



CIVISTI

**Collaborative project on Blue Sky Research on Emerging Issues
Affecting European S&T**



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Preface

This report is the final report of the CIVISTI project. Here we present the results of the highly innovative CIVISTI approach with special attention to the 69 visions made by European citizens and the 30 recommendations made by European experts and stakeholders. Supplementing and more detailed information about special parts of the CIVISTI project can be found on the website www.civisti.org

We hope that reading this report about the CIVISTI results will be inspiring.

CIVISTI consortium

Executive Summary

The CIVISTI project is a research project, supported by DG Research and Innovation of the European Commission under the call **Blue Sky Research on Emerging Issues Affecting European S&T**, Socio-economic Sciences and Humanities programme of FP7.

CIVISTI had the challenging task of producing a list of new and emerging issues for European S&T, produce a set of policy options of relevance to future European framework programmes, and base these products upon a novel process of citizen participation in seven member states, supported by the analytical capacity of experts and stakeholders

In CIVISTI a novel methodology of citizen consultation and expert/stakeholder analysis was developed. This new and innovative methodology consists of three major steps. First citizens around Europe were asked about their visions for the future. Second experts and stakeholders analysed the visions and transformed them into research agendas and policy options for European research. Third the results were given back to the citizens to validate and prioritise them.

Citizens produced 69 visions for the future of Europe in the first step of the CIVISTI process. These visions were characterised by being holistic, multi thematic, interdisciplinary and that they spread across multiple domains of society.

The CIVISTI methodology builds on the interplay of foresight and participatory technology assessment, where citizens describe their visions of the future following the normative approach, while stakeholders and experts have the very challenging task to “translate” these visions in S&T issues and policy options, thus in this way through concrete recommendations supporting the process of defining FP8 and EU research policy in general. This process was the second step of the CIVISTI methodology and a group of experts and stakeholder produced a list of 30 recommendations for future European S&T and research policy. Just like in the visions there is a lot of diversity in the recommendations. Many of the recommendations relate to today’s grand challenges: Ageing society; sustainable energy production and transport; environment and climate; and supply and quality of water and food.

As the third step of the CIVISTI process the citizens were asked to prioritise the recommendations made by experts and stakeholders. That resulted in this top ten list with a recommendation about research in attractive public transportation as the top prioritised.

CIVISTI was an experimental project. From the beginning a high risk was taken in the CIVISTI project, first of all because this kind of methodology had never been tried before. And second because this new, innovative and experimental process and method was developed during the project, so to say, CIVISTI has been a “learning-by-doing” process. Therefore the CIVISTI project included the risk of not succeeding.

In the end though it is clear that CIVISTI did succeed. CIVISTI produced the results that were targeted by making a list of future S&T issues as well as recommendations for policy options related to future European research policy and base this on a novel and innovative methodology of involving citizens as well as experts and stakeholders. Therefore the CIVISTI consortium was very happy to see the positive reactions from as well academia as policy level when the results were presented at a Policy Workshop in Brussels in January 2011.

Chapter 1 CIVISTI background

1.1 The idea of CIVISTI

The CIVISTI project is a research project, supported by DG Research and Innovation of the European Commission under the call **Blue Sky Research on Emerging Issues Affecting European S&T**, Socio-economic Sciences and Humanities programme of FP7.

The CIVISTI project is based upon the idea that the process of defining research agendas relevant to the societal needs and concerns could in many respects gain from consultation with citizens. Our societies are changing rapidly as a consequence of globalisation, new technologies, multi-cultural societies, media developments, environmental and climate challenges, new energy futures, increasing welfare and consumption, etc. These developments involve an interface between science, technology and society. Linked to these developments, issues arise about societal management of the involved needs and uncertainties – for society as well as for the individual.

The common understanding of the CIVISTI partners is that citizens are the carriers of the societal concerns and expectations to the future and with the right facilitating methods, such concerns and expectations can be collected and transformed into relevant research agendas.

CIVISTI has the challenging tasks to:

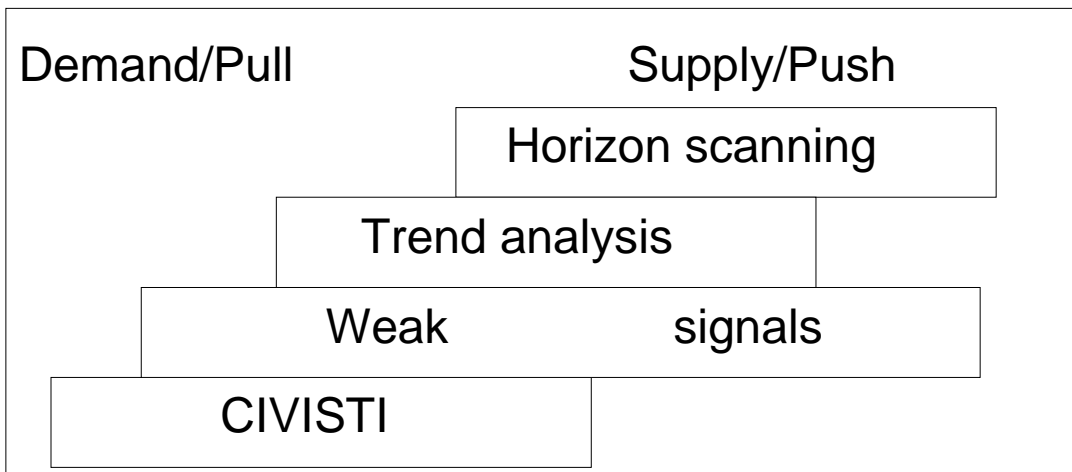
- Produce a list of new and emerging issues for European S&T;
- Produce a set of policy options of relevance to future European framework programmes;
- Base these products upon a novel process of citizen participation in seven member states, supported by the analytical capacity of experts and stakeholders.

The results of CIVISTI are directly related to the objectives of the Blue Sky Research call.

CIVISTI contribute to the expansion of the European foresight capacity. Through CIVISTI the aspect of citizen consultation is attracting attention from scientific areas – such as policy sciences, study of democracy, ethics and philosophy – which have not yet been generally aware of the developments in foresight. A new concept for citizen participation on long-term foresight has been established in CIVISTI. This innovative methodological approach is characterised by being very cost-effective – as compared to existing experience of cross-European citizen participation. Potentially, the new method makes it possible to organise citizen consultations across all member states in an economic and efficient way.

The CIVISTI approach aims at connecting the relevant interest groups such as citizens, experts, and policy-makers on the EU level to mediate between them, to translate the different ways of narration, and to decrease democratic deficit in EU decision-making. This is a new approach in foresight studies and forward looking activities. Most forward looking activities have taken their starting point in what could be called the supply side, understood as technological development and research disciplines. There are also previous forward looking activities considering as both the supply side and demand side, the latter understood as the needs and trends of society and societal development. CIVISTI is unique in strongly taking the starting point in the demand side. The strong focus on citizens' visions for the future of Europe is a new way of doing forward looking. Figure 1 illustrates how the CIVISTI compares to other forward looking methods in the demand-supply dimension.

Figure 1: The CIVISTI method as compared to other forward looking approaches



1.2 CIVISTI methodology and process

The CIVISTI methodology consists of three overall steps. First citizens around Europe were asked about their visions for the future. Seven Citizen Panels of 25 people were established, one in each of the CIVISTI partner countries (Austria, Belgium, Bulgaria, Denmark, Finland, Hungary and Malta). The people in the panels were not representative for each country, but they were selected to ensure diversity in the panel and there were some basic criteria for the selection gender, age, education and occupation). Each Citizen Panel made a long-term view into the needs, wishes, concerns and challenges of the future through a process of deliberation, informed by introduction material and expert and stakeholder input. This was done in 7 national citizen consultation weekends in May-June 2009. The result of this process was 69 visions for the future. Secondly experts and stakeholders analysed the citizens' visions and transformed them into research agendas and policy options for European research in a two-day expert- and stakeholder workshop in June 2010. The framework for extracting new S&T policy options from citizen visions practically was inspired by Kingdon's (Kingdon 1995) *streams model* of policy agenda setting, which is a widely applied approach in policy analysis.¹ The overall result of the expert- and stakeholder workshop was a list of recommendations for research agendas and policy options derived from the citizens' visions. Thirdly these results were given back to the citizens in the third step of the process where the citizens validated and prioritised the new S&T agendas and policy options before the results were presented to the relevant policy makers at a Policy Workshop in January 2011.

The more detailed process of carrying out the CIVISTI methodology had the following steps:

1. *Framing*

At the framing stage it was decided what should be the aim of the deliberation process. Furthermore an information material was developed for the citizen panels and a detailed process for the first citizen consultation was planned

2. *CCI – First citizen consultations producing citizens' visions*

In the first round of citizen consultations the citizen panels in the seven countries met and developed

¹ Most basically, the streams model pays attention to the specificity of problem and solutions sides and 'timing' a critical dimension in pairing the two; the streams model idea was translated to evaluation criteria (essentiality, novelty, timing) that were used in the assessment of the policy recommendations produced in the project.

their visions for the future. This was done in seven national citizen consultations that each lasted for two days

3. *Analysis of the visions and creation of an analytical model for expert-stakeholder workshop*
The visions developed by citizens were analysed and 37 topics were identified. The content analysis informed the building of the analytical model that structured the work in the following Expert-stakeholder workshop
4. *Expert-stakeholder workshop extracting recommendations from visions*
In the Expert-stakeholder workshop 18 experts and stakeholders worked for 2 days on extracting recommendations for future S&T from the citizens visions
5. *CC2 – Second round of citizen consultations evaluating the policy recommendations*
At the second round of citizen consultations the citizen panels validated the expert/stakeholder recommendations on the basis of the citizen visions and prioritised the recommendations
6. *The results were presented and debated at a policy workshop*
7. *Support from a web-based content coordination tool developed in the project*
The whole process was supported by an online web-tool. The web-tool was central in documenting the process as results of the different steps

This process is described in detail in a Methodology Manual, which can be found on www.civisti.org. The process is illustrated in Figure 2 below.

Figure 2: The main components of the CIVISTI process

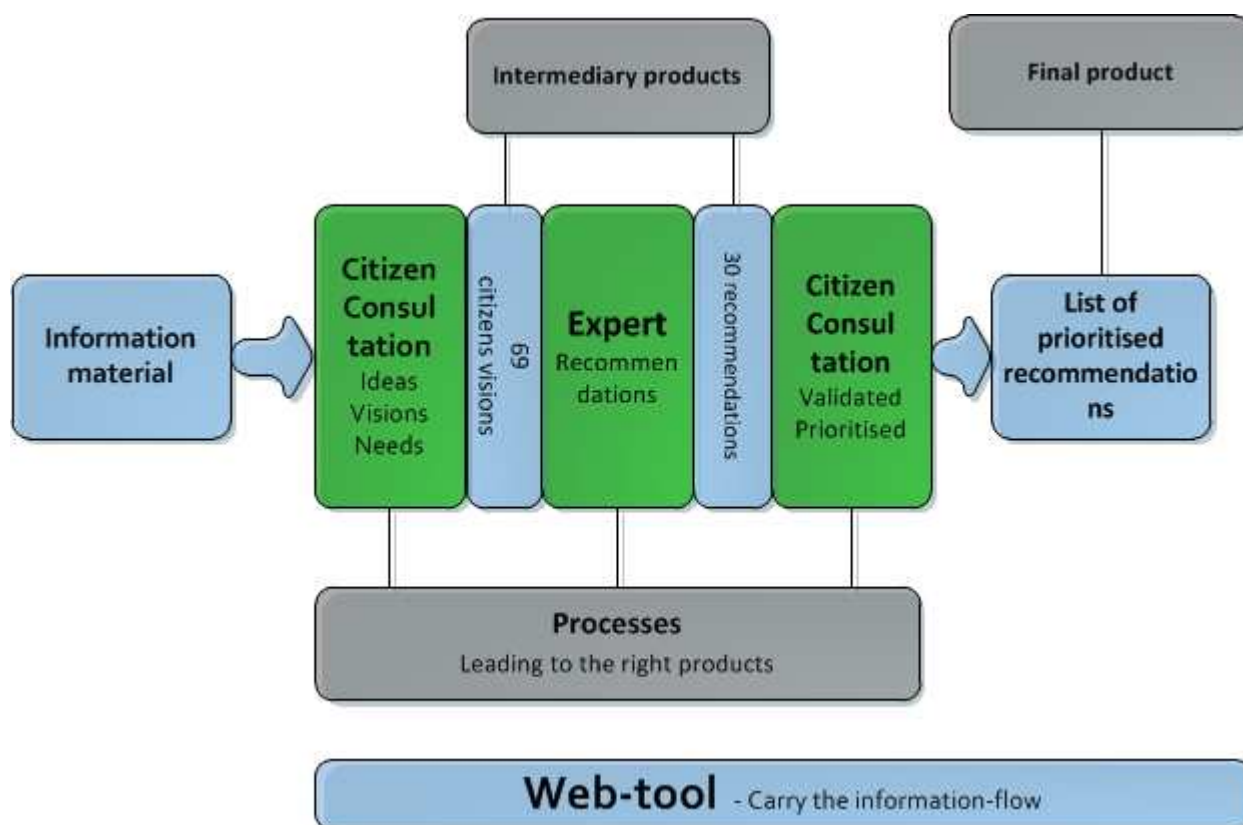


Figure 2 Process of the CIVISTI methodology

Chapter 2 Citizens' visions

One of the overall steps of the CIVISTI process was establishment of citizen panels in the seven countries of approximate 25 citizens in each country with diversity in age, gender, educational level and employment. Each of the citizen panels produced around 10 visions for the future of Europe. All in all 69 visions were produced.

