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Analysis of specific hypotheses in the field of surveillance oriented security practices

Authors:	Sven Rung, Michael Friedewald (Fraunhofer ISI)

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About the PRISMS project

The PRISMS project analyses the traditional trade-off model between privacy and security and devise a more evidence-based perspective for reconciling privacy and security, trust and concern. It examines how technologies aimed at enhancing security are subjecting citizens to an increasing amount of surveillance and, in many cases, causing infringements of privacy and fundamental rights. It conducts both a multidisciplinary inquiry into the concepts of privacy and security and their relationships and an EU-wide survey to determine whether people evaluate the introduction of security technologies in terms of a trade-off. As a result, the project determines the factors that affect public assessment of the security and privacy implications of a given security technology. The project uses these results to devise a decision support system providing users (those who deploy and operate security systems) insight into the pros and cons, constraints and limits of specific security investments compared to alternatives taking into account a wider society context.

Terms of use

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1 INTRODUCTION

Within the PRISMS survey several hypothesis were formulated on the basis of work in work packages 2 to 7.[1] Many of them could not be answered on the basis of the survey data because of their very general wording or the lack of a specific context. The main hypotheses that could be tested are treated in this document.

2 GENERAL METHODOLOGY AND INTERPRETATION

Most items in the questionnaire were measured on a Likert scale. This makes the analysis difficult because a non-parametric analysis is required. That seems simple in the case of correlations by using Spearmen instead of Pearson correlations, but it becomes difficult by building models and doing non-parametric significance tests. Therefore Table 2-1 gives an overview of the different methods applied for testing the hypotheses. For some hypotheses the results of our factorial analysis or our models were used. The models were calculated via the Polytomous Universal Model (PLUM) or a Generalized Linear Model (GLM) using SPSS 21.

Table 2-1: Statistical methods used for hypothesis testing

independent variable	dependent	name of the test / model	test statistic	shortcut
paired, two manifestations	ordinal	Wilcoxon signed rank sum test	Z	z
paired, >2 manifestations	ordinal	Friedman (2 way Anova by ranks) as Omnibus	FR	FR
		Wilcoxon signed rank sum tests as post-hoc	Chisquare	χ^2
independent	metric	Post-Hoc (e.g. Games-Howell)	F-Statistic	F
independent, 2 manifestations	ordinal	Wilcoxon-Mann-Whitney-U-Test	Z	z
independent, >2 manifestations	ordinal	Kruskal Wallis Test (Omnibus)	H	H
		Dunn Bonferroni (post-hoc)[2]	Chisquare	χ^2
ordinal	ordinal	Spearmen's Rho	-	rho
>2 variables	ordinal	Polytomous Universal Model (PLUM)	Chisquare	χ^2
>2 variables	metric	Generalized Linear Model (GLM)	Chisquare	χ^2

The second challenge in the data analysis is that this survey is weighted by frequencies. These frequencies are between 0.0164 and 10.5278 per country and take age, gender, work status and population into account. Some of the non-parametric procedures (W-Mann-Whitney-U and Kruskal-Wallis) are not able to use non-integer weights. SPSS is rounding automatically, with the effect that for most of the smaller countries these values are set to zero and thus excluded.

Besides the full dataset (further called original weighted) we created a weightable dataset that contains only France, Germany, Italy, the Netherlands, Poland, Romania, Spain and the United Kingdom (with weights >>1). Any respondent in this dataset has a rounded weight of one or more. That may be problematic too because the weights are rounded anyhow. But as one can see in Table 2-2, the difference between rounded and original weights is small.

[1] Barnard-Wills, David, Michael Friedewald, Noor Huijboom, et al., "Report on hypotheses regarding privacy and security perceptions", PRISMS Deliverable 8.1, 2013.
[2] Dunn, Olive Jean, "Multiple Comparisons Using Rank Sums", *Technometrics*, Vol. 6, No. 3, 1964, pp. 241-252.

Therefore many tests include two subtests:

(1) One test for data with original country weights which either (a) includes any respondent by using non-rounded original weights (some procedures allow non-integer weights) or (b) includes any respondent with a weight of 0.5 or higher and then rounded to the next integer.

(2) One test for the weighable dataset that excludes data from the smaller countries completely.

Table 2-2: Weighted counts of N for each country with original frequency weights and rounded frequency weights

		Age			Gender		Education			Work status		
		16-34	35-59	60-75	male	female	primary	secondary	tertiary	employed	unemployed	retired
France	Original	1022	1482	1057	1710	1852	1086	992	1455	1816	658	1009
	Rounded	1046	1484	1036	1769	1798	1087	998	1453	1841	660	986
Germany	Original	1135	1884	1351	2143	2233	2128	1111	1097	2492	674	1150
	Rounded	1151	1894	1353	2164	2239	2139	1115	1110	2546	661	1138
Italy	Original	817	1408	1013	1557	1691	650	1776	803	1425	919	852
	Rounded	829	1384	1076	1534	1766	677	1803	801	1349	985	911
Netherlands	Original	262	390	261	446	468	81	469	357	565	157	183
	Rounded	304	415	304	452	572	94	528	394	569	221	222
Poland	Original	703	870	518	1004	1086	159	1087	839	1044	524	449
	Rounded	674	878	527	974	1105	156	1080	837	1040	513	453
Romania	Original	326	463	301	526	565	140	657	287	553	238	272
	Rounded	337	475	326	543	596	162	700	268	483	313	308
Spain	Original	709	1141	684	1241	1294	833	755	933	1117	827	563
	Rounded	736	1098	684	1237	1282	834	753	918	1074	852	564
UK	Original	1098	1410	959	1699	1774	265	1696	1413	2012	627	794
	Rounded	1075	1414	1030	1710	1815	282	1712	1433	2013	612	861

Figures are computed via subset 1 and method a. In paired / related sample tests missing values are excluded listwise; in independent sample tests missing values are excluded pairwise. In pairwise test Bonferroni Adjustment reduces the alpha-inflation.

For another reason some of our results need to be taken with caution. Because of the frequency weight within the analysis Malta has a maximum of 24 and Germany of 4376 respondents. That limits the influence of Malta in a European analysis. The only solution is to do countrywide analyses, which are not done yet.

3 ATTITUDES

3.1 ATTITUDES IN GENERAL

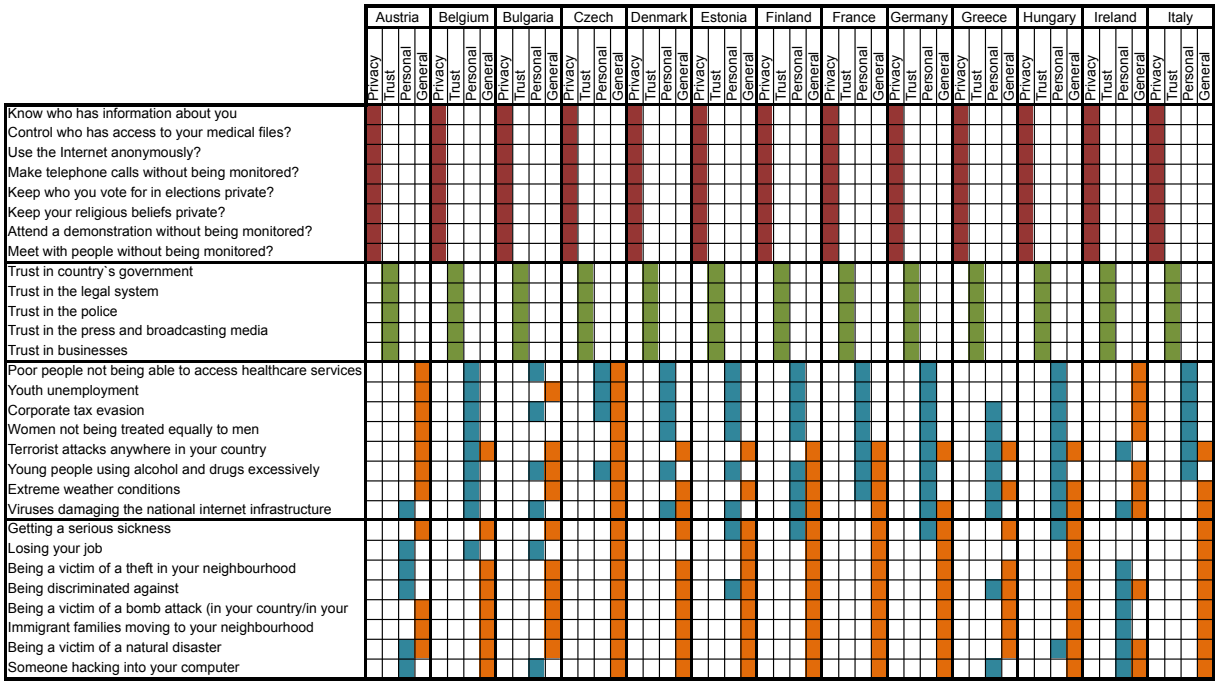
The first set of hypotheses considered citizens' notions about privacy, security and trust. These are interim items of attitudes to behaviour.

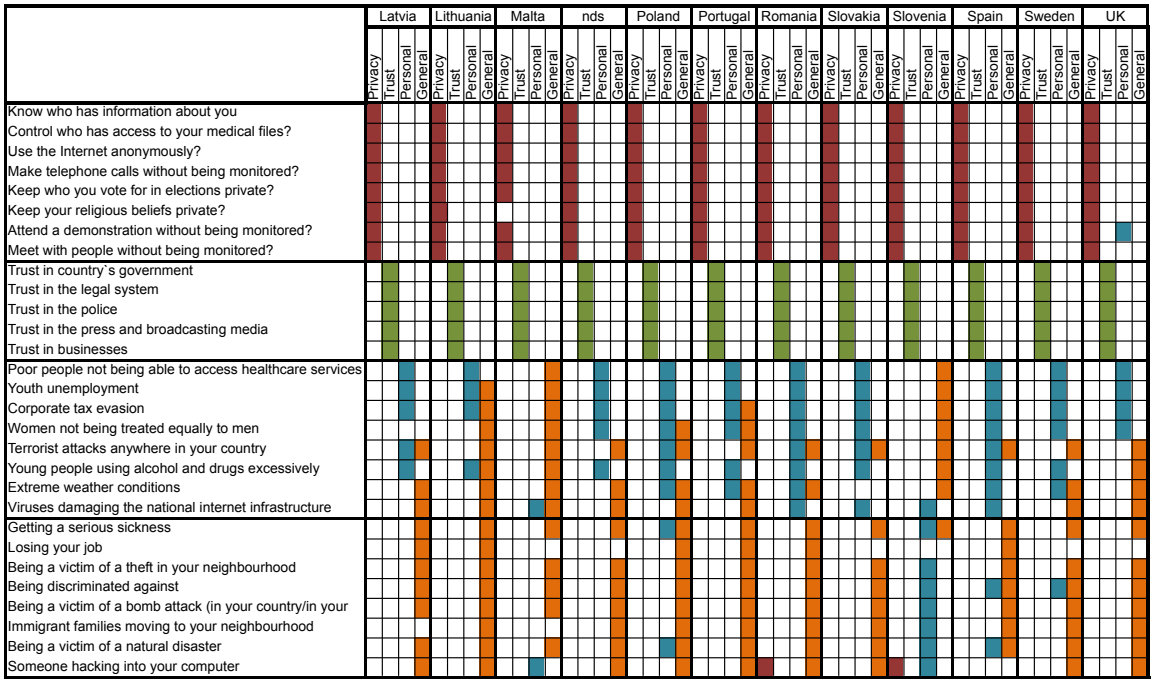
3.1.1 Hypothesis 1: The understanding of the terms 'privacy', 'security' and 'trust' differ across countries

The questions in QA1, QA2, QC3, QC4 and QD1 are covering many different aspects of trust, privacy and security. Some of the questions have equivalents in other blocks, e.g. 'someone hacking into my computer' in the privacy block and 'worried about hacking in countries infrastructure' in the security block. Both questions can be seen as privacy as well as security related. In the questions about personal security and general security the aim was to have corresponding questions for the individual and collective aspect of security. The main questions here are (1) which items are related and (2) if there is a distinction between the countries in this sample.

