NATIONAL RESEARCH UNIVERSITY

DO PEOPLE TRUST SCIENCE? PUBLIC ATTITUDES TO S&T IN A CROSS-NATIONAL PERSPECTIVE

Konstantin Fursov, Valentina Poliakova and Elena Chernovich

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Public understanding of science movement

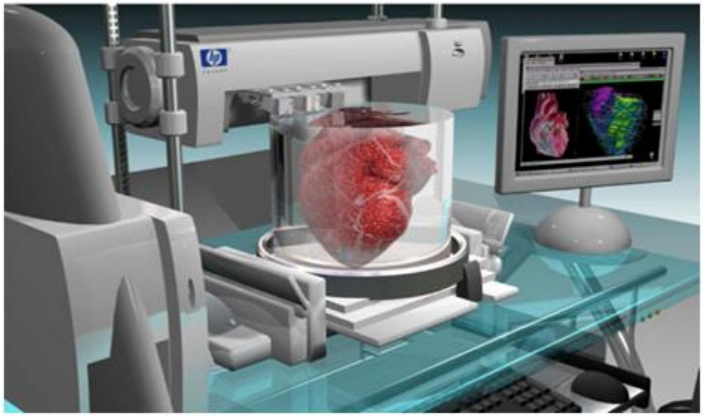
Royal Society, 1985:

"Science and technology permeate our daily lives. Our industry and national prosperity **depend on** science, we use devices created by science and technology **at home and at work**, and many personal and public decisions have a major scientific aspect. At both national and individual levels science and technology make key **contributions to our survival** in an increasingly competitive environment. In addition, the major findings of science, for example about cosmology or evolution, profoundly influence **the way we think** about ourselves and are an important part of **our culture**"

Science for society implies:

new identities

new opportunities



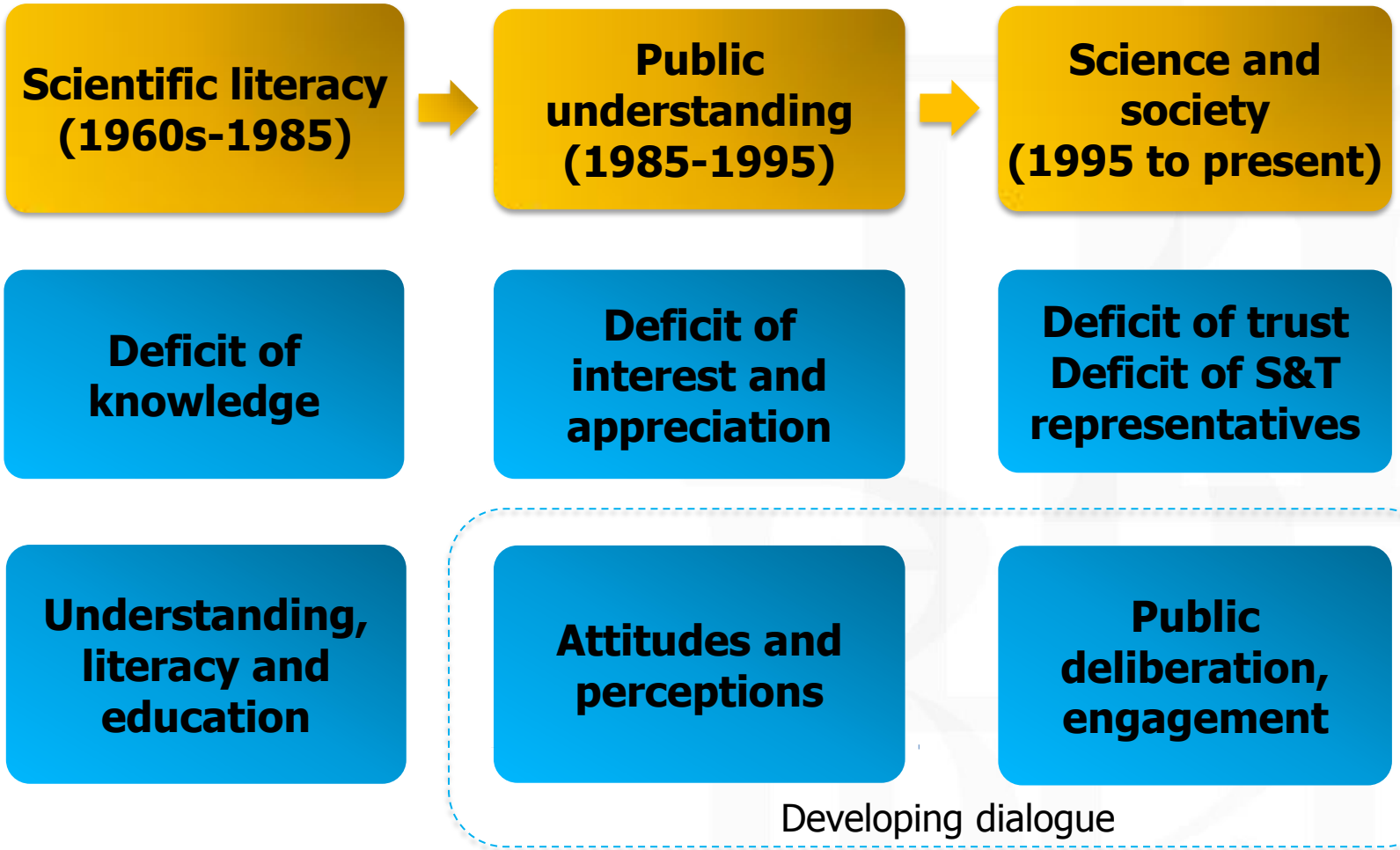
new risks

new questions

new difficulties

new ethical controversies

Paradigm shifts in studies of public understanding of science



Source: (Bauer et al., 2007)

Public trust in science

- From trust in competence to institutional trust (Barber, 1983, 1990)
- The reliance on those who have a responsibility for making decisions and taking actions related to this sphere (Siegrist, Cvetkovich and Roth, 2000)
- Positive attitudes towards science and technology in general (Miller, 2004)
- The readiness to take a social risk and accept on faith that an individual or institution has the intention of acting in your best interest (Earle, 2010)
- A willingness to be vulnerable to specific products of science (Roberts et al., 2011)

Measuring public trust in science

1. Expectations:

1.1. "*Science and technology make our lives easier, more comfortable and healthier*"

1.2. "*Thanks to science and technology, there will be more opportunities for future generations*"

1.3. "*The application of science and new technologies will make people's work more interesting*"

2. Risks perception and sensitivity to changes :

2.1. "*Scientific and technological developments can have unforeseen side-effects that are harmful to human health and the environment*"

2.2. "*The applications of science and technology can threaten human rights*"

2.3. "*Science makes our ways of life change too fast*"

3. Regulation:

3.1. "*Science should have no limits to what it is able to investigate*"

3.2. "*If a new technology poses risks that are uncertain and not yet fully understood, the development of this technology should be stopped even if benefits are expected*"

EB

MIB (Russia)

OECD

NSF

…

Our questions about trust in science

- Does the public trust science?
- Can we assert that trust motivates people to take risks of S&T development?

List of key indicators

1. Expectations:

1.1."*Science and technology make our lives easier, more comfortable and healthier*" (EB-2013, Ru-2014)

1.2. "*Thanks to S&T, there will be more opportunities for future generations*" (EB-2013, Ru-2014)

1.3."*The application of science and new technologies will make people's work more interesting*" (EB-2010, Ru-2011)

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4. Public participation:

4.1."*Citizens do not need to be involved or informed*"(EB-2013, Ru-2014)