One of the key characteristics of the visions was the holistic and "interdisciplinary" treatment of future issues. Since expert-based thinking can often be characterized as specialized instead of holistic, and disciplinary instead of interdisciplinary, the visions created by the citizens (or "lay-experts") in the CIVISTI project has the purpose of providing new ideas and viewpoints to the experts and stakeholders of how to think about and interpret new issues of science and technology policy in a comprehensive way related to the technology in a social context. A content analysis of the 69 visions was made during the project in order to investigate the included topics and to organize the later analysis process by experts and stakeholders. This content analysis can be found on the CIVISTI website www.civisti.org

2.1 General summary of visions

The citizens' panels developed 69 visions in total. The Austrian panel developed 11 visions, Belgium panel 8 visions, and the panels in other countries developed 10 visions each.

In regard to the style and structure of the visions, there was a high variety of different solutions, as indicated by the examples of 10 different narrative structures presented in Table 1 below.

Table 1 Different narrative structures of the visions

- | |
|---|
| <ul style="list-style-type: none"> ○ a list of 24 important future issues ○ a description of desired future circumstance (e.g. peaceful elderly period) ○ a story of a day in year 2045, experienced by a fictional character ○ a glimpse of future society 50 ahead (in some visions there are even longer time frames) ○ an analysis of the strengths and weaknesses of a desired vision ○ an elaboration of a single idea (e.g., Europe TV) ○ a definition of the most pressing problem of future (e.g., worst environmental problems have been beaten) ○ a diagram explaining a new invention (e.g., new apparatus for conversion of energy) ○ a fictional visit in the rooms of a future war museum ○ a sketch of an idea (death passport) |
|---|

The high variety of different styles and structures of vision descriptions can be explained with (i) the open definition of the visioning exercise and (ii) the usage of professional facilitators that have supported different narrative techniques. The high stylistic and structural variety of visions caused some restrictions to the analysis of the visions. For example, the limits between dreams and fears as well as means and ends are often vaguely described in the visions.

2.1.1 Topics and thematic scope of the visions

Overall, the visions were much diversified both in content, style and structure. None of the visions was single-thematic. The lowest number of topics in a vision was three, indicating a narrow scope of the vision (on a technical apparatus for conversion of energy by using water pressure). The highest number of topics included in a vision was 17, indicating a broad scope of the vision (on EU president touring Africa). The average number of topics per vision was 8.8, which indicates that people tend to include several issues of consideration, which are interwoven in their envisioning of future. In some cases, the high number of topics results from a broad thematic definition of the vision. An example is the vision *Link among generations, space and time*, which presents “the happy life of a middle-sized European family in 2049” and covers 15 different topics. More often, however, the high number of topics results from an “interdisciplinary” way of deliberating the problems, needs or hopes related to the future. An example is the vision *Support for the starting and maintaining a family – and the EU*, which mainly focuses on the role of families in the society, but ends up with a list of 24 different issues for the future.

The table below presents the thematic topics that are discussed in the visions.

Table 2: Topics addressed in the citizens’ visions

Topics in alphabetic order
1. Ageing
2. Agrifood technologies, organic production
3. Animals and ecosystems
4. Citizens' role and democracy
5. Climate and global warming
6. Creativity and innovation
7. Demography
8. Developing countries
9. Disasters (natural and technological)
10. Education and learning
11. Employment and new modes of work
12. Energy
13. Environmental awareness
14. Equality - gender, minorities, disabled, ethnic
15. Family values
16. Genetics
17. Healthcare and medical services
18. ICT, automation and artificial intelligence
19. Identity (national and EU)
20. Infrastructure and urban design
21. Legislation
22. Linguistic technologies
23. Local and regional development
24. Multi-cultural and multi-lingual society
25. Pension policy
26. Quality of life and life style
27. R&D policy
28. Reducing bureaucracy
29. Religion
30. Role of media

31. Smart materials
32. Social care and services
33. Space technology
34. Transport
35. War and peace
36. Waste management
37. Water management

The most extensively discussed topics were:

- Health care and medical services;
- Education and learning;
- ICT, automation and artificial intelligence;
- Legislation; quality of life and life style;
- Employment and new modes of work;
- Energy

In the background of the visions related to health care and medical services there were often observations of the needs of aging populations and hopes for new solutions from the development of the medical sciences. An example of this theme is the vision *Europe as a welfare state*. As stated in the vision, in an aging society significant changes in pension and health insurance systems are needed to retain a unitary health care system. It is ethically appropriate that medical care should be guaranteed without social differences, whether through taxes or contributions by the insured. Other themes to which the topic of health care and medical services was frequently linked to, included education and learning, quality of life and life styles, and energy issues.

The topic of education and learning was discussed, for example, in the vision *Holistic Education*. This vision accentuates on the importance of education as holistic, physically and psychologically healthy personality-building. The ossified doctrines in the higher education will die out because people realize that the personality maintains national culture, not the other way round. Other regular themes linked to education and learning were quality of life, employment and new modes of work, and ICT. In some more provocative visions, for example, smart technology and educational technologies replace teachers.

Visions related to ICT, automation and artificial intelligence build sometimes even radical pictures of the future, in which new multimedia and ICT tools are applied to an ever increasing extent. Such an example is the vision *Mass Communication Replaced by the Masses Communicating*. This vision contains an idea of convergence of the physical and virtual realities through perpetual on-line existence. The vision depicts a future, in which such distant actors as a Cretan and Norwegian sheep farmers consult each other by using internet based communication and translation services. Another important theme to which ICT, automation and artificial intelligence issues were often linked to, were visions on the future forms of work and employment.

Not many of the visions directly addressed issues of policy or governance. Legislation, however, was among the topics that were more often discussed. In some cases legislation could be among the measures helping to realize the main goals of the visions (such as more ecological society). In other cases, however, people dreamed about more transparent, equal or less bureaucratic societies. An example of such vision is *Simplification. Easier Structures by 2040 (less laws and rules)*. As the vision states, "[p]arliaments and governments are replaced by technical committees that design solutions to problems and their output is supervised by citizens. Laws and rules are kept simple and consistent across borders."

Quality of life and life style was among the more extensively discussed topics. On one hand, this topic can be regarded as a main category that is addressed in all visions, since the aim of all visions is to have a better quality of life. On the other hand, quality of life and life style, and as regarded by the analysts of this report,

is a more specific issue with a focus on how people arrange their everyday life, increasingly with the “luxury” of choosing between different alternative solutions for issues such as work, leisure, education, pension period or medical treatment. Quality of life, consequently, was a topic that was often linked with topics from very different domains of life. For example, in the vision *Favouring Ecological Lifestyle*, there is a strong linkage between life style and sustainability. As the visions often are, there is a holistic view of ecological life in this particular vision: “The environment will remain vital and productive also for future generations: it will offer enough food, visual pleasure and relaxation. People’s quality of life is improved and there is a return to the natural state of being which is integral to human existence.”

Employment and new modes of work was among the topics extensively discussed in the visions. Such visions were often linked to the role of information and communication technologies that support distant work; work without geographical borders; and provide tools for redefining the limits between work, leisure and pension time. Also expressed in the visions were the pressures of the globalised society to both an individual worker and his/her family. The vision *A Happy Day – Tuesday, 16th April 2045*, for example, envisions future, in which people work four days a week and unemployment rate is under 2 per cent in the EU. Business conferences are managed through interactive telephone conferences and discussions take place in ‘World-English’ that is an official language of the EU.

Energy, finally was among the most extensively discussed topics. There were many visions in most countries raising issues of renewable energy, energy efficiency and more generally, sustainable development. In Malta, for example, there were two visions fully dedicated to energy issues: in the vision *Exterminating Fossil Fuels* (Malta, vision07) the focus is on how to substitute fossil fuels with more natural or sustainable sources of power such as wind turbines or water powered automobiles, whereas in the vision *Apparatus for Conversion of Energy – Using Water Pressure* the focus is more specifically in an equipment facilitating the use of hydropower. That energy was among the frequently discussed topics may indicate that environmental issues are increasingly being perceived through issues of sustainable energy production, and linked to it, actions related to climate change.

In regard to the less prominent topics, an interesting observation is that the five least prominent topics in the visions are “big issues” for humanity, including *natural and technological disasters, genetics, religion, space technology, and developing countries*. Nevertheless, the observations of partners show that there were elaborated discussions also on these issues during the citizen consultations.

2.1.2 Level of impact of the visions

As the levels of impact of the visions were rather diverse, several levels were distinguished to aid the analysis: individual/family level, local level, national level, EU level, global level. It is worth noting that the global level in the visions prevailed over the others as presented in the table below. This is an indication that people become conscious and caring about the global developments and are not focused on their individual problems only.

Table 3: Visions by level of impact

L1	Individual and family level	17 visions
L2	Local level	5 visions
L3	National level	5 visions
L4	European level	13 visions
L5	Global level	29 visions

2.1.3 New connections, weak signals

As the above examples indicate, most of the 37 topics discussed in the visions were complexly interconnected, creating sometimes even surprising connections between different domains of activity. For example, several visions sketched an idea of an interactive Europe TV that helps people grasping how both the official and non-official sides of countries across Europe see and live through their lives (e.g., what policy makers debate in a country or how people cook local foods). As it was stated in one of the visions, such a television would create “a largest ever peace project and mass enthusiasm for the EU.”

Many of the visions of the CIVISTI project highlight and link together ideas in a new way. Such ideas that at first glance may look like oddities or irrelevant issues in a particular context (e.g. in the design of the 8th EU framework programme) but may prove to be helpful in anticipating future changes, are often called, in futures studies, weak signals.²

What really are new, essential or relevant ideas among the many issues discussed in the CIVISTI visions remains a matter of personal or interpersonal judgement. Weak signals, in other words, are very much in the eyes of the beholder. To give an idea of the potentially rich variety of such signals, the analysts of this report have collected ten ideas that they perceive as weak signals in Table 4 below.

Table 4: Weak signals from the CIVISTI visions

<ol style="list-style-type: none"> 1. Virtual education system, where smart technology and educational technology replace teachers. 2. People become independent of the weather (a surprising vision in the world of climate change). 3. “DESC-Help” (Death Companion Experts for Social Communities) or professional dying process crew assists families and dying persons in all matters (Austria, vision11). 4. A “rural living commissariat” is established in the EU to favour and develop countryside on the basis of ideals of creativity, friendships and security (Finland, vision10). 5. Physical and virtual realities converge as a result of perpetual on-line existence. Cretan sheep farmers, for example, can fluently consult on their matters with their colleagues in Norway. 6. Interactive Europe TV creates a largest ever peace project and mass enthusiasm for the EU. 7. Community action days are organized to recollect and recycle old electric devices. Those that bring back their old devices should be given some money. 8. Transportation becomes fluent, ubiquitous, super-fast and environmentally friendly. 9. The problems with adequacy and quality of fresh water are solved in Europe. 10. Medicine helps prolong life (e.g., anti-ageing machines) and cure diseases and senior cities are founded.
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2.2 69 Citizens visions (short version)

Below there are short presentations of the citizens’ visions. The full length visions can be found on the civisti website www.civisti.org

² See Hiltunen E. (2008). The Future Sign and Its Three Dimensions. *Fuures* 40 (3) 247-260. As the author states, however, defining weak signals is problematic, and various authors term the concept differently.

AUSTRIA

01: Individual and virtual education system

This vision is about an educational system in which the individual abilities and competencies are in the foreground. The basis is values like gratitude and appreciation rather than fear and pressure. Virtual teachers (machines) dominate. However specialized human teachers for sport and social issues support them.

02: A United Europe through real cultural exchange

There is a need for an early awareness amongst children and their parents for tolerance and mutual respect of other cultures. Children and teenagers spend some months in different European countries at different stages of primary school up to high school and also for career training.

03: More respect and understanding for socially deprived people

Through availability of well-educated social workers and professionals people can deal with challenges in their life without long bureaucratic processes. In special courses at school, children learn early enough to recognize social problems and to try to find solutions.

04: Beaming for environmentally friendly transporting

Through new transportation systems and technologies it is possible to reduce environmental pollution, achieve rapid transportation of organs for transplantation and use space and time more economically. Services are more localized and beaming is affordable for all.

05: Our personal simultaneous electronic translator

In this vision people gain the ability to work in all countries in the world with the help of a wrist-worn simultaneous translation chip. Language barriers could be eliminated. Everyone could use this chip free of charge or preconditions.

06: Multicultural and integrative education for more tolerance

In order to achieve more understanding and tolerance and to reduce the fear of the foreign and new, state-funded kindergartens and schools as well as special training programmes enable children and teenagers from different cultures and handicapped ones to grow up and to learn together.

07: Being allowed to die in dignity, a companionship of dying in a network of family and relatives

A chip implant enables monitoring the process of dying by a socio-psychological hospice. This vision points at the importance of the process of dying in an aging society. It includes a supervisor, acting as a companion for the dying persons and their families and friends.

08: Europe as a welfare state

In an aging society significant changes in pension and health insurance systems are needed to retain a unitary health care system. It is ethically appropriate that medical care should be guaranteed without social differences, whether through taxes or contributions by the insured.

09: Disabled people as fully valuable members of the society

Integration of disabled people should be achieved through affordable tools and involvement of disabled people in daily life as well as more research on the treatment and prevention of disablement even before birth.

10: TV for the creation of a European identity

An independent and advertisement free TV channel will broadcast from all EU countries. There will be rules and facilitators, acting as an incorruptible objective virtual institution to ensure neutral information without manipulation. All broadcasts should be available in all EU languages.