To get an answer to this hypotheses factor analyses have been conducted for each country. They have been computed with the full set of countries and original weights. The four colours in Table 3-1 represent privacy, trust in institutions, personal and general security. Two countries (Cyprus and Luxembourg) were excluded from the analysis due to the insufficient number of respondents that answered all five blocks of questions.

Table 3-1: Factor loadings of our items privacy (red), trust in institutions (green), general (blue) and personal (orange) security each as a factor





Most items load on the factor "Personal Security" (blue). These differ for each country which means that the understanding of these terms differs a lot.

For the EU all items of QA2 (trust institutions) and nearly all items of QD1 (privacy worries) load on one (and only) factor and most of QC3 and QC4 load on two other factors. Here, however, national differences exist.

Therefore it was decided to build latent variables, which are similar to the clusters of QD1, QC3 and QC4 without taking factor loadings into account. This helps to compare them among themselves. It is not useful to create factors which are based on a factor loading values by country since the composition of the factors would be different from country to country which would make them impossible to compare. Moreover the number of cases would be unnecessarily reduced. For the factors of QD1 (privacy), QC3 (general security) and QC4 (personal security) the factor loadings were not used.

3.1.2 Hypothesis 2: The importance of privacy, the trust in institutions and the level of security worries differ across countries.

One of the assumptions was that in some countries citizens are (generally) feeling more secure. We also assumed that there are differences between whole European regions: for instance in many southern European countries the level of security feeling would be low due to the effects of the finance crisis. On the other hand analyses had shown that the level of trust in states and their governments is traditionally high in the Nordic countries.

To shed light on these hypotheses pair wise comparisons have been conducted. To this end the equal-weighted mean of each cluster of questions (Privacy, Personal Security, General Security, Trust) were calculated and compared using a Games-Howell Pots-Hoc-Test within an ANOVA. The means are ordered from low to high in all the following tables. Country weight is used within a full sample.

Privacy

The cells in Table 3-2 are left in white if the Null hypothesis, that both countries got the same mean, is rejected at a significance level of 5 % and shaded in light grey if the Null hypothesis is rejected at a significance level of 1 %. Dark grey cells indicate that the means tend to be equal. For each table around 351 pairwise comparisons have been computed (the numeric values are not displayed in Table 3-2 for reasons of simplicity).

It can bee seen that there are some remarkable groupings in the distribution of the means for Privacy Perception. Latvia, Lithuania, Estonia and Bulgaria are far similar in their valuating of privacy. A second major group includes Romania, Poland, Portugal, Netherlands, Italy and Belgium. As expected the appreciation of privacy is highest in Austria, Germany and Finland. It may be a bit surprising that Greece, Spain and Hungary also among the more privacy-aware countries.

Table 3-2 Privacy - Country-level weighted pairwise comparison (N_{min} - N_{max} unweighted; N_{min} - N_{max} weighted) of Privacy Mean (985 - 1037; 985 - 1089); higher values = 'more important'

	Country	Latvia	Lithuania	Estonia	Bulgaria	Romania	Portugal	Poland	Netherlands	Italy	Belgium	Denmark	Slovakia	CzechRep	Malta	France	UK	Slovenia	Sweden	Luxembourg	Hungary	Spain	Cyprus	Greece	Ireland	Austria	Germany	Finland	
Country	**Mean**	**0.429**	**0.440**	**0.446**	**0.459**	**0.503**	**0.515**	**0.516**	**0.518**	**0.521**	**0.528**	**0.548**	**0.555**	**0.575**	**0.575**	**0.577**	**0.578**	**0.582**	**0.590**	**0.591**	**0.601**	**0.614**	**0.619**	**0.624**	**0.629**	**0.634**	**0.656**	**0.657**	
Latvia	**0.429**																												**Latvia**
Lithuania	**0.440**																												**Lithuania**
Estonia	**0.446**																												**Estonia**
Bulgaria	**0.459**																												**Bulgaria**
Romania	**0.503**																												**Romania**
Portugal	**0.515**																												**Portugal**
Poland	**0.516**																												**Poland**
Netherlands	**0.518**																												**Netherlands**
Italy	**0.521**																												**Italy**
Belgium	**0.528**																												**Belgium**
Denmark	**0.548**																												**Denmark**
Slovakia	**0.555**																												**Slovakia**
CzechRep	**0.575**																												**CzechRep**
Malta	**0.575**																												**Malta**
France	**0.577**																												**France**
UK	**0.578**																												**UK**
Slovenia	**0.582**																												**Slovenia**
Sweden	**0.590**																												**Sweden**
Luxembourg	**0.591**																												**Luxembourg**
Hungary	**0.601**																												**Hungary**
Spain	**0.614**																												**Spain**
Cyprus	**0.619**																												**Cyprus**
Greece	**0.624**																												**Greece**
Ireland	**0.629**																												**Ireland**
Austria	**0.634**																												**Austria**
Germany	**0.656**																												**Germany**
Finland	**0.657**																												**Finland**

Trust in institutions

A view on the distribution of the mean for 'Trust in Institutions' in Table 3-3 shows that Bulgarians' trust in institutions is only half as high as that of the Finns. The low trust in institutions in many southern European countries such as Spain and Portugal may partly be a result of the economic crisis. Eastern European countries and also Greece have low trust values due to their experience with authoritarian governments. The picture, however, is not clear: In Estonia citizens have a rather high trust in institutions that is more comparable with the Nordic countries. This example shows that Estonia was successful over the last 20 years in their attempt to build up a modern, transparent government.

Table 3-3: Trust in institutions - Country-level weighted pairwise comparison (N_{min} - N_{max} unweighted; N_{min} - N_{max} weighted) of Trust Institutions Mean (997 - 1087; 1000 - 1089) ; higher values = 'more trusting'

	Country	Bulgaria	Greece	Slovakia	Slovenia	Spain	Poland	Portugal	Hungary	Cyprus	CzechRep	Romania	France	Italy	Latvia	UK	Ireland	Lithuania	Austria	Belgium	Germany	Estonia	Malta	Sweden	Luxembourg	Netherlands	Denmark	Finland	
Country	Mean	0.350	0.389	0.409	0.416	0.451	0.462	0.468	0.484	0.485	0.485	0.493	0.501	0.513	0.515	0.524	0.545	0.552	0.570	0.574	0.580	0.597	0.610	0.618	0.630	0.634	0.647	0.700	
Bulgaria	0.350																												Bulgaria
Greece	0.389																												Greece
Slovakia	0.409																												Slovakia
Slovenia	0.416																												Slovenia
Spain	0.451																												Spain
Poland	0.462																												Poland
Portugal	0.468																												Portugal
Hungary	0.484																												Hungary
Cyprus	0.485																												Cyprus
CzechRep	0.485																												CzechRep
Romania	0.493																												Romania
France	0.501																												France
Italy	0.513																												Italy
Latvia	0.515																												Latvia
UK	0.524																												UK
Ireland	0.545																												Ireland
Lithuania	0.552																												Lithuania
Austria	0.570																												Austria
Belgium	0.574																												Belgium
Germany	0.580																												Germany
Estonia	0.597																												Estonia
Malta	0.610																												Malta
Sweden	0.618																												Sweden
Luxembourg	0.630																												Luxembourg
Netherlands	0.634																												Netherlands
Denmark	0.647																												Denmark
Finland	0.700																												Finland

Security

Overall *personal security* worries are low throughout Europe (see Table 3-4). There is however, a significantly higher level of general security worries in those countries that that have been affected by the economic crisis, in particular Portugal, Spain, Italy and Greece. The highest level of security worries in the EU, however, is observed in Bulgaria while the very low level of personal security worries in Slovakia is surprising (and might even be a statistical artefact). Personal security worries in all other countries form a broad midrange.

Table 3-4: Personal Security - Country-level weighted pairwise comparison (N_{min} - N_{max} unweighted; N_{min} - N_{max} weighted) of Personal Security Mean (506 - 857; 504 - 824); higher values = 'more worried'

	Country	Slovakia	Austria	Sweden	Netherlands	Ireland	Slovenia	Luxembourg	Lithuania	Estonia	Denmark	Finland	Germany	Belgium	UK	Poland	Hungary	CzechRep	Latvia	France	Romania	Italy	Bulgaria	Cyprus	Spain	Greece	Malta	Portugal	
Country	**Mean**	0.178	0.211	0.218	0.223	0.224	0.240	0.242	0.243	0.243	0.247	0.251	0.255	0.266	0.275	0.278	0.279	0.285	0.291	0.300	0.309	0.355	0.356	0.388	0.399	0.416	0.442	0.483	
Slovakia	0.178																												Slovakia
Austria	0.211																												Austria
Sweden	0.218																												Sweden
Netherlands	0.223																												Netherlands
Ireland	0.224																												Ireland
Slovenia	0.240																												Slovenia
Luxembourg	0.242																												Luxembourg
Lithuania	0.243																												Lithuania
Estonia	0.243																												Estonia
Denmark	0.247																												Denmark
Finland	0.251																												Finland
Germany	0.255																												Germany
Belgium	0.266																												Belgium
UK	0.275																												UK
Poland	0.278																												Poland
Hungary	0.279																												Hungary
CzechRep	0.285																												CzechRep
Latvia	0.291																												Latvia
France	0.300																												France
Romania	0.309																												Romania
Italy	0.355																												Italy
Bulgaria	0.356																												Bulgaria
Cyprus	0.388																												Cyprus
Spain	0.399																												Spain
Greece	0.416																												Greece
Malta	0.442																												Malta
Portugal	0.483																												Portugal

Table 3-5 shows that *general security* worries are substantially higher than personal security worries. Again those countries that have been most affected by the economic crisis seem to have the highest level of worries about the security of their societies. And like in the case of personal security there is a broad midrange of countries but no explicit group of countries that where the general security feeling is significantly higher. The pattern, however are similar to those of personal security worries and trust in institutions: Nordic and Baltic countries and selected Western European countries (the Netherlands, Luxemburg) show the lowest level of general security worries.