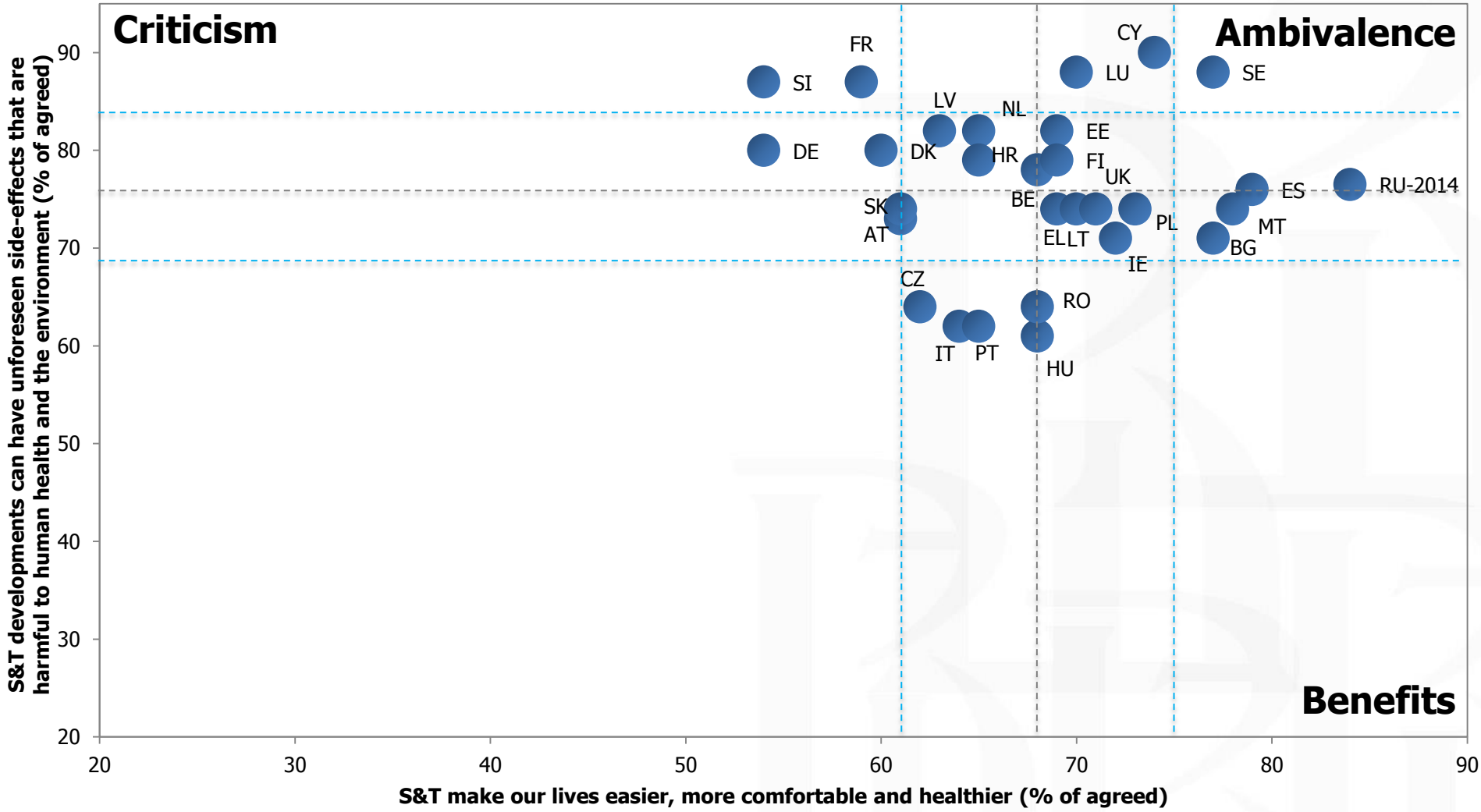
4.2. "*Citizens should only be informed*" (EB-2013, Ru-2014)

4.3. "*Citizens should be consulted and their opinion should be considered*" (EB-2013, Ru-2014)

