely concerned" and 3 people "not concerned at all",



while in the afternoon this result has been reversed: 1 person chose “not concerned at all” and 4 people “extremely concerned”.

Answers to the second question remain the same from morning to afternoon: most of participants (30 on 36) are convinced that dual use it's inevitable, in any case the research must be allowed and at the same time it must be regulated. This is underlined also in the answers to the 3rd question where half of the group highlighted that Human Brain Project could collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies, as long as they are in countries which have signed and ratified international treaties on e.g. chemical or biological weapons.

Both in the morning and afternoon questionnaires, the 3rd question show the disagreement of the other half of participants which is divided about ethical aspects related to military application of neurosciences: 8 people think the most important thing is to make progress in the research, on the contrary other 8 people clearly disagree with collaboration between Human Brain Project and initiatives organisations funded by military or defence agencies.

In general, from morning to afternoon survey, the answer “I don't know/do not wish to answer” is declined. This aspect corresponds to participants comments at the end of the meeting. They were satisfied to be involved and informed about what neurosciences could do in the future and about the Human Brain Project and its developments.

Finally the last question confirm the template's results: it is indispensable to public research data and analyses, also with those research with potential dual use. This action is necessary to encourage the awareness of European citizens in the field of neurosciences, in its ethical aspects and in the public choices could have a relevance for the future of the community.



Results from Round 1 – Research and Dual Use - Overall principles

People well understood what *dual use* of the research means. In general, participants were concerned about an illegal or uncontrolled use of the research results. More opinions support the idea that it's impossible to limit the research and that military use of the research it's inevitable. In addition the *dual use* could help the research to grow, collect more point of views and to gain better quality results.

The participants shared his own meaning of the word "neuroscience" and there were a lot of common ground about potential interesting developments, so underlined that it's indispensable to write "rules" about the neurosciences uses. Moreover to write and share rules for intelligence and ethical purposes of neurosciences. That also before to use neurosciences to prevent counter-terrorism purposes, because at the same time there are too much risks to an incorrect use.

Finally citizens recognised that it's very important to publicise the results of the research and to inform citizens about the progress. Some citizens affirmed that military research should be separated from civil research.

The subjects/issue that came up across the groups are: the progress is a must; ethical aspects; useful for military and civil use; difficulty of control - regulation; risks and benefits of the research; risks about political and social control.

Citizens were convinced that collaboration between the research and organisations or initiatives which receive funding from military or defence could be possible according to the following conditions:

- the project has to remain a civil project;
- publicize the results;
- guarantee a cooperation between countries;
- International agreements based on ethical values should be stipulate.
- Research's purposes and targets doesn't have to change;
- don't be in contrast with the European Union policies (ex. respect Chinese and American agencies policies).

Post it session: Which subject got the most heated discussions? - Which subject did they agree on the most?

The most heated discussion was related to this question: Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"? Most of the post it's indications were about the possibility that Human Brain Project could collaborate with others research entity (research must go on), but not with Defence Agencies. Some others have specified that Defence Agencies must be only



European Defence Agencies. In this case it's necessary to put limits to the military research, in order to respect human rights and to prevent an uncontrollable technological weapons purchase.

Moreover participants agreed with the possibilities of misuse of the research results and underlined that the need of public divulgation of the results to encourage the awareness. In any case, participants agreed that it's necessary to identify a supervisory body and write a public agreement on ethical and military limits of the research uses.

The participants disagreed on ethical aspects related to the military application of neurosciences, at the same time if used for defence or counter-terrorism purposes. In relation some answers on post it disagreed to publish all the research results, but in general people thought that the dual use it's inevitable.

The citizens were in contrast if organizations that do military funded research could receive funding through the Human Brain Project for their civilian research.

Another disagreement subject was the use of technologies to increase security: who will control the controller?



Results from Round 2 – three areas of research

Medicine

In general participants underlined how the use in medicine could guarantee the invention of more specific treatments with less collateral effects. It's important to develop the interaction between medicine and computing. The positives aspects were estimate the same weight than negatives. However citizens affirmed that before to start to use neurosciences in medicine it's necessary to know well the brain map to build the right patterns. Most of participants considered as negative aspects the increase of human productivity and efficiency, the self- alteration (mass marketing of products that alter performances), that could create human less pain sensitive or emphatic so all the military aspects (soldiers' dehumanization/consider human as a machine). Finally they were concerned about unequal possibilities to access these new treatments and medicines between rich and poor people (accessibility limitation: who could take what?).

Some other dilemmas were related to ethic values, medicine dependence and to the theme of formation and information for medics and humans. Over more the post trauma treatment could be positive in case of violence, but it also could be negative if manipulate consciousness. Could this development also be used to limit the freedom of think and behaviour? So which limits of the use of airborne chemical compounds? Who determines the limits?

Participants were in agreement with the possibility to create more specific medicines which could be used to improve personal treatment, accurate diagnosis and to reduce collateral effects. Over more they underlined that neuroscience could be useful for innovative treatment of post-traumatic stress disorder and to alleviate symptoms for people with mental illnesses or neural afflictions e.g. epilepsy, depression or anxiety. Also the example to use advanced computer simulations to develop medicines, by simulating how a medicine could affect the brain, instead of using laboratory animals, has got a positive judgement by citizens. Just like the theme of disability problems resolution.

Participants disagreed with the use of new medicines or chemical substances which could make increase soldiers and humans performance, or could be used to suppress or control emotions or sensations. The same discordance came out on the theme of tranquilisers that might be developed to ease the life of people with psychological disturbances, such as ADHD. In addition they were uncertain with regard to the idea of new medicines which could improve students or employees productivity and efficiency prolonging their attention span and stamina and increasing their ability to focus on a given task for longer.