Table 3-5: General Security – Country-level weighted pairwise comparison (N_{min} - N_{max} unweighted; N_{min} - N_{max} weighted) of General Security Mean (501 - 855; 503 - 820); higher values = 'more worried'

	Country	Estonia	Netherlands	Denmark	Sweden	Luxembourg	Latvia	Lithuania	CzechRep	UK	Ireland	Austria	Finland	Germany	Belgium	Slovenia	Poland	Hungary	Bulgaria	Malta	Romania	Slovakia	France	Italy	Cyprus	Greece	Portugal	Spain	
Country	**Mean**	0.397	0.407	0.411	0.421	0.435	0.440	0.443	0.470	0.473	0.475	0.476	0.491	0.499	0.502	0.505	0.508	0.520	0.524	0.530	0.533	0.536	0.575	0.620	0.628	0.641	0.711	0.734	
Estonia	0.397																												**Estonia**
Netherlands	0.407																												**Netherlands**
Denmark	0.411																												**Denmark**
Sweden	0.421																												**Sweden**
Luxembourg	0.435																												**Luxembourg**
Latvia	0.440																												**Latvia**
Lithuania	0.443																												**Lithuania**
CzechRep	0.470																												**CzechRep**
UK	0.473																												**UK**
Ireland	0.475																												**Ireland**
Austria	0.476																												**Austria**
Finland	0.491																												**Finland**
Germany	0.499																												**Germany**
Belgium	0.502																												**Belgium**
Slovenia	0.505																												**Slovenia**
Poland	0.508																												**Poland**
Hungary	0.520																												**Hungary**
Bulgaria	0.524																												**Bulgaria**
Malta	0.530																												**Malta**
Romania	0.533																												**Romania**
Slovakia	0.536																												**Slovakia**
France	0.575																												**France**
Italy	0.620																												**Italy**
Cyprus	0.628																												**Cyprus**
Greece	0.641																												**Greece**
Portugal	0.711																												**Portugal**
Spain	0.734																												**Spain**

Acceptance of surveillance-oriented security technologies

Table 3-6 shows that the cross-country differences with regard to the acceptance of the surveillance practices described in the vignettes are smaller, but in some cases significant. The low acceptance in Germany and Austria corresponds to the high importance of privacy in these countries. In the same way the acceptance level is similar to the importance of privacy. Here, the midrange of countries that show similar attitudes is particularly pronounced. Italy, Portugal, Malta and Romania, show the highest level of acceptance of (or the lowest level of resistance against) surveillance measures.

Table 3-6: Acceptance of surveillance – Country-level weighted pairwise comparison (N_{min} - N_{max} unweighted; N_{min} - N_{max} weighted) of the Mean of eight Vignettes (450 - 541; 1000 - 1089)

	Country	Germany	Austria	Greece	Slovenia	Finland	Sweden	CzechRep	Netherlands	Cyprus	Estonia	Denmark	Slovakia	France	Luxembourg	Spain	Poland	Belgium	Hungary	Ireland	UK	Bulgaria	Latvia	Lithuania	Italy	Portugal	Malta	Romania	
Country	**Mean**	0.363	0.385	0.433	0.440	0.451	0.456	0.468	0.474	0.480	0.490	0.496	0.497	0.499	0.504	0.507	0.508	0.513	0.515	0.517	0.519	0.523	0.526	0.552	0.573	0.595	0.622	0.654	
Germany	0.363																												Germany
Austria	0.385																												Austria
Greece	0.433																												Greece
Slovenia	0.440																												Slovenia
Finland	0.451																												Finland
Sweden	0.456																												Sweden
CzechRep	0.468																												CzechRep
Netherlands	0.474																												Netherlands
Cyprus	0.480																												Cyprus
Estonia	0.490																												Estonia
Denmark	0.496																												Denmark
Slovakia	0.497																												Slovakia
France	0.499																												France
Luxembourg	0.504																												Luxembourg
Spain	0.507																												Spain
Poland	0.508																												Poland
Belgium	0.513																												Belgium
Hungary	0.515																												Hungary
Ireland	0.517																												Ireland
UK	0.519																												UK
Bulgaria	0.523																												Bulgaria
Latvia	0.526																												Latvia
Lithuania	0.552																												Lithuania
Italy	0.573																												Italy
Portugal	0.595																												Portugal
Malta	0.622																												Malta
Romania	0.654																												Romania

Hypothesis 3: Several demographic variables have an ambivalent influence on privacy, trust and security attitudes

On the basis of the different disciplinary analyses the PRISMS team formulated several hypotheses that cover the influence of demographic variables such as age, gender, education, religion and so forth on privacy, trust and security attitudes. These hypotheses are not examined separately but in a model. The four variables in the first line are used as independent variables in a regression with all white coloured dependent variables (e.g. modelling privacy included inter alia 'old adults' as dummy and 'gender').[3]

The biases of some variables need to be taken into account. For example a high intensity of Internet use also implies a higher importance of privacy and more worries about security issue; while (online) privacy and (IT) security obviously does not play an special role for occasion or non-users of the Internet.

[3] More details can be found in Friedewald, Michael, Marc van Lieshout, Sven Rung, et al., "Report on the analysis of the PRISMS survey", PRISMS Deliverable 10.1, 2015, [Chapter 4].

Table 3-7 Influence of control variable on constructs

Construct / Demo-graphic variables	Privacy (Importance)	General Security (Worries)	Personal Security	Trust in Institutions
Worries about personal security	*more worries about personal security → higher importance of privacy*	*not tested*	*not tested*	*more worries about personal security → less trust in institutions*
Importance of Privacy	*not tested*	*not tested*	*higher importance of privacy → more worries about personal security*	*higher importance of privacy → less trust in institutions*
Trust in institutions	*more trust in institutions → higher importance of privacy*	*not tested*	*more trust in institutions → less worries about personal security*	*not tested*
Age	*younger → higher importance of privacy*	*Older → more worries about general security*	*only young adults → less worries about personal security*	*No effect*
Gender	*No effect*	*Men → less worries about general security*	*Men → less worries about personal security*	*Men → less trust in institutions*
Education level	*Lower → lower importance of privacy*	*Lower → more worries about general security*	*Lower → more worries about personal security*	*Lower → less trust in institutions*
Employment Status	*No effect*	*Unemployed → more worries about general security*	*Retired → less worries about personal security*	*No effect*
Intensity of Internet use	*No use → lower importance of privacy*	*More use → more worries about general security*	*No use → less worries about personal security*	*No effect*
Geographic area	*No effect*	*big cities → less worries about general security*	*No effect*	*No effect*
Political orientation	*More conservative → lower importance of privacy*	*More conservative → less worries about general security*	*More conservative → more worries about personal security*	*More conservative → more trust in institutions*
Belonging to a minority	*No effect*	*Members of minorities → more worries about general security*	*Members of minorities → more worries about personal security*	*No effect*
Privacy activism	*more activism → higher importance of privacy*	*more activism → more worries about general security*	*more activism → more worries about personal security*	*more activism → less trust in institutions*
Experience with privacy invasions	*privacy ever invaded → higher importance of privacy*	*privacy ever invaded → more worries about general security*	*privacy ever invaded → more worries about personal security*	*privacy ever invaded → less trust in institutions*
Trust in people in general	*less trust in people → lower importance of privacy*	*less trust in people → more worries about general security*	*less trust in people → more worries about personal security*	*less trust in people → less trust in institutions*
Sociability (meeting friends)	*not tested (highly correlated with trust in people-> multicollinearity)*			
Religion	*not tested*			

3.2 ATTITUDES IN DETAIL

Hypotheses H1 and H2 have addressed the cross-country differences in the composition of various attitudes and in the absolute value of the general constructs. An upcoming question was which institution the European citizens may trust most, what security issue they are most worried about and which privacy intrusion they like least. These questions have been translated into three sub-hypotheses, which are discussed in the following sections.

3.2.1 Hypothesis 4: The scoring of sub items of trust, privacy and security are varying

For all three sub-hypotheses the Friedman-Test (paired, two-way ANOVA by ranks) was used. Each variable was compared to all other variables in the same battery of questions. The test statistic and p-value is shown for all items, which statistically do *not* differ. The smallest test statistic and highest p-value is shown for all the rest. The test was done for original weights (SPSS rounded) and selected countries weights. The number of N is the same for each sub hypothesis because missing values were excluded list-wise.

Hypothesis 4.1: Trust level differs between institutions.

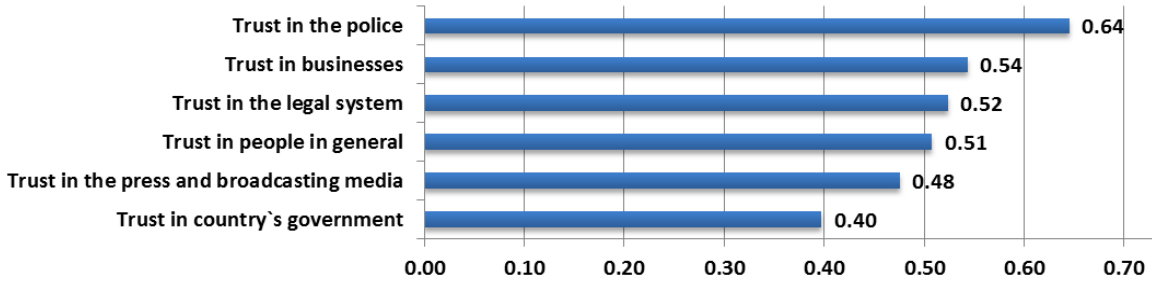


Figure 3-1: Trust in different institutions at EU level (QA2) from 0 'No trust at all' to 1 'Complete trust'

Figure 3-1 shows that in our sample the police is the most trusted institution. However this order is only found in the larger member states. Trust in the 'businesses' and in the 'legal system' are ranking second and third (but the difference between them is not statistically significant, see Table 3-8), followed by 'trust in people in general' and in 'press and media'. The institution that citizens trust least in almost all countries is the respective country's government.

Table 3-8: Results of pairwise testing for 'trust in people' and 'trust in institutions'

	Weighting	N	dF	χ^2	p-value	Sign.
'legal system' and 'business'	Original	24881	5	0.983	1	no
	Selected	20198	5	0.757	1	
All other pairwise combinations	Original	24881	5	>29.412	<.001	yes
	Selected	20198	5	>10.199	<.001	

Hypothesis 4.2: Importance of privacy differs between items

Figure 3-2 and Table 3-9 show that the importance of privacy differs between the different items but is generally higher than the trust in institutions. Six items are beyond 0.5, which means that on average more people find them very or fairly important rather than not very important or even unimportant. Religious believes turn out as being not as important as other privacy issues. Phone calls are as important as knowledge about who has information about one. Surprisingly the anonymous use of Internet is not among the most important topics. In regard to the EU member states, 'attend a demonstration without being monitored' is most important in Germany, Greece and Spain.