11: Death passport

Respect for autonomous decision about one's own death should be possible through a voluntary personal death passport for passive euthanasia. It should include the individual conditions and should easily be renewed with a minimum of bureaucracy and free of charge.

BELGIUM**12: Smart society**

Everybody can afford to be surrounded by a smart environment equipped with robotics and technologies that simplify the organisation of everyday life.

13: Endless energy (independence of fossil fuels. Local and environmentally friendly production of energy)

A world without the need for fossil fuels. Every home has its own energy-generating system (solar cells, wind turbines, home trainers...). Solar energy is stored and used for heating. Cars run on electricity with batteries that can be recharged at home.

14: Grey is OK in senior city

Senior citizens are now considered as being "plussers". They live for free in senior cities that are adapted to their recreational needs. They still play an active role in society and assist the younger generations.

15: Simplification. Easier structures 2040 (less laws and rules)

Parliaments and governments are replaced by technical committees that design solutions to problems and their output is supervised by citizens. Laws and rules are kept simple and consistent across borders.

16: H₂O₂ (Water purification for drinking water to meet the deficiencies)

A combination of water purification and water doubling techniques to ensure drinking water supply worldwide. Water will be enriched with nutrient and can be stored in "hyper" concentrations.

17: Where there's a will, there's work (Employment for all. A vision about the balance between work and private life, voluntary work and full employment).

By redistribution of work, everybody has a job and can choose their number of working hours according to their own family/health situation. Voluntary work is rewarded and you get a fixed wage when you stay home to take care of the children.

18: Unlimited communication.

Simultaneous interpretation (subtitles or dubbing) is available, enabling cross-border communication. A uniform language is created. A virtual working environment makes it possible to work from home and interact with colleagues.

19: Make me human! (A dream about health and wellness, technology and ethics)

Improvement of the quality of life using technologies that focus on health, food quality, smart clothing, leisure time. Physicians also pay attention to ethical aspects of medical matters.

BULGARIA**20: A Contemporary European City in the Year 2050**

A constructive scheme of a future city outlook with high residential areas, terraces with flowers and greenery, pedestrian zones and oases. New light-weight designs and materials are used. Transport systems

are noiseless due to their location in environment insulating transparent canals and going when necessary underground.

21: Bulgaria – the Garden of Europe

Recovered traditions and successful transformation of Bulgaria into a major nutritious ecological and bio-resource centre in Europe based on the unique climate and the geographical location, as well as on the scientific potential in this field. In its essence Bulgaria regains its proud position in the production of fruits and vegetables that it used to have more than 100 years ago and it becomes famous for being the European Garden of Eden.

22: Eco-techno Future

The vision represents a perfect balance between ecology, health and technology in terms of different manufacturing processes and technological products. “Smart” electronic cigarettes which are healthy and assist breathing are manufactured. Digital paper is a substitute, made from recyclable ecological materials, while cars run on water fuel or electrical engines.

23: Free the Information!

This is a vision about a unified system for publishing full information about every large-scale manufactured product. The term “product” is used in the widest sense! The emphasis is put on the adoption of a uniform legislation framework which is going to guarantee the existence and authenticity of the information.

24: Holistic Education

This vision accentuates on the importance of education as complete, realized, physically and psychologically healthy personality-building. The ossified doctrines in the higher education died out because people realized that the personality keeps national culture and not vice versa that nation keeps personality culture.

25: Link among the Generations, Space and Time

The vision portrays the happy life of a middle-sized European family in 2049. It is unique that people could participate in part in the European online referendum for the new generation of solar power-plants, take longevity pills (developed by the research laboratory in Osaka), learn twenty new words in the language of the Basques and go to the beach for the traditional series of yoga exercises. No obstacles, neither in space, nor in time, exist anymore that can separate people from their beloved ones.

26: One Bulgaria, One Europe, One World – one whole!

The vision is about harmony and unity of people who change the world together. Bulgaria is described as a piece of Heaven, a pure and enchanting part of Europe which attracts and fascinates tourists every day with the greatness of its nature, the cultural-historic heritage and most of all with its benevolent people.

27: Sofia – the Green Capital

This vision encapsulates respect to the development of a contemporary green European city and a social integration in terms of people’s gathering in the skirts of Vitosha Mountain, in the South Park. Their transportation is achieved via electric cars and bicycles that do not pollute the air.

28: Human Values

This vision is based on human ethics’ rules and principles, the so-called “human values,” which can be used as fundamental criteria for lawmaking and socio-political relationships. Creating and guaranteeing existence-minimum and maximum, building legislation, using the formula “the family – basic unit of the society” with clearly defined rules and prerogatives based on human morality.

29: The human being in 2050 – harmoniously-built personality

The vision presents a balance in the physical and spiritual development of an individual with medical innovations as background. This harmonious personality-building is achieved through gathering of

information for the physical state and talent of the child during pregnancy which facilitates his or her development after birth.

DENMARK

30: The EU president touring Africa

Africa has been changed from development country to industrial- and knowledge society based on a fully developed educational system from start of school to end of university. The health conditions of the population are comparable to European standard. Growth of population is under control. The African countries now have democratic governments and a well functioning public administration. Infrastructure now is sufficient.

31: Responsible animal production in the EU

Animals are kept under conditions respecting their natural behaviour. Live animals are not transported unnecessarily and are always butchered locally. Infectious diseases transmitted from animals to humans are eradicated through improved animal welfare and responsible handling of the animals.

32: EU for the people

Through close dialogue, in which citizens get a sense of being listened to and having a say in democratic processes and development of visions, the EU now feels like an institution close to the people. Citizens feel this closeness through a shared identity and through a vision, also shared, by citizens and institutions.

33: The ageing man/woman is a resource

Europe's share of elderly people has increased. Now elderly people have become a resource rather than a "burden", which was a concept generally used in years around 2000. Society is gaining economically, socially and culturally from this new role of elderly people. It benefits the younger generation and improves the quality of life for elderly people.

34: A world without war. Peace through weapons control

In the year 2045 the world's conflicts are solved without the use of weapons. Every single country and region is represented in a joint council, where conflicts are solved through dialogue and negotiations. Resources, which were used to development and production of weapons, are now used for healthcare and rebuilding of war devastated regions. The world's arsenal of weapons is diminished and there is full knowledge of the locations of every weapon.

35: Environmentally sound transportation throughout Europe

In 2040 all transportation in Europe will be environmentally sound and there will be many environment friendly means of transportation for both countryside and city: bicycles, electric cars, electric buses, trams and metro. Public transportation is the most attractive choice and the most used transport method. Public transportation is fast and easy to use day and night.

36: Mass communication replaced by masses communicating

The multimedia environment is so developed that no economic, political or other interest are controlling it. Everybody can use it freely and seamlessly in the interest of him-/herself and the recipients. Physically remote – yet close. Dialogue is seamless although there are still numerous languages. Intercultural bridge building – everyone is stranger, no one is stranger. – Private and public "communication drones" are reality.

37: Renewable and CO2 neutral energy

By 2049 renewable energy production is fully developed. Last year the last conventional power plant was closed. The world's production of energy is now CO2 neutral. Energy is stored and distributed by means of

safe, simple and cost-efficient media with a minimum of transformational losses. The demand for energy has been minimized by optimal technologies and methods.

38: Assume personal responsibility – assume shared responsibility

In 2045 every person assumes personal responsibility for his/her own way of life. In daily life, in every decision and choice, everybody will act in a responsible way regarding environment and interpersonal relationships. Knowledge and education are keywords. Society is organised so as to ensure that the healthiest and most environmentally sound solutions are available to everyone.

39: Food production in the EU is sustainable

Europe's agricultural production takes place in a closed circuit, supplying exactly as many nutrients as are lost in production. Agriculture does not pollute, pesticides are not used and there is no leaching of nutrients. The yield from agriculture is at optimum level.

FINLAND

40: Strengthening of language and culture

The immigrants and refugees come to Europe from all continents because of ageing of original population and decreasing birth rates of Europe. They need to be assimilated into the culture through language as well as the "mainstream" population must adjust to the immigrants with respect and support for their difference at the same time preserving own culture.

41: Favouring ecological lifestyle

Society should favour sustainable and ecological lifestyle in order to preserve the environment vital and productive for future generations. This change happens through gradual changes in attitudes (e.g. consumer choices) that can be achieved by means of marketing and legislation.

42: Europe-TV

A common European TV channel is established to report on EU operations and other European current affairs and to introduce e.g. the cultures and events in the EU countries. The channel is open and free for everyone and interactive e.g. via Internet-based opinion polls. The channel should be as neutral as possible in every possible way.

43: Joint citizen action – let's get going!

Each citizen does their bit according to their skills and abilities. The role of community in society is increasing. This leads to more even distribution of resources, prevents marginalization and increases social interaction.

44: The worst environmental threats have been beaten

The environment remains habitable and healthy for humans and other forms of life. This can be realized through bringing global warming under control, new transportation solutions, decreasing use of toxic substances, development of technologies and overall more sustainable development.

45: Finland as a pioneer of innovations

With investments to better education creating innovations can be consolidated. The benefits of innovations are distributed equally between industrial and developing countries. Inventions are advanced in workshops that involve both educated and uneducated people.

46: Technology (eServices) reduces bureaucracy

Bureaucracy is reduced through technology when various matters are taken care of at the same desk electronically. Taking care of matters is not anymore dependent of time and place.

47: The triumph of scientific worldview

Science is advanced by increasing its resources , productivity and popularization. Society is better able to use the information for making important decisions and to resist pseudoscientific beliefs and religious fundamentalism.

48: Nature and modern society in harmony

In future nature and modern society live in harmony based on better understanding of sustainable development. Attitudes have changed; investing to sustainable techniques is prioritized also by businesses. Radical decisions and changes in order to preserve nature are made

49: Go countryside!

The value of living in countryside is “re-understood” and it is made possible for everyone through e.g. public transportation. Living in countryside lessens introversion and spiritual individualization, improves security, health and children’s growth environment and raises the value of community and family.

HUNGARY**50: Support for starting and maintaining a family – and the EU**

Our social and economic system is ‘citizen-friendly’. Everybody has the right for a decent standard of living and for a first flat. Working conditions are flexible to family life and it is not a problem to go with bicycle or baby carriage on the streets. We can also use ‘multigenerational’ cars. Children see and do gardening and feeding animals. People die at home, not in ‘total institutions’. People get help from a complex institutional system and from the local people who know them.

51: Life is value

People do sport and check their health conditions with their personal device every morning. The father does research on age-increasing technologies; the mother helps the grandparents in the housework. The mother goes home when her personal communication device gives a message that her children left school. She takes a transport automat that plays her favourite music.

52: Renewable beauty and utility

Fossil energy sources are replaced with renewable energies. Raw materials are also renewable and waste is reused as a new value or ingredient for another thing. Companies and households operate in an environmentally friendly way because of prevention, education, and tax reduction.

53: A happy day – Tuesday, 16th April 2045

As fatal diseases and pandemics have been combated and health care prevention functions well, life expectancy is between 120 and 130. People work four days a week, thus, unemployment rate is under 2 percent in the EU. There is no significant environmental pollution, discrimination, nor inequality between social groups. Ageing took an opposite trend: there are three children in every family. Modern technology is everywhere: bird-twittering robot in the morning, maglev, and interactive telephone conferences are just a few examples. ‘World-English’ is an official language of the EU.

54: Abolition of energy wastage; energy saving

The power plants burning fossil materials are all replaced with fusion power plants which are not polluting the environment and almost inexhaustible. Cars and vehicles are run by hydrogen, all other machines work with electricity. Those who use old-type machines or engineers who develop less-efficient technology are punished.

55: Salad of localism à la globalism. Decreasing the negative effects of globalisation

Multinational companies have to employ local labour force defined by a quota. CSR of big companies is fruitful for the local community and for their public image as well. Multinational companies offer decent work for employees and seasonal farm products of local producers for the customers. Regional lobbying is a well-developed policy tool.

56: Traditional, multigenerational family model in the Union

A multigenerational family lives and run their ecosystem together. Grandpa repairs the solar collector while grandma does bio-gardening. Schools integrate all minorities of the society, e.g. gender, ethnic groups, and disabled people. Citizens of the EU know how people live in other member states through TV commercials and a single holiday exchange program in the EU.

57: Being a happy Hungarian child and student in the Union

We have multilingual (mother tongue plus 2 foreign languages) education system from kindergarten until the age 18. Students can study in any school of the EU as there are many opportunities of mobility and e-learning. The education system synthesizes theoretical and practical trainings; and is free until the first diploma.

58: Condition of being alive! Drinking water!

Drinking water does not contain any chemical as soil contamination has ceased and bio-production is widespread. New water supply is unearthed and people can produce the water they use with their own driven wells. Water is cleaned after use and before it is taken back into the river.

59: Tranquil elderly period – actively

There is a Single Pension System in the EU; half of the pension comes from the states and half from personal pension savings. Preventive health care examination is obligatory from the age 40; thermal bath can be visited for a reduced cost from the age 55. Pensioners are still active: they take part in the Elderly Council at their former workplace once a week and do voluntary work for a civil organization. Adult children are obliged to contribute to the costs of institutional services for their parents in accordance with their economic capacities.

MALTA

60: Outer Space Exploration for Future Solution

To alleviate the explosion of the world population we will be able to send people to live in other planets. Working on new discoveries on resources such as deposits of hydrocarbon, to re-develop of surface land, underground space, climate, magnetism, etc.

61: The 3R's for a Greener Future

The use of waste materials in conjunction with natural resources to produce new materials. Their application to different sectors will benefit society. Reduce the use of natural resources, Reuse waste material, Recycle producing new materials.