Highlights from the groups

Issues: increase productivity and efficiency; reduction of laboratory animals; improvement of physical activities; improve individual and social level; disabilities resolutions.

Concerns: increase productivity and efficiency; military aspects; manipulation of consciousness; use of dates; synthesize new types of drugs; self person alteration;

Hopes: post trauma treatment; mental illness; alleviate symptoms for people with mental illnesses or neural afflictions.

Dilemmas: ethical; military aspects; the dehumanization of soldiers; the distort use of medicines; therapeutic persecution; possibilities to influence the freedom of think and behaviour.



Artificial intelligence (computer learning)

In general participants recognised that with A.I. everyday life could be more comfortable, so people could have more free time and higher quality life. In addition A.I. could prevent neural diseases and accidents or human errors (traffic, surgery, etc..). On the contrary this could mean increase of unemployment. Finally participants agreed that information about A.I. must be shared and effects must be monitored.

Participants agreed that with A.I. daily life could be more comfortable (ex. self-driving cars, robotic vacuum-cleaners, etc...), and humans could have time with a better quality (ex. help for disables) . All groups are consistent that A.I. could prevent neural diseases (ex. halzheimer signals), create a health brain model and more, can improve security as prevent accidents and human errors (autopilot vehicles, surgery, etc...). Furthermore A.I. could help computer attack prevention (cyber security); epidemic prevention and risk prevention. Finally A.I. could be important to define and share information useful to make decision support.

Some negatives aspects are the limits of human control and the risk of low knowledge to manage these devices/machines (less faith in people which programme the algorithm of the machines). Over more A.I. could reduce the humanity and erase the human factor, giving more weight to categorization and standardization. Personal marketing nowadays is consider as a manner to revenge our personal freedom of choice. Most of participants think that the introduction of A.I. in this field could become too much intrusive and influence personal marketing and ease privacy violation.

Some dilemmas have emerged in relation to the possibility in the future of more human unemployed caused by automatic work, specifically in less creative job. The main apprehension were about the fact that more machines do, more humans unlearn to do, and human will stop to think and be autonomous. Finally some questions were left unanswered, like: How teach the ethic to machine? How save the emotional part?

Most of participant were worried about the military application of A.I. specifically related to the example of autonomous weapon systems (non emphatic machines), that can identify and engage enemy targets in combat and also in case of machines that can cooperate with soldiers by learning their behavioural patterns, habits and their inexpedient tendencies, and compensate for their inadequacies.

Highlights from the groups

Issues: standardization; personal marketing; medical aspects; ethical aspects; privacy; risk prevention; individual freedom and identity.

Concerns: a machine that could think more than a human; machine/device management; A.I. has automatic access to internet and whatever information; less humanity; prevent social and civil "right" unrest. Hopes: reductions of human mistakes (ex. Surgery, traffic, accidents, ecc...); build a pattern to recognize first alzheimer signals; improvement of life in general (ex. Help for disables); faster learning ability; road deaths number reduction.

Dilemmas: non empathic machines; privacy violation; as much as machines do, less humans learn to do; the creation of "gods machine"; the Charter of Human Rights also for robots; the human replacement with robots; the law's adjustment of A.I. in relation to the single countries position.



Brain-computer interfaces

Brain – computer interfaces was the most discussed arguments in round 2. In general participants were not concerned in medical developments (disease prevention, disabilities, prosthesis, etc...), but they were scared about military developments. In particular concerning privacy, information technology security and dehumanize soldiers. Citizens were worried that humans beings could become something different from what they are now. Moreover they were concerned about possible technologies malfunctions or manipulation. Thereby they need for the future more information about possibilities and evolutions of Brain-computer interfaces.

The majority of participants agreed that medical applications are the most promising (ex. illness care, information retrieval from people in vegetative state, nursing and carers, etc...). These are very linked to the improvement of life, mainly for disabilities aspects (ex. control prosthetics or robotic limbs or by a paralytic to control an external skeleton making it possible to walk, or help blind or deaf people regain their hearing or vision). Another positive aspect is the possibility to increase medical/social self-sufficiency and as a consequence to reduce social inequities. Some participants appreciated also the idea that brain computer interfaces could improve also military aspect related to civil defence, specifically against terrorism (ex. Monitoring a brain activities or analyse the state of mind of a subject in interrogations).

Most of alarming aspects concern the military field, so the issue of people manipulation, mind reading, hacking devices (ex. someone gets control over the device/brain , a soldier that couldn't feel fear or pain, etc...), and in general abused related to the new technologies (ex. exceed of privacy limit, etc). The most worries are related to informatic security and direct pulses to the human brain: a malfunction chip in the brain could compromise all the human brain? (ex. reduce reaction time of a pilot or a soldier, by connecting machines directly to their nervous system). Finally some citizens were worried about playing with virtual reality, that could create dependence and distort reality: has the risk to create two realities of life (violence and deaths not real). More, there's the possibility of a regression of human beings in social relations and emotional aspects, so someone think it's necessary to teach the use of the new technologies.

Ethical dilemmas were the most shared (ex. improvement of performances for civils: which limits and what we become?). After that there's the alienation of reality, linked to the new technological dependences. At the same time participants highlighted the doubt that technology will be accessible for whom can afford, so could generate more inequity.

Highlights from the groups

Issues: medical aspects (illness care, prosthesis, etc...); educational aspects and quality of life; privacy; alienation of reality; machine remote control; nursing and carers.

Concerns: military aspects - inhumane soldiers; could create dependence and distortion reality; testing applicants for jobs; regression of human beings in social relations and emotional aspects; imbalance from rich to poor person in prosthesis purchase; the safety of neural interfaces link to the internet.