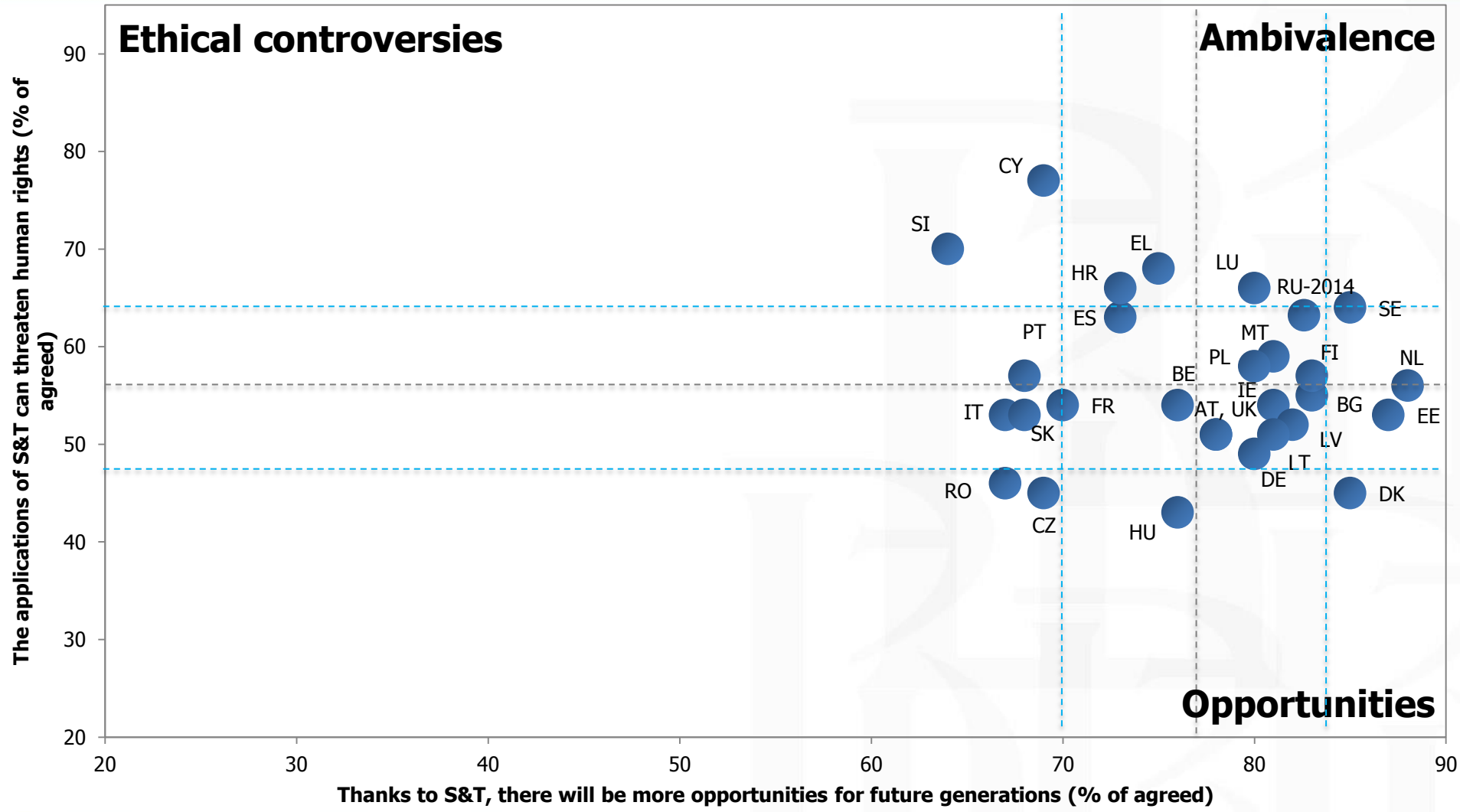
4.4. "*Citizens should participate and have an active role*" (EB-2013, Ru-2014)

4.5. "*Citizens' opinions should be binding*" (EB-2013, Ru-2014)