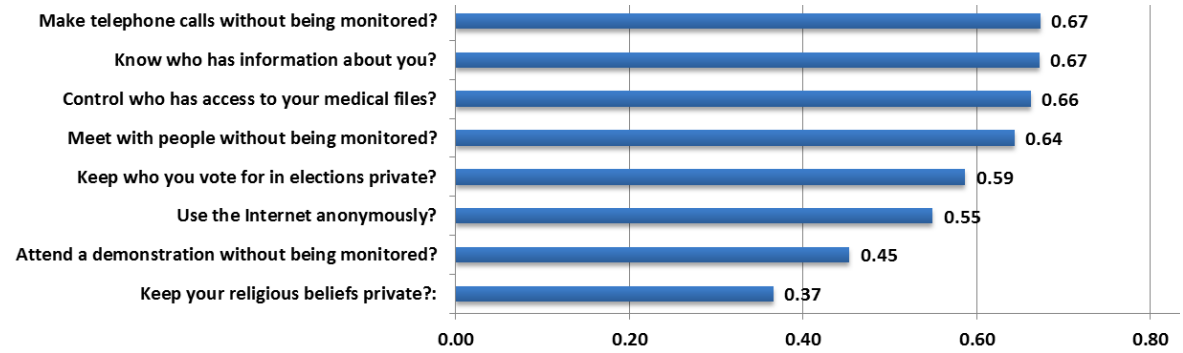


Figure 3-2: Importance of privacy items (QD1)

In terms of the seven types of privacy[4] we had defined, the 'classical' types (privacy of communication; privacy of data and images; privacy of the person) are still considered as most important by citizens. Privacy of thoughts and feeling and privacy of behaviour and action that is very much related to Internet surveillance and profiling activities is following closely. A bit surprising is that the 'privacy of location and space' is not among citizens' top concerns though this is related to very rich and revealing data.

Table 3-9: Results of pairwise testing for 'privacy importance'

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
'know who has info about you' and 'telephone calls without monitored'	Original	22497	7	0.682	1	yes
	Selected	18222	7	0.467	1	
'access to medical files' and 'meet people without monitoring'	Original	22497	7	0.367	1	yes
	Selected	18222	7	1.452	1	
Any other combination	Original	22497	7	>5.043	<.001	no
	Selected	18222	7	>4.181	<.005	

Hypothesis 4.3: Security worries differ between items

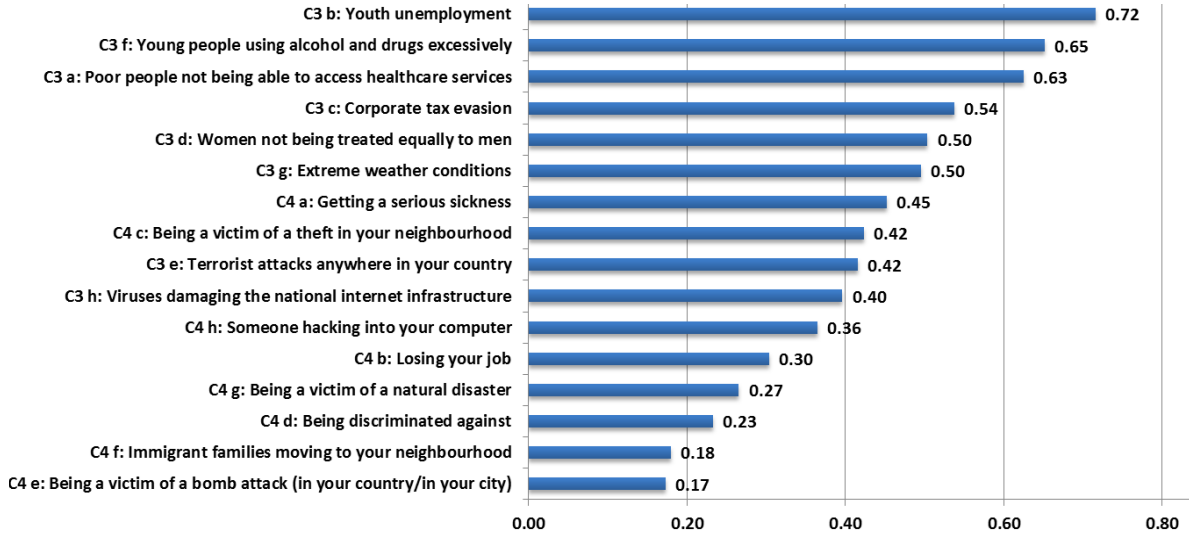


Figure 3-3: Importance of (personal and general) security

European citizens are mainly worried about their youth and not as selfish / frightened as one expect. The six highest valuated items are asked for "happens in country". Further this they

[4] Finn, Rachel L., David Wright and Michael Friedewald, "Seven types of privacy", in Gutwirth, Serge, et al. (eds.), *European Data Protection: Coming of Age*, Springer, Dordrecht, 2013.

are aware of the possibility of terrorist attacks but noticed that the chance to be a victim of this is really small like for many other of these scenarios (natural disaster). Surprisingly they valuate "virus damaging of infrastructure" as high as "someone hacking into computer".

Table 3-10: Results of pairwise testing for 'security worries'

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
Any pairwise combination of 3e 'terrorist attack in country'; 3h 'virus damaging infrastructure' and 4h 'hacking into your computer'	Original	7047	15	<3.101	>.232	no
	Selected	5882	15	<1.617	1	
4d 'being discriminated against' and 4g 'being victim of natural disaster'	Original	7047	15	3.484	>.059	no
	Selected	5882	15	>3.5	<.05	
All other pairwise combinations	Original	7047	15	>4.647	<.001	yes
	Selected	5882	15	>3.818	<.012	

4 ACCEPTANCE OF SURVEILLANCE TECHNOLOGY

4.1 ACCEPTANCE OF SURVEILLANCE TECHNOLOGY IN GENERAL

Several factors seem to have a strong influence on the acceptance of surveillance technologies: intrusiveness, degree of affection, presence and awareness, the surveillance controller or target, knowledge and experience. In this sub chapter these determinants are evaluated.

4.1.1 Hypothesis 5: Acceptance of surveillance depends on the characteristic of the technologies and the context of their use

The level of acceptance for the different surveillance practices is caused by a multitude of variables. For practical consideration we have not analysed all combinatorial possibilities – it is rather obvious that there are significant differences between the acceptance of e.g. 1/Foreign state surveillance and 5/ANPR speed control. Instead the focus here is on those combinations with similar mean values of acceptance.[5] This was the case for the vignettes 3/Usage of smart meter data and 7/Police use of DNA databases and between vignettes 4/Monitoring terrorist website visits and 8b/Police surveys football match. They were separately tested via a Friedman-Test.

The mean values of acceptance for the vignettes are presented in Figure 4-1. The tests, however, are presented as Hypotheses 6 and 7 later.

[5] No respondent has been presented all eight vignettes, which limits the number of possible combinations.

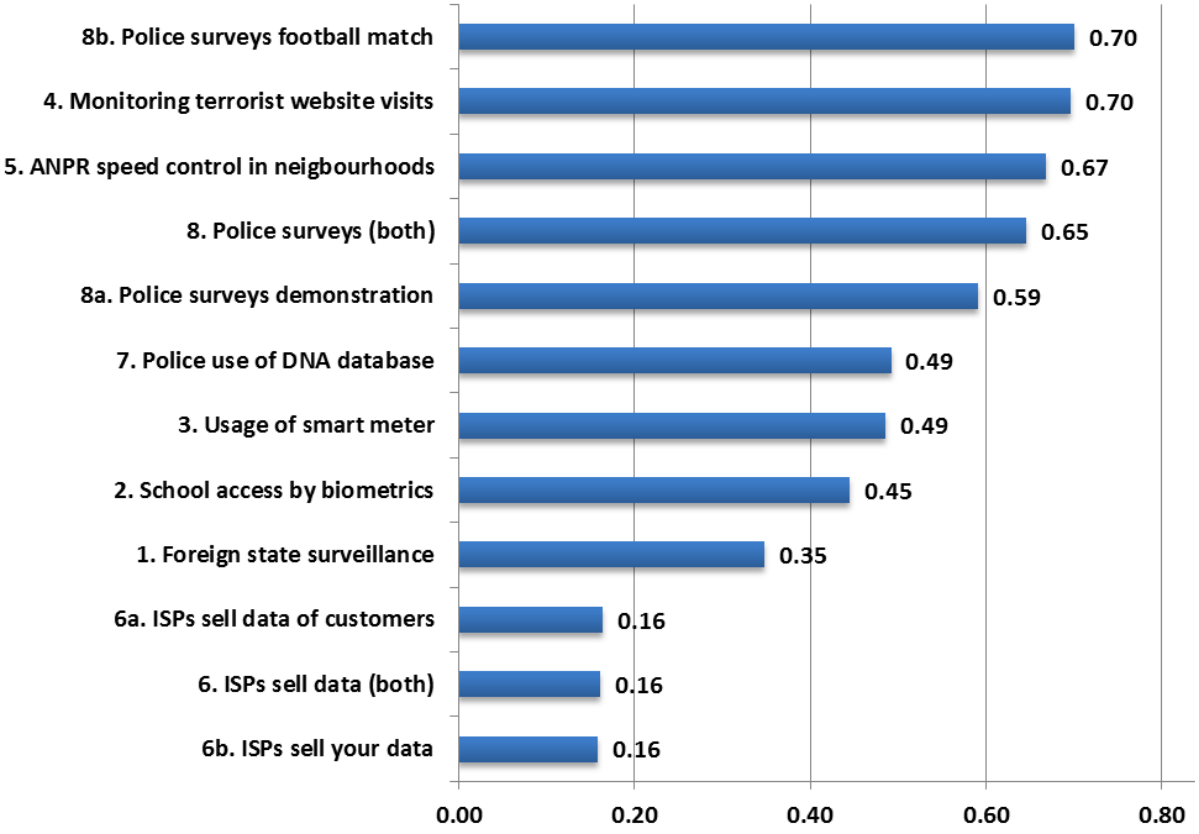


Figure 4-1: Vignette acceptance (first core question)

The figure shows that some surveillance technologies are rather well accepted while others are strongly rejected. Table 4-1 shows that the acceptance values are significantly different.

Table 4-1: Results of pairwise testing of the vignettes

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
3/usage of smart meter data and 7/police use of DNA database	Original	5406	1	3.101	<.002	yes
	Selected	4451	1	3.232	<.001	
4/monitoring terrorist website visitors and 5/ANPR speed control	Original	5213	1	5.396	<.001	yes
	Selected	4200	1	7.326	<.001	

4.1.2 Hypothesis 6: Acceptance of surveillance depends on whether a person is personally affected or not

One of the assumptions to be tested was that it makes a difference to a person's perception if s/he is personally affected by a surveillance measure or if only "others" are under surveillance. For the survey this was translated in alternative wordings of the vignette on data collection and trading of ISPs. The first version said that the ISP collected *your* data while the other version very generally said that the ISP collected "customer" data. The means are shown in Figure 4-1 above. The Kruskal-Wallis test for independent samples was used because the respondents are two different groups.