62: Our Way Forward Stems from Our Roots

To create a more tolerant ecosystem. Remedy our past misuse of the resources at our disposal. Together as a unified nation we should be able to re-engineer all our current approaches to business processes.

63: A Brighter Future – or Just a Dream?

A true cooperation between peoples and nations, with the sole purpose of achieving justice, peace and serenity. This entails mankind to put aside any egoistic attitudes and start to genuinely feel responsibility and respect for those experiencing inequalities and injustices created by society itself.

64: Green Sustainable Living

Greener cities for present and future generations using sustainable energy production and measures to reduce pollution. This requires greater political will, improved planning, better education and a concerted effort in cooperation.

65: Globally Oriented Diffused Information City (GODIS)

Having a system in which different organisations in the same field of work can pool information, work together, and help each other in problems they might be unable to solve alone. It will also publish their results and studies for the general public.

66: Exterminating Fossil Fuels

Substituting fossil fuel energy to natural power. Use energy resources where they are most abundant. Alternative powered vehicles and alternative energy generation. Working hand in hand with nature to generate electricity

67: Celebrating Diversity through Inclusion

To recognise the diversity of people and use these diversities to enhance learning opportunities and promote inclusion. By means of including everyone, we can celebrate diversity.

68: Apparatus for Conversion of Energy – using water pressure.

To facilitate the use of hydropower where there are no waterfalls or running rivers. Electricity is produced at a very low price.

69: Natural Access to ICT Services Everywhere!

Technology in the form of a voice interface or neural system, enabling one's data to flow freely and securely, always there when you need it. The technology is invisible, used only where it makes sense in the holistic context of improving our quality of life

Chapter 3 CIVISTI recommendations

The primary result of the CIVISTI project is a list of 30 recommendations for new and emerging issues for European S&T and future policy options of relevance for European framework programmes. The recommendations were developed in an experts and stakeholder workshop on the basis of the 69 citizens' visions for the future. During the workshop more than 100 rough recommendations were produced by a group of experts and stakeholders. 30 of these recommendations were elaborated further and handed back to the citizen panels for validation and prioritisation.

In this chapter we provide the short descriptions of the 30 recommendations, while the full length recommendations can be found on www.civisti.org. The detailed citizens' validations and prioritisation of the recommendations can be found in annex 1.

3.1 Expert-stakeholder Workshop

The expert-stakeholder workshop to discuss how the citizens' visions can be turned into actionable research issues and recommendations for future research policies was organised in Sofia, Bulgaria, in June 15-16, 2010.

3.1.1 Objectives

The concrete objectives of the workshop were the following:

- To have an informed discussion on the outcomes of the first round of CC1 workshops through involving of experts and stakeholders from a number of different European countries, as well as EU-level experts and stakeholders
- To extract (identify and prioritise) new and emerging issues for S&T from the visions of the citizens
- To provide input to CC2 through formulating research questions and recommendations for future research under FP8 as well as policy options to the benefit of Europe as a whole

3.1.2 Participants

The 18 participants in the workshop were recognised national and European experts, stakeholders and policy makers, including scientists, policy analysts and representatives of governmental bodies, involved in research policy making and implementation. The participants came from the following countries: Austria, Belgium, Bulgaria, Denmark, France, Germany, Hungary, Switzerland and United Kingdom.

3.1.3 Workshop process

The workshop lasted for two working days.

- During the first day, the participants were divided into 6 groups of 3 experts per group, facilitated by a member of the CIVISTI consortium. Each group were instructed to discuss 6 specific themes related to the visions (based on a previous analysis of the visions), to which 1-3 key vision were assigned. In about one hour per theme, the participants made "draft recommendations" related to the visions. More than 100 recommendations were produced and at least one for each vision
- During the second day, an "open space" process was organized to elaborate the recommendations that the participants found most important (about 30 were selected). The participants were instructed to elaborate and finalize draft recommendations by reflecting three criteria: novelty, essentiality and timing. Using an internet-based tool, the final recommendations were documented and compiled to an edited

summary document. The main result of the expert-stakeholder workshop is the list of 30 elaborated recommendations

3.2 Thirty recommendations for future European S&T

Below is a reformulation of the 30 elaborated recommendations, so that they have become 2-3 line recommendations to get an overview of the 30 elaborated recommendations. For further information about the content of the recommendations please read the full-length recommendations.

1. Humanistic research to explore what dignity during the dying process means to contemporary Europeans

Participatory research (anthropological) of an aging population in modern societies for developing spaces, where citizens can discuss and develop a community around their concerns about dignity during the dying process.

Derived from vision: 7. Being allowed to die in dignity, a companionship of dying in a network of family and relatives.

The recommendation is also related to:
vision 11: The death passport.

2. Tools for disabled people

Investigating the state of the art in the development of tools for disabled people and older adults. Based on the introduction of a balanced multidisciplinary approach to the issue by involving experts from technological and social sciences.

Derived from vision: 9. Disabled people as fully valuable members of the society.

3. European TV – unity in diversity. A permanent lab for experimentation on building and expressing identity (IdenTVLab)

Establishing TV that contributes to the creation of different forms of European identity and to the cooperation of diverse cultures.

Derived from vision: 10. TV for the creation of a European identity.

4. Plug and play communication: development of standards for smart gadgets

To support the vision of a smart society and reduce the risk of wasting resources standardisation of smart gadgets are needed. Standardisation shall ensure a minimum standard of security and privacy and that smart gadgets can communicate with each other regardless brand or type.

Derived from vision: 12. Smart society.

5. Foresight and research to explore sustainable options of decentralized energy production systems and the resolution of energy related conflicts

Implement foresight studies and research in the governance challenges related to different scales and levels of energy production and distribution in order to develop new options for decentralised, sustainable energy production and to avoid future conflicts.

Derived from vision: 13. Endless energy (independence of fossil fuels. Local and environmentally friendly production of energy).

6. A ‘Platform of the future of work’ at a local, regional and global level should be considered within upcoming calls of the SSH program

Establish a platform within the upcoming calls in the SSH program about work at local, regional and global level. Including research about redefining work, ‘flexicurity’, work-life balance, basic income, new jobs, and social responsibility. This platform should involve citizen participation.

Derived from vision: 17. Where there is a will, there is work (Employment for all. A vision about the balance between work and private life, voluntary work and full employment).

7. Stimulate research to expand/augment the human sensory capabilities

Promote cutting-edge research on bionics and machine-human interface to expanding human sensory capabilities. Main focus on the technological prospective but also focus on the knowledge generated by the recent studies with interdisciplinary research in psychology, ethics and philosophy.

Derived from vision: 19. Make me human! (A dream about health and wellness, technology and ethics).

8. Enhance the ethical reflection on science based organic and “bionic” production

The ethical aspects of development of radically new genetic and technological treatments should be systematically approached by ethical research councils and advisory bodies at a European level. Ethical interdisciplinary research programmes should be designed.

Derived from vision: 19. Make me human! (A dream about health and wellness, technology and ethics).

9. Optimization of urban space: towards dense European eco-cities

Initiate pilot projects creating eco-cities in Europe with sustainable waste management, transportation, urban space use and energy usage. It should be based on citizens participation.

Derived from vision: 20. A contemporary European city in the year 2050.

10. From CAP to European Agricultural policy: back to a gardening tradition

Establish Foresight studies and comparative analyses on the agricultural potentials of the different regions in Europe with the purpose of developing policies for re-establishing a gardening tradition in Europe that would deliver high quality agricultural products.

Derived from vision: 21. Bulgaria, the garden of Europe.

11. Research to overcome the tension between the use of highly complex materials in products and their recyclability

Establish research in new materials that deliver technical performance while at the same time are easily recyclable, and research in new processes that allow for the recycling or reuse of high performance materials.

Derived from vision: 22. Eco-techno future.

12. Increase direct democracy through e-voting

Citizens should be involved more often and easily in parliamentary elections as well as in special decisions affecting the development of the society through e-voting for

Derived from vision: 25. Link among the generations, space and time.

13. Recognition policy

The development of a new research area that is called the ‘Politics of Recognition’ and that focuses on promoting the inherent uniqueness of an area, country, region, values, traditions etc. The research should include participatory process/action research.

Derived from vision: 26. One Bulgaria, one Europe, one world – one whole.

14. Develop Sofia into an eco-model for European capitals

Establishment of an interdisciplinary “Eco City” European programme with significant funding for supporting the transition of European cities to eco-models and the exchange of good practices.

Derived from vision: 27. Sofia – the green capital.

15. Agreements with farmers organizations on avoiding antibiotics and hormones

Implement research on ethical, legal and philosophical status of animals in FP8. Develop agreements on avoiding antibiotics and hormones to be implemented at the local or regional level but that are harmonized at the European level.

Derived from vision: 31. Responsible animal production in the EU.

16. Innovative participatory structures

Implement innovative experiments with citizens participation. Large scale explorative action research based on trying new methodologies and including new communication technologies for citizens political communication debates.

Derived from vision: 32: EU for the people.

The recommendation is also related to:

vision 36: Mass communication replaced by masses communicating (by providing communication technologies to facilitate the participatory structures)

vision 42: Europe TV (by providing a medium for these methods)

17. Social innovations for aging societies are needed

Research should be done to investigate the effect that a transition period between full-employment and full-retirement would have on the labour market. The aim of this would be to re-evaluate the rigid retirement age/pension system that currently characterizes pension policy.

Derived from vision: 33. The ageing man/woman is a resource.

The recommendation is also related to:

vision 17: Where there is a will, there is work.

vision 50: Support for starting and maintaining a family - and the EU.

18. Promote technical and social innovations that can enhance people's access to and use of public transportation

Promote technical and social innovations to improve people's access to transportation schemes, through an intelligent and interactive network. This network should cover and integrate both local and trans-national travel in a flexible, user friendly and environmentally sound way.

Derived from vision: 35. Environmentally sound transportation throughout Europe.

19. Develop avatars that are able to act as a remote physical representation of myself

Start research on the many aspects of creating avatars, including research in brain-machine interface, technical research, research in legal and insurance issues and research in social consequences.

Derived from vision: 36. Mass communication by masses communicating.

20. Select or develop plants and techniques for areas with extreme climate conditions

Increased research, development and use of plants adapted to extreme wet and dry areas and capable of resisting extreme climate conditions.

Derived from vision: 39. Food production in the EU is sustainable.

21. Policies towards immigrants and refugees appreciation

Policies towards immigrants and refugees should become less threat-focused. A new immigrant positive approach to educative, cultural, immigration and media policies is needed for changing the mental framework of citizens as well as bureaucracy towards the appreciation of immigrants.

Derived from vision: 40. Strengthening of language and culture.

22. Foster the use of biorefineries

Implement a research program on biorefineries that are able to produce natural based, biodegradable chemicals that can replace fossil-based chemicals, both on the European and national level, with focus on the interplay between local and international biorefineries.

Derived from vision: 44. The worst environmental threats have been beaten.

23. Project for Finnish best practices to be disseminated and used in other countries

Finland's success in innovation should be presented by Finnish science and technology policy makers, while other EU countries comment on it, identify its weak points, suggest complementary and/or alternative solutions.

Derived from vision: 45. Finland as a pioneer of innovations.

24. Go and re-appropriate countryside!

Foresight studies should be conducted to develop new visions of the future for establishing attractive, contemporary life in the countryside. Foresight studies should include mobility, cultural and political life, employment and balance between production and recreation in the countryside.

Derived from vision: 49. Go countryside!

25. European integrated policies on sharing work

The need for new ways of working demands European level integrated policies on new models of work and employment. New integrated European models of work should be based on interdisciplinary research and overview of existing international studies of different work models.

Derived from vision: 53. A happy day – Tuesday, 16th of April 2045.

26. Develop effective urban infrastructures supporting a multigenerational lifestyle

Support the development of communication and mobile technologies that support multigenerational families. Support urban design and infrastructural development that provide a friendly environment for large families and their changing needs during familial life cycles.

Derived from vision: 56. Traditional, multigenerational family model in the EU.

27. Encourage alumni work in corporate governance

European companies should be stimulated to establish Elderly Councils for using the knowledge and know-how of the former employees as advisory teams.

Derived from vision: 59. Tranquil elderly period – actively.

28. Worldwide collaboration on space technology

Create popular support for worldwide research cooperation in the form of a new mega-programme along the lines of the space programme in the 1960s and to ensure the democratic way of the process. Funded internationally with the overall objective of ensuring the longer term survival of human culture when the world is burned out.

Derived from vision: 60. Outer space exploration for future solution.

29. Project to explore global governance

Explore conditions for trans-national governance working for global justice and peace. The 8th Framework Programme should begin with educational and exchange programmes for creating world citizenship identity.

Derived from vision: 63. A brighter future – or just a dream?

30. Stimulate research on human-machine interfaces

New interfaces between humans and machines need to be developed to allow for a broader perception of sensory information. This raises a lot of technical, but also societal and ethical (health and safety) issues to be examined.

Derived from vision: 69. Natural access to ICT everywhere!

3.3 Citizens validation of recommendations

The validation at citizen panels started with the presentation of the recommendations that were formulated in the E&S Workshop in Sofia and were related to the national visions. The validation was performed in parallel in small working groups. The review criteria were:

- **Faithfulness:** was about the degree to which the recommendation reflects the idea in the vision? Do citizens recognise the vision in this recommendation? Have experts understood the meaning and intention of the vision?

- **Effectiveness:** was asking if the recommendation helps to make the vision come true. Could this recommendation be one possible way to support the realisation of the vision?
- **Desirability:** To what extent did citizens think the recommendation was desirable or undesirable?

The above questions were evaluated on a numerical scale of 5 to 1. The scoring was supplemented with a qualitative assessment and justification for the choice.