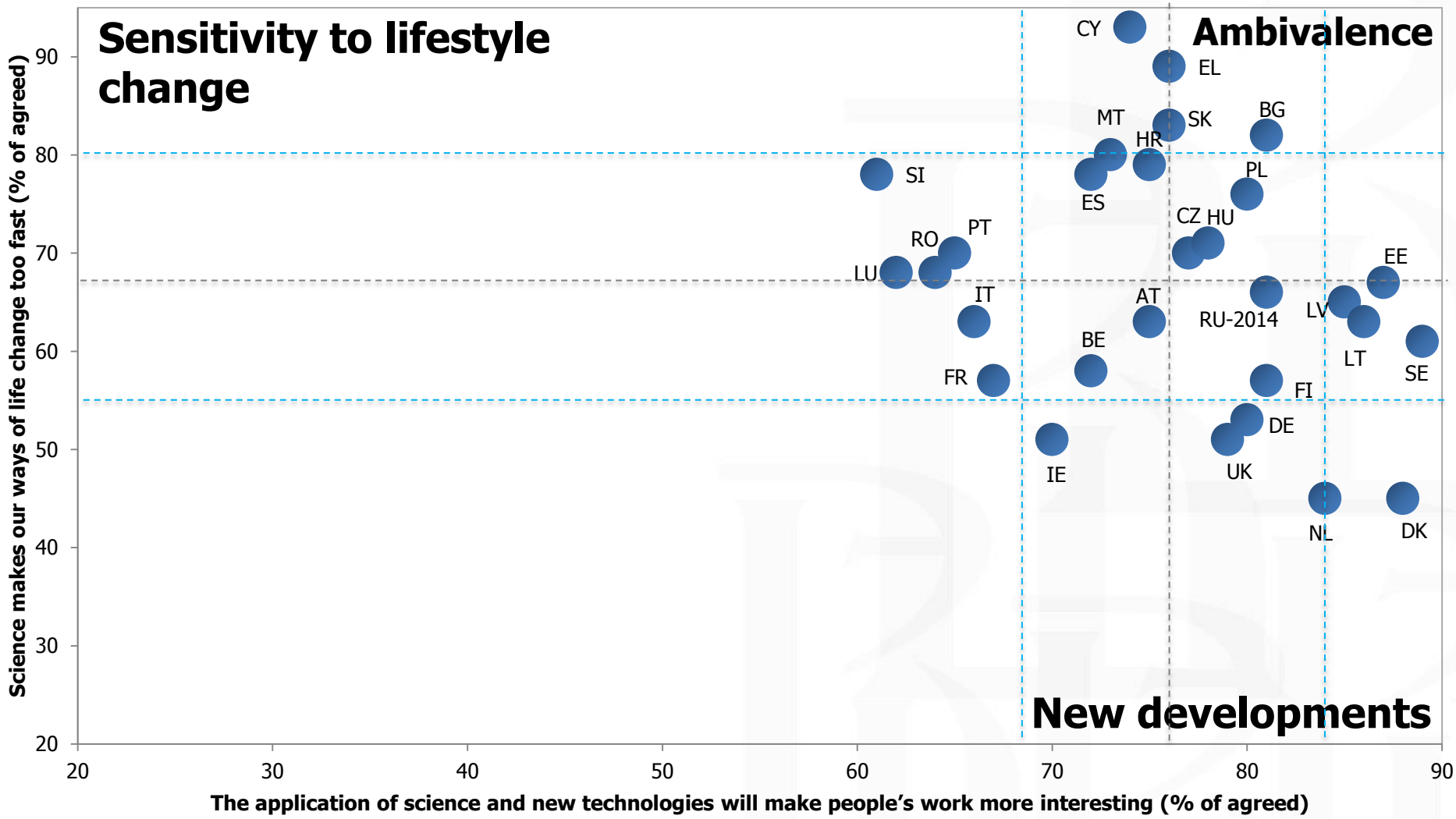
Risks VS benefits



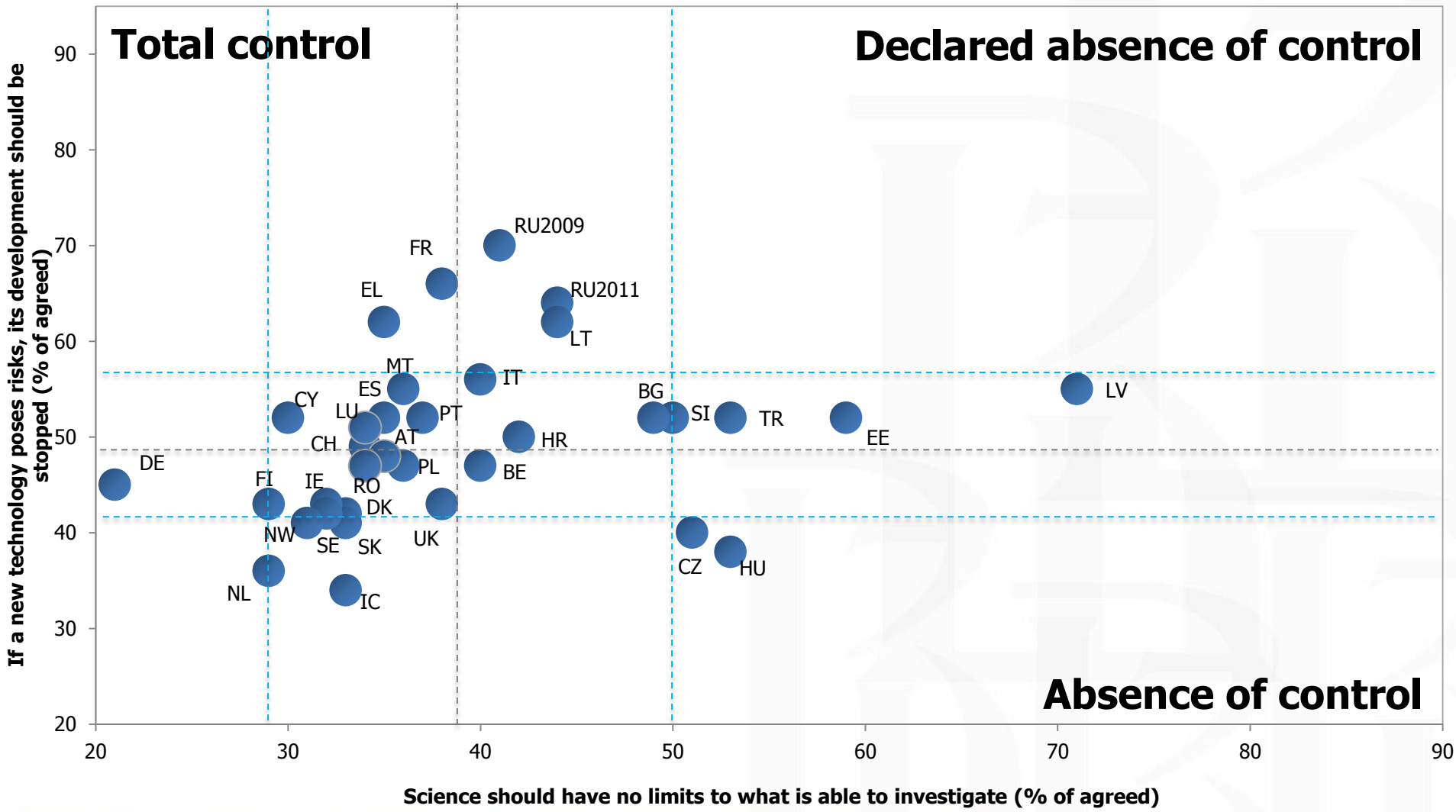
New opportunities VS new challenges



Work improvements VS lifestyle change



Restrictions in science and citizens' risks sensitivity



Spearman corr.=0,382, sig. 0,05

Public trust in science: main trends

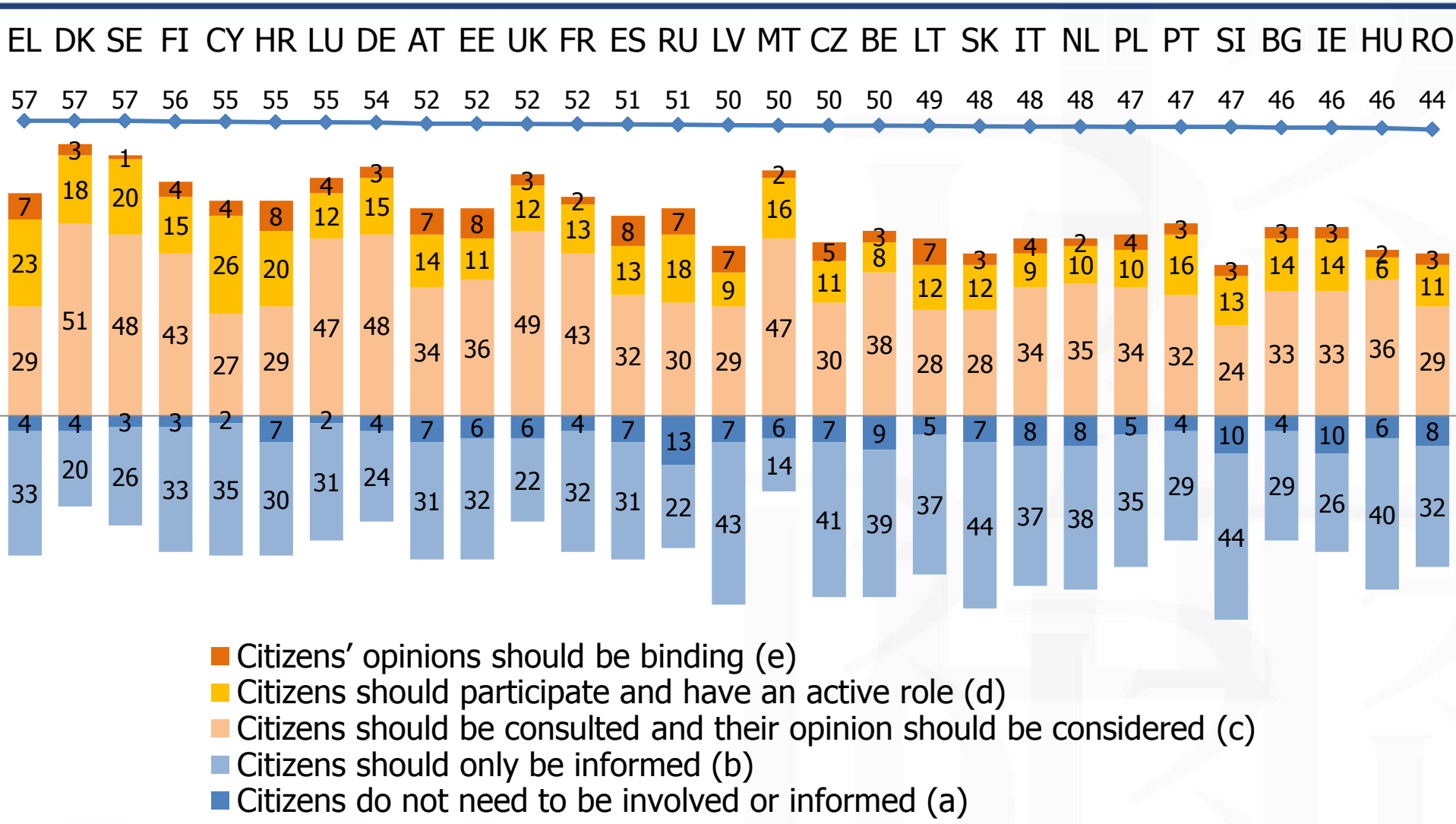
- The majority of population in all countries acknowledge ambivalent nature of S&T
- More than a half of analyzed EU countries tend to perceive S&T critically
- Threats to health and environment are more important than lifestyle change and ethical issues. A big share of people in almost all countries are ready to take these risks for new opportunities and developments
- Public understanding of independence of science is ambivalent because of the presence of ideological and pragmatic aspects. Attitude to the lack of restriction in science (ideological aspect) is positively associated with risks sensitivity (pragmatic aspect)