Table 4-2 shows that there is no significant difference between the two versions of the vignette on ISP data collection and trade. This is supported by a Kruskal-Wallis-Test: both have the same distribution. A variation only exists on country level and is very small (see Figure 4-2).

Table 4-2: Results of pairwise testing of the alternative wording in vignette 6/ISPs sell your/customers' data

Tested condition	Weighting	N	dF	χ^2	p-value	Sign.
'6b. ISPs sell data YOU' and '6a. ISPs sell data CUSTOMER	Original	13242	1	2.689	p=.101	
	Selected	10675	1	0.175	p=.676	

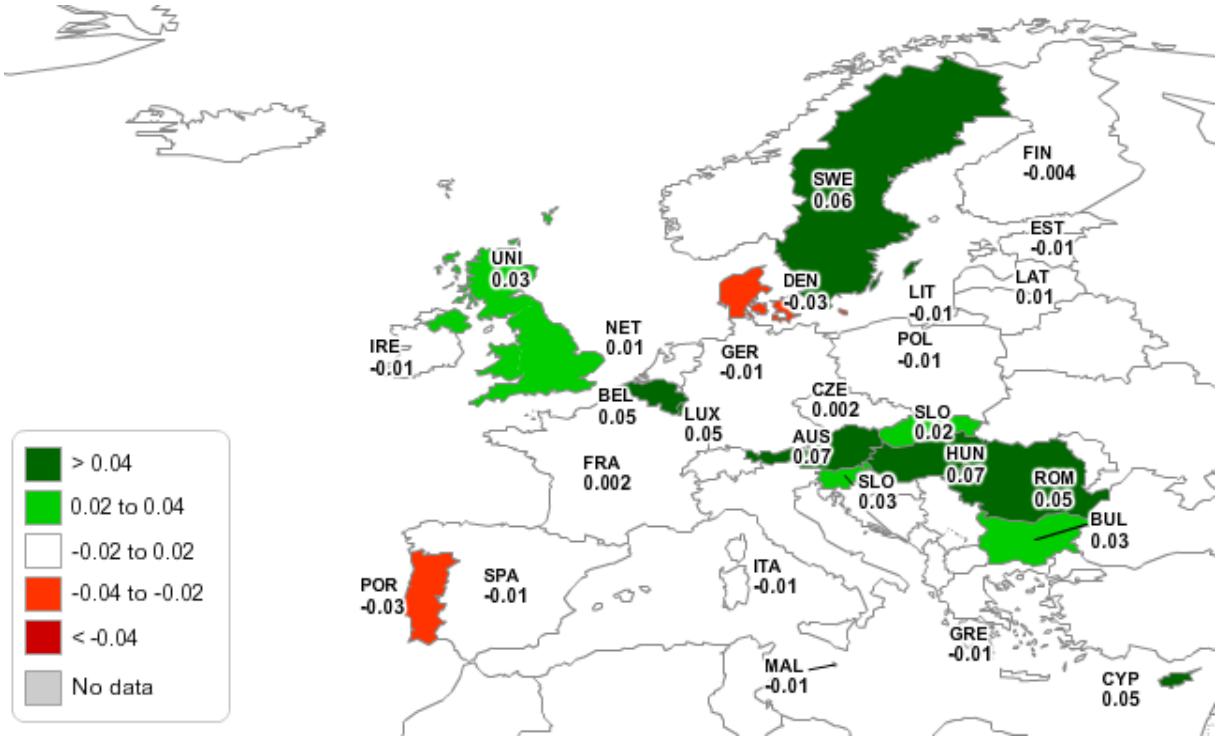


Figure 4-2: Difference between acceptance level

4.1.3 Hypothesis 7: Acceptance of a specific surveillance practice depends on the context and purpose of surveillance

One of the assumptions to be tested was that the purpose of surveillance makes a difference for the way citizens' are assessing a specific surveillance practice. In particular the same technology can be judged very differently depending on if a person is voluntarily in a context under surveillance and if the context is related to exercising a right that might be infringed by surveillance. For the survey this was translated into alternative versions of the vignette on crowd surveillance. The first version states that participants of a political demonstration are surveilled while the second version says that the visitors at a football match are surveilled.

Figure 4-1 shows the mean values for the acceptance of the alternative scenarios, revealing clear differences between the two. To test if this difference is significant a Kruskal-Wallis test for independent samples was used because survey participants were only shown *one* version of the vignette.

Table 4-3: Results of pairwise testing of the alternative wording in vignette 6/Crowd surveillance

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
8a/Police surveys demonstration and 8b/Police surveys football match	Original	13093	1	327	p<.001	yes
	Selected	10602	1	245	p<.001	

The results in Table 4-3 above show, that the difference between the two alternative vignettes on crowds is indeed significant. This means that people find surveillance in the context of

football matches more acceptable than in the context of political demonstrations. With the exception of Finland all countries in the study shows this effect (see Figure 4-3)

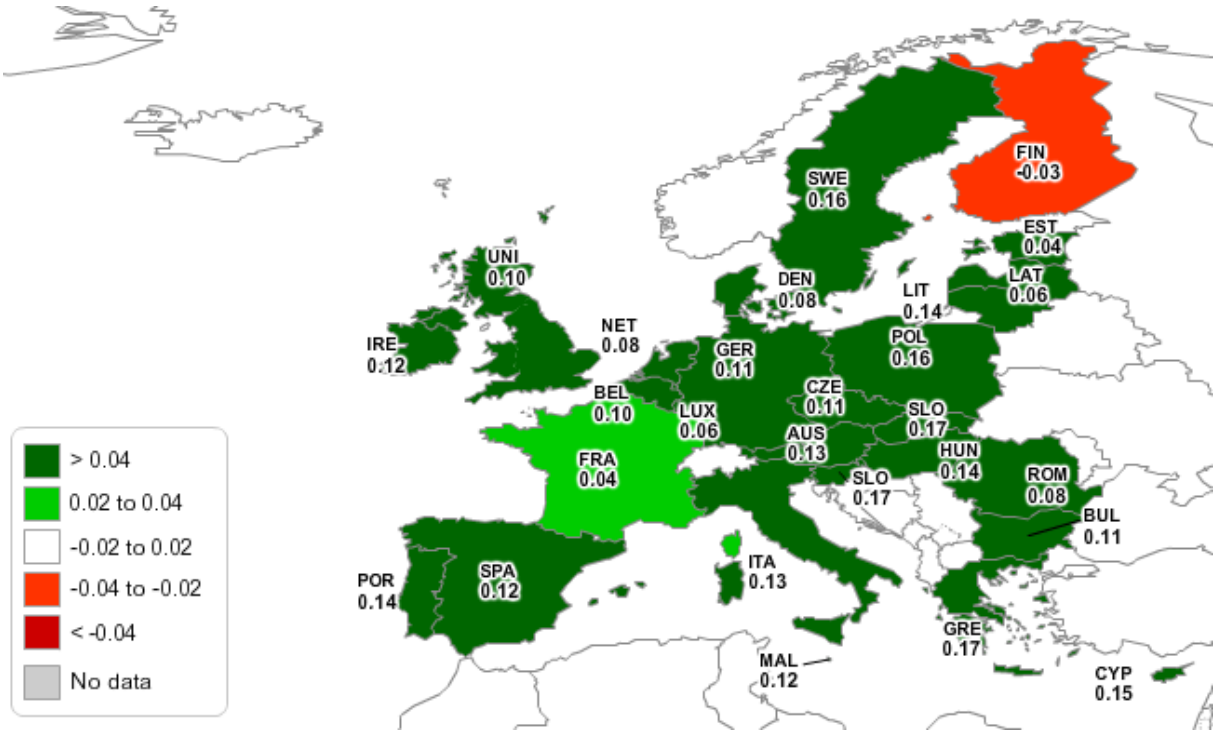


Figure 4-3: Difference between 8a/ Police surveys demonstration and 8b/ surveys football match. The darker the green the bigger the difference.

4.1.4 Hypothesis 8: Several demographic variables have an ambivalent influence on the acceptance of surveillance technologies

On the basis of the different disciplinary analyses the PRISMS team formulated several hypotheses that cover the influence of demographic variables such as age, gender, education and some of the measured constructs such as importance of privacy or security concern on the acceptance of the different surveillance practices in the vignettes. Most of them are examined in a model, some separately and some in both ways. The vignette variables in the first line are used as independent variables in a regression with all white coloured dependent variables (e.g. modelling privacy included inter alia 'old adults' and 'gender' as A).[6]

Table 4-4 and 4-5 are summarising the results of the statistical tests but stating the effect of a variation of a demographic variable on the acceptance of the surveillance practice described in a specific vignette.

[6] More details can be found in Friedewald, et al., 2015, [Chapter 3].

Table 4-4: Influence of control variable on vignettes (1)

Vignette / Demo-graphic variables	1. Foreign government surveillance QB1	2. School access by biometrics QB4	3. Smart meters QB8	4. Monitoring visits on terrorist websites QB11	5. ANPR speed control QB14
	Question: "To what extent, if at all, do you think that [the actor] should or should not [do this]"				
Worries about personal security	*more worries about personal security → more acceptance*				
Importance of Privacy	*privacy more important → less acceptance*				
Trust in institutions	*more trust in institutions → more acceptance*				
Age	*younger → the more acceptance*	*No effect*	*younger → acceptance*	*only young adults accept less*	*only young adults accept less*
Gender	*men → less acceptance*	*men → less acceptance*	*men → more acceptance*	*men → less acceptance*	*men → less acceptance*
Education level	*No effect*	*less educated → more acceptance*	*No effect*	*less educated → more acceptance*	*only people with low education accept more*
Employment Status	*not tested*	*employed people → more acceptance*	*not tested*	*not tested*	*employed people → less acceptance*
Intensity of Internet use	*no use → more acceptance*	*not tested*	*occasional use → less acceptance*	*occasional use → less acceptance*	*not tested*
Geographic area	*not tested*	*less acceptance in suburbs*	*not tested*	*not tested*	*No effect*
Political orientation	*more conservative → more acceptance*	*more conservative → more acceptance*	*more conservative → more acceptance*	*more conservative → more acceptance*	*No effect*
Belonging to a minority	*No effect*	*No effect*	*No effect*	*No effect*	*No effect*
Privacy activism	*low activism → more acceptance*	*low activism → more acceptance*	*low activism → more acceptance*	*low activism → more acceptance*	*low activism → more acceptance*
Experience with privacy invasions	*No effect*	*No effect*	*No effect*	*No effect*	*No effect*
Trust in people in general	*not tested*				
Sociability (meeting friends)	*not tested (correlated high with trust institution -> multicollinearity)*				
Religion	*not tested*				