Citizens were asked to validate the authenticity of the recommendations and thereby it was tested if the recommendations were true to the original visions of the citizens. This validation varied from recommendation to recommendation. Some were validated as more authentic and true to the origin others as less. Generally most recommendations only partly support realisation of the vision. In the light of the holistic and multi thematic visions, however, this is not surprising. Most importantly, almost all recommendations were regarded as relevant, attractive and at least to some degree rooted in the visions.

The validation results of each recommendation by the respective national citizen panels are provided in Annex 1.

3.4 Citizens' prioritisation of recommendations

It was the task of the citizen panels that were reassembled in the 7 countries of the CIVISTI consultation to prioritize the recommendations by the experts and stakeholders. This was done after a brief presentation of the recommendations (an info material presenting the recommendations was also send to the participants some two weeks before the event). For each person, maximally seven points could be used to select seven desirable recommendations. Recommendations that were derived from the visions originating from the country of the panel, however, could not be voted. The results of the prioritisation and an overview of the analysis of the citizens' results are presented in Table 5.

Table 5: Priority recommendations based on citizens voting

1.	Attractive public transportation	(Rec nr. 18)
2.	Decentralised energy	(Rec nr. 5)
3.	Re-appropriate countryside	(Rec nr. 24)
4.	Tools for disabled people	(Rec nr. 2)
4.	European eco-cities	(Rec nr. 9)
6.	Social innovation for ageing society	(Rec nr. 17)
7.	Direct democracy through e-voting	(Rec nr. 12)
8.	Develop effective urban infrastructure	(Rec nr. 26)
9.	Policies towards immigrants and refugees	(Rec nr. 21)
10.	Dignity in the dying process	(Rec nr. 1)
10.	Plants for extreme weather	(Rec nr. 20)

3.5 Experts evaluation and votes

At the end of the expert and stakeholder workshop all participants were asked to give characters to the recommendations within the three criteria. The criteria was 'Novelty', 'Essentiality' and 'Timing' and the participants could give votes from 1-5 indicating the level of e.g. novelty. The evaluation criteria and

meaning of scores are described in Annex 3. Table 6 below is showing what recommendations were evaluated best in the three criteria in all.

Table 6: Expert and stakeholders top ten evaluation of recommendations

1.	Attractive public transportation	(Rec nr. 18)
1.	Innovations in participation	(Rec nr. 16)
3.	European eco-cities	(Rec. nr. 9)
3.	Recycling complex materials	(Rec nr. 11)
5.	Ethics of 'bionic' production	(Rec nr. 8)
6.	Tools for disabled people	(Rec nr. 2)
6.	Decentralised energy	(Rec nr. 5)
6.	Platform for research in future of work	(Rec nr. 6)
6.	Organic CAP	(Rec nr. 10)
6.	Sofia as an eco-model	(Rec nr. 14)

3.6 Comparison of Citizens priorities and experts evaluation

When comparing the citizens priorities of the 30 recommendations and the experts evaluation of the same recommendations the most noticeable point is that the top prioritised recommendation is also the best evaluated (top evaluated equally with another recommendation) by the experts when looking at all three criteria. The recommendation of enhancing the use of public transportation by promoting technical and social innovations is top prioritised by both citizens and experts/stakeholders. Furthermore 4 out of the top 5 recommendations in citizens' priorities are also on the top 10 of the experts' evaluation. This indicates certain coherence between what citizens panels found important and what experts and stakeholders found important.

On the other side it is interesting that some other recommendations top evaluated by experts and stakeholders are not on the citizens top 10 list at all. An example is the recommendation for innovations in citizens participation methods that was top evaluated by the experts and stakeholders, and considered to be the most timely of all recommendations.

In the scheme below there is an overview of the top 10 priorities of the citizens and the top 10 evaluated recommendations of the experts and stakeholders.

Table 7: Citizens versus expert/stakeholders ranking of recommendations

Citizens priorities	Experts priorities
1. Attractive public transportation (R18)	1. Attractive public transportation (R18)
2. Decentralised energy (R5)	1. Innovations in participation (R16)
3. Re-appropriate countryside (R24)	3. European eco-cities (R9)
4. Tools for disabled people (R2)	3. Recycling complex materials (R11)
4. European eco-cities (R9)	5. Ethics of 'bionic' production (R8)
6. Social innovation for ageing society (R17)	6. Tools for disabled people (R2)
7. Direct democracy through e-voting (R12)	6. Decentralised energy (R5)
8. Develop effective urban infrastructure (R26)	6. Platform for research in future of work (R6)

9. Policies towards immigrants and refugees (R21)	6. Organic CAP (R10)
10. Dignity in the dying process (R1)	6. Sofia as an eco-model (R14)
10. Plants for extreme weather (R20)	

3.7 Implications of the recommendations for the EU Framework Programme planning

The 30 recommendations derived from the citizens' visions span a broad range of topics, covering scientific, technical and sociological subjects, and addressing both present as well as future perspectives. One or two other topics such as education may have been mentioned in the original visions but may not have appeared in the final recommendations. However, the range of topics is not as broad as that of FP7, with certain areas such as nuclear power, nanotechnology, and production technologies notably absent.

As might be expected, many of the recommendations were oriented towards matters which citizens encounter in their everyday life, or based on the result of their personal experiences. Most of the topics have a sociological theme as opposed to a natural science or technological one.

The following themes appear to be uppermost in the minds of citizens:

- national identity and social integration at European and global level (R3, R13, R21, R23, R29)
- quality of life in urban and rural areas (R9, R14, R24, R26)
- environment and sustainability (R5, R9, R11, R14, R18, R22)
- futuristic technologies (R4, R7, R19, R28, R30)
- food production, risk assessment and safety (R8, R10, R15, R20)
- people with special needs, old age and death (R1, R2, R17)
- work, flexicurity, work-life balance and retirement (R6, R25)
- citizen participation (R12, R16) calling for developments of mechanisms whereby citizens can participate more directly in communicating with their government and having a say in decisions.

Several of these topics may already be addressed through projects currently funded under FP7, while others perhaps not. A detailed analysis for all 30 recommendations is not contemplated at this point.

3.7.1 Top 10 recommendations

If we take a more in-depth look at the top 10 citizen recommendations, the most striking characteristic is the strong societal focus and humanitarian theme running through them. At first glance, there appears to be an even split between those recommendations with a scientific or technological focus (R2, R5, R20, R26) and others which are founded in societal concerns (R1, R12, R17, R24), while two others (R9, R18) include elements from both camps. However, on closer inspection it transpires that two of the technical recommendations (R2, R26) also have a societal perspective. R2 refers to assistive technology for the benefit of people with special needs, while R26 proposes a concept of technological development to support family life.

A number of recommendations (R2, R5, R18, R20) are already the subject of research in FP7 and little additional action is called for. These recommendations can be interpreted as indicating citizen support for the work currently in progress under the framework programme.

The 10 recommendations are next analysed individually, first presented in Table 8 below, followed by more descriptive presentations.

Table 8: Implications of CIVISTI recommendations in the EU Framework Programme context

Recommendation	Comment	Proposed Action
R1. Humanistic research to explore what dignity during the dying process means to contemporary Europeans.	Probably very little research in this area to date.	To be proposed as a topic for future SSH work programmes.
R2. Tools for disabled people.	Already addressed to some extent both by thematic work programmes and especially by the Ambient Assisted Living joint programme. However, it may be useful to promote greater interaction between research organisations, carers and civil society organisations working with people with special needs.	To be proposed as a topic for future SIS MMLAP action.
R5. Foresight and research to explore sustainable options of decentralized energy production systems and the resolution of energy related conflicts.	There is already considerable research in this area.	An assessment of decentralized energy production and potential energy related conflicts can be proposed for inclusion in the Energy or SSH work programmes.
R9. Optimization of urban space: towards dense European eco-cities.	The subject is included in the Environment work programme but the level of research is rather low and should be stepped up to meet citizens' expectations.	To make a strong recommendation to give additional importance to this topic in the Environment work programme, as well as suggesting the topic as a possible MMLAP for future SIS work programmes.
R12. Increase direct democracy through e-voting	Technology exists but may need further development. Issues of security, audit and transparency are not yet solved.	Electronic voting and technology assessment to be proposed as topics for future ICT work programmes.
R17. Social innovations for aging societies are needed	This topic has not been adequately addressed to date.	To be proposed as a topic for future SSH programme including participative elements.

R18. Promote technical and social innovations that can enhance people's access to and use of public transportation	The topic is already being addressed through CIVITAS initiative and Transport work programmes. Sustained efforts are needed to achieve further progress.	To be proposed as a topic for future SIS MMLAP action.
R20. Select or develop plants and techniques for areas with extreme climate conditions	There has already been some related activity in FP7, but not substantial.	To be proposed as a topic for FAFB work programme.
R24. Go and re-appropriate countryside!	Requires further investigation and foresight studies on mobility, cultural and political life, employment and balance between production and recreation in the countryside.	To be proposed as a topic for future SSH work programmes.
R26. Develop effective urban infrastructures supporting a multigenerational lifestyle	Requires further investigation for ICT and construction infrastructure.	To be proposed as a topic for future SSH and ICT work programmes.

R1. Humanistic research to explore what dignity during the dying process means to contemporary Europeans

It is believed that this subject has not previously been specifically addressed in the framework programme. It may be proposed as a topic for possible inclusion in a future SSH work programme.

R2. Tools for disabled people.

This recommendation is already addressed to some extent both by thematic work programmes and especially by the Ambient Assisted Living joint programme. However, it may be useful to promote greater interaction between research organisations, carers and civil society organisations working with people with special needs in an action along the lines of the Mobilisation and Mutual Learning Action Plans as seen in recent SIS work programmes.

R5. Foresight and research to explore sustainable options of decentralized energy production systems and the resolution of energy related conflicts.

This topic is already the focus of considerable attention and extensive research by the EU and it is not believed that additional action is called for in this area. Citizens emphasise the long-term perspective of this initiative.

R9. Optimization of urban space: towards dense European eco-cities.

The Environment work programme (Area 6.2.1.5 Urban Development) does include an action line dedicated to urban development. However, very little research has been funded in this area.

The CIVISTI results express a strong desire by citizens for concerted action through long-term research and pilot projects with the objective of creating a blueprint for European eco-cities with sustainable waste management, transportation, urban space use and energy usage, and which should be based on significant input from the public.

It is therefore suggested that a strong recommendation be made for additional importance to be given to this topic in the Environment work programme, as well as suggesting the topic as a possible Mobilisation and Mutual Learning Action Plan for future SIS work programmes.

R12. Increase direct democracy through e-voting.

Citizens expressed a keen desire to participate more regularly in national and possibly supranational decision-making. Traditional referenda are very expensive and time-consuming, and are rarely contemplated. Technology for e-voting (direct recording electronic voting) is already in existence but there exist issues of security, audit and transparency. Moreover the cost of holding a referendum using e-voting is still too high to allow regular use. Further research is needed to improve security and bring down costs. The topic should be put forward for possible inclusion in a future ICT work programme.

R17. Social innovations for aging societies are needed.

Research should be undertaken to identify issues and possible solutions relating to the sudden transition from full-time employment to retirement. It is proposed to submit this topic for possible inclusion in a future SSH work programme.

R18. Promote technical and social innovations that can enhance people's access to and use of public transportation.

Most aspects of public transport are already well addressed with specific mention in the Transport work programme, and numerous relevant projects have been funded through the framework programme. These are supplemented by EC CIVITAS initiative which was launched in 2002 to promote cleaner and better transport in cities.

However, the CIVISTI results are a strong indication that the progress achieved so far, although noteworthy, is still far short of what is desired by the public. It is therefore proposed to submit this as a topic for Mobilisation and Mutual Learning Action Plans for future SIS work programmes.

R20. Select or develop plants and techniques for areas with extreme climate conditions.

This topic has already been addressed to some extent through the projects funded under the FP7 KBBE work programme. However, activity in this area is rather limited and it is proposed to submit this recommendation to be considered for inclusion in a future FAFB work programme.

R24. Go and re-appropriate countryside!

The CIVISTI consultations highlighted a public desire to establishing attractive, contemporary life in the countryside. It is proposed to investigate this theme further through an activity funded through the SSH work programme.

R26. Develop effective urban infrastructures supporting a multigenerational lifestyle.

This recommendation revolves about the use of communication and mobile technologies to support multigenerational families through urban design and infrastructural development that provide a friendly environment for large families and their changing needs during familial life cycles. It is proposed to investigate this theme further through an activity funded through the SSH work programme.

Chapter 4 Advancing CIVISTI

4.1 What is unique about CIVISTI

CIVISTI was an experimental project. From the beginning a high risk was taken in the CIVISTI project, first of all because this kind of methodology had never been tried before. It also meant that the activities of this project claimed skills and procedural routines which the citizens are not used to. And second because this new, innovative and experimental process and method was developed during the project, so to say, CIVISTI has been a “learning-by-doing” process. Therefore the CIVISTI project included the risk of not succeeding.

In the end though it is clear that CIVISTI did succeed. CIVISTI produced the results that were targeted by making a list of future S&T issues as well as recommendations for policy options related to future European research policy and base this on a novel and innovative methodology of involving citizens as well as experts and stakeholders. Therefore the CIVISTI consortium was very happy to see the positive reactions from as well academia as policy level when the results were presented at a Policy Workshop in Brussels in January 2011.

The idea of citizen involvement in the foresight area is not new, but actually involving citizens in forward looking is the exception rather than the norm. As described in the beginning of this report – and illustrated in Figure 1 CIVISTI is supplementing other forward looking activities by doing forward looking based strongly on the demand side. This strong focus on the societal aspects of forward looking (based on citizens visions) is not seen in other types of forward looking activities.