Trust and faith in science

People believe in S&T progress, but do not want to take risks

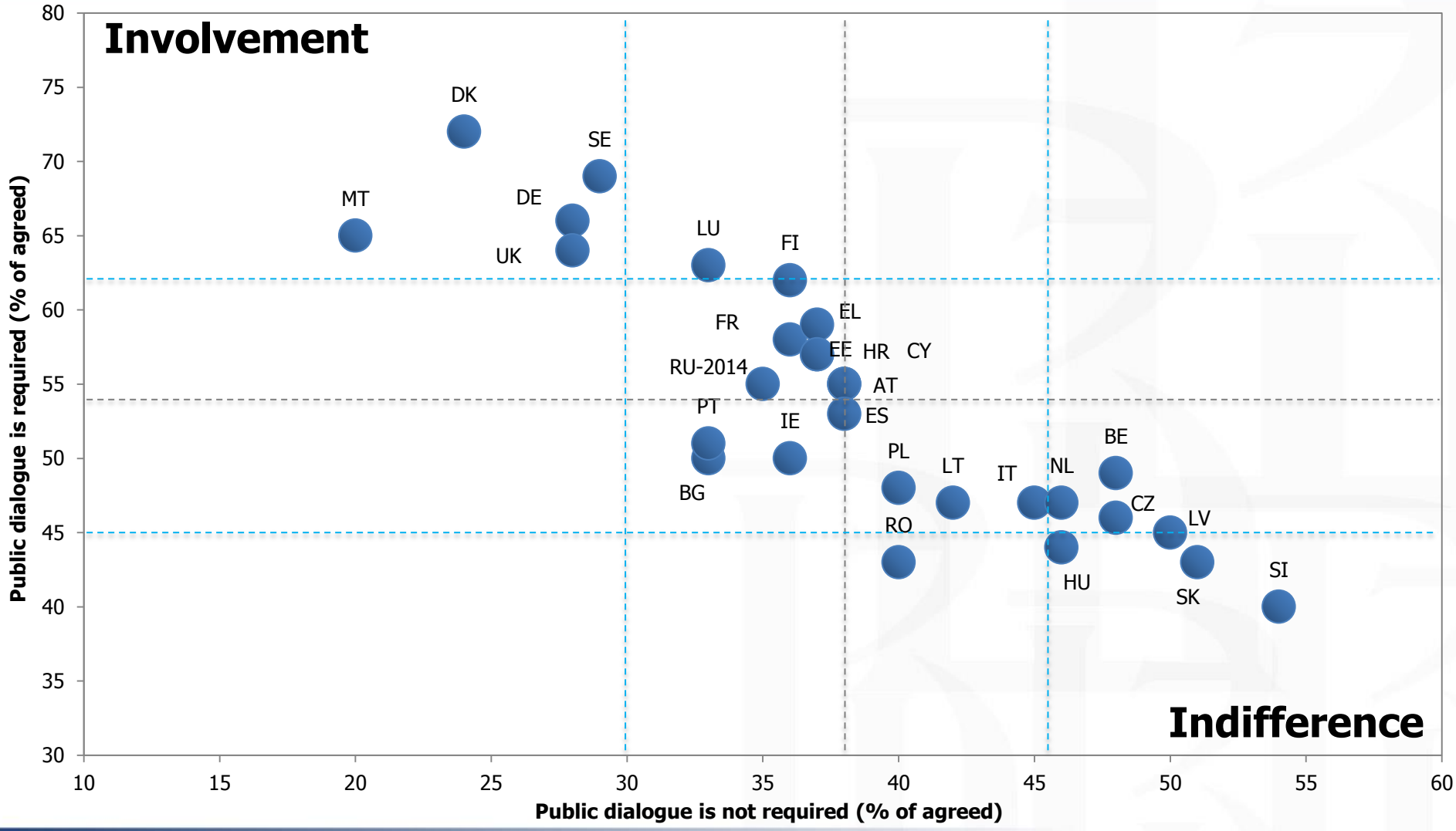
Does population need to participate in decision-making about S&T?