Table 4-5: Influence of control variable on vignettes (2)

Vignette / Demo-graphics variables	6a. Selling your data by ISP QB18a	6b. Selling customer data by ISP QB18b	7. Police use of DNA databases QB21	8a. Police surveys demonstration QB24a	8b. Police surveys football match QB24b
	Question: "To what extent, if at all, do you think that [the actor] should or should not [do this]"				
Worries about personal security	*more worries about personal security → more acceptance*				
Importance of Privacy	*privacy more important → less acceptance*				
Trust in institutions	*more trust in institutions → more acceptance*				
Age	*younger → more accepted*	*younger → more accepted*	*younger → more accepted*	*No effect*	*younger → less accepted*
Gender	*men → more acceptance*	*No effect*	*men → more acceptance*	*men → more acceptance*	*No effect*
Education level	*No effect*	*No effect*	*less educated → more acceptance*	*less educated → more acceptance*	*less educated → more acceptance*
Employment Status	*not tested*	*not tested*	*employed people → more acceptance*	*employed people → more acceptance*	*employed people → more acceptance*
Intensity of Internet use	*No effect*	*occasional use → more acceptance*	*No effect*	*not tested*	*not tested*
Geographic area	*not tested*	*not tested*	*less acceptance in suburbs and cities*	*No effect*	*No effect*
Political orientation	*more centre → less acceptance*	*more centre → less acceptance*	*more conservative → more acceptance*	*more conservative → more acceptance*	*more conservative → more acceptance*
Belonging to a minority	*No effect*	*No effect*	*No effect*	*No effect*	*No effect*
Privacy activism	*No effect*	*low activism → more acceptance*	*low activism → more acceptance*	*low activism → more acceptance*	*No effect*
Experience with privacy invasions	*No effect*	*privacy ever invaded → less acceptance*	*No effect*	*privacy ever invaded → less acceptance*	*No effect*
Trust in people in general	*not tested*				
Sociability (meeting friends)	*not tested (correlated high with trust institution -> multicollinearity)*				
Religion	*not tested*				

4.2 SURVEILLANCE TECHNOLOGY ACCEPTANCE IN DETAIL

In the last section we have shown that many control variables have an influence on the acceptance of the various vignettes. Some of them are investigated in the following sections.

4.2.1 Hypothesis 9: Acceptance of surveillance technologies is higher when people believe in their necessity

To test this hypothesis we used vignette 7/Police use of DNA databases that is relatively well accepted and is related to the law enforcement work of the police.[7]

[7] It would have been even better to make use of vignette "4/Monitoring visits on terrorist websites" that even had a higher level of acceptance among the respondents but this question included no questions about alternatives.

It was analysed under which conditions the respondent consider police access to DNA data from research databases acceptable (QB23). The possible condition ranged from a very strict "never" to a very generous "always" including different combinations of judicial permission and control. Figure 4-4 presents the overall acceptance (QB21) for the different possible answers to that question, while Table 4-6 shows the results from the test if the level of acceptance differs significantly from the assessment of the different preconditions for Police access to the DNA database.

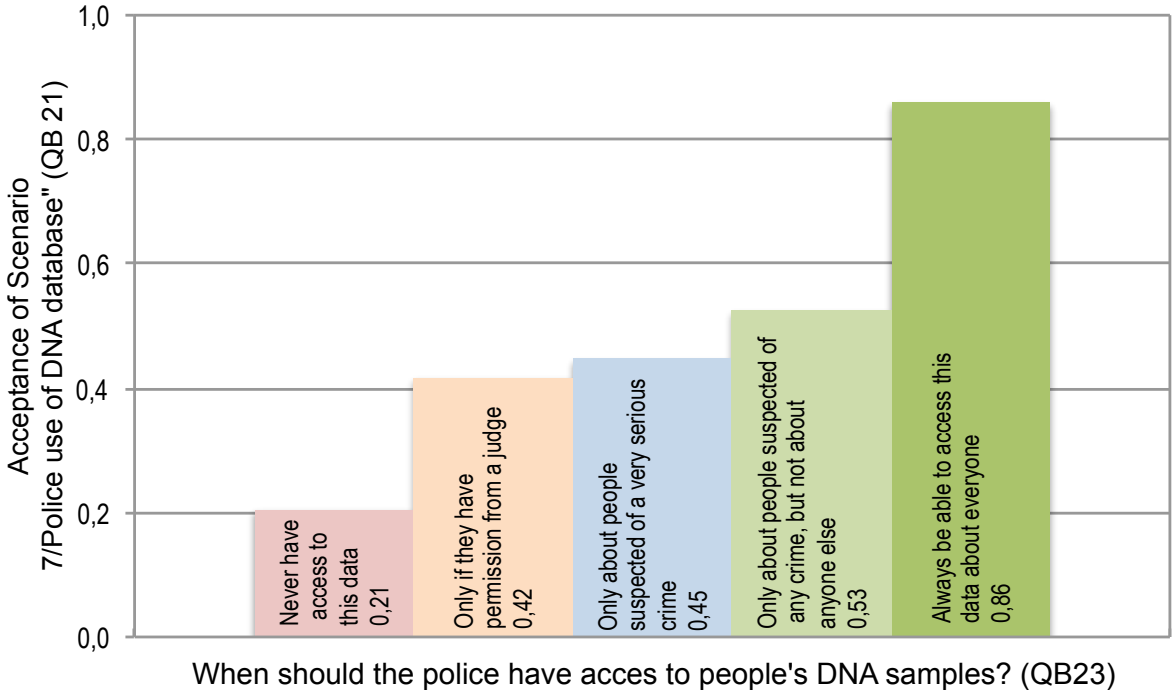


Figure 4-4: Acceptance of vignette 'Police use of DNA database' by 'Access to DNA database under which condition'

It shows that the acceptance of this 'surveillance does *not* depend on how strict the requirements and how substantial the safeguards for access are. Even to the contrary: People who think that police should have unlimited access to DNA databases also show the highest acceptance of this practice. The stricter the safeguards are that people support the lower is the acceptance level. Obvious the acceptance level does not simply depend on the (stated) purpose of the surveillance practice. Rather it seems that both variables – the acceptance of the specific surveillance practice as well as the confidence in safeguards – are influenced by other factors.

Table 4-6: Hypothesis 9 – Results of the Kruskal Wallis test

Tested conditions	Weighting	N	dF	χ^2	p-value
All combinations, pairwise	Original	344 – 5272	1	>3.308	p<0.001
	Selected	262 – 4222	1	>2.975	p<.029

4.2.2 Hypothesis 10: Acceptance of surveillance is higher when people see predominantly positive effects (or positive outweighing negative effects)

The test of hypothesis 9 could not prove a positive relationship between 'crime fighting' as a desirable purpose of surveillance the level of acceptance of the related surveillance practice.

Many surveillance technologies are not directly aiming to fight crime but thought to help preventing crime. As a result two alternatives to Hypothesis 9 were tested.

The first alternative hypothesis used vignette 1 (Foreign state surveillance) to test the level of acceptance (QB1) against the follow-up question if 'this practice makes the world a safer place' (QB3b). Figure 4-5 shows that the more citizens agree with this statement the higher is their acceptance of the surveillance practice.

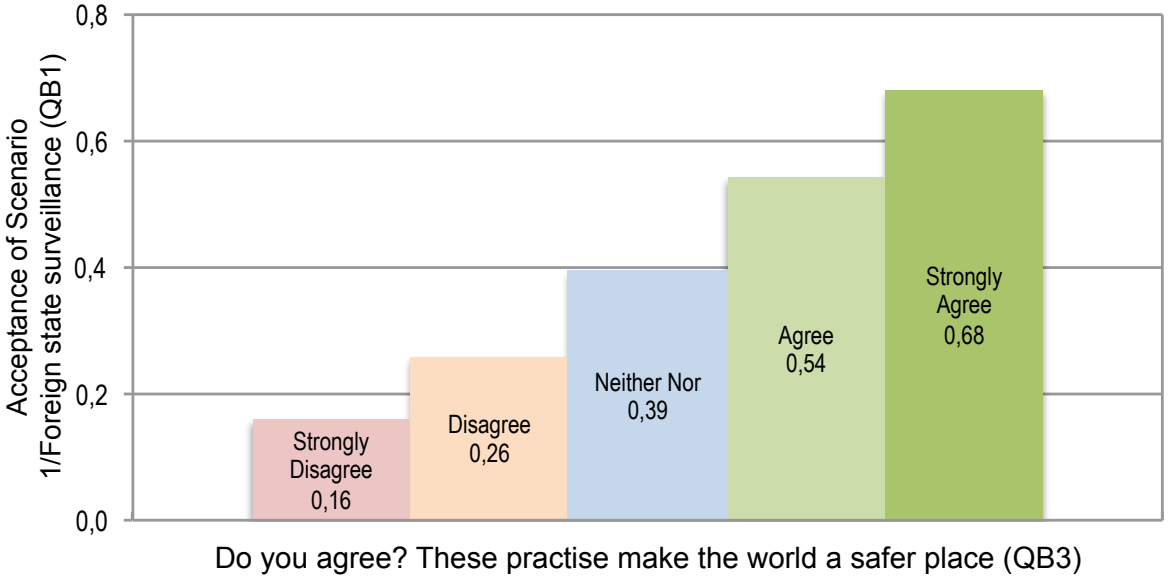


Figure 4-5: Acceptance of vignette "Foreign state surveillance" by 'Would this practice make the world safer place'

A Kruskal-Wallis test (Table 4-7) shows that all pairs of the 5 groups differ in overall testing and pairwise. Moreover they correlate highly (rho = 0.513; $p<0.01$). This means, that people are more likely to accept a surveillance practice if they think that it helps solving the problem and has a overall positive effect. Of course this is completely independent from the question whether or not this is indeed the case.

Table 4-7: Hypothesis 10 – Result of Kruskal-Wallis test

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
All combinations, pairwise	Original	1194 – 3772	1	>8.529	<.001	Yes
	Selected	961 – 3004	1	>8.901	<.001	

4.2.3 Hypothesis 11: Acceptance of surveillance technologies depends on how citizens assess the impact on rights and freedoms

The second alternative to hypothesis 9 made use of the second core question for all vignettes asking if the respective surveillance practice helps or threatens people's rights and freedoms.

The three bars in Figure 4-6 represent the level of acceptance for each of the possibilities given in the second core question. The large differences between the three options in prove that the impact of a surveillance technology on rights and freedoms is one of the main factors for the acceptance of the vignettes. This means that people who think that a surveillance technology is helping protect their rights and freedoms are more likely to accept it.

Only for the vignette "6/ISP sell data' the difference between the manifestations 'has no impact' and 'helps to protect' do not differ significantly (Table 4-8). But this might be due to the fact that this vignette does not describe a security but rather a business practice. Because of the possibility of the misuse of data or some security risk the category 'threatens' has a very small acceptance value. In all other cases the differences between these three groups are statistical significant.