Hopes: information retrieval from people in vegetative state; disabilities reduction; quality life.

Dilemmas: ethical; manipulation; improve of civil performances; disparity/ social discrimination to pay mechanic part, esoskeleton, etc...; religious aspects.



Cross-cutting focus from the three research examples

One of the main theme recurred across the three research examples is the “robotization or dehumanization” of human being. This theme emerged concretely with the brain computer interfaces examples, but participants talk about it throughout all the three rounds. This theme is particularly linked with ethics, but also it concern the use of “new” medicines or chemical substances that could change the actually life style, way of working, way of studying, etc... The ethic issue come to light related to the technological and scientific development and to define limits and international agreement based on ethic values.

Improvement of quality of life has been discussed cross the rounds as an hope in connection with the dilemma of alienation and distortion of reality. In particular the increase of complexity could create society fragmentation.

Even more citizens were interested and trustable in medical applications, to prevent and treat illness, neural diseases and in the possibility to improve the quality life of disabled people.

Participants were worried about all the military uses of neuroscience and also about the effective ability of humans to programme and manage the machines.

Finally one of the main discussed doubt in the three research examples was: who control the controllers of this new technologies?



Results from Round 3 – Questions to address in the future

1. Focus on medical purpose to cure diseases and disabilities (12 votes)
2. Ethic on use and abuse in neurosciences technologies (12 votes)
3. Dehumanization (12 votes)
4. Prevent information to citizens and results publicising (11 votes)
5. How will change our human relations? (10 votes)
6. International agreement for neurosciences dual use and mutual control (9 votes)
7. How it's possible to find a common ethic between so many different cultures? (9 votes)
8. Privacy (9 votes)
9. Transition of employment replaced by machines (8 votes)
10. Define a control institution (8 votes)
11. International agreement and public consultation to define ethical values (8 votes)
12. Necessary transparent communication on the research (7 votes)
13. Rules and politicians formed to manage the risks and responsibilities (7 votes)
14. Human control maintenance over A.I. (7 votes)

Reported above there are the principal issues merged and voted from the participants, however it's possible to group more similar themes/focus suggested.

Most of questions were about ethic and its boundaries. Who can define limits? How many differences between cultures approaches? A lot of discussion brought doubts on the real politicians knowledge on the subject. Also in regard to the different countries and cultures interested by the project. So, how it's possible to govern the next neurosciences developments?



In second way the theme of public dissemination of the research's results. This means to teach neurosciences positives and negatives aspects to people, to prevent fear and inappropriate uses. The most expected results were in the medical aspects.

Participants seemed to be scared about the machines role in relation to the human role in the society (humans beings autonomy, unemployment, empathy, etc...). At the same time there was a common need to create an international institution which could protect and monitor the possible dual use of the neurosciences research.



Key themes across rounds

In the first round participants underlined the necessity of signing an international agreement on the research towards a States collaboration. The concerns regard all military aspects behind the neurosciences and the collaboration with other brain research initiatives or organisations which work for or receive financial support from defence agencies .

In the second round the brain – computer interfaces was the most discussed arguments. The theme was compared into its positives aspects (and hopes) recognised in medicine uses and for concerns about the dehumanization of the human beings.

In general participants agreed that neurosciences affront an important ethic theme. So it's necessary to improve the awareness of citizens on the neurosciences possibilities. The military use of the research it's inevitable, therefore the research has to go on according to an agreement on ethic boundaries (Who control the controllers?), effects monitoring and on the maximum dissemination of the results.

Key words: privacy, ethic, boundaries, employment, military use, dehumanization, information, medicine, treatments, regulation, international agreement, developments, independent research.

The most discussed questions were the open questions on the first round:

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?



Demographic profile of participating citizens

The citizens reflect the general population in gender profile e particularly in the age groups from 30 to 59 years. Moreover the geographical configuration it's not far from the Italian especially for the rural areas.

Data on the participating citizens:

| Age: | Participants confirmed for the workshop | Participants showed up for the workshop | Percentage of the age group compared to the general population (http://www.tuttitalia.it/statistiche/popolazione-eta-sesso-stato-civile-2017/) |
|--------|---|---|---|
| 18-29: | 22 | 22 | 61% compared to 12,5% of national population |
| 30-39: | 7 | 6 | 16,7% compared to 12,2% of national population |
| 40-49: | 5 | 3 | 8,3% compared to 15,8% of national population |
| 50-59: | 5 | 3 | 8,3% compared to 14,9% of national population |
| 60-69: | 5 | 2 | 5,6 compared to 12,1% of national population |
| 70 - : | 0 | 0 | 0% compared to 16,3% of national population |

| Gender: | Participants confirmed for the workshop | Participants showed up for the workshop | Percentage of the age group compared to the general population |
|---------|---|---|--|
| Women: | 22 | 18 | 50% compared to 51,4% of national population |
| Men: | 22 | 18 | 50% compared to 48,6% of national population |
| Other: | | | |

| Education | Participants confirmed for the workshop | Participants showed up for the workshop | Percentage of the age group compared to the general population (http://www.istat.it/it/istruzione-e-formazione e http://dati-censimentopopolazione.istat.it/Index.aspx?DataSetCode=DICA_TITPOST) |
|-----------|---|---|--|
| | | | |



| | | | |
|--|----|----|--|
| Primary and lower secondary education: | 2 | 0 | 0% compared to 55,2% of national population |
| General upper secondary education : | 22 | 20 | 55,5% compared to 26,2% of national population |
| Vocational Education and Training: | 3 | 0 | 0% compared to 9,6% of national population |
| Bachelor or equivalent: | 15 | 15 | 41,6% compared to 7,5% of national population |
| Masters or equivalent: | 1 | 1 | 2,7% compared to 0,8% of national population |
| Doctoral degree or higher: | 1 | 0 | 0% compared to 0,7% of national population |

| Geographical zone (percentage of population living in...): | Participants confirmed for the workshop | Participants showed up for the workshop | Percentage of the age group compared to the general population (http://www.istat.it/it/files/2014/11/C01.pdf) |
|--|--|--|--|
| City: | 20 | 20 | 55,5 % compared to 33,3 % of national population |
| Town: | 14 | 9 | 25% compared to 42,4 % of national population |
| Rural: | 10 | 7 | 19,44 % compared to 24,3 % of national population |

Other aspects of relevance in your country?