Another unique aspect of CIVISTI is that it is a very cost-effective approach. This could be seen as a quit simple point, but in praxis it is important that the costs of carrying out a CIVISTI exercise is limited, which makes it a forward looking activity that can indeed be implemented as a more standard praxis.

While citizen consultations in earlier foresight studies and forward looking activities have stopped with letting citizens express their visions or opinions in relation to a subject CIVISTI takes the next step as well. Normally the translation of citizens’ visions or input into concrete actions is done by experts and/or policy makers in the dark after the citizen consultation process is finished. In CIVISTI this translation is part of the process and thereby a lot of transparency is added to the process. Furthermore the validation part of CIVISTI is unique – the idea of overcoming the translation problem by giving back the recommendations to citizens is very novel and innovative. This iteration process adds empowerment of citizens and authenticity towards the visions and the citizen consultation process.

One of the surprising experiences from CIVISTI is European level of focus in citizens’ thinking. This indicates that the goal of European citizenship is not too far away. If there is the intention and will, it is definitely possible to engage citizens on a European level.

In many ways CIVISTI calls for continuity. On the one hand the process of involving citizens in defining future policies and European agenda should run again and maybe even as a standard. On the other hand there are many lessons learned from CIVISTI that could be explored in future similar exercises. Some of the most important lessons will be described in the next part.

4.2 What are the critical points (lessons learned)

Developing and performing the CIVISTI methodology has been very educational experience. This also means that there are important lessons to take into account when performing similar exercises in the future. First important lesson is about keeping the attention of the citizen panels. In CIVISTI we experienced a

considerable drop out of citizens from the panels between the first and the second citizen consultation. Despite efforts of keeping the citizens connected to the project and continue information about the progress some citizens seem to lose the engagement in the process. The CIVISTI consortium believes that the main reason for this is the long time period between the two consultations. This should easily be overcome in future exercises since the long time span between the consultations in many ways was due to the methodological development process. In other words not having to develop the methodology and process will make it possible to speed up the process significantly.

Another challenge was related to the great amount of translation in the process. For citizens and experts from different countries to be able to discuss and develop visions and recommendations there has to be a lot of translation in the process. Translation from national language to English and back and also translation of meaning from visions to recommendations and back to citizens. All this translation is very challenging and it is impossible not to lose parts of the original meaning in the process. It is also very difficult to overcome this challenge, but one way forward could be additional elements with (face to face) communication between citizens and experts/stakeholders.

The broad scope of CIVISTI gave visions and recommendations with very high diversity. This is not in itself a problem, but it makes the process much more challenging. Therefore experimenting with more thematically focused CIVISTI processes could be very interesting and lead to some very concrete citizens-based results.

All in all there are many important lessons learned from the CIVISTI project and these lessons could be turned into interesting experiments with future CIVISTI processes that we next delineate.

4.3 CIVISTI in the future

The consortium prospects several ways of exploring the experience of CIVISTI in the future. First of all there could be a number of ways to use the methodology as it is. This could e.g. be:

- Implementing the CIVISTI method as a standard (easy way of getting input for FPs work programmes etc.). This could be incorporated as a standard part of working groups / hearing processes around research programmes
- CIVISTI processes in thematically areas for defining future research issues and policies
- CIVISTI used in the business area to define business opportunities and areas
- CIVISTI processes on national/regional level
- CIVISTI processes with focus the innovation area creating innovation ideas and recommendations for innovation policies

Secondly the CIVISTI method could be the ground for further experiments with citizen participation in forward looking. This could be e.g.:

- Experimenting with a 'Fast track' CIVISTI model where the whole process is carried out in a few months (or maybe even in an intensive one-week CIVISTI workshop)
- Experiments with more targeted method development (fast track on national level, synthesis on European level)
- Experiments with different presentation of visions and recommendations – different vision creation process (more creative and flexible, more visual)
- Experiments with having the process make fewer visions and better elaborated recommendations
- Experiments with focus on comparison of different social and/or cultural background

Considering the successful experience of the CIVISTI project, the consortium wishes that the results of this project will be widely used in the EU framework planning context and beyond.

Chapter 5 Annexes

5.1 Annex 1 – Citizens' validation of recommendations

(Yellow indicates that citizens of this country was not allowed to vote on recommendations derived from their own visions)

1. Humanistic research to explore what dignity during the dying process means to contemporary Europeans.

Participatory research (anthropological) of an aging population in modern societies for developing spaces, where citizens can discuss and develop a community around their concerns about dignity during the dying process.

Corresponding vision: 7. Being allowed to die in dignity, a companionship of dying in a network of family and relatives.

The recommendation is also related to:

Vision 11: The death passport.

Validation of Recommendation 1 (R1) by Austrian citizen panel

This Recommendation reflects fully or at least weakly the related visions (7 and 11). For one participant it does not reflect the visions at all. The recommendation is regarded to be partly effective for the realization of the visions. The panel considered the recommendation as desirable (at least partly).

Prioritization by other six panels

R1. Research on dying in dignity	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
		4	6	5	3	3	2	23

2. Tools for disabled people.

Investigating the state of the art in the development of tools for disabled people and older adults. Based on the introduction of a balanced multidisciplinary approach to the issue by involving experts from technological and social sciences.

Corresponding vision: 9. Disabled people as fully valuable members of the society.

Validation of Recommendation 2 (R2) by Austrian citizen panel

The panel mentioned that Recommendation 2 reflects strongly (at least partly) the related vision (Nr. 9) The opinions on effectiveness varied considerably. The recommendation is regarded in Austrian panel as partly desirable.

Prioritization by other six panels

R2. Tools for disabled people	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
		7	12	4	3	3	4	33

3. European TV – unity in diversity. A permanent lab for experimentation on building and expressing identity (IdenTVLab).

Establishing TV that contributes to the creation of different forms of European identity and to the cooperation of diverse cultures.

Corresponding vision: 10. TV for the creation of a European identity.

Validation of Recommendation 3 (R3) by Austrian citizen panel

Recommendation 3 reflects strongly (at least weakly) the related vision (Nr. 10). The evaluation of the effectiveness of this recommendation for making the vision come true again varies considerably between panel members. The recommendation is partly desirable. However, the strong critic was that the recommendation focuses on children and youth although the original vision focused on adults.

Prioritization by other six panels

	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
R3. European TV		0	2	1	6	4	0	13

4. Plug and play communication: development of standards for smart gadgets.

To support the vision of a smart society and reduce the risk of wasting resources standardisation of smart gadgets are needed. Standardisation shall ensure a minimum standard of security and privacy and that smart gadgets can communicate with each other regardless brand or type.

Corresponding vision: 12. Smart society.

Validation of Recommendation 4 (R4) by Belgian citizen panel

The majority of the citizens thought that the recommendation was partly to completely loyal to the vision. The recommendation was received by most of the citizens as an essential instrument to be able to install a well functioning, safe and ethical smart environment. The citizens found the recommendation highly to partly desirable.

Prioritization by other six panels

	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
R4. Standards for smart gadgets	1		1	4	5	2	2	15

5. Foresight and research to explore sustainable options of decentralized energy production systems and the resolution of energy related conflicts.

Implement foresight studies* and research in the governance challenges related to different scales and levels of energy production and distribution in order to develop new options for decentralised, sustainable energy production and to avoid future conflicts.

Corresponding vision: 13. Endless energy (independence of fossil fuels. Local and environmentally friendly production of energy).

Validation of Recommendation 5 (R5) by Belgian citizen panel

With regard to the criterion faithfulness, the citizens could roughly be divided in two groups. One half thought that the recommendation was very loyal to the vision while the other half thought the opposite. The recommendation is considered as the most important instrument or one of the important instruments to make the vision come true. The recommendation is partly or highly desirable: there is an urgent need for an investigation on how decentralized energy production can be organized and a need for regulation at a European level.

Prioritization by other six panels

	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
R5. Foresight on decentralized energy	3		3	7	7	9	7	36

6. A 'Platform of the future of work' at a local, regional and global level should be considered within upcoming calls of the SSH program*.

Establish a platform within the upcoming calls in the SSH program* about work at local, regional and global level. Including research about redefining work, 'flexicurity'*, work-life balance, basic income, new jobs, and social responsibility. This platform should involve citizen participation.

Corresponding vision: 17. Where there is a will, there is work (Employment for all. A vision about the balance between work and private life, voluntary work and full employment).

Validation of Recommendation 6 (R6) by Belgian citizen panel

The majority of the citizens acknowledges that the recommendation reflects the vision very well and is innovative because of the intention to research how voluntary work can be rewarded in the future. The majority thought it was a good idea to perform a thorough study first before implementing any measures. For some citizens, the recommendation is desirable because there is a need for more flexible ways of working and a transparent regulation. Others would like to see the recommendation opened up for a larger group of people. Some are convinced that this recommendation has only a low priority and that there is a danger that voluntary work will disappear as such.

Prioritization by other six panels

R6. Platform for the future of work	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	4		3	4	5	4	0	20

7. Stimulate research to expand/augment the human sensory capabilities.

Promote cutting-edge research on bionics and machine-human interface to expanding human sensory capabilities. Main focus on the technological prospective but also focus on the knowledge generated by the recent studies with interdisciplinary research in psychology, ethics and philosophy.

Corresponding vision: 19. Make me human! (A dream about health and wellness, technology and ethics).

Validation of Recommendation 7 (R7) by Belgian citizen panel

A minority of the participants recognize the vision in the recommendation but agrees that the recommendation takes the application of bionics much further than the vision (some say in a frightening way). The technology that will be developed through the recommendation might also help disabled people and in that way will help the vision to come true. However, some fear the creation of bionic “monsters” and think that it would be better to make an ethical/psychological approach of the technology first

Prioritization by other six panels

R7. Augmented human sensory capabilities	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2		5	1	1	1	3	13

8. Enhance the ethical reflection on science based organic and “bionic” production.

The ethical aspects of development of radically new genetic and technological treatments should be systematically approached by ethical research councils and advisory bodies at a European level. Ethical interdisciplinary research programmes should be designed.

Corresponding vision: 19. Make me human! (A dream about health and wellness, technology and ethics).

Validation of Recommendation 8 (R8) by Belgian citizen panel

Most of the participants considered the recommendation as a very important aspect of the vision. Most think that this recommendation will be the most important or one of the important instruments to realise the vision. Some however disagree and say that the study also need to result in clear regulations to ensure the right use of the technology as meant in the vision. This recommendation was designated highly desirable by an impressive majority of the participants.

Proritization by other six panels

R8. Ethics of “bionic” production	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	1		2	3	3	3	1	13

9. Optimization of urban space: towards dense European eco-cities

Initiate pilot projects creating eco-cities in Europe with sustainable waste management, transportation, urban space use and energy usage. It should be based on citizen participation.

Derived from vision:

Validation of Recommendation 9 (R9) by Bulgarian citizen panel

Overall, the ideas of the vision had been properly understood by the experts, however, there was no common opinion regarding the citizens participation in the creation of eco-cities. On one hand, citizens' participation ensures the democratic decision-making and reflects the visions of the people in terms of their dream eco-city, but on the other hand it allows non-experts to participate into the decision-making process, which is considered a negative aspect, since the 'eco' field needs specific expertise.

The mark for effectiveness is very high, but in spite of that, most participants expressed the view that the construction and development of an eco-city is such a long-term process that a lot of potential risks might jeopardize the implementation of the idea.

The overall view is that the idea for an eco-city could be implemented successfully in old EU member states, but it is not feasible in Bulgaria at the moment.

Prioritization by other six panels

R9. Optimization of urban space	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	4	6		4	6	7	6	33

10. From CAP to European Agricultural policy: back to a gardening tradition.

Establish Foresight studies and comparative analyses on the agricultural potentials of the different regions in Europe with the purpose of developing policies for re-establishing a gardening tradition in Europe that would deliver high quality agricultural products.

Derived from vision: 21. Bulgaria, the garden of Europe.

Validation of Recommendation 10 (R10) by Bulgarian citizen panel

Part of the participants thought that the recommendation was in compliance with the vision and part of them believed that it could lead to some negative results like GMOs.

The common view was that the recommendation would not lead to the realisation of the vision.

The recommendation is partly applicable in the long-term, because state policy might differ from European policy.

Prioritization by other six panels

R10. From CAP to gardening tradition	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	5		3	1	5	2	18

11. Research to overcome the tension between the use of highly complex materials in products and their recyclability.

Establish research in new materials that deliver technical performance while at the same time are easily recyclable, and research in new processes that allow for the recycling or reuse of high performance materials.

Derived from vision: 22. Eco-techno future.

Validation of Recommendation 11 (R11) by Bulgarian citizen panel

The recommendation reflects only one element of the vision - the element of recycling.

Potential conflict of interest might arise between producers of goods and supporters of recycling.

Potential conflict of interest might arise between producers and supporters of recycling.

Prioritization by other six panels

R11. Recycling of complex materials	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	0	1		4	6	1	3	15

12. Increase direct democracy through e-voting.

Citizens should be involved more often and easily in parliamentary elections as well as in special decisions affecting the development of the society through e-voting for

Derived from vision: 25. Link among the generations, space and time.

Validation of Recommendation 12 (R12) by Bulgarian citizen panel

This is the recommendation with the lowest scores. The main reason for the low results is the fact that only one unimportant element of the vision (e-voting) was taken into consideration by the experts and was developed in the recommendation. Other elements, for example high speed transport, are not considered at all.

Expert decisions must be made by experts, not by ordinary people through universal suffrage.

The measure is applicable, but it has some dangerous aspects if used in undemocratic societies, because the vote could be easily manipulated.