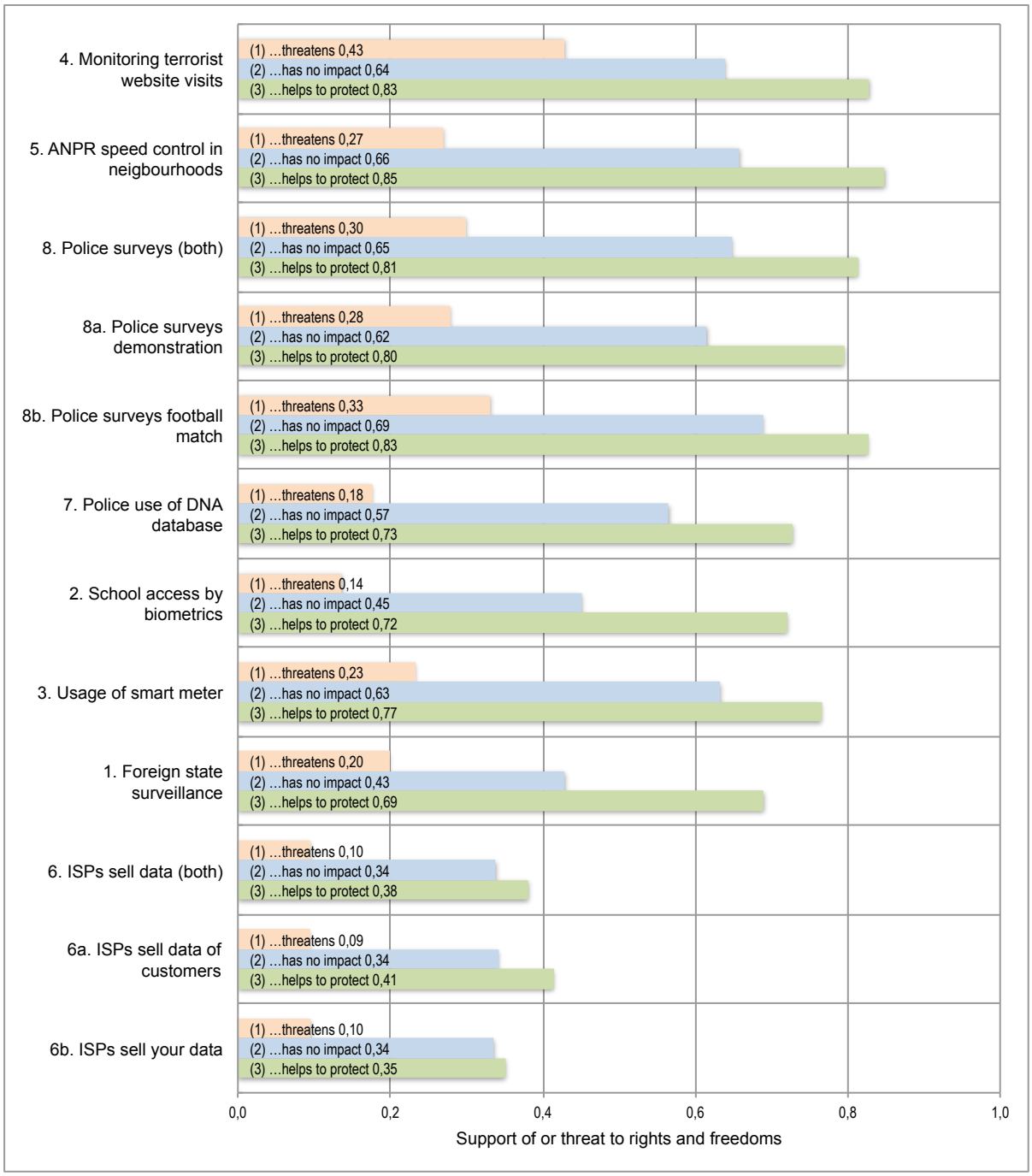


Figure 4-6: Mean of each follow up question and the acceptance of the vignette in each category of the follow up question

Table 4-8: Hypothesis 11 – Results of Kruskal-Wallis Test

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
'6. ISPs sell data' between 'has no impact' and 'helps to protect'	Original	12604	2	0.500	p=1	No
	Selected	10169	2	0.809	p=1	
'6b. ISPs sell data YOU' between 'has no impact' and 'helps to protect'	Original	6328	2	0.962	p=1	No
	Selected	5111	2	1.227	p=.659	
'6a. ISPs sell data CUSTOMER' between 'has no impact' and 'helps to protect'	Original	6276	2	1.777	p=.227	No
	Selected	5058	2	2.515	p<.036	
All other pairwise combinations	Original		2	>2.515	p<.036	Yes
	Selected		2	>2.515	p<.036	

4.2.4 Hypothesis 12: People who believe that a surveillance practice is effective tend to accept it.

Ineffectiveness does is usually not the most important factor for citizens' acceptance of a security technology or measure but rather the perceived effectiveness.[8] Torture, for instance, has been proved to be mainly ineffective[9] but is still practiced by people who believe in its effectiveness. Therefore our study asked for this 'belief in effectiveness' but indirectly by asking whether alternatives are more or less effective.

To test this potential correlation vignette "5/ANPR use to detect speeders" was used. In addition to the core question asking if citizens think that authorities should use ANPR is the described way (QB14) they were also asked if they consider alternative solutions as a better and more effective way to address the problem of speeding (QB16 and 17). The answers to these questions were tested pairwise via Kruskal-Wallis test to examine if the acceptance of ANPR is higher among those who do *not* consider an alternative solution more effective.

[8] Friedewald, Michael, David Wright, Kush Wadhwa, et al., "Central Concepts and Implementation Plan", Unpublished PRISMS Deliverable 1.1, 2012.

[9] Alison, Laurence J., Emily Alison, Geraldine Noone, et al., "Why Tough Tactics Fail and Rapport Gets Results: Observing Rapport-Based Interpersonal Techniques (ORBIT) to Generate Useful Information From Terrorists ", *Psychology, Public Policy, and Law*, Vol. 19, No. 4, 2013, pp. 411-431; Janoff-Bulman, Ronnie, "Erroneous Assumptions: Popular Belief in the Effectiveness of Torture Interrogation", *Peace and Conflict: Journal of Peace Psychology*, Vol. 13, No. 4, 2007, pp. 429-435.

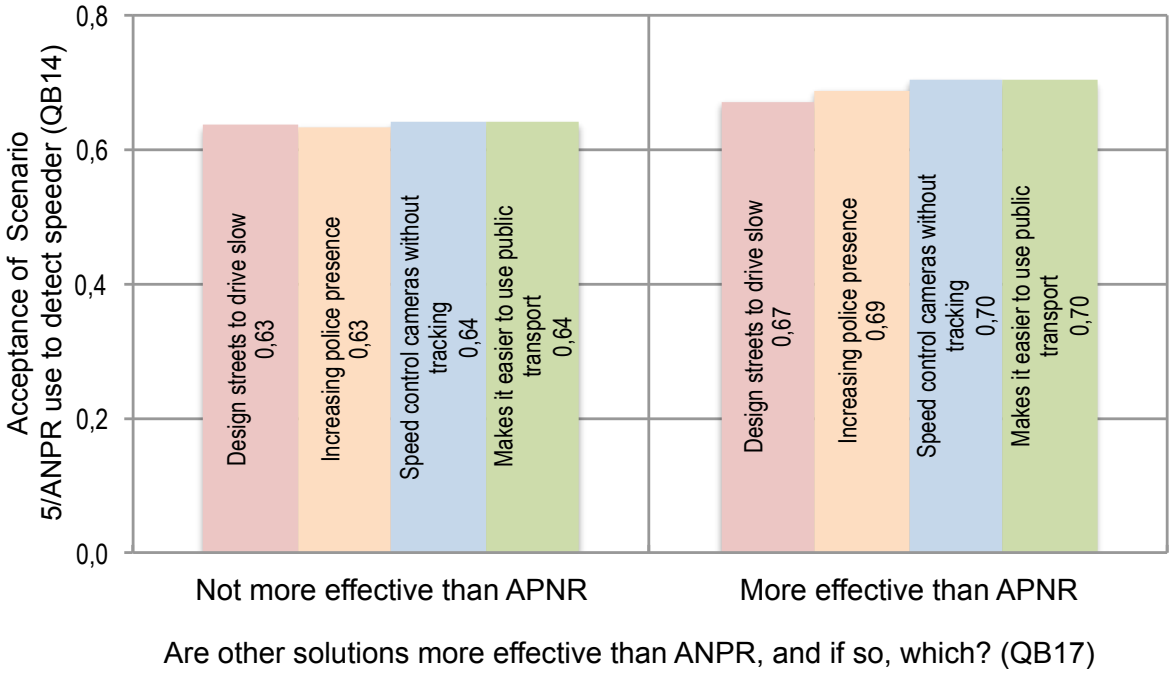


Figure 4-7: Acceptance of vignette "ANPR speed control" by effectiveness and alternative solutions

Figure 4-7 and Table 4-9 show that the more citizens think that alternative solutions are preferable and more effective, the more they accept APNR for speed control. This interrelation appears counter-intuitive and seems to falsify the hypothesis. The effect, however, is small. A possible explanation could be that both effects are determined by knowledge or education, which has a supporting as well as a weakening effect on acceptance.

Table 4-9: Hypothesis 12 – Results of Kruskal-Wallis test

Tested conditions	Weighting	N	dF	H / χ^2	p-value	Sign.
Design streets to drive slow	Original	3086	1	5.673	p<.017	
	Selected	2505	1	3.960	p<.047	
Increasing police presence	Original	3070	1	10.717	p<.001	
	Selected	2501	1	12.310	p<.001	
Speed control cameras without tracking	Original	3010	1	28.362	p<.001	
	Selected	2435	1	25.020	p<.001	
Makes it easier to use public transport	Original	3009	1	12.914	p<.001	
	Selected	2547	1	11.747	p<.001	

4.2.5 Hypothesis 13: People supporting the increased use of uniformed policemen in security-critical situations are less likely to accept technology-based surveillance

The starting point for this hypothesis was the assumption that it makes a difference whether the police (or another public sector institution) or a private organisation is operating a surveillance based security system. In the vignette 8 on "crowd surveillance", however, this distinction was asked directly.

Instead in the follow-up question to vignette 8 question QB26 addressed possible alternatives to the depicted surveillance practice. One of the possibilities was "The police should only rely on uniformed policemen on the spot to control the situation". To test hypothesis 13 Kruskal-

Wallis was used to see if there is a difference in the acceptance of the vignette between those who are in favour of stronger reliance on uniformed police and those who are not.