In Italy there's a big class of population with the Primary and lower secondary education (over 55%). It's difficult to engage people with low levels of education in discussion on scientific and technical arguments.



Annex 1 – Translated templates from round 1

GROUP 1

Round 1: Research and Dual Use – Overall principles

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- We are concerned; the research have to continue; we think the military use of the research it's inevitable; publicise the results of the research and inform citizens; military research must be separated from civil research.

Do you find it problematic or reassuring? Please explain (why/why not)

- Problematic: it's the end of individual privacy; we could have a distort future; the possibility to create new weapons that can destroy humanity; ethical problem.
- Reassuring: better citizens defence; military funding will accelerate the developments for civilian use.

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- It's the end of individual privacy; we could have a distort future; the possibility to create new weapons that can destroy humanity; ethical problem.

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- No.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- We agree, on condition that:
 - The project will remain a civil project
 - The result will be publicised

Please explain why/why not?

- We agree because collaboration help research.

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?



- No
- Yes

Please explain why/why not?

- No: contamination from military purposes
- Yes: with the dissemination of results (creative commons)



GROUP 2

Round 1: Research and Dual Use – Overall principles

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- Inevitable element; we have no alternative; ethical theme, not only military

Do you find it problematic or reassuring? Please explain (why/why not)

- Reassuring: if the research is public is better controlled; if the research will remain in countries that share common values (like Europe)
- Concerns: if the research will be reserved/confidential will be limited medical aspects

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- We're concerned that there will be a connection within new military weapons. Principle concern is to control the controllers; could be more strong the possibility to develop military aspects than civil aspects; in A.I. there's a big area of uncertainty; hacking problems with military and medical devices.

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- While prevent counter-terrorism purposes, at the same time there's the risk to an incorrect use of this technology, also against "normal" people.
- To prevent counter-terrorism purposes some of us are available to give personal DNA samples, others no.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- NO: ethical aspects
- Yes: it's better a cooperation between countries because it's more easy to ensure a "peer review"

Please explain why/why not?

- No: we're concerned about the involvement of countries out of Nato

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?

- Yes

Please explain why/why not?

- It's important to develop opportunities for growing other areas



GROUP 3

Round 1: Research and Dual Use – Overall principles

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- We're very concerned for the illegal or uncontrolled use of this research in military area. It's difficult to provide limit once the results are public. Also because there's no legislation in regard to prevent and sanction. It's useful work on awareness of the citizens (with simples and understandable information) more than publicizing.
- Furthermore military research could be useful for civil uses.

Do you find it problematic or reassuring? Please explain (why/why not)

- We think it's problematic. We're concerned about the roles to "sale/share" the research's results.
- The same concern regard the people how works in the research (politician and researchers).

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- The control on our life and our privacy; bodily harm; the devices are to protect or to control us?; distort interpretation and consequent possible freedom of expression's limitation.

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- Yes, we agree just in case of big events.
- No, we disagree because the purpose of terrorism it's just to limit us.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- Form some of us no, for others it's possible with certain conditions.

Please explain why/why not?

- Yes: because could help the research to grow and to gain better quality results.
- No: because the research could change purpose and targets. Moreover could be in contrast with the European Union policies, specifically respect Chinese and American agencies policies.

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?

- Yes, if doesn't change targets and purposes.

Please explain why/why not?



- No: the two organizations have different purposes and targets.
- Yes: could have a major control on the research.

GROUP 4**Round 1: Research and Dual Use – Overall principles**

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- Extremely concerned for military uses (inevitable); we agree that a public research could be used for different uses; difficulty of control; great concern for civil use like in commerce, ecc...; it could be useful for military security use and to prevent terrorism; concerned about inequalities; it's important to stipulate international agreements based on ethical values.

Do you find it problematic or reassuring? Please explain (why/why not)

- It's depend on the use; in general there's a widespread concern.
- Problematic: exploitation of the research; kind of use; difficulty of control.

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- Exploitation, intimidating and aggressive attitudes; exceed ethical limit; difficulty to define what is or not ethic.

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- No: terrorism is an exploitation.
- Yes: it's okay to fight terrorism but without exceed ethical limit.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- Scared about this cooperation; It's dangerous but necessary; i don't know.

Please explain why/why not?

- I don't know; no faith in the defence organizations; it's possible to collaborate but it's necessary to find common ethic roles.

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?

- Not acceptable (3)
- Acceptable (2)
- I don't know



Please explain why/why not?

- *Not acceptable:* exploitation for military purpose, ethical contrast; concern about military use in general; organizations with civil purpose must be separated from organizations with military purpose.
- *Acceptable:* there's the risk to slow down the research; need control.
- *I don't know:* i need more elements to clear my opinion



GROUP 5

Round 1: Research and Dual Use – Overall principles

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- Impossible to limit the research, the progress is a must; useful for military and civil use; there's the need of a regulation; important to understand the risks and benefits; there are risk about political and social control.