Index of participation in science*



*Index of participation=20 x (a+2b+3c+4d+5e)/100. Min=0, Max=100 (Answers „D/K" are not shown)

Attitudes to public involvement in decision-making about S&T



Main trends in attitudes to public participation in science

- Public opinion on the necessity of dialogue between science and society is divided. However among some Eastern European and Northern European countries almost a half of population distance themselves from such communication
- People tend to choose the passive form of involvement "citizens should be consulted and their opinion should be considered", whereas active participation in decision-making about S&T is less common. So, they are ready to "rely on those who have a responsibility for making decisions and taking actions related to this sphere"
- Countries that demonstrated the highest degree of risk sensitivity (Russia and France) do not show the highest degree of participation. At the same time countries with low risk sensitivity have high scores of participation (DK, SE, UK and DE)

Correlations between attitudes and Index of participation (0;100)

	Spearman cor.
Science and technology make our lives easier, more comfortable and healthier	0,019 (no sig.)
Thanks to science and technology, there will be more opportunities for future generations	0,279 (no sig.)
The application of science and new technologies will make people's work more interesting	0,312 (sig. 0,1)
Scientific and technological developments can have unforeseen side-effects that are harmful to human health and the environment	0,600 (sig. 0,001)
The applications of science and technology can threaten human rights	0,272 (no sig.)
Science makes our ways of life change too fast	-0,126 (no sig.)
If a new technology poses risks that are uncertain and not yet fully understood, the development of this technology should be stopped even if benefits are expected	0,080 (no sig.)
Science should have no limits to what it is able to investigate	-0,326 (sig. 0,085)

What stimulates public participation?

- Ideology of autonomous science is negatively associated with culture of public participation
- S&T side-effects to human health and environment are a key drivers of public participation in decision-making about S&T. Other risks and problems are less important and depend on the culture
- However, risk sensitivity does not stimulate dialogue and public participation. It destroys the communication
- A the same time clear opportunities connected with S&T development may also inspire public involvement

Concluding remarks

- The public trusts science when discourse about science is structured around new S&T developments
- Lay people understand ambivalence of S&T progress
- Trust implies capability to take decisions in controversial situations in S&T field. Otherwise the phenomenon of trust transforms in faith or indifference
- Trust in science is not only a pre-condition, but also a consequence of public engagement

Further research

- Trust in science is a complex phenomenon that exists both on individual and cultural levels
- Further research should include a comprehensive analysis of determinants of trust in science on different levels. It will help to understand what factors form trust and faith in S&T, risk sensitivity and etc.
- List of variables should include indicators of civic engagement, social trust, values, political preferences, human capital, political environment and etc.

НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ

Thank you for your attention!

ksfrusov@hse.ru

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