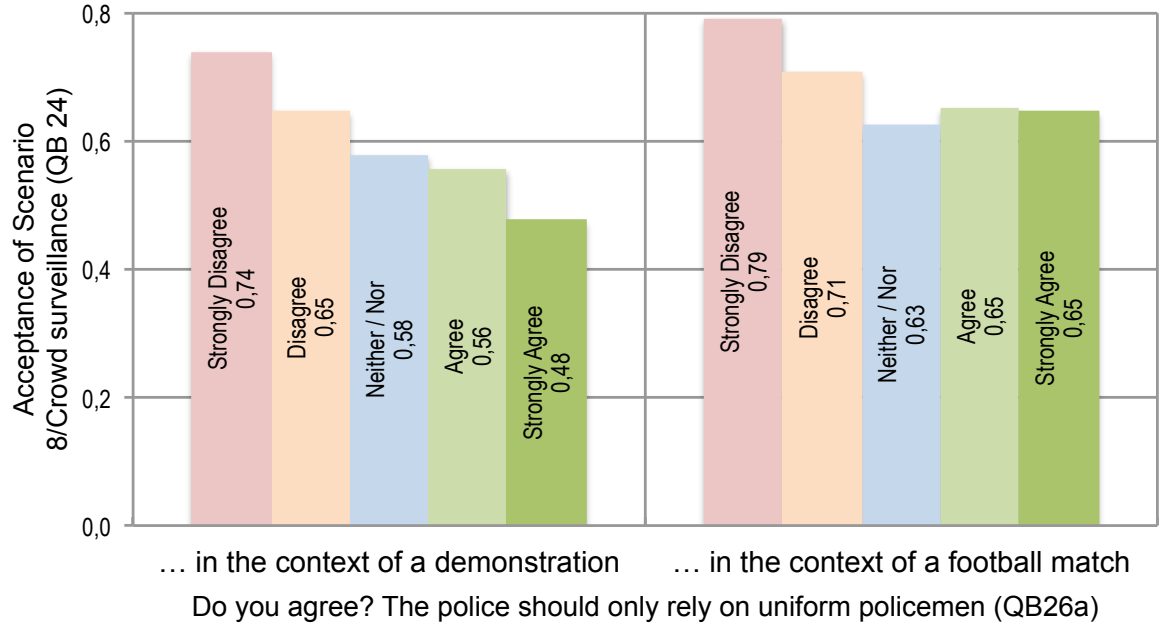


Figure 4-8: Acceptance of 'Crowd surveillance' by its circumstances and the necessity of uniformed policemen

Figure 4-8 and Table 4-10 show that in the context of a political demonstration people preferring the use of police officers are also more likely to accept the described surveillance practice. The same result is obtained in the context of the football match but the effect is less strong. It also shows that in the context of the football match people tend to accept *every* kind of surveillance because the possible harms for civil liberty do not outweigh the security benefit. On the other hand participant of a political demonstration are more alert of (and possibly more critical about) possible negative effects.

Table 4-10: Hypothesis 13: Result of Kruskal-Wallis test

	Tested conditions	Weighting	N	dF	χ^2	p-value
Demon-stration	'neither nor' and 'agree'	Original	1702	1	0.557	p=1
		Selected		1	1.027	p=1
	all other pairwise combination	Original	310 – 1392	1	>4.162	p<.001
		Selected		1	>3.015	p<.026
Football Match	'neither nor' and 'agree'	Original	1382		1.595	p=1
		Selected	5235		1.638	p=1
	'disagree' and 'strongly agree'	Original	2303		1.702	p=1
		Selected			1.387	p=1
	all other pairwise combination	Original	316 – 1550		>3.411	p<.001
		Selected			>2.922	p<.035

4.2.6 Hypothesis 14: People who have a more positive attitude towards science and technology are more likely to accept surveillance technologies.

It is well known that people who have a more positive attitude towards science and technology are also more frequent users of all kinds of information technology and electronic

media. The assumption behind this hypothesis was, that the same link can be found between the attitude towards science technology and the openness to accept being under surveillance, since unknowingness usually makes people sceptical about new technologies (especially when they are intangible like surveillance).

To examine this hypothesis the relationship between the level of acceptance for the surveillance practices and the attitude towards science and technology (QF6a) was tested. The five possible answers of QF6a were tested as factors in a one-way analysis of variance (one-way ANOVA). A Games-Howell-test was then used for post-hoc analysis

Figure 4-9 shows that the differences in the level of acceptance for the different levels of attitude towards technology are small and not always unidirectional. It was therefore decided to test only the mean value for acceptance (the average from those 4 vignettes presented to an interviewee) in dependence of 'Attitude towards technology" instead of every vignette in an extra analysis.

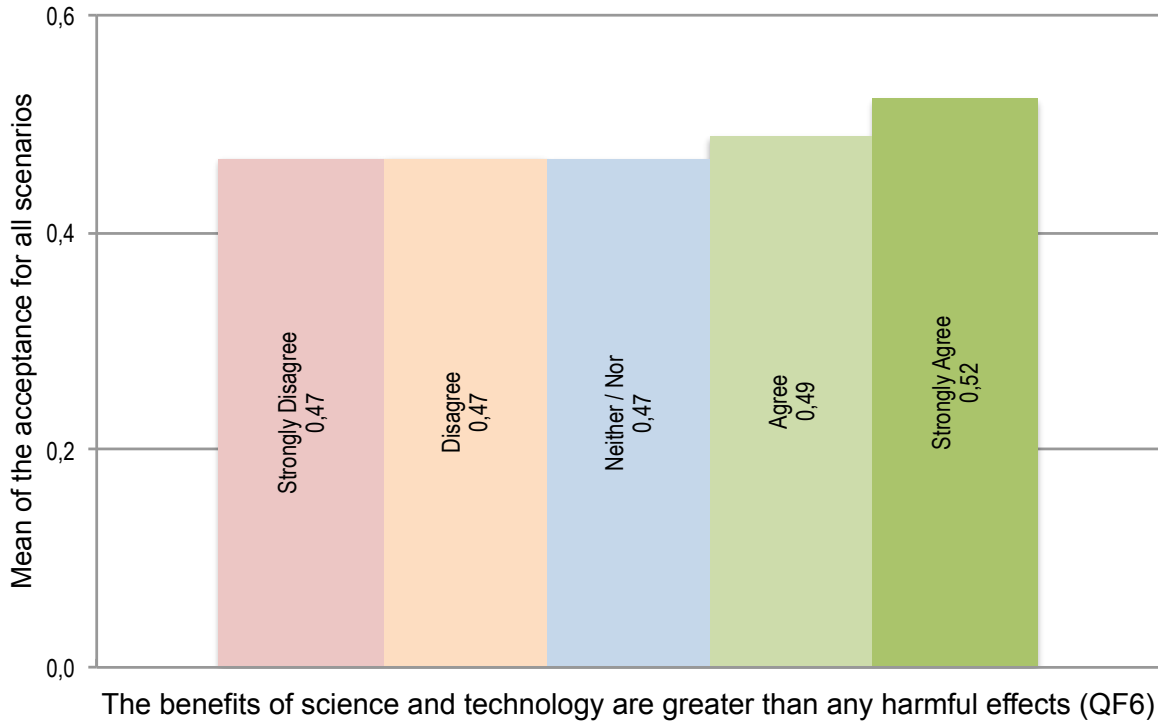


Figure 4-9: Overall acceptance of vignettes by 'Attitude towards technology'

Table 4-11 shows that a relation between technology attitude and surveillance acceptance might exists. If someone 'strongly agrees' or 'agrees' that the benefits are higher than the harmful effects of technology this person has a higher level of acceptance for surveillance technology in general. The lack of significance in the comprehension between 'agree' and 'strongly disagree' may have different reasons: (1) only about 1000 respondents have given an answer 'strongly disagree'; (2) that the level of acceptance is not linear growing with the agreement to QF6 for some of the surveillance practices (1, 6, 8a).

Table 4-11: Hypothesis 14: Results of the one-way ANOVA with post-hoc Games-Howell test

Tested conditions	Weighting	N	dF	χ^2	p-value	Sign.
'strongly agree' and any other	Original				<.001	Yes
	Selected				<.001	
'agree' by 'neither nor' or 'disagree	Original				<.001	Yes
	Selected				<.018	

5 CONCLUSION

Table 5-1 summarises the results of the hypothesis testing. It shows that most of the hypotheses could be confirmed, at least partially.

Table 5-1: Summary of the test results

No.	Hypothesis	Result
1	The understanding of the terms 'privacy', 'security' and 'trust' differ across countries	Confirmed for "Security" Rejected for "Privacy" and "Trust
2	The importance of privacy, the trust in institutions and the level of security worries differ across countries.	Confirmed for all concepts. The degree of diversifications from high to low follows the ranking: "Trust", "Privacy", "General Security", "Personal Security" and "Acceptance of Surveillance".
3	Several demographic variables have an ambivalent influence on privacy, trust and security attitudes	Confirmed for the majority of control variables. The main influencing factors are the constructs "privacy", "security" and "trust".
4.1	The scoring of sub-items of trust, privacy and security are varying	Confirmed for most pairwise comparisons
4.2	Importance of privacy differs between items	Confirmed for most pairwise comparisons
4.3	Security worries differ between items	Confirmed for most pairwise comparisons
5	Acceptance of surveillance depends on the characteristic of the technologies and the context of their use	Confirmed for most pairwise comparisons
6	Acceptance of surveillance depends on whether a person is personally affected or not	Rejected
7	Acceptance of a specific surveillance practice depends on the context and purpose of surveillance	Confirmed for all EU member states except Finland
8	Several demographic variables have an ambivalent influence on the acceptance of surveillance technologies	Confirmed for the majority of control variables. The main influencing factors are the constructs of privacy, security and trust.
9	Acceptance of surveillance technologies is higher when people believe in their necessity	Rejected
10	Acceptance of surveillance is higher when people see predominantly positive effects (or positive outweighing negative effects)	Confirmed
11	Acceptance of surveillance technologies depends on how citizens assess the impact on rights and freedoms	Confirmed for most pairwise comparison within a vignette
12	People who believe that a surveillance practice is effective tend to accept it	Confirmed
13	People supporting the increased use of	Confirmed in the context of a 'demonstration'

No.	Hypothesis	Result
	uniformed policemen in security-critical situations are less likely to accept technology-based surveillance	Rejected for the context of a 'football match'.
14	People who have a more positive attitude towards science and technology are more likely to accept surveillance technologies.	Confirmed in terms of that a more positive attitude towards science and technology results in a higher overall acceptance of vignettes. This does not apply on the level of the individual vignettes.

The most important results are the confirmation that the conceptualisation of 'privacy', 'security' and 'trust' is useful in the sense that each item is measuring a different aspect of the respective concept. The tests also provide a basis for the reduction of variables that have to be taken into account for the development of the model predicting the acceptance of surveillance practices. Some results on the hypothesis on acceptance of surveillance in detail (9-14), however, have to be regarded with caution, mainly because they aim to draw conclusions on general effect on the basis of very specific cases.

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Co-ordinator:
Dr. Michael Friedewald
Fraunhofer Institute for Systems and Innovation Research ISI
Breslauer Straße 48 | 76139 Karlsruhe | Germany
Phone: +49 721 6809-146 | Fax +49 721 6809-315
michael.friedewald@isi.fraunhofer.de