Prioritization by other six panels

R12. Direct democracy through e-voting	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	4	6		1	5	7	5	28

13. Recognition policy.

The development of a new research area that is called the ‘Politics of Recognition’ and that focuses on promoting the inherent uniqueness of an area, country, region, values, traditions etc. The research should include participatory process/action research.

Derived from vision: 26. One Bulgaria, one Europe, one world – one whole.

Validation of Recommendation 13 (R13) by Bulgarian citizen panel

Some participants in the consultation panel thought that the recommendation was partial, while others considered that it complemented the vision.

Totally different opinions were expressed regarding the effectiveness of the recommendation. Part of the citizens considers that it is very concrete, while others say it is not concrete at all. The opposing views are due to the fact that recognition policy is a new area and it is hard to assess its contribution towards the realisation of the vision.

There are moral arguments related to the usage of scientific methods for solving social problems.

Prioritization by other six panels

R13. Recognition policy	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	1	2		3	1	1	0	8

14. Develop Sofia into an eco-model for European capitals.

Establishment of an interdisciplinary “Eco City” European programme with significant funding for supporting the transition of European cities to eco-models and the exchange of good practices.

Derived from vision: 27. Sofia – the green capital.

Validation of Recommendation 14 (R14) by Bulgarian citizen panel

Clearly presented aims and ideas.

The realisation of the vision is possible only in case concrete measures for its implementation are taken, however, most citizens were pessimistic that this is going to happen in the near future. The vision is feasible, but hard to implement.

Proritization by other six panels

R14. Develop Sofia into an eco-city model	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	0	0		0	3	1	0	4

15. Agreements with farmers organizations on avoiding antibiotics and hormones.

Implement research on ethical, legal and philosophical status of animals in FP8. Develop agreements on avoiding antibiotics and hormones to be implemented at the local or regional level but that are harmonized at the European level.

Derived from vision: 31. Responsible animal production in the EU.

Validation of Recommendation 15 (R15) by Danish citizen panel

The recommendation is loyal to the vision, because the experts have weighted ethical considerations to animal welfare as very important, and because they recommend a cross-disciplinary research programme in this field. They also want to have public debate on animal welfare. On the other hand the recommendation is not absolutely faithful to the vision, because there is no focus on the quality of animal products, and several concrete proposals from the vision are not included, e.g. illness and health of animals and humans.

The recommendation is seen as effective, because the experts recommend starting these activities as soon as possible. On the other hand it is not validated as absolutely effective, because it recommends voluntary agreements and private control. Efficient control, according to the panel must walk on two legs: both private and public – both voluntary and prescribed.

The recommendation is highly desirable, because there is too much poor animal welfare and too many animal products of poor quality. – One argument against desirability, however, is this doubt of the panel members: will it be possible to cope with the demand for food products, if the products shall comply with strong demands on animal ethics and animal welfare?

Prioritization by other six panels

R15. Reduced antibiotics in agriculture	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	5	3	5		2	6	0	21

16. Innovative participatory structures.

Implement innovative experiments with citizen participation. Large scale explorative action research based on trying new methodologies and including new communication technologies for citizens political communication debates.

Derived from vision: 32: EU for the people.

The recommendation is also related to:

vision 36: Mass communication replaced by masses communicating (by providing communication technologies to facilitate the participatory structures)

vision 42: Europe TV (by providing a medium for these methods)

Validation of Recommendation 16 (R16) by Danish citizen panel

This recommendation is seen as quite faithful to the original vision, because it keeps focusing on the core of the vision and even develops it into a better idea.. It is also positive that the principle of subsidiarity is central in the recommendation, which is based on local relationships and especially on linking local identity with European identity. The recommendation understands citizen participation as a necessary and continuous process and its headline is good and precise.

The recommendation is seen as very effective, if importance is attached to the following elements when realizing the vision:

- use information technologies and virtual tools of communication
- realising must include democratic decision making and voting in EU
- the principle of subsidiarity must be maintained in order to support local and decentralized developments and at the same time
- the idea of a common “EU culture” must be supported and developed

The panel did not mention any negative arguments against this positive validation of the two criteria. The panel’s finds the recommendation highly desirable because of the local anchoring, because more people will engage and take part in democracy, and because citizens will be heard. This recommendation can contribute to the development of EU as a political actor with a holistic approach, opposite to the current situation where every national state takes care of their own interests, according to the panel. The vision about citizen participation should be seen as a “mother vision”, e.g. a precondition for realising other visions for EU. Action research, living labs and use and development of other methods for citizen participation are therefore also preconditions to realising this vision.

Prioritization by other six panels

R16. Innovative participative structures	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	5	2		4	1	1	15

17. Social innovations for aging societies are needed.

Research should be done to investigate the effect that a transition period between full-employment and full-retirement would have on the labour market. The aim of this would be to re-evaluate the rigid retirement age/pension system that currently characterizes pension policy.

Derived from vision: 33. The ageing man/woman is a resource.

The recommendation is also related to:

vision17: Where there is a will, there is work.

vision50: Support for starting and maintaining a family - and the EU.

Validation of Recommendation 17 (R17) by Danish citizen panel

The recommendation is seen as faithful, because both recommendation and vision view the idea of a period of transition between work and pension as necessary and important. And because the recommendation is stressing the access to leisure activities for the senior group as important.

But the recommendation is not seen as faithful to the vision’s conception of man. The vision is a society with a new conception of man, where everybody, also elderly persons, is seen as a resource to society. The recommendation is focusing too narrowly on the labour market, and sees alone a possible longer connection with the labour market as the element, which can turn the ageing population into a resource for society. Furthermore the recommendation does not mention progress in medical research and living arrangements, which are important preconditions for realising the vision.

It is validated as effective because the conception of ageing is understood as a concept about transitions of life - and periods of transition are seen as something we (society) must deal with in order to open for a variety of possibilities of life. – On the other hand the recommendation may become an obstacle to realising the vision, because focus has been changed from the ageing person as a resource to society to the ageing person as a problem to society. The view of the recommendation is that the ageing person is a problem for society, which we must try to solve by implementing new initiatives in the labour market. According to the panel this will not contribute to realizing the vision.

The panel finds the recommendation desirable because it can give better possibilities for transition from work to pension in some countries and can contribute to a broader and more positive conception of the resources, which can be found in the ageing population. But it is not desirable as it is presented now, because

of a too narrow focus on labour market and economy, and because it will not contribute to necessary changes in current negative attitudes to the ageing population and therefore will not stop age discrimination.

Proritization by other six panels

R17. Social innovations for aging societies	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	5	6	7		7	4	1	30

18. Promote technical and social innovations that can enhance people's access to and use of public transportation.

Promote technical and social innovations to improve people's access to transportation schemes, through an intelligent and interactive network. This network should cover and integrate both local and trans-national travel in a flexible, user friendly and environmentally sound way.

Derived from vision: 35. Environmentally sound transportation throughout Europe.

Validation of Recommendation 18 (R18) by Danish citizen panel

The panel finds the recommendation very faithful to the vision. The recommendation even goes beyond the vision and makes it better. But faithfulness is reduced by the fact that this recommendation does not adapt well to a society, which already has ideas of sustainable transportation. For such countries it is not sufficiently innovative. The original vision was more naïve (or visionary) than the very realistic focus of this recommendation.

The logic of the recommendation is very effective and will realize the vision in a positive way. Furthermore the recommendation calls for research in the field of sustainable transportation. But it is not efficient enough for societies, which are already thinking in sustainable transportation. For such societies it is not ambitious enough. It deals with problems, which we have to solve, no matter what, and with initiatives, which currently are going on. The recommendation does not deal with solving the whole problem of sustainable transportation. Especially the panel is missing recommendations about how to change people's attitudes to transportation, and a discussion about how transportation can be better adapted to human needs and to a new relationship between leisure time and work.

The panel finds the recommendation very desirable, because it is useful for the climate and can contribute to solving of congestion problems. As transportation influences many fields of life realizing of the recommendation can be useful to many of such fields (leisure time/work, animal welfare, environment in its broadest sense etc.) Therefore the recommendation is necessary. A couple of critical comments mention that the recommendation does not focus on a necessary adaptation of transportation to human needs. And it also does not mention necessary of changes of attitudes. Therefore the panel would have liked the recommendation to be broader.

Prioritization by other six panels

R18. Attractive public transportation	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	3	4	12		8	6	6	39

19. Develop avatars that are able to act as a remote physical representation of myself.

Start research on the many aspects of creating avatars, including research in brain-machine interface, technical research, research in legal and insurance issues and research in social consequences.

Derived from vision: 36. Mass communication by masses communicating.

Validation of Recommendation 19 (R19) by Danish citizen panel

There is a certain relationship and therefore a little faithfulness to the vision, because the recommendation is working with an aspect of artificial intelligence, which can help to overcome obstacles to communication. - But it is not faithful to introduce the avatar, which is not at all a part of the vision. The idea of an avatar produces a basically different image of man, and it binds thoughts from the vision in a false direction. The

ideas on communication from the vision are not included. Therefore the part on mutual learning and the democracy aspect has been lost.

The panel is very disappointed with the avatar and finds that the experts have been focused too much on the idea of presence, independent of time and place. Furthermore the panel is afraid that the avatar will make people think of a society, where man is physically isolated. Therefore the recommendation is seen as very much in the periphery of the vision.

The recommendation can be seen as an effective tool for realizing the vision, because it implies an idea of closeness, which has not been known before. But still, it does not include the most important ideas from the vision and therefore it is not going to realize the vision effectively. The recommendation is ambiguous. There is too much focus on one sentence about a farmer taking care of the sheep of another - far away - farmer – too much focus on time travelling – and on presence, which is independent of time and location. Especially the group finds the paragraph on timing of bad quality, because it gives rise to wrong associations. The recommendation is desirable because the development in the field of artificial intelligence may lead to many good things in society. And it is positive that ethical aspects are dealt with. But it is not desirable because the headline and the paragraph on timing give rise to misleading associations. The focus on time travelling – the possibility of presence everywhere – is problematic. Realizing of the avatar is not desirable to this panel, as it includes a negative conception of man.

Prioritization by other six panels

R19. Personal presence through avatars	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	1	2	1		0	2	2	8

20. Select or develop plants and techniques for areas with extreme climate conditions.

Increased research, development and use of plants adapted to extreme wet and dry areas and capable of resisting extreme climate conditions.

Derived from vision: 39. Food production in the EU is sustainable.

Validation of Recommendation 20 (R20) by Danish citizen panel

The recommendation is faithful to the vision because it includes many elements from the vision and the attitude to these elements is the same as in the vision. But faithfulness is reduced by the fact that these single elements are taken out of context and developed into technical tools, which are supposed to accomplish specific tasks. It does not appear that the vision is a mutually dependent whole, and the recommendation does not deal with the core of the vision which is: change of citizens' behaviour, economic sustainability in agriculture and preservation of nature.

The recommendation can be validated as an effective tool to realize the vision, because it includes elements from the vision, which are important to realizing it. But it is not effective because it does not include change of citizens' behaviour, revolutionizing of agriculture and preservation of wild nature. Without holistic conceptualization of the vision the recommendation is running the risk to end in something quite contrary to the vision.

The recommendation is desirable because it is positive to do something in this field: use of pesticides has to be reduced – GMO is necessary to avoid pesticides and to allow agriculture in less useable areas. And it is also desirable, because it has a focus on adapting cultivation to a variety of climatic conditions.

The recommendation is not desirable because it does not see agriculture holistically in a broad perspective. It is focusing too specifically on some of the tools (the plants, the technical stuff, the instruments). It is difficult to see if the objective is profit or sustainability. GMO is not the solution, but only a step on the road to economic sustainability.

Prioritization by other six panels

R20. Plants for extreme climate conditions	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	5	3		5	3	5	23

21. Policies towards immigrants and refugees appreciation.

Policies towards immigrants and refugees should become less threat-focused. A new immigrant positive approach to educative, cultural, immigration and media policies is needed for changing the mental framework of citizens as well as bureaucracy towards the appreciation of immigrants.

Derived from vision: 40. Strengthening of language and culture.

Validation of Recommendation 21 (R21) by Finnish citizen panel

The citizens considered the recommendation to be too abstract and too bureaucratic. Unlike the original vision, the recommendation overly emphasizes threats related to the immigration phenomenon. The recommendation does not take into account all the dimensions of the vision. On the other hand, the originally positive tone of the vision is reflected in the recommendation.

The recommendation was not considered very effective. The recommendation painted a too negative image of the immigration process: as a too slow process to be actively governed by political interventions. The recommendation did not contain any concrete tools to realize the vision.

The recommendation was regarded quite desirable. Something must be done, because immigration increases in any case, and the recommendation indicates appropriate ways to go. On the other hand, the recommendation remains at a very general level and resembles typical political jargon.

Prioritization by other six panels

R21. Policies for immigrants appreciation	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	5	4	10	4		1	0	24

22. Foster the use of biorefineries.

Implement a research program on biorefineries that are able to produce natural based, biodegradable chemicals that can replace fossil-based chemicals, both on the European and national level, with focus on the interplay between local and international biorefineries.

Derived from vision: 44. The worst environmental threats have been beaten.

Validation of Recommendation 22 (R22) by Finnish citizen panel

Recommendation was assessed rather faithful to the original vision. Still the citizens were quite critical in their comments. The recommendation was considered to describe only a part of the vision. It was considered to be a good starting point, but its means are based on the present, not on the future. It was also condemned for forgetting general public education and awareness raising of citizens and corporations, and therefore considered unable to affect their actions or behaviour. The recommendation was also blamed for losing the original vision's emphasis on individual responsibility, and limiting only to promotion of use of biorefineries.