Do you find it problematic or reassuring? Please explain (why/why not)

- Problematic: military use; social discrimination in the use of intellectual capacity; brain manipulation.
- Reassuring: military use only if no abused (deliberate attack).

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- Privacy: access to our dates; worried that more wars could be instigated by dates and hypothetical strategy; economical iniquity; distort use for defence; concern about A.I. and weapons without ethical sense.

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- No. We're concerned about a distort military use.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- Yes: collaborate help opinions to change, but collaboration must be reciprocal.
- No: too much different purposes.

Please explain why/why not?

- Yes: progress first of all.
- No: first we need to publicize all researches about A.I..

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?

- No.

Please explain why/why not?



- No because it's different to collaborate with other research, from receive moneys; to accept we need exactly to know what is the use of the dates; it's difficult to ensure that information will publicized in a short time; who can guarantee that the military and civil project will developed at the same time and with the same emphasis?

GROUP 6

Round 1: Research and Dual Use – Overall principles

What do you think about the fact that public research intended for civilian use can be used by the military or intelligence agencies?

- It's okay: as long as there are "rules"; for intelligence and ethical purposes.
- No for military purposes.

Do you find it problematic or reassuring? Please explain (why/why not)

- It's problematic for possible deviations, manipulation, abuse, no control for citizens.
- Reassuring for increase security, legal cases resolution and for medical aspects.

What, if anything, concerns you about the possible use of the research results by the military or intelligence agencies?

- The possibility of a mass manipulation; creation of humanoid army (suicide); new evolved lethal weapons

Does it make a difference if the use of the research by the military or Intelligence agencies is for defence or counter-terrorism purposes?

- Yes, because is morally acceptable.
- No, it's dangerous from a ethical point of view.

Round 1: Research and Dual Use – Overall principles

Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "Brain Initiative" or the Chinese "China Brain Project"?

- Yes

Please explain why/why not?

We need rules.

- Yes, because sharing information help the research to grow.
- Only to accelerate the research in medical area.

Can an organisation receive funding through the Human Brain Project for their civilian research, if they at the same time do military funded research?



- No.
- Yes, for a part.

Please explain why/why not?

- For ethical reason; acceptable if terrorism prevention in judicial area it's the purpose; only in medical area; in medical and military area.



Annex 2 – Translated templates from round 2

GROUP 1, Medicine

What are the positive aspects of this development?

- More specific medicines with less collateral effects; increase productivity and efficiency; post trauma treatment

What are the negative aspects of this development?

- Increase productivity and efficiency
- Military aspects

What kind of dilemmas will this development cause?

- Ethical; formation; information; stop the exploration of non conventional medicine

Do the positive aspects outweigh the negative? Or vice versa

- We are unable to say: negative effects more heavy and a lot of collateral effects

Are you concerned that this kind of research/development is carried out?

- Yes. Make simulations with no precise patterns it's dangerous; error propagation; before to start we must to know well the brain map



GROUP 1, Artificial intelligence

What are the positive aspects of this development?

- Daily life more comfortable; time with a better quality; prevent neural diseases and in general

What are the negative aspects of this development?

- Standardization; to prevent social and civil "right"unrest

What kind of dilemmas will this development cause?

- How teach the ethic to machine? ; privacy violation; more machines do, more humans unlearn to do

Do the positive aspects outweigh the negative? Or vice versa

- We are unable to say: too early.

Are you concerned that this kind of research/development is carried out?

- Yes: ethical aspects; machine/device management



GROUP 1, Brain-computer interfaces

What are the positive aspects of this development?

- Medical aspects
- Educational aspects and quality of life
- Information retrieval from people in vegetative state

What are the negative aspects of this development?

- Military aspects
- Could create dependence and distortion reality
- Testing applicants for jobs.

What kind of dilemmas will this development cause?

- Ethical
- Manipulation

Do the positive aspects outweigh the negative? Or vice versa

- Positive: medical aspects

Are you concerned that this kind of research/development is carried out?

- Concerned about: informatics security; direct pulses to the brain; invest less in diseases prevention



GROUP 2, Medicine

What are the positive aspects of this development?

- Improvement of treatment (personal treatment); treatment of brain problems as body problems; possibility of interaction between medicine and computing

What are the negative aspects of this development?

- This is not the solution to all problems (ex. treat physical pain and not disorders confirmed by doctors); could be synthesised new types of drugs; self person alteration

What kind of dilemmas will this development cause?

- The post trauma treatment could be positive in case of violence, but could be negative if manipulate consciousness

Do the positive aspects outweigh the negative? Or vice versa

- Positive: health problem resolution
- Negative: a mass marketing
- Are more the positives.

Are you concerned that this kind of research/development is carried out?

- Yes. There's a abuse risk and accessibility limitation (who could take what?). Mass marketing of products that alter performances.



GROUP 2, Artificial Intelligence

What are the positive aspects of this development?

- Prevent accidents and human errors (traffic, surgery).

What are the negative aspects of this development?

- A.I. has automatic access to internet and whatever information

What kind of dilemmas will this development cause?

- Automatic work, that means more times for humans and also more unemployed

Do the positive aspects outweigh the negative? Or vice versa

- Negatives

Are you concerned that this kind of research/development is carried out?

- Personal marketing; machine that develop in autonomous way without human control; the creation of "gods machine" (ex. If a machine with A.I. affirm that the planet is sustainable for 2 billion people, what will be for the others? All depend about a machine's decision.)



GROUP 2, Brain-computer interfaces

What are the positive aspects of this development?

- Cancel disability and disorders; workload reduction and more free time.

What are the negative aspects of this development?

- Regression of human beings in social relations and emotional aspects. It's necessary to teach the use of the new technologies; where it's possible to read the mind there's a privacy limitation; use of brain-computers for military purposes.