The recommendation was assessed quite effective. It was acknowledged that it allows to take into account local contexts, and that it is pragmatic, concrete and feasible. On the other hand, the recommendation was criticized for being not sufficient and missing important dimensions and covering only a part of the vision. It was thought that the recommendation should be richer and more ambitious.

The recommendation was deemed very desirable. It was thought to focus on an extremely important issue and provide a necessary step to solve the waste problem, even if in the future there might be also another solutions to the problem. The recommendation was also acknowledged for its adaptability and flexibility. It was seen as a good starting point, and since it does not exclude other options, it can be developed alongside with other solutions.

Prioritization by other six panels

R22. Foster the use of biorefineries	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	0	5	5		3	2	17

23. Project for Finnish best practices to be disseminated and used in other countries.

Finland's success in innovation should be presented by Finnish science and technology policy makers, while other EU countries comment on it, identify its weak points, suggest complementary and/or alternative solutions.

Derived from vision: 45. Finland as a pioneer of innovations.

Validation of Recommendation 23 (R23) by Finnish citizen panel

The recommendation was assessed rather faithful to the original vision. It was acknowledged for including the elements of interactivity and change of ideas from the original vision. The citizens welcomed the notion of systematic research on innovation strategies as a good idea. On the other hand, the citizens were disappointed about the neglect of fairness and developing countries perspectives that were salient in the original vision but reduced to EU competition policies issues in the recommendation. They also complained that the recommendation is mainly marketing information and does not adequately bring out concrete means or instruments for implementation.

The recommendation's effectiveness was deemed average. It was thought to have a sound basis, because Finland is innovative and can act as an example. It was seen that to come true, the recommendation would require stability and credibility from the Finnish innovation policy. The recommendation was criticized for totally neglecting the perspective of developing countries.

The recommendation was assessed quite desirable, because it was seen that the exchange of ideas would create new practices and the facilitation of innovation policies would advance the common good in the whole EU. An EU status (not national) has to be looked for. The recommendation was criticized for reflecting only a part of the vision and lacking concreteness.

Prioritization by other six panels

R23. Finnish innovation model examined	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	0	2	5	1		1	2	11

24. Go and re-appropriate countryside!

Foresight studies should be conducted to develop new visions of the future for establishing attractive, contemporary life in the countryside. Foresight studies should include mobility, cultural and political life, employment and balance between production and recreation in the countryside.

Derived from vision: 49. Go countryside!

Validation of Recommendation 24 (R24) by Finnish citizen panel

Recommendation 24 was assessed as the most faithful of the four recommendations. The citizens praised the recommendation for succeeding in catching the vision. They saw that the idea of the vision was there, but some concreteness is still missing. The recommendation was also criticized for inadequate goals.

Recommendation 24 was also assessed quite effective. It was seen as a good starting point for an important development, and thanked for its concrete ideas and suggestions for research and development actions and projects. It was also acknowledged for its versatility, but criticized for lacking concreteness.

Recommendation 24 was deemed also quite desirable, as it was seen essential for whole Europe.

Simultaneously, it was reminded that good urban living must be developed, too, and that unnecessary juxtaposition between countryside and cities must be avoided.

Prioritization by other six panels

R24. Re-appropriation of countryside	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	4	0	13	3		10	4	34

25. European integrated policies on sharing work.

The need for new ways of working demands European level integrated policies on new models of work and employment. New integrated European models of work should be based on interdisciplinary research and overview of existing international studies of different work models.

Corresponding vision: 53. A happy day – Tuesday, 16th of April 2045.

Validation of Recommendation 25 (R25) by Hungarian citizen panel

Participants mentioned among the most important arguments for faithfulness that the recommendation dealt with the role of the family and family models, it asked for research on new models of lifestyle. They also appreciated the demand for new interpretation and distribution of work, and social solidarity. Regarding effectiveness, as the recommendation gives important role to mental development, solidarity, leisure time, and lifestyles, it would help multigenerational families to live together, have personal and familial harmony, and would help the families to have a decent standard of living.

However, citizens mentioned some examples about the recommendation for not being loyal to the vision. Some parts were missing from the recommendation or did not get enough emphasis such as shorter working time, prevention and healthy lifestyle, and the role of multigenerational family model in looking after old people. As a critical comment on effectiveness, they would like to see more real models than just spending money on research done in libraries.

This recommendation was very desirable for the people, although, they formulated some criticism when they discussed it in the group. It helps to eliminate discrimination on the labour market against families with small children or old people. As the EU has more members, it becomes a more and more diverse community and it would be worth to modify or control the trends in our societies. Although, they missed research on construction to make appropriate buildings for families and the issue of education, healthy food, and health care.

Prioritization by other six panels

R25. Policies for sharing work	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	3	2	5	2	6		2	20

26. Develop effective urban infrastructures supporting a multigenerational lifestyle.

Support the development of communication and mobile technologies that support multigenerational families. Support urban design and infrastructural development that provide a friendly environment for large families and their changing needs during familial life cycles.

Corresponding vision: 56. Traditional, multigenerational family model in the EU.

Validation of Recommendation 26 (R26) by Hungarian citizen panel

The most important arguments for faithfulness were the development of research and education, the friendly environment, and the emphasis on the role of old people. They also appreciated very much that the recommendation helps to sustain the multigenerational family model through the development of communication technologies and infrastructure and that it tries to make the environment more humanistic. About effectiveness, they thought it would help to change our lifestyle which is important in an aging society. It makes possible to spend the money and share the costs more efficiently and it also offers a more humanistic world. It would make family life more harmonious with work and it is also important that it handles the issue on EU level.

Some criticism was formulated as well. They would have preferred a recommendation that helps real and not only virtual communication between people and they did not feel that modern communication and mobile technologies played an important role in the vision. They also missed the development of the countryside and the role of some social institutions such as the church, religion, and ethics. They also mentioned that it would be impossible to reach this as family models are diverse in Europe. Regarding effectiveness, citizens

cooperate governance	1	4	5	2	3		3	18
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28. Worldwide collaboration on space technology.

Create popular support for worldwide research cooperation in the form of a new mega-programme along the lines of the space programme in the 1960s and to ensure the democratic way of the process. Funded internationally with the overall objective of ensuring the longer term survival of human culture when the world is burned out.

Corresponding vision: 60. Outer space exploration for future solution.

Validation of Recommendation 28 (R28) by Maltese citizen panel

Some found the recommendation faithful to the vision, while most found it to be only partly so. One participant remarked that the recommendation reflects only part of the vision, but this was a positive thing since the vision was too far-fetched to be credible. Most of the participants were in favour of the recommendation in principle, but agreed that it would be such an expensive undertaking that it would not be possible to justify allocating the required resources to such a project.

Prioritization by other six panels

R28. Global space technology project	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	3	3	2	4	5		19

Prioritization by expert and stakeholder workshop

The recommendation was awarded a high rating by the expert panel as being innovative, but was not highly rated on essentiality and timing.

29. Project to explore global governance.

Explore conditions for trans-national governance working for global justice and peace. The 8th Framework Programme* should begin with educational and exchange programmes for creating world citizenship identity.

Corresponding vision: 63. A brighter future – or just a dream?

Validation of Recommendation 29 (R29) by Maltese citizen panel

There was unanimous agreement that the recommendation faithfully reflected the original vision. However, there were concerns that the recommendation was vague, and a more detailed and specific recommendation should have been articulated by the experts. Also, the original vision was expressed from a more emotional perspective. All participants agreed with the concept of transnational governance, while highlighting the importance of maintaining existing cultural diversity.

Prioritization by other six panels

R29. Global governance research	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	2	1	2	1	4	4		14

Prioritization by expert and stakeholder workshop

The recommendation was not highly rated by the expert panel on importance, but not highly rated on essentiality and timing.

30. Stimulate research on human-machine interfaces.

New interfaces between humans and machines need to be developed to allow for a broader perception of sensory information. This raises a lot of technical, but also societal and ethical (health and safety) issues to be examined.

Corresponding vision: 69. Natural access to ICT everywhere!

Validation of Recommendation 30 (R30) by Maltese citizen panel

Some of the participants expressed difficulty in finding a meaningful interpretation of the recommendation due to the use of the phrase ‘natural access to ICT services’, and could not understand what the word ‘natural’ meant in this context. In spite of this, there was general agreement that the vision and the recommendations are quite similar in concept, although the recommendation is more limited in scope than the vision. Most of the participants believe that the recommendation it is highly desirable and will lead to significant benefits for society in general, especially for those with special needs.

Prioritization by other six panels

R30. Human-machine interface research	Austria	Belgium	Bulgaria	Denmark	Finland	Hungary	Malta	Sum
	3	2	1	2	3	1		12

Prioritization by expert and stakeholder workshop

The recommendation was not awarded a high rating by the expert panel on any of the criteria.

5.2 Annex 2 - Full voting result

Citizens' prioritisation of experts' recommendations

	Austria	Finland	Hungary	Denmark	Malta	Belgium	Bulgaria	All together
Rec nr 1		3	3	5	2	4	6	23
Rec nr 2		3	3	4	4	7	12	33
Rec nr 3		6	4	1	0	0	2	13
Rec nr 4	1	5	2	4	2		1	15
Rec nr 5	3	7	9	7	7		3	36
Rec nr 6	4	5	4	4	0		3	20
Rec nr 7	2	1	1	1	3		5	13
Rec nr 8	1	3	3	3	1		2	13
Rec nr 9	4	6	7	4	6	6		33
Rec nr 10	2	1	5	3	2	5		18
Rec nr 11	0	6	1	4	3	1		15
Rec nr 12	4	5	7	1	5	6		28
Rec nr 13	1	1	1	3	0	2		8
Rec nr 14	0	3	1	0	0	0		4
Rec nr 15	5	2	6		0	3	5	21
Rec nr 16	2	4	1		1	5	2	15
Rec nr 17	5	7	4		1	6	7	30
Rec nr 18	3	8	6		6	4	12	39
Rec nr 19	1	0	2		2	2	1	8
Rec nr 20	2	5	3		5	5	3	23
Rec nr 21	5		1	4	0	4	10	24
Rec nr 22	2		3	5	2	0	5	17
Rec nr 23	0		1	1	2	2	5	11
Rec nr 24	4		10	3	4	0	13	34
Rec nr 25	3	6		2	2	2	5	20
Rec nr 26	1	5		4	0	3	13	26
Rec nr 27	1	3		2	3	4	5	18
Rec nr 28	2	4	5	2		3	3	19
Rec nr 29	2	4	4	1		1	2	14
Rec nr 30	3	3	1	2		2	1	12
Number of votes in country	63	106	98	70	63	77	123	

5.3 Annex 3 - Experts votes within three criteria

Template for elaboration and scoring of the recommendations:	
TITLE: Short/ final description of the recommendation	Score 5= very original/essential/relevant 4= quite original/essential/relevant 3= don't know/ do not wish to answer 2= not very original/essential/relevant 1= not at all original/essential/relevant
Criteria 1: Novelty How original do you see it in delineating new ways for developing science, technology, innovations, or, other societal challenges?	Score: ____ Comments (elaborate why):
Criteria 2: Essentiality How essential do you see it in tackling with relevant STI issues, or, solving important societal problems and challenges?	Score: ____ Comments (elaborate why):
Criteria 3: Timing How relevant do you see it for the next EU framework programme planning, or, for other urgent EU policies?	Score: ____ Comments (elaborate why):

The top results of the voting can be seen here

<p>Most innovative</p> <ul style="list-style-type: none"> ◆ research on human sensory capabilities (7) 4.1 ◆ personal presence through avatars (19) 4 ◆ recognitions policy (13) 3.9 ◆ ethics of “bionic” production (8) 3.8 ◆ attractive public transport (18) 3.8 ◆ global space technology (28) 3.7 ◆ organic CAP (10) 3.6 ◆ innovations in participation (16) 3.6 ◆ platform for future of work research (6) 3.5 ◆ Sofia as an eco-Model (14) 3.5 	<p>Most important</p> <ul style="list-style-type: none"> ◆ piloting dense eco-cities (9) 4.7 ◆ foresight on decentralized energy (5) 4.6 ◆ recycling complex materials (11) 4.3 ◆ innovations in participation (16) 4.3 ◆ attractive public transport (18) 4.3 ◆ refugee appreciation policies (21) 4.3 ◆ biorefineries (22) 4.3 ◆ research on global governance (29) 4.3 ◆ tools for disabled (2) 4.2 ◆ social innovations and aging (17) 4.2
<p>Most timely</p> <ul style="list-style-type: none"> ◆ innovations in participation (16) 4.7 ◆ recycling complex materials (11) 4.6 ◆ attractive public transport (18) 4.5 ◆ social innovations and aging (17) 4.4 ◆ tools for disabled (2) 4.3 ◆ foresight on decentralized energy (5) 4.3 ◆ platform for future of work research (6) 4.3 ◆ ethics of “bionic” production (8) 4.3 ◆ piloting dense eco-cities (9) 4.2 ◆ Sofia as an eco-Model (14) 4.2 	<p>DATA</p> <ul style="list-style-type: none"> ◆ 12 voters ◆ “Top” recommendation <ul style="list-style-type: none"> – average 3.6; max - min 4.2 - 2.9 ◆ Novelty <ul style="list-style-type: none"> – average 3.3; max: - min: 4.1- 2.4 ◆ Essentiality <ul style="list-style-type: none"> – average 3.8; max - min 4.7 - 2.6 ◆ Timing <ul style="list-style-type: none"> – average 3.9; max - min 4.7 - 2.5 <p>Score5= very novel/essential/relevant4= quite novel/essential/relevant3= don't know/do not wish to answer2= not very novel/essential/relevant1= not at all novel/essential/relevant</p>