What kind of dilemmas will this development cause?

- Alienation of reality; new technological dependences; lack of privacy.

Do the positive aspects outweigh the negative? Or vice versa

- For the civilian life totally positive. For military aspects totally negatives.

Are you concerned that this kind of research/development is carried out?

- Yes for military uses.
- Division of perception from real and virtual world.



GROUP 3, Medicine

What are the positive aspects of this development?

- Specific physical diseases cure and reduction of collateral effects; more accurate diagnosis; reduction of laboratory animals; improvement of physical activities; remove pain without removing the will or the consciousness of people that live in hospice.

What are the negative aspects of this development?

- The improve of productivity and efficiency has the risk to make grow super-man or robotic-man; the differences about the possibilities that could have rich people respect poor; the dehumanization of soldiers.

What kind of dilemmas will this development cause?

- The probably dependence effects that could have the medicines; the distort use of medicines for ADHD; the use of chemical weapons: what limits?

Do the positive aspects outweigh the negative? Or vice versa

- The negative could be more than positive: it's a historical period with little faith in medicine.
- The positive and the negative weight the same, because medicine will make progress.

Are you concerned that this kind of research/development is carried out?

- We have some concern, but it's not a "daily problem".



GROUP 3, Artificial Intelligence

What are the positive aspects of this development?

- The improvement of automation (ex. Vacuum cleaner, ecc.); early diagnosis of epidemics; autopilot vehicles reduce accidents; machine could reduce inaccuracy surgery; create a health brain model; cyber security.

What are the negative aspects of this development?

- The personal marketing to revenge my personal freedom of choice; less faith in autopilot vehicles; less faith in people that programme the algorithm of the machines; possible future human unemployed, specifically in less creative job.

What kind of dilemmas will this development cause?

- The automatic weapons that could be used by the enemies; the law's adjustment of A.I. in relation to the single countries position.

Do the positive aspects outweigh the negative? Or vice versa

- Are more the positive aspects.
- The positive and the negative weight the same

Are you concerned that this kind of research/development is carried out?

- Some of us are concerned, some others are not concerned but need the awareness of the aspect.



GROUP 3, Brain-computer Interfaces

What are the positive aspects of this development?

- Medical use and prosthesis; use against terrorism; communicate with person in vegetative state; to civil pilot of motor vehicles; games and virtual reality.

What are the negative aspects of this development?

- For military pilot of motor vehicles; the inhumane of soldiers; playing with virtual reality has the risk to create two realities of life (violence and deaths not real); imbalance from rich to poor person in prosthesis purchase.

What kind of dilemmas will this development cause?

- Improve of performances for civil: what limits and what we become?: read the mind of conscious people.

Do the positive aspects outweigh the negative? Or vice versa

- Are more the positive aspects.

Are you concerned that this kind of research/development is carried out?

- Yes, we're really concerned because the risk is to become something different from what we are. Especially now we're in the start up phase and we don't have enough information about the possibilities.



GROUP 4, Medicine

What are the positive aspects of this development?

- Civil purpose and improvement of life; improvement of individual and social level

What are the negative aspects of this development?

- All the military aspects; consider human as a machine; exceed of ethic limits (human rights); therapeutic persecution.

What kind of dilemmas will this development cause?

- Possibilities to influence the freedom of think and behaviour; disparity from available technology and ethical issues; what's the final result of the research?

Do the positive aspects outweigh the negative? Or vice versa

- More positive, but with ethical boundaries.

Are you concerned that this kind of research/development is carried out?

- Yes.



GROUP 4, Artificial Intelligence

What are the positive aspects of this development?

- Improvement of security(personal, vehicles, ecc...);reductions of human mistakes (ex. Surgery, traffic, accidents, ecc...); improvement of life in general (ex. Help for disables)

What are the negative aspects of this development?

- Limit of control; less humanity; risk of low knowledge to manage this device/machine.

What kind of dilemmas will this development cause?

- Limit of control; how far could push us?; trampling of the Charter of Human Rights also to robotic.

Do the positive aspects outweigh the negative? Or vice versa

- Negative 2, positive 3, undecided 1.

Are you concerned that this kind of research/development is carried out?

- All concerned: 3 very concerned; 3 enough concerned



GROUP 4, Brain-computer Interfaces

What are the positive aspects of this development?

- Improvement of life (principally for disabilities aspects); reduction of social inequities; increase of medical/social self-sufficiency; mind reading.

What are the negative aspects of this development?

- Exceed of privacy limit; discrimination; risk of abuse; more sedentary lifestyle.

What kind of dilemmas will this development cause?

- Technology dependence; rising in society for whom can afford; technology access for whom can afford; virtual lobotomy.

Do the positive aspects outweigh the negative? Or vice versa

- Positive 3; positive with boundaries 3.

Are you concerned that this kind of research/development is carried out?

- Enough 2; a little 3; i don't know 1



GROUP 5, Medicine

What are the positive aspects of this development?

- Not use laboratory animals; treatment of post-traumatic stress disorder; alleviate symptoms for people with mental illnesses or neural afflictions e.g. epilepsy, depression or anxiety; individual independence.

What are the negative aspects of this development?

- Excessive to cure everything with medicine; boundaries of mental illness; lower the threshold of illness; development of new drugs and poisons;

What kind of dilemmas will this development cause?

- Ethical; man it's not a machine; the indiscriminate use of Airborne chemical compounds.

Do the positive aspects outweigh the negative? Or vice versa

- Positive have more weight.

Are you concerned that this kind of research/development is carried out?

- Yes.



GROUP 5, Artificial Intelligence

What are the positive aspects of this development?

- Build a pattern to recognize first Alzheimer signals; medical aspects are positive; more fast learning ability; reduce the number of road deaths;

What are the negative aspects of this development?

- We're scared to be controlled by machines; autopilot vehicles are sure?; no empathic machines.

What kind of dilemmas will this development cause?

- Humans stop to think; there will be the need of human work?; we will be able to manage machines?

Do the positive aspects outweigh the negative? Or vice versa

- More positive aspects, but we need to monitor effects.

Are you concerned that this kind of research/development is carried out?

- Yes, because is a machine that could think more than a human.



GROUP 5, Brain-computer Interfaces

What are the positive aspects of this development?

- Medical aspects are positive (ex. For paralyzed people, or in vegetative state, ecc...).

What are the negative aspects of this development?

- A soldier that couldn't feel fear or pain: it's a new reality, not ethic; manipulation people; hacking, someone gets control over the device/brain; what are the boundaries of our physiological needs?

What kind of dilemmas will this development cause?

- I give the possibility to a person in vegetative state to speak, him tell me that want to die but in Italy it's not possible: what did it solve?
- Use in disabilities is good, but what about social discrimination to pay mechanic part, esoskeleton, ecc..?

Do the positive aspects outweigh the negative? Or vice versa

- The actions that regard physical aspects are positive (ex. disabilities) aside for strengthening.
- In the use related to mental illness the negative aspects are more dangerous.
- We're scared about military purpose.

Are you concerned that this kind of research/development is carried out?

- We're worried about reality simulation(in case of games); fake feedback gave from not real brain computer interfaces; what's the educational purpose?



GROUP 6, Medicine

What are the positive aspects of this development?

- New treatment; diagnosis precision; disability problems resolution; medicine tested on simulation of human brain; medicine and drugs with less collateral damage.

What are the negative aspects of this development?

- Development of medicine that could improve human ability; creation of human less pain sensitive and emphatic.

What kind of dilemmas will this development cause?

- Too much high performance request; negative use in different society; therapeutic persecution and living will; medicine dependence; neurosciences manipulation risk from pharmaceutical factories.

Do the positive aspects outweigh the negative? Or vice versa

- Are more the positive.
- Are the same weight.

Are you concerned that this kind of research/development is carried out?

- "Violence risk" on human being; no respect for the individual person and his limits.



GROUP 6, Artificial Intelligence

What are the positive aspects of this development?

- Computer attack prevention; epidemic prevention; neuronal disease prevention; work automation; better quality life; important decision support; risk prevention.

What are the negative aspects of this development?

- Erase the human factor; personal marketing; people categorisation; management and control of A.I.

What kind of dilemmas will this development cause?

- The human replacement with robots; privacy; individual freedom and identity; A.I. control; save the emotional part.

Do the positive aspects outweigh the negative? Or vice versa

- The same weight.

Are you concerned that this kind of research/development is carried out?

- Yes.



GROUP 6, Brain-computer Interfaces

What are the positive aspects of this development?

- Illness care; better quality life; nursing and carers; military aspect, machine remote control; civil defence

What are the negative aspects of this development?

- Affordability and cost; military aspects (creation of robot/humanoid army); the safety of neural interfaces link to the internet.

What kind of dilemmas will this development cause?

- Affordability; social acceptability; religious aspects.

Do the positive aspects outweigh the negative? Or vice versa

- More positive.

Are you concerned that this kind of research/development is carried out?

- Yes: for the public accessibility and management (it might not be within reach); a malfunction in a cheap in the brain could compromise all the human brain.



Annex 3 – Translated templates from round 3

Insert the translated templates and vote count

| Theme/focus suggested by group 1 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|--|--|--|--|
| | System security (3 votes) | System security (3 votes) | Capital investment transparency (2 votes) | Ethic on use and abuse in neurosciences technologies (12 votes) |
| | Promote formation in the new “technologies” works (3 votes) | Dependence from medical treatment and brain interfaces (6 votes) | Transition of employment replaced by machines (8 votes) | Take more consciousness about new technologies potential (5 votes) |
| | Privacy management (5 votes) | Attention to individual identity (5 votes) | Controlled distribution by an international ethic committee (1 vote) | |
| | Controlled allocation (from a neutral institution of E.U.) of new medical technologies (2 votes) | Try different methods to check the results of A.I. in medical area (3 votes) | | |

| Theme/focus suggested by group 2 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|---|---|--|---|
| | International agreement for neurosciences dual use and mutual control (9 votes) | International agreement for neurosciences dual use and mutual control (9 votes) | Ensure the project’s independence (1 vote) | Necessary transparent communication on the research (7 votes) |
| | More information and formation to policy | Human control maintenance over | Develop medicine aspects: diagnosis | |



| | | | | |
|--|--|--|--|--|
| | makers, to help choose (5 votes) | A.I. (7 votes) | and treatment (2 votes) | |
| | Labour market evolution (4 votes) | | What boundaries to increase human performance? (5 votes) | |
| | Individual manipulation about human brain interfaces (2 votes) | Individual manipulation about human brain interfaces (2 votes) | | |
| | Define ethic standards for research (it's possible separate civil use from military use) (4 votes) | Define ethic standards for research (it's possible separate civil use from military use) (4 votes) | | |

| Theme/focus suggested by group 3 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|--|--|---|---|
| | Availability and democracy of neurosciences (1 vote) | Highlight the strengths and weakness of the dual use (4 votes) | What costs and profit? (1 vote) | How gain knowledge on this themes ? |
| | No new weapons (4 votes) | Contain A.I. in relation to the web and to acquire dates (2 votes) | Suggest application development (5 votes) | Share critical aspects of applications |
| | Define the research purposes of short and medium term (1 vote) | The research have to prevent undesirable effects (4 votes) | Pay attention on applications that could generate dependence (1 vote) | More information and training to be independent from technologies (3 votes) |
| | Prevent information to citizens and results publicising (11 votes) | The pattern have to be 100% safe(1 vote) | Priority to the common interest (1 vote) | Find an ethical common sense and a unique agreement |



| | | | | |
|--|---|---|--|--|
| | Roles for the research use: privacy, boundaries to technologies, ecc... (3 votes) | Values applications' cost and benefits developed from the research (1 vote) | A part of automation's benefits have to be invested to form humans (2 votes) | Open mind to possible risks and benefits. Imagine a society in which everyone can use well machines. |
| | It's make a sense to keep a person alive without his consensus? | | | |

| Theme/focus suggested by group 4 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|--|--|---|--|
| | Privacy (9 votes) | | Citizens rights safeguard (2 votes) | Proactive citizen (6 votes) |
| | Ethic (8 votes) | Ethic (8 votes) | It's right what we're doing? What consequences? (2 votes) | |
| | Citizens awareness (3 votes) | What effects has the research? (4 votes) | | |
| | Dehumanization (12votes) | Dehumanization (12 votes) | Dehumanization (12votes) | Dehumanization (12 votes) |
| | Define a control institution (8 votes) | Define a control institution (8 votes) | Define a control institution (8 votes) | Define a control institution (8 votes) |



| Theme/focus suggested by group 5 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|--|---|--|--|
| | Formation about neurosciences for policy makers (3 votes) | It's possible understand how A.I. could operate out of function for what it was set up? (2 votes) | Decrease inequalities: a fund for people with disabilities (2 votes) | More information about research results |
| | What role of A.I. in our society? (1 vote) | Greater control for research in A.I. | Local health administration unit donor (1 vote) | Communication campaigns to sensitise citizens (3 votes) |
| | International agreement and public consultation to define ethical values (8 votes) | What development in civil and military areas? (1 vote) | Direct the research using social media (4 votes) | How it's possible to find a common ethic between so many different cultures? (9 votes) |
| | Stop the gap from who can and who can't use new technologies (6 votes) | Independent researchers that work on A.I. (1 vote) | It's possible and right to commercialize the Human Brain patent? (2 votes) | What are the boundaries of ethic in the research? |
| | Rules for protect civil research from military research (2 votes) | Focus on medical purpose to cure disease and disabilities (12 votes) | | Organize workshop, questionnaires, information meeting to engage citizens (3 votes) |

| Theme/focus suggested by group 6 | Policy-makers | Researchers | Stakeholders | Citizens |
|---|--------------------------|---|--|--|
| How control the controller? (5 votes) | Military aspect (1 vote) | How far it's possibly develop the research? (5 votes) | Verify the pharmaceutical factory interest in relation to real medical aspects (2 votes) | More information; more consultation; more engagement (6 votes) |



| | | | | |
|---|---|---|--|-------------------------|
| How will change our human relations? (10 votes) | Ethical use of scientific data (4 votes) | Control of research found and ethical/civil purposes (1 vote) | Create a international ethic committee | Be critical (1 vote) |
| | Regulation | Work on prevention and diagnosis (2 votes) | Homogeneous development (2 votes) | Prevent abuse (2 votes) |
| | Rules and politicians formed to manage the risks and responsibilities (7 votes) | Controls for A.I. | Cyber security formation (1 vote) | |
| | Medicine without inequity (3 votes) | | Maximum transparency (1 vote) | |
| | Promote ethical values (4 votes) | | | |



Annex 4 – Results from morning survey

- 1) Does it make you concerned that the research from the Human Brain Project could be used by others for political, security, intelligence and military purposes? (*choose one option*)

| Not concerned at all | Slightly concerned | Moderately concerned | Somewhat concerned | Extremely concerned |
|----------------------|--------------------|----------------------|--------------------|---------------------|
| 3 | 7 | 15 | 10 | 1 |

- 2) If publicly funded research have dual use potential, should it then be allowed?

- a. 30 answers
- b. 3 answers
- c. 3 answers

- 3) As a European funded project we are not allowed to do military research. However, other research initiatives on the human brain may be funded by defence agencies. Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American "*Brain Initiative*" or the Chinese "*China Brain Project*"

- a. 8 answers
- b. 1 answer
- c. 3 answers
- d. 14 answers
- e. 8 answers
- f. 2 answers

- 4) The European Commission has big focus on open science, where research data and analyses are public for everyone. Should this also be the case with research that could have dual use potential?

- a. 23 answers
- b. 8 answers
- c. 5 answers



Annex 5 – Results from afternoon survey

- 1) Does it make you concerned that the research from the Human Brain Project could be used by others for political, security, intelligence and military purposes? (*choose one option*)

| Not concerned at all | Slightly concerned | Moderately concerned | Somewhat concerned | Extremely concerned |
|----------------------|--------------------|----------------------|--------------------|---------------------|
| 1 | 3 | 19 | 9 | 4 |

- 2) If publicly funded research have dual use potential, should it then be allowed?

- A. 30 answers
- B. 3 answers
- C. 3 answers

- 3) As a European funded project we are not allowed to do military research. However, other research initiatives on the human brain may be funded by defence agencies. Should the project collaborate with other brain research initiatives or organisations that work for or receive financial support from defence agencies e.g. the American “*Brain Initiative*” or the Chinese “*China Brain Project*”?

- A. 8 answers
- B. 1 answer
- C. 2 answers
- D. 17 answers
- E. 8 answers
- F. 0 answers

- 4) The European Commission has big focus on open science, where research data and analyses are public for everyone. Should this also be the case with research that could have dual use potential?

- a. 30 answers
- b. 2 answers
- c. 4